APPENDIX G
AIR QUALITY ANALYSIS

This appendix presents information on the nonradiological air quality impacts that could result from emissions associated with construction, operations, deactivation, and closure activities under the various alternatives described in this *Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington*. The impacts of criteria pollutants and toxic air pollutants were assessed by comparing estimated concentrations with ambient standards and Washington State acceptable source impact levels for toxic pollutants. Assessed impacts of toxic air pollutant emissions on noninvolved workers are summarized in Chapter 4, and the health risks of toxic chemicals and radionuclides, in Appendix K. Air quality resources and the region of influence are discussed and the impact assessment methods summarized in Appendix F, Section F.4.

The Clean Air Act authorizes the U.S. Environmental Protection Agency (EPA) to set permissible levels of exposure for selected air pollutants using health-based criteria. These "criteria pollutants" include carbon monoxide, nitrogen dioxide, particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}) and 2.5 micrometers ($PM_{2.5}$), sulfur dioxide, lead, and ozone. The maximum permissible exposure levels for these pollutants are set in the National Ambient Air Quality Standards (NAAQS) (40 CFR 50). The standards focus on short-term exposures (1-hour or 3-hour), workday exposures (8-hour), and long-term exposures (24-hour and annual). The exposures considered vary by pollutant. Primary standards are established to protect against adverse health effects. Secondary standards protect against welfare effects, such as damage to crops, vegetation, and buildings, as well as decreased visibility. Washington State has defined standards for sulfur dioxide—these more restrictive than the NAAQS—and for total suspended particulates. Chapter 3, Section 3.2, of this *Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (TC & WM EIS)* reflects the most restrictive of the Washington State ambient standards and the NAAQS; Chapter 3, Section 3.3, the most restrictive of the State of Idaho's ambient standards and the NAAQS. Enabling legislation for these regulations is discussed in Chapter 8. U.S. Department of Energy (DOE) activities at the Hanford Site (Hanford) are subject to state air quality permitting requirements, discussed in Chapter 8. This *TC & WM EIS* evaluates criteria pollutant impacts by comparing concentrations with the most restrictive standards for carbon monoxide, nitrogen dioxide, PM_{10}, $PM_{2.5}$, and sulfur dioxide. Table G–1 presents the applicable ambient air pollutant standards and acceptable source impact levels with which estimated air pollutant concentrations were compared.

Carbon monoxide, nitrogen dioxide, particulate matter, and sulfur dioxide are produced from the combustion of fossil fuels. Particulate matter is generated by the mechanical disturbance of soil by earthmoving activities, vehicle traffic over unpaved and paved roadways, and the action of the wind on disturbed soils. Lead is not analyzed in this *TC & WM EIS* because the level of emissions is negligible. Ozone is typically formed as a secondary pollutant in the ambient air (troposphere) in the presence of sunlight from the mixing of primary pollutants, such as nitrogen oxides and volatile organic compounds (VOCs), emanating from various mobile (vehicular) and stationary (including natural) sources. Ozone has not been identified as being emitted directly from the facilities evaluated. Although ozone may be regarded as a regional issue, specific ozone precursors, notably nitrogen dioxide and VOCs, were considered. Concentrations of nitrogen dioxide were analyzed, and emissions of VOCs were estimated.

Table G–1. Ambient Air Pollutant Standards and Acceptable Source Impact Levels

Pollutant	Averaging Period	Most Stringent Standard[a] (micrograms per cubic meter)	Washington Acceptable Source Impact Level (micrograms per cubic meter)
Criteria Pollutants			
Carbon monoxide	8-hour	10,000[b]	N/A
	1-hour	40,000[b]	N/A
Nitrogen dioxide	Annual	100[c]	N/A
PM_{10}	Annual	50[c]	N/A
	24-hour	150[b]	N/A
$PM_{2.5}$	Annual	15[d]	N/A
	24-hour	35[d]	N/A
Sulfur dioxide	Annual	50[c, e]	N/A
	24-hour	260[c, e]	N/A
	3-hour	1,300[b]	N/A
	1-hour	660[e, f]	N/A
Other Pollutants			
Ammonia	24-hour	N/A	100[g]
Benzene	Annual	N/A	0.12[g]
1,3-Butadiene	Annual	N/A	0.0036[g]
Formaldehyde	Annual	N/A	0.077[g]
Mercury	24-hour	N/A	0.17[g]
Toluene	24-hour	N/A	400[g]
Xylene	24-hour	N/A	1,500[g]

[a] The more stringent of the Federal and Washington State standards is presented if both exist for the averaging period. The National Ambient Air Quality Standards (NAAQS) (40 CFR 50), other than those for ozone, particulate matter, lead, and those based on annual averages, are not to be exceeded more than once per year. The 24-hour PM_{10} standard is attained when the standard is not exceeded more than once per year over a 3-year average. The annual arithmetic mean PM_{10} standard is attained when the expected annual arithmetic mean concentration is less than or equal to the standard. The annual $PM_{2.5}$ standard is attained when the 3-year average of the weighted annual mean concentrations does not exceed the standard. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile of the 24-hour concentrations does not exceed the standard.

[b] Federal and Washington State standard.

[c] Washington State standard.

[d] Federal standard.

[e] Idaho sulfur dioxide standards are 80 micrograms per cubic meter for the annual average and 365 for the 24-hour average. There is no 1-hour standard.

[f] Not to be exceeded more than twice in any 7 consecutive days.

[g] Washington State acceptable source impact level.

Note: NAAQS also include standards for lead and ozone. No sources of lead emissions have been identified for the alternatives evaluated. Washington State also has ambient standards for fluorides and total suspended particulates (TSP). Concentrations were not compared to the $PM_{2.5}$ and TSP standards because specific emissions for them were not available. Emissions of hydrogen fluoride were not identified for any of the alternatives.

Key: N/A=not applicable; PM_n=particulate matter with an aerodynamic diameter less than or equal to *n* micrometers.

Source: 40 CFR 50; WAC 173-460, 173-470, 173-474, 173-475, 173-481, and 173-490.

Carcinogens and noncarcinogenic toxic chemicals that would be released from construction and operations activities were evaluated. The toxic pollutants evaluated include benzene, one of the primary contributors to carcinogenic risk, and ammonia, because of its higher concentration than other tank vapor source toxics, enabling it to serve as an indicator for stationary source air toxics. Toluene and xylene were modeled because they are typical of noncarcinogenic toxics associated with fuel combustion. Formaldehyde and 1,3-butadiene were modeled to represent carcinogenic toxics associated with fuel combustion. Mercury was included because of possible releases from thermal treatment processes. Exposure for members of the public to toxic airborne pollutants was evaluated by comparing maximum concentrations of such pollutants to which the public would be exposed with the Washington State acceptable source impact levels (WAC 173-460). Acceptable source impact levels are used during the permitting process to demonstrate that emissions from a new toxic air pollutant source are sufficiently low to protect human health and safety from potential carcinogenic and other toxic effects.

For noninvolved workers at nearby facilities, the highest annual concentration of each noncarcinogenic chemical was divided by the corresponding inhalation reference concentration to estimate the Hazard Quotient for the released chemical. The Hazard Quotients were summed to give the Hazard Index from noncarcinogenic chemicals associated with the various phases of each alternative. A Hazard Index of less than 1.0 indicates that adverse health effects of non-cancer-causing agents are not expected. For carcinogens, the highest annual concentration was multiplied by the unit cancer risk to estimate the increased cancer risk from that chemical. These results under each alternative are reported in Chapter 4.

To estimate maximum air quality impacts of Hanford tank closure activities, the AERMOD [American Meteorological Society/Environmental Protection Agency Regulatory Model] air dispersion model (EPA 2004) was used. The model was used to calculate dispersion factors at receptor locations to which the public and noninvolved workers could have access. This model uses a steady-state Gaussian plume algorithm to estimate pollutant concentrations from a wide variety of sources associated with industrial complexes. It is applicable to either flat or complex terrain, modeling domains with a radius of 50 kilometers (31 miles) or less from the point of release, and urban or rural environments.

Five years (2000–2004) of hourly meteorological data from the Hanford Meteorological Station (HMS) were used in conducting the AERMOD modeling. Wind and temperature data were obtained from measurements made on the monitoring tower at the HMS, located between the 200-West and 200-East Areas. These data are assumed to be representative because most of the tank closure, Fast Flux Test Facility (FFTF) decommissioning, and waste management activities at Hanford would occur near the 200 Areas and 400 Area. Wind data were obtained from measurements made 9 meters (30 feet) above ground level. Temperature measurements were made at 1.5 meters (5 feet) above ground level. Mixing-depth measurements were made using the HMS Doppler acoustic sodar. Surface meteorological data from the Pasco, Washington, National Weather Service Station were used to supplement the HMS data in the preprocessing of meteorological data using the AERMET [American Meteorological Society/EPA Regulatory Meteorological Preprocessor] program. Upper-air profiles from the Spokane, Washington, National Weather Service Station were also used.

The AERMOD model uses hourly meteorological data records to compute the maximum dispersion coefficients for various averaging periods and receptor locations. Short-term (1-, 3-, 8-, and 24-hour) dispersion factors were calculated at (1) receptors along the Hanford Reach boundary at points approximately 100 meters (0.062 miles) apart; (2) receptors along publicly accessible portions of State Route 240 at points 0.7 to 1 kilometer (0.43 to 0.62 miles) apart; and (3) additional grids of receptors beyond the boundary, one extending 5 kilometers (3.1 miles) away with points 0.5 kilometers (0.31 miles) apart and the other from 5 to 10 kilometers (3.1 to 6.2 miles) distant with points 1 kilometer (0.6 miles) apart. Annual dispersion factors were calculated at receptors along the Hanford boundary at points approximately 100 meters (0.62 miles) apart and at additional grids of receptors beyond the Hanford

boundary, one extending 5 kilometers (3.1 miles) away with points 0.5 kilometers (0.31 miles) apart and the other from 5 to 10 kilometers (3.1 to 6.2 miles) distant with points 1 kilometer (0.6 miles) apart. Modeling receptors for 1- through 24-hour averaging periods are shown in Figure G–1. Receptors for annual modeling are shown in Figure G–2. The receptor locations are accessible to the public and thus are locations at which the public could be exposed to emissions from Hanford tank closure activities.

For the purpose of evaluating air toxic concentrations for the nearest noninvolved workers, three receptors were employed, one in the 200-East Area at the 242-A Evaporator, one at the Environmental Restoration Disposal Facility, and one at the Columbia Generating Station (see Figure G–1). A noninvolved worker is a person working at the site who is incidentally exposed to emissions associated with the Tank Closure, FFTF Decommissioning, or Waste Management alternatives. Both simple and complex terrains were considered in the modeling runs. Elevations at each receptor location were determined from the 10-meter (11-yard) Digital Elevation Models.

In estimating the maximum potential for air quality impacts, emissions from Hanford activities were modeled using a combination of area and point sources. Area sources were defined for the 200-East Area, 200-West Area, the Waste Treatment Plant (WTP) (nonstack emissions), the 200-West Area Supplemental Treatment Technology Site, Borrow Area C, and the 400 Area (FFTF), as shown in Figures G–1 and G–2. Area source parameters are summarized in Table G–2. One point source was defined for the WTP emissions with the following specifications: a stack height of 10.67 meters (35 feet), exit temperature of 450 kelvins (350 degrees Fahrenheit), exit velocity of 19.4 meters (63.7 feet) per second, and stack diameter of 0.3048 meters (1 foot). These parameters were determined using the EPA procedure for determining a representative stack (EPA 1992) and actually represent the steam boiler plant at the WTP. These parameters were used to estimate dispersion coefficients for operation of the WTP and Effluent Treatment Facility. The actual height of the stack from which process emissions, such as mercury emissions, would be emitted would be higher (61 meters [200 feet]) and is expected to result in lower concentrations off site. A 61-meter (200-foot) stack was used for modeling radiological emissions (see Appendix K).

Sources that would operate in both 200-East and 200-West Areas were modeled using a source group referred to as “200EW,” while sources that were generic were assumed to operate in all areas and were referred to as source group “200EW+.”

For the purpose of modeling, a number of conservative assumptions were made that tend to overestimate concentrations from the activities. Absent an estimate of the facility’s operating hours, it was assumed that emissions from operations activities could occur any time during a 24-hour period, not just during day-shift hours. Construction-related activities, including deactivation and closure activities, were assumed to occur during a 12-hour daytime period. It was also assumed for the purpose of the AERMOD modeling for public and worker receptors that pollutants do not decompose or deposit. In actuality, chemical decomposition and atmospheric deposition processes would act to reduce pollutant concentrations.

The sources of pollutants from tank closure, FFTF decommissioning, and waste management activities include diesel- and gasoline-fueled construction equipment, supplemental treatment processes, operation of WTP melters, grouting operations, employee vehicles, shipping, and any activity capable of generating fugitive dust. The analysis of air pollutant concentrations for the public included emission sources at each activity area, such as construction equipment, processes, operation of facilities, fugitive dust from the activity area, and vehicles operating in the activity area. Emissions from other vehicle operations, such as those on local roads at Hanford, those from operations in the region (e.g., shipping materials to Hanford), and employee vehicles, were in most cases quantified separately and were not included when calculating pollutant concentrations (see Sections G.2.1 and G.2.4).

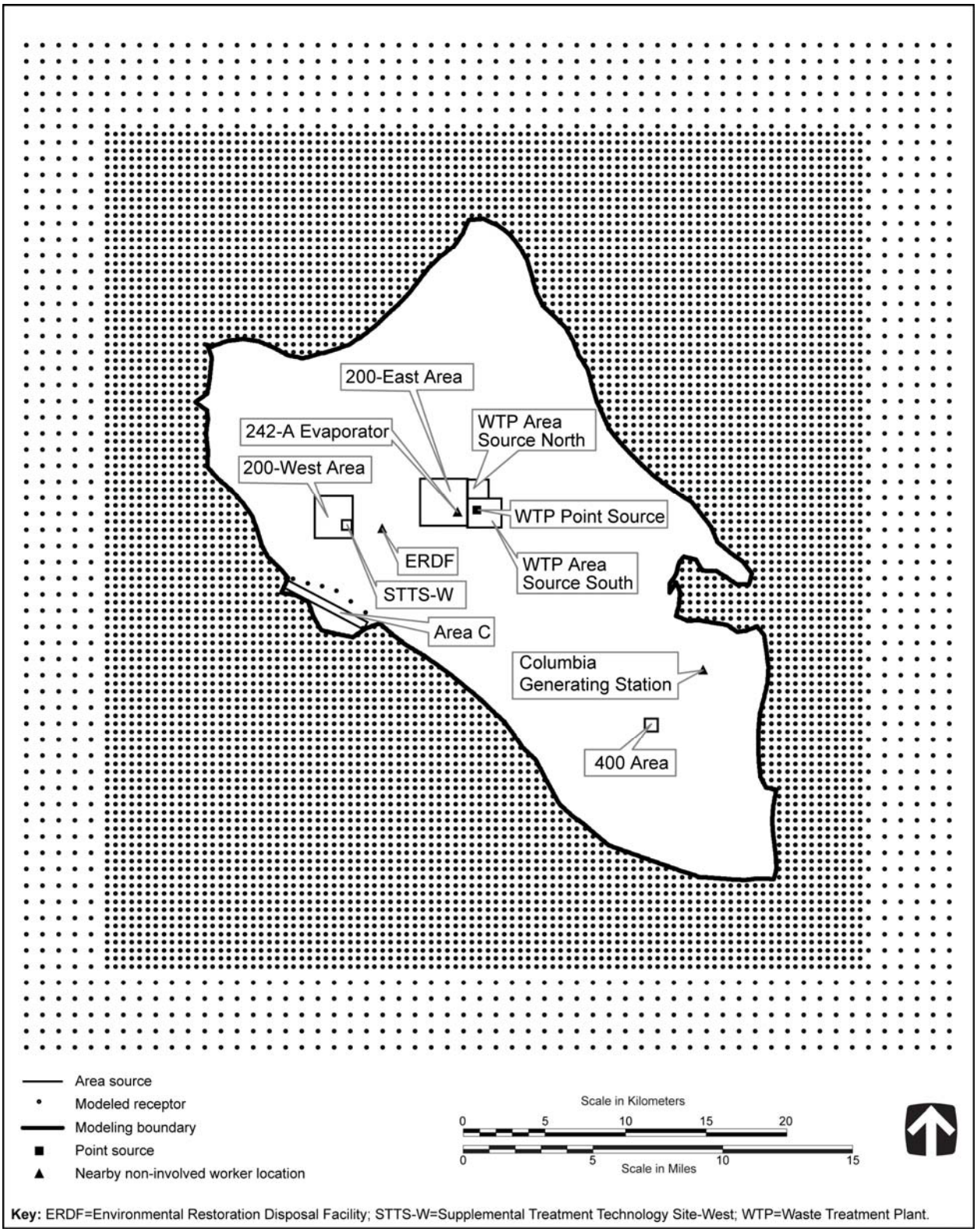

Figure G–1. Nonradiological Air Quality Modeling Receptors and Area Source Locations for 1- to 24-Hour Modeling

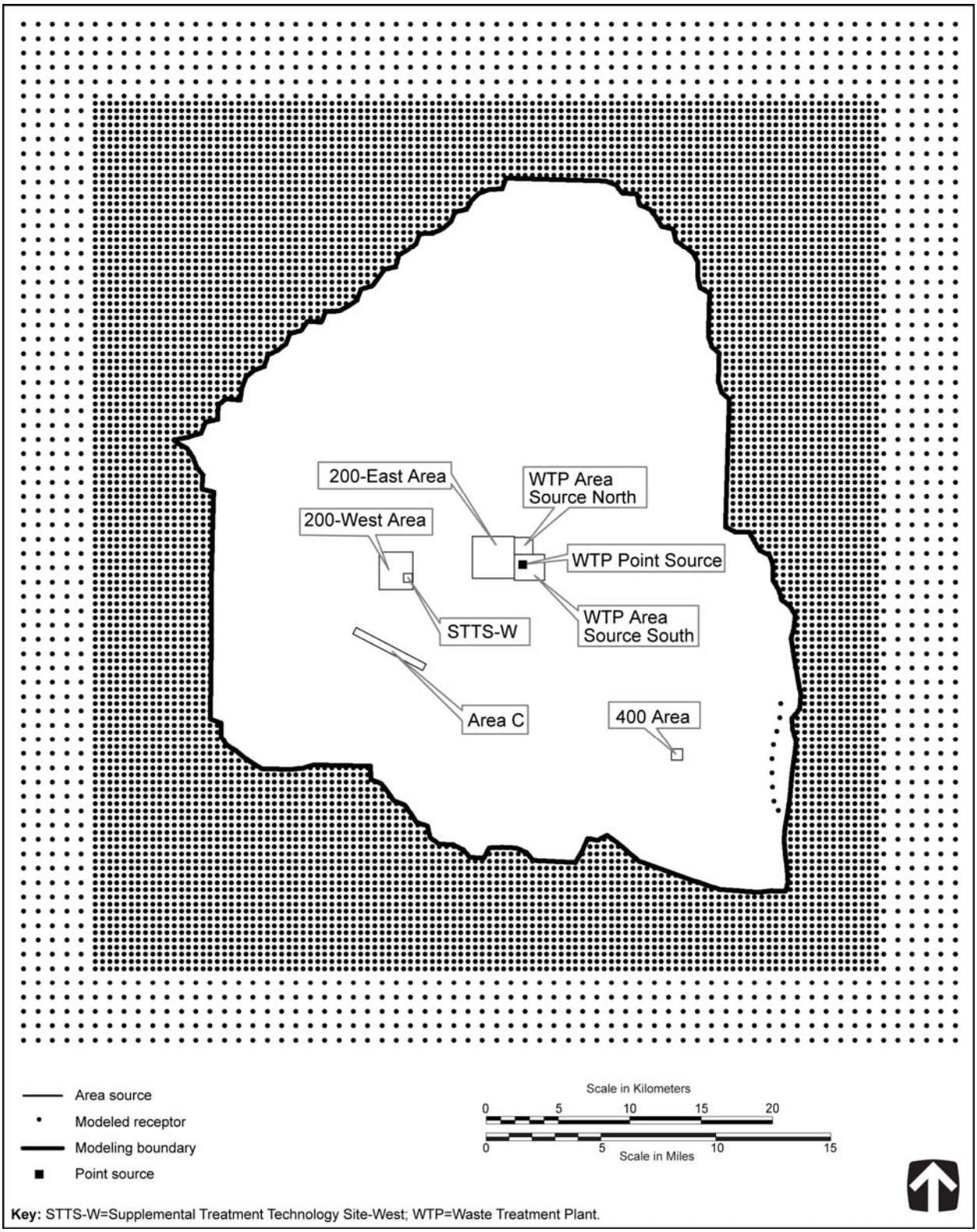

Figure G–2. Nonradiological Air Quality Modeling Receptors and Area Source Locations for Annual Modeling

Table G–2. Area Source Parameters

Source Identifier	Easting[a]	Northing[a]	Base Elevation	Stack Height	Easterly Length	Northerly Length	Rotation (degrees)	Pit Volume (cubic meters)
			(meters)					
WTP_AS_N	307210	5158973	179.83	3	1,291	1,199	0	N/A
WTP_AS_S	307210	5157163	198.12	3	2,092	1,810	0	N/A
200E	304286	5157285	213.36	3	2,930	2,930	0	N/A
200W	297775	5156505	213.36	3	2,340	2,640	0	N/A
SUPW	299471	5157033	210.01	3	600	600	0	N/A
Area C	300792	5150871	173.74	3	500	5,500	–62.25[b]	11,430,000
400 Area	318150	5144557	167.64	3	804	804	0	N/A

[a] Data represent the locations of the southwest corners of the area sources expressed in UTM [Universal Transverse Mercator] coordinates (NAD [North American Datum] 27, Zone 11).

[b] Indicates 62.25-degree counterclockwise rotation around the southwest corner of the area.

Note: To convert meters to feet, multiply by 3.281.

Key: 200E=200-East Area; 200W=200-West Area; N/A=not applicable; SUPW=200-West Area supplemental treatment facility; WTP_AS_N=Waste Treatment Plant area source north; WTP_AS_S=Waste Treatment Plant area source south.

For the construction activities at Idaho National Laboratory (INL) under FFTF Decommissioning Alternatives 2 and 3, dispersion factors were calculated using the EPA SCREEN3 model, a unit emission rate, a 32,375-square-meter (38,721-square-yard [8-acre]) area source, and a release height of 3 meters (9.8 feet). The model was employed to estimate the maximum dispersion factor at or beyond the site boundary. The maximum dispersion factor was found to occur at the site boundary 5,240 meters (17,200 feet) from the Materials and Fuels Complex (MFC).

For the ecological risk assessment, atmospheric dispersion analysis was performed at ecological receptor locations to support estimation of peak concentrations of potentially hazardous constituents due to normal releases from tank waste retrieval and processing and tank closure activities, FFTF decommissioning activities, and waste management activities. Environmental media considered in the ecological risk assessment included air, soil, and surface water of the Columbia River. Steps in the analysis included characterization of sources, identification of receptor locations, and estimation of atmospheric concentrations and deposition rates for these locations. Releases were represented as four ground-level sources (one each in the center of the 200-East and 200-West Areas, one at the 400 Area, and one in Borrow Area C) and an elevated source at the WTP in the 200-East Area. Emission rates were estimated using data packages developed for each alternative (see Section G.2). Receptors were placed at onsite and Columbia River nearshore locations. Onsite receptors were selected for all 16 compass bearings; Columbia River nearshore receptors were selected only at points along compass bearings that bisect the river. The number of Columbia River nearshore receptors varied with source area—from 8 for Borrow Area C up to 11 for the 200-East Area and WTP area. The ecological risk assessment is presented in Chapter 5, Sections 5.1.3, 5.2.3, and 5.3.3, and Appendix P.

The atmospheric dispersion analysis was conducted with the XOQDOQ model developed at Pacific Northwest Laboratory (Sagendorf, Goll, and Sandusky 1982). This Gaussian-plume-type model was used to calculate annual average dispersion and deposition conditions using a joint frequency distribution for the categories of velocity, stability class, and direction. For the 200-East Area, 200-West Area, and Borrow Area C ground-level source areas, the meteorological conditions used were the 10-year-average values reported for the 200 Area HMS at the 9-meter (30-foot) level. For the WTP elevated source area, 10-year values from the 200 Area HMS at the 61-meter (200-foot) level were used. For the FFTF ground-level source area, 10-year values from the 400 Area meteorological tower at the 9-meter (30-foot) level were used (Burk 2007). The highest dispersion and deposition conditions were recorded for each of the defined source areas, regardless of compass direction. As a conservative approach, the sum of the

products of the highest recorded dispersion and deposition conditions determined by the XOQDOQ model and the estimated emission rates for each source areas were taken to represent atmospheric concentration and deposition rates. Concentrations in soil were estimated assuming mixing into the upper 1 centimeter (0.4 inches) of soil over the period of operation under each alternative for the calculated deposition rate. Concentrations in surface water were estimated by dividing the annual deposition rate onto the area of affected surface water by the annual flow rate of surface water. Two surface-water environments were considered—a Columbia River nearshore low-flow region and a river average condition (see Appendix P).

G.1 DISPERSION FACTORS

AERMOD modeling runs for the various areas at Hanford were conducted to calculate, for each source or source group and a specified unit emission rate, a dispersion factor for the locations of maximum air quality impact on the public for various averaging periods. Presented as Table G–3 are the unit dispersion factors for the various locations. Multiplying the unit dispersion factor (seconds per cubic meter) by a maximum pollutant emission rate (micrograms per second) generates an estimate of the maximum air pollutant concentration, which is presented in micrograms per cubic meter. The emission rate for an activity can be estimated by dividing the annual emission rate (see Section G.2) by the hours of operation per year (see Sections G.2.1 and G.2.2). For criteria and toxic pollutants, the maximum air quality impacts of emissions from the 200 Areas would occur at points of public access along State Route 240 and at the site boundary to the east, southeast, and southwest.

Table G–3. Locations and Corresponding Dispersion Factors for Maximum Air Quality Impacts at the Hanford Site

Averaging Time	24-Hour-per-Day Activity		12-Hour-per-Day Activity	
	Maximum-Impact Location	Unit Dispersion Factor for Maximum-Impact Location[a] (s/m^3)	Maximum-Impact Location	Unit Dispersion Factor for Maximum-Impact Location[a] (s/m^3)
200-East Area Emissions – Area Source (200E)				
1-hour	1,000 meters southwest of boundary	6.22×10^{-5}	1,000 meters southwest of boundary	5.91×10^{-5}
3-hour	Northwest boundary	2.17×10^{-5}	1,000 meters southwest of boundary	2.11×10^{-5}
8-hour	West-southwest at State Route 240	1.32×10^{-5}	1,000 meters southwest of boundary	9.14×10^{-6}
24-hour	3,000 meters south of State Route 240	5.41×10^{-6}	Southwest site boundary	3.98×10^{-6}
Annual	Southeast site boundary	1.01×10^{-7}	1,000 meters southeast of boundary	3.75×10^{-8}
200-West Area Emissions – Area Source (200W)				
1-hour	1,000 meters southwest of boundary	9.67×10^{-5}	2,000 meters south at boundary	9.02×10^{-5}
3-hour	Southwest at State Route 240	4.1×10^{-5}	South at State Route 240	3.47×10^{-5}
8-hour	West at State Route 240	2.65×10^{-5}	Southwest at State Route 240	1.65×10^{-5}
24-hour	South at State Route 240	1.28×10^{-5}	Southwest at State Route 240	7.06×10^{-6}
Annual	South site boundary	9.21×10^{-8}	3,900 meters northwest of boundary	4.51×10^{-8}

Table G–3. Locations and Corresponding Dispersion Factors for Maximum Air Quality Impacts at the Hanford Site *(continued)*

Averaging Time	24-Hour-per-Day Activity		12-Hour-per-Day Activity	
	Maximum-Impact Location	Unit Dispersion Factor for Maximum-Impact Location[a] (s/m^3)	Maximum-Impact Location	Unit Dispersion Factor for Maximum-Impact Location[a] (s/m^3)
200-East Area Emissions – Area Source for Waste Treatment Plant Construction and Deactivation (WTP_AS)				
1-hour	1,500 meters south of State Route 240	1.78×10^{-4}	South at State Route 240	1.69×10^{-4}
3-hour	North boundary	6.09×10^{-5}	South at State Route 240	5.62×10^{-5}
8-hour	Southwest at State Route 240	2.91×10^{-5}	South at State Route 240	2.38×10^{-5}
24-hour	1,500 meters south of State Route 240	1.63×10^{-5}	1,500 meters south at State Route 240	9.64×10^{-6}
Annual	1,000 meters south of east site boundary	2.67×10^{-7}	1,000 meters south of east site boundary	9.43×10^{-8}
200 Area Emissions – Point Source for Waste Treatment Plant Operations (WTP_PS)				
1-hour	3,000 meters south of State Route 240	2.52×10^{-5}	3,000 meters southwest of boundary	2.35×10^{-5}
3-hour	3,000 meters south at State Route 240	1.55×10^{-5}	3,000 meters south at State Route 240	1.06×10^{-5}
8-hour	3,000 meters south of south boundary	7.74×10^{-6}	3,400 meters east of boundary	3.95×10^{-6}
24-hour	3,000 meters south of boundary	2.58×10^{-6}	3,000 meters south of boundary	1.67×10^{-6}
Annual	East site boundary	1.21×10^{-7}	1,500 meters southeast of boundary	3.37×10^{-8}
200-West Area Supplemental Treatment Facility – Area Source (SUPW)				
1-hour	West boundary	3.14×10^{-4}	South at State Route 240	3.14×10^{-4}
3-hour	South at State Route 240	1.12×10^{-4}	2,000 meters south at boundary	1.05×10^{-4}
8-hour	Southwest at State Route 240	5.24×10^{-5}	South at State Route 240	4.49×10^{-5}
24-hour	South boundary	2.41×10^{-5}	Southwest at State Route 240	1.87×10^{-5}
Annual	Northwest boundary	1.7×10^{-7}	3,900 meters northwest of boundary	7.83×10^{-8}
Source Group 200-East and 200-West Area Emissions – Area Source (200EW)[b]				
1-hour	2,000 meters west of west boundary	1.33×10^{-4}	2,000 meters west of boundary	1.22×10^{-4}
3-hour	West boundary	5.08×10^{-5}	West boundary	4.13×10^{-5}
8-hour	Southwest at State Route 240	3.48×10^{-5}	2,200 meters west at State Route 240	1.95×10^{-5}
24-hour	South at State Route 240	1.49×10^{-5}	South at State Route 240	8.43×10^{-6}
Annual	Southeast boundary	1.68×10^{-7}	3,900 meters northwest of boundary	6.23×10^{-6}

Table G–3. Locations and Corresponding Dispersion Factors for Maximum Air Quality Impacts at the Hanford Site *(continued)*

Averaging Time	24-Hour-per-Day Activity		12-Hour-per-Day Activity	
	Maximum-Impact Location	Unit Dispersion Factor for Maximum-Impact Location[a] (s/m^3)	Maximum-Impact Location	Unit Dispersion Factor for Maximum-Impact Location[a] (s/m^3)
Source Group 200-East, 200-West, and Waste Treatment Plant Area Emissions – Area Source (200EW+)[c]				
1-hour	West boundary	2.03×10^{-4}	West boundary	1.86×10^{-4}
3-hour	South at State Route 240	8.1×10^{-5}	South at State Route 240	6.78×10^{-5}
8-hour	1,500 meters south at State Route 240	5.26×10^{-5}	West boundary	3.11×10^{-5}
24-hour	South at State Route 240	2.55×10^{-5}	South at State Route 240	1.21×10^{-5}
Annual	1,000 meters at southeast site boundary	3.84×10^{-7}	1,000 meters at southeast site boundary	1.39×10^{-7}
Source Group Area C – Area Source (Area C)				
1-hour	West boundary	6.07×10^{-5}	West boundary	6.07×10^{-5}
3-hour	South at boundary	4.61×10^{-5}	South at boundary	4.11×10^{-5}
8-hour	South boundary	3.28×10^{-5}	South boundary	2.49×10^{-5}
24-hour	South at boundary	2.31×10^{-5}	South at boundary	1.3×10^{-5}
Annual	Southeast at State Route 240	8.24×10^{-8}	Southeast at State Route 240	2.97×10^{-8}
Source Group 400 Area – Area Source (400)				
1-hour	800 meters southwest of south boundary	2.27×10^{-4}	800 meters west of boundary	2.09×10^{-4}
3-hour	East at boundary	8.07×10^{-5}	800 meters west of boundary	6.98×10^{-5}
8-hour	700 meters at southwest boundary	3.78×10^{-5}	West boundary	2.91×10^{-5}
24-hour	South at boundary	1.72×10^{-5}	South at boundary	1.14×10^{-5}
Annual	1,000 meters at southeast boundary	4.77×10^{-7}	Southeast boundary	1.66×10^{-7}

[a] Values are computed by the AERMOD model. The emission rate for an activity can be estimated by dividing the annual emission rate (see Section G.2) by the hours of operation per year (see Sections G.2.1 and G.2.2). To convert to a concentration estimate (micrograms per cubic meter), the unit dispersion factor (seconds per cubic meter) is multiplied by the actual pollutant release rate (micrograms per second).

[b] Source Group 200EW includes certain activities occurring at both the 200-East and 200-West Areas.

[c] Source Group 200EW+ includes certain generic activities assumed to occur at the 200-East and 200-West Areas and the Waste Treatment Plant area.

Note: To convert meters to feet, multiply by 3.281.

Key: s/m^3=seconds per cubic meter.

The dispersion factors for construction at the MFC at INL are shown in Table G–4 for a receptor at the site boundary.

Table G–4. Dispersion Factors for Maximum Air Quality Impacts of Construction at the Idaho National Laboratory Materials and Fuels Complex

Averaging Time	Dispersion Factor (seconds per cubic meter)[a]
1-hour	5.65×10^{-5}
3-hour	5.08×10^{-5}
8-hour	3.95×10^{-5}
24-hour	2.26×10^{-5}
Annual	4.52×10^{-6}

[a] Estimates for 3-hour through annual averaging periods were derived based on the 1-hour dispersion factor, using factors provided by the U.S. Environmental Protection Agency for screening analyses (EPA 1992).

The dispersion factors for the maximally exposed noninvolved onsite worker from sources in each source group are reflected in Table G–5.

Table G–5. Annual Dispersion Factors for Maximally Exposed Noninvolved Workers on the Hanford Site

Source Location/Source Group	24-Hour-per-Day Activity	12-Hour-per-Day Activity
	(seconds per cubic meter)	
200E	7.09×10^{-6}	2.22×10^{-6}
200W	4.06×10^{-6}	1.1×10^{-6}
WTP_AS	4.03×10^{-6}	1.7×10^{-6}
WTP_PS	2.79×10^{-7}	1.77×10^{-7}
SUPW	9.23×10^{-6}	2.08×10^{-6}
200EW	7.37×10^{-6}	2.27×10^{-6}
200EW+	1.11×10^{-5}	3.87×10^{-6}
Area C	5.27×10^{-8}	1.89×10^{-8}
400 Area	3.42×10^{-7}	1.45×10^{-7}

Note: Values are computed by the AERMOD model. To convert to a concentration estimate (micrograms per cubic meter), the unit dispersion factor (seconds per cubic meter) is multiplied by the actual pollutant release rate (micrograms per second).

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

G.2 EMISSIONS

Emission estimates are based on data reports prepared for this *TC & WM EIS*, and their scaling is based on the activities to be performed under each of the alternatives evaluated in this environmental impact statement (EIS) (SAIC 2007a, 2007b, 2007c). The data sets provide information on the source of emission factors used in making the emission estimates. This information is summarized below and in Table G–6. Emissions that would be associated with long-term tank farm administrative control are based on recent tank farm emissions, as summarized in Table G–7. Emissions for employee vehicles are presented in Table G–8. The schedules of various activities evaluated for each alternative are presented in Chapter 2, Section 2.5, of this EIS. Provided in Tables G–9 through G–62 are the estimates of criteria and toxic pollutant emissions under each alternative by general type of activity: decommissioning, construction, operations, deactivation, and closure. These emissions include sources at the construction site, including construction equipment, or operations area and, in most cases, do not include emissions from local or regional vehicular activity that results from shipping of materials or employee vehicles (see Section G.2.4). The same emission factors were used for both mobile and stationary fuel-burning sources, except employee vehicles. Emissions of potential stratospheric ozone-depleting compounds such as chlorofluorocarbons were not evaluated, as no emissions of these pollutants were identified in the data reports.

Table G–6. Representative Nonradiological Air Pollutant Emission Factors

Pollutant	Factor	Unit[a]	Source
Fuel Burning – Gasoline Fuel-Fired[b]			
Carbon monoxide	2.7×10^{4} (62.7)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Nitrogen dioxide	7.01×10^{2} (1.63)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Particulate matter (PM_{10})	4.3×10^{1} (0.1)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Sulfur dioxide	3.61×10^{1} (0.084)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Carbon dioxide	6.62×10^{4} (154)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Ammonia	7.55×10^{1} ($6.3\times10^{-1)}$	Grams per kiloliter burned (pounds per 1,000 gallons burned)	EPA 2003a
Benzene	1.55×10^{-2} (5.51×10^{-5})	Grams per kilometer traveled (pounds per vehicle-mile traveled)	EPA 2003a
Toluene	2.38×10^{-1} (8.46×10^{-4})	Grams per kilometer traveled (pounds per vehicle-mile traveled)	EPA 2003a
Xylene	6.74×10^{-2} (2.39×10^{-4})	Grams per kilometer traveled (pounds per vehicle-mile traveled)	EPA 2003a
1,3-Butadiene	8.71×10^{-5} (3.09×10^{-7})	Grams per kilometer traveled (pounds per vehicle-mile traveled)	EPA 2003a
Formaldehyde	5.24×10^{-3} (1.86×10^{-5})	Grams per kilometer traveled (pounds per vehicle-mile traveled)	EPA 2003a
Total organic compounds	1.30×10^{3} (3.03)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1

Table G–6. Representative Nonradiological Air Pollutant Emission Factors *(continued)*

Pollutant	Factor	Unit[a]	Source
Fuel Burning – Diesel Fuel-Fired[b]			
Carbon monoxide	4.09×10^{2} (0.95)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Nitrogen dioxide	1.9×10^{3} (4.41)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Particulate matter (PM_{10})	1.33×10^{2} (0.31)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Sulfur dioxide[c]	6.54×10^{-1} (1.5×10^{-3})	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Carbon dioxide	7.05×10^{4} (164)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Ammonia	1.14×10^{2} (9.5×10^{-1})	Grams per kiloliter burned (pounds per 1,000 gallons burned)	EPA 2003a
Benzene	4.01×10^{-1} (9.33×10^{-4})	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-2
1,3-Butadiene	1.68×10^{-2} (3.9×10^{-5})	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-2
Formaldehyde	5.07×10^{-1} (1.18×10^{-3})	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-2
Toluene	1.76×10^{-1} (4.09×10^{-4})	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-2
Xylene	1.22×10^{-1} (2.85×10^{-4})	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-2
Total organic compounds	1.55×10^{2} (0.36)	Nanograms per joule (pounds per million Btu)	EPA 1996:Table 3.3-1
Construction			
Particulate matter (total suspended particulates)	2.69 (1.2)	Metric tons per hectare per month (tons per acre per month)	EPA 1996:Section 13.2.3.3
Road Travel			
Particulate matter (PM_{10}) – paved	235 (0.83)	Grams per kilometer (pounds per mile)	Slaathaug 1995:Appendix F
Particulate matter (PM_{10}) – unpaved	659 (2.34)	Grams per kilometer (pounds per mile)	Slaathaug 1995:Appendix F
Glass Manufacture (Surrogate for Waste Treatment Plant Melter and Bulk Vitrification)			
Carbon monoxide	9.98×10^{1} (0.22)	Grams per metric ton of glass (pounds per metric ton of glass [with low-energy scrubber])	EPA 1996:Table 11.15-1, 5
Nitrogen dioxide	3.1×10^{3} (6.83)	Grams per metric ton of glass (pounds per metric ton of glass [with low-energy scrubber])	EPA 1996:Table 11.15-1, 4
Particulate matter (PM_{10})	3.5×10^{2} (0.772)	Grams per metric ton of glass (pounds per metric ton of glass [with low-energy scrubber])	EPA 1996:Table 11.15-1, 2
Sulfur dioxide	8.48×10^{2} (1.87)	Grams per metric ton of glass (pounds per metric ton of glass [with low-energy scrubber])	EPA 1996:Table 11.15-1, 3

Table G–6. Representative Nonradiological Air Pollutant Emission Factors *(continued)*

Pollutant	Factor	Unit[a]	Source
Concrete Batching (Surrogate for Cast Stone and Sulfate Removal)			
Particulate matter (PM_{10})	8.31 (0.014)	Grams per cubic meter produced (pounds per cubic yard [controlled with truck mix loading])	EPA 1996:Table 11.12-3
Flash Calcination and THOR Data (for Steam Reforming)			
Carbon monoxide	0.0893 (0.0893)	Kilograms per kilogram processed (tons per ton processed)	CEES 2006a: Attachment 3:9
Nitrogen dioxide	0.0253 (0.0253)	Kilograms per kilogram processed (tons per ton processed)	CEES 2006a, Attachment 3:9
Particulate matter (PM_{10})	0.017 (0.034)	Kilograms per megagram processed (pounds per ton [flash calciner with fabric filter])	EPA 1996: Table 11.16-2
Carbon dioxide	0.678 (0.678)	Kilograms per kilogram processed (tons per ton processed)	CEES 2006a: Attachment 3:9

[a] Fuel-use data are summarized in Table E–60.

[b] The same emission factors were used for construction equipment, mobile equipment, and stationary fuel-burning sources, except employee vehicles and sources for which factors are provided below.

[c] Percent sulfur in diesel fuel was adjusted to 0.0015 percent from 0.3 percent to reflect the current sulfur content of fuel.

Key: Btu=British thermalunit; THOR=THOR Treatment Technologies, LLC; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; tons=short tons.

Table G–7. Nonradiological Air Emissions from the 200 Area Tank Farms at the Hanford Site

Pollutant	Emissions (metric tons per year)			
	Calendar Year 2001		Calendar Year 2002	
	200-East Area	200-West Area	200-East Area	200-West Area
Carbon monoxide	10	3.6	10	3.6
Nitrogen dioxide	6.4	9.1	0.18	0.27
Particulate matter[a]	0	0	0	0
Sulfur dioxide[b]	0	0	0	0
Volatile organic compounds[c]	3.2	1.8	3.6	1.8
Ammonia	6.4	5.4	6.4	5.4
Other toxics[d]	1.8	0.64	1.8	0.64

[a] Particulate matter emissions were not reported.

[b] Sulfur dioxide emissions were reported as zero.

[c] Volatile organic compounds emitted from tank and tank ventilation systems include, but are not limited to, acetaldehyde, acetonitrile, benzene, cyclohexane, methyl-cyclohexane, ethanol, heptane, hexane, octane, and propane (DOE 2003).

[d] Other toxics emitted from tank and tank ventilation systems include, but are not limited to, 1,3-butadiene, 1,4-dioxane, acetaldehyde, acetonitrile, benzene, formaldehyde, hexane, methanol, and nitrous oxide (DOE 2003).

Note: Emissions represent 177 tanks in the 200-East and 200-West Areas.

Source: Fluor Hanford 2002, 2003.

Emission rates were calculated for each activity or facility, compiled, and processed for use in the dispersion modeling. Specific assumptions for each alternative are documented in the project calculation data sheets and in the scaled workbooks for each alternative. Emission rates for each facility were determined by summing the emission rates for various sources related to that facility and phase of activity.

Numerous nonradiological toxic air pollutants could be present in emissions from construction equipment, other fuel-burning sources, and process sources. These include constituents such as benzene, toluene, xylene, propylene, formaldehyde, acetaldehyde, acrolein, and trace metals. Fuel-burning sources emit various organic compounds that may be listed as total organic compounds or VOCs, the latter category excluding the semivolatile and condensable organic compounds such as methane (EPA 1996). Typically, however, rather few substances account for most of the risk. DOE selected for detailed analysis seven toxic constituents—benzene, toluene, xylene, ammonia, 1,3-butadiene, formaldehyde, and mercury—that are representative contributors to risk from fuel-burning and process sources and constituents for which there is a Washington State acceptable source impact level. On the basis of a comparison of fuel use for each activity, DOE limited the number of activities for which detailed emissions and pollutant concentrations were calculated. Ammonia was also selected for modeling because its concentration is higher than that of other toxic constituents in tank vapor spaces. This, combined with ammonia's toxicity, made it a good choice as an indicator constituent that would bound the analysis; that is, if ammonia were found not to be in excess of the acceptable source impact level, then the same could be inferred for other toxics. Mercury was evaluated to address potential emissions from the tank waste treatment process. Also evaluated were emissions of carbon monoxide, nitrogen oxides, and ammonia from routine tank farm operations.

G.2.1 Construction Emissions

Included in calculations of overall onsite nonradiological emissions were fuel use and fugitive dust emissions related to construction activities. Mobile vehicle emissions related to the delivery of equipment and supplies to the site were calculated separately in connection with construction of major facilities (see Tables G–63 through G–112). These mobile vehicle emission calculations represent local and regional vehicular emissions; some are included in the onsite activity emission calculations in the facility emission tables (Tables G–9 through G–62). Other mobile emissions that occur at the activity areas, such as those from construction equipment, are also included in the facility emission tables. The same emission factors were used for both mobile and stationary fuel-burning sources, except employee vehicles (see Section G.2.4). Many of the closure activities are also construction-type activities, and thus emissions were also calculated by the methods used for construction-related emissions.

The emissions related to fuel use were calculated by multiplying the quantity of diesel and gasoline fuel by emission factors derived from the EPA compilation of air pollutant emission factors for stationary point and area sources (EPA 1996) and from other EPA sources. These emission factors are summarized in Table G–6.

The sulfur dioxide emission factor for diesel fuel–burning sources was adjusted from the factor provided by EPA (EPA 1996), which is based on 0.3 percent (3,000 parts per million) sulfur in fuel, to a factor based on the current, more-restrictive limit of 0.0015 percent (15 parts per million). No adjustment was made in the emission rates for nitrogen dioxide and particulate matter based on the more-restrictive emission standards for trucks for these air pollutants effective beginning in 2007.

For the purpose of this analysis, emissions of PM_{10} and $PM_{2.5}$ from activities were assumed to be the same. Therefore, the concentrations estimated would also be the same, and $PM_{2.5}$ concentrations are not shown separately.

Fugitive dust emissions were calculated from an emission factor (EPA 1996) for general construction activity, which gives an estimate of emissions in metric tons per month per hectares disturbed. This factor is very conservative in that it overestimates fugitive dust emissions from general construction activity on a site, but it is useful for estimating emissions when more-detailed information on a construction activity is not available. Moreover, because the factor is for total suspended particulates,

rather than PM_{10}, it results in an overestimate of fugitive emissions of PM_{10} by a factor of about 2.5. This emission factor was used with the total duration and the total area of land disturbance for each construction activity, and the emission calculations for construction assumed no application of controls to reduce emissions. Many of the construction-type activities that have large emissions of particulate matter occur over large areas. Because it is unlikely that the total area would be actively disturbed by equipment and exposed to wind erosion at any one time, the emissions of particulate matter have likely been overestimated. For example, the modified Resource Conservation and Recovery Act (RCRA) Subtitle C barrier would be constructed over an 84.2-hectare (208-acre) area over a period of 7 years. It is likely that a fraction of this area would be actively under construction at any one time, resulting in much-smaller emissions than estimated.

The onsite travel emission calculations were based in part on an estimate of fuel use developed from the number of loads and mileage. The fuel use emission factors were the same as those used in operations emission calculations. Calculations of road dust emissions were based on assumptions of the portions of travel on unpaved and paved roads. The emission calculations for travel also assumed no application of controls to reduce emissions.

Construction, deactivation, and closure activities would be conducted using appropriate dust suppression techniques compliant with Washington State emission control requirements. Dust control measures could include using soil binders and watering, applying rock to or paving roads, covering loads on trucks used for moving rocks and soil, and halting earthmoving and other activities when windspeed is projected to exceed the threshold for substantial dust generation. These measures were not considered in the emission estimates used in the modeling of these activities. Therefore, the concentrations estimated for these activities are higher than would likely occur.

For the purpose of modeling, construction emissions were averaged over 2,080 hours per year.

G.2.2 Operations Emissions

Two contributors to overall nonradiological operations emissions were calculated: fuel use (for diesel generators and boilers, for example) and process emissions. Vehicular emissions related to the transport of equipment and supplies to the site were calculated separately for the major facilities, as reflected in Tables G–63 through G–112. These emission calculations represent local and regional vehicular emissions; some are included in the onsite activity emission calculations in the facility emission tables (Tables G–9 through G–62). Other mobile emissions that occur at the activity areas, such as those from construction equipment, are also included in the facility emission tables. Calculations of operations emissions related to fuel use and travel were performed in the same manner as those for construction, except for employee vehicles (see Section G.2.4).

For treatment operations such as those of the WTP, Sulfate Removal Facility, Bulk Vitrification Facilities, and Cast Stone Facilities, a surrogate manufacturing process was identified. For the WTP, for example, glass manufacturing was identified as a surrogate process, and, as shown in Table G–6, EPA air pollutant emission factors (EPA 1996) were used. The use of surrogate processes introduces some uncertainty to the calculations. For example, the glass-manufacturing emission factor was for soda lime glass rather than for the borosilicate glass that would be produced at the WTP. This should have minimal effect on the emission estimates, however, as most of the constituents of potential concern are not substantially affected by the chemical composition of the glass.

For the purpose of analysis it was assumed that the entire mercury inventory would be released to the air through the stacks from the WTP, bulk vitrification, and steam reforming processes (CEES 2006b: Attachment 4: A4-2; 2006c:Attachment 4: A4-2, 2007:Attachment 4: A4-2).

Control technologies were applied to the process emissions for each constituent of potential concern. Credit for only one control technology was taken for each constituent. With respect to operations, control technologies were applied to fuel-burning sources for the treatment and supplemental treatment technologies.

Deactivation emissions were calculated assuming 10 percent of the annual emission rates during operations. Although only a small percentage of the facility inventory would remain at the end of operations (e.g., 1 percent for the WTP), cleanout of systems during deactivation would involve operation in off-normal modes, increasing the potential for discharge, so the more-conservative 10 percent was assumed.

For the purpose of modeling, operations emissions were averaged over 2,080 hours per year except for certain sources, for which hours per year were based on operating efficiencies. Operating hours per year assumed for these sources are as follows: 6,250 for the WTP, Immobilized Low-Activity Waste Interim Storage Facilities, Cesium and Strontium Capsule Processing Facility, and Preprocessing Facility; 5,260 for the Bulk Vitrification and Cast Stone Facilities; 6,132 for the Sulfate Removal Facility; 4,380 for the Transuranic Waste Interim Storage Facility; and 7,300 for the High-Level Radioactive Waste Debris Storage Facility. Emissions from routine operations, the Effluent Treatment Facility, and steam reforming were averaged over 8,760 hours per year. Almost all activities associated with the FFTF Decommissioning alternatives were averaged over 2,080 hours per year; the exceptions, associated with the Hanford Sodium Reaction Facility and INL Sodium Processing Facility, were averaged over 8,760 hours per year. Waste management activities were averaged over 2,080 hours per year.

G.2.3 Tank Emissions

Nonradiological air emissions from the 200-East and 200-West Area tank farms, shown in Table G–7 for calendar years 2001 and 2002, were used as the basis for calculating tank farm emissions from the routine operations and administrative control activities (Fluor Hanford 2002, 2003).

G.2.4 Employee Vehicle Emissions

In addition to vehicle emissions from trucks moving materials and equipment to and on the site during various phases of activity, employee vehicles making daily commuter trips to the site would contribute to air pollutant emissions in the Hanford region. Emissions from employee vehicles under each alternative's peak activity period were estimated using an estimate of average vehicle emission rates calculated with EPA's MOBILE6 vehicle emission model (EPA 2003b) and the peak-year vehicle trips presented in the socioeconomics sections of Chapter 4. These emissions were not included when calculating pollutant concentrations, but are discussed here for information purposes. Emission rates were calculated for carbon monoxide, VOCs, particulate matter, and nitrogen oxides on the basis of a vehicle mix for calendar year 2007. Emissions are presented by alternative in Table G–8. Vehicle emission rates over the periods of the alternatives considered are expected to decrease as vehicles become more efficient, emissions are better controlled, and possibly other vehicle technologies are implemented.

Peak-year emissions from employee vehicles under the various Tank Closure alternatives would range from 343 to 2,030 metric tons per year of carbon monoxide, respectively, under Tank Closure Alternatives 1 and 6B, Option Case, and from 46.5 to 246 metric tons per year of nitrogen oxides, respectively, under those same alternatives. These emissions represent between 0.4 and 5 percent of the total calendar year 2002 four-county, on-road vehicle emissions in Benton, Franklin, Adams, and Grant Counties (EPA 2007a).

Peak-year emissions from employee vehicles under FFTF Decommissioning alternatives would range from 0.25 to 16.8 metric tons per year of carbon monoxide, respectively, under FFTF Decommissioning

Alternatives l and 3 (facility disposition) and from 0.03 to 2.05 metric tons per year of nitrogen dioxide, respectively, under those same alternatives. These emissions represent less than 0.02 percent of the total calendar year 2002 four-county, on-road vehicle emissions in Benton, Franklin, Adams, and Grant counties. Peak-year emissions under Waste Management alternatives would range from 21.8 to 89 metric tons per year of carbon monoxide and from 2.6 to 10.8 metric tons per year of nitrogen dioxide. The highest emissions would occur under Waste Management Alternative 2, Disposal Groups 2 and 3, and would be less than 2 percent of the total calendar year 2002 four-county, on-road vehicle emissions in Benton, Franklin, Adams, and Grant counties (EPA 2007a).

Table G–8. Peak-Year Employee Vehicle Emissions by Alternative

Alternative	Period	Total Vehicles	Kilometers Traveled	VOCs (metric tons/year)	Carbon Monoxide (metric tons/year)	Nitrogen Dioxide (metric tons/year)	$PM_{2.5}$ (metric tons/year)	PM_{10} (metric tons/year)
Tank Closure (TC)								
TC Alternative 1	2006–2107	1,387	36,700,000	25.4	343.0	41.5	0.8	1.2
TC Alternative 2A	2006–2193	3,996	106,000,000	73.2	988.0	120.0	2.3	3.4
TC Alternative 2B	2006–2145	5,489	145,000,000	101.0	1,360.0	164.0	3.1	4.7
TC Alternative 3A	2006–2141	4,266	113,000,000	78.2	1,050.0	128.0	2.4	3.6
TC Alternative 3B	2006–2141	4,206	111,000,000	77.1	1,040.0	126.0	2.4	3.6
TC Alternative 3C	2006–2141	4,368	116,000,000	80.0	1,080.0	131.0	2.5	3.7
TC Alternative 4	2006–2144	6,398	169,000,000	117.0	1,580.0	192.0	3.7	5.4
TC Alternative 5	2006–2139	4,876	129,000,000	89.3	1,210.0	146.0	2.8	4.1
TC Alternative 6A, Base Case	2006–2262	6,804	180,000,000	125.0	1,680.0	203.0	3.9	5.8
TC Alternative 6A, Option Case	2006–2262	7,020	186,000,000	129.0	1,740.0	210.0	4.0	6.0
TC Alternative 6B, Base Case	2006–2201	6,293	167,000,000	115.0	1,560.0	188.0	3.6	5.4
TC Alternative 6B, Option Case	2006–2101	8,204	217,000,000	150.0	2,030.0	246.0	4.7	7.0
TC Alternative 6C	2006–2145	5,498	146,000,000	101.0	1,360.0	165.0	3.2	4.7
FFTF Decommissioning								
FFTF Decommissioning Alternative 1	2008–2107	1	26,500	0.02	0.25	0.03	0.00	0.00
FFTF Decommissioning Alternative 2, Facility Disposition	2021	40	1,060,000	0.73	9.89	1.20	0.02	0.03
FFTF Decommissioning Alternative 2, Disposition of Bulk Sodium	2017	52	1,380,000	0.95	12.90	1.56	0.03	0.04
FFTF Decommissioning Alternative 2, Disposition of Remote-Handled Special Components	2015–2016	43	1,140,000	0.79	10.60	1.29	0.02	0.04
FFTF Decommissioning Alternative 3, Facility Disposition	2013–2014	68	1,800,000	1.25	16.80	2.04	0.04	0.06
FFTF Decommissioning Alternative 3, Disposition of Bulk Sodium	2017	52	1,380,000	0.95	12.90	1.56	0.03	0.04
FFTF Decommissioning Alternative 3, Disposition of Remote-Handled Special Components	2015–2016	43	1,140,000	0.79	10.60	1.29	0.02	0.04

Table G–8. Peak-Year Employee Vehicle Emissions by Alternative *(continued)*

Alternative	Period	Total Vehicles	Kilometers Traveled	VOCs (metric tons/year)	Carbon Monoxide (metric tons/year)	Nitrogen Dioxide (metric tons/year)	$PM_{2.5}$ (metric tons/year)	PM_{10} (metric tons/year)
Waste Management (WM)								
WM Alternative 1	2009	88	2,330,000	1.6	21.8	2.6	0.1	0.1
WM Alternative 2	2019–2050	360	9,530,000	6.6	89.0	10.8	0.2	0.3
WM Alternative 2, Disposal Group 1	2051–2052	943	25,000,000	17.3	233.0	28.2	0.5	0.8
WM Alternative 2, Disposal Group 2	2101–2102	3,636	96,300,000	66.6	899.0	109.0	2.1	3.1
WM Alternative 2, Disposal Group 3	2166–2167	3,636	96,300,000	66.6	899.0	109.0	2.1	3.1
WM Alternative 3	2019–2050	360	9,530,000	6.6	89.0	10.8	0.2	0.3
WM Alternative 3, Disposal Group 1	2051–2052	940	24,900,000	17.2	232.0	28.1	0.5	0.8
WM Alternative 3, Disposal Group 2	2101–2102	3,603	95,400,000	66.0	891.0	108.0	2.1	3.1
WM Alternative 3, Disposal Group 3	2166–2167	3,602	95,400,000	66.0	891.0	108.0	2.1	3.1

Note:

The calculations assumed 260 days a year per employee, 8-hour days, 5 days per week, 2,080 hours per year.

Assumed 11 percent of vehicles come from the west, an average distance of 45 miles (from Yakima).

Assumed 89 percent of vehicles come from the east, an average distance of 30 miles (midway between Richland and Pasco).

For the purpose of comparison, the most recent available data show total combined vehicular emissions for the four counties (Adams, Benton, Franklin, and Grant) as 10,011 metric tons of VOCs; 119,747 of carbon monoxide; 11,616 of nitrogen dioxide; 194 of $PM_{2.5}$; and 259 of PM_{10}. Heavy-duty vehicles were included in the averages (EPA 2007a).

Emission factors calculated using the MOBILE6 emission factor model were 0.692 grams of VOCs per kilometer; 9.33 grams of carbon monoxide per kilometer; 1.13 grams of nitrogen dioxide per kilometer; 0.0216 grams of $PM_{2.5}$ per kilometer; and 0.0321 grams of PM_{10} per kilometer.

Key: FFTF=Fast Flux Test Facility; $PM_{2.5}$=particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Table G–9. Tank Closure Alternative 1 Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2008	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
Other infrastructure upgrades	2006	2008	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2008	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2008	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Operations								
Routine operations	2006	2008	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Deactivation								
Administrative controls	2008	2107	200EW+	1.36×10^{1}	1.54×10^{1}	a	a	5.44

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; WTP_AS=Waste Treatment Plant area source; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007a, 2008.

Table G–10. Tank Closure Alternative 1 Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2008	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2008	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2008	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2008	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Operations										
Routine operations	2006	2008	200EW	1.18×10^{1}	a	a	a	a	a	a
Deactivation										
Administrative controls	2008	2107	200EW+	1.18×10^{1}	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; WTP_AS=Waste Treatment Plant area source.

Source: SAIC 2007a, 2008.

Table G–11. Tank Closure Alternative 2A Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Underground transfer lines	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2019	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.34
Other infrastructure upgrades	2006	2034	WTP_AS	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Cesium and Strontium Capsule Processing Facility	2088	2091	200E	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Tank risers	2013	2056	200EW	1.67	7.45×10^{-1}	6.75×10^{-2}	1.57×10^{-4}	1.88×10^{-1}
Modified sluicing retrieval system	2013	2092	200EW	3.31×10^{1}	1.28	7.07×10^{-1}	3.06×10^{-4}	1.30
Mobile retrieval system	2013	2052	200EW	2.51×10^{1}	1.09×10^{1}	2.09	3.49×10^{-3}	1.66
Vacuum-based retrieval system	2053	2092	200EW	2.17×10^{1}	9.81	1.97	3.13×10^{-3}	1.48
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 2	2040	2041	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 3	2065	2066	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Double-shell tank replacement	2013	2054	200EW+	3.72×10^{1}	3.11×10^{1}	1.93×10^{2}	9.19×10^{-3}	3.15
Waste Treatment Plant replacement	2065	2076	WTP_AS	1.53×10^{3}	1.24×10^{3}	8.32×10^{2}	2.11	1.60×10^{2}
Underground transfer line replacement	2044	2044	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Effluent Treatment Facility	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility upgrade	2053	2055	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator upgrade 1	2040	2042	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator upgrade 2	2065	2067	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Operations								
IHLW Interim Storage Facility	2018	2092	WTP_PS	a	a	a	a	a
Other infrastructure upgrades	2006	2092	200EW	a	a	a	a	a
Routine operations	2006	2092	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2092	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2092	200EW+	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2092	WTP_PS	1.01×10^{2}	2.18×10^{2}	3.17	9.78	3.67×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2093	2093	WTP_PS	1.01×10^{2}	2.18×10^{2}	3.17	9.78	3.67×10^{2}
Cesium and Strontium Capsule Processing Facility	2092	2093	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34

Table G–11. Tank Closure Alternative 2A Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Modified sluicing retrieval system	2013	2092	200EW+	9.19	5.71×10^{-1}	4.39×10^{-2}	1.46×10^{-4}	3.95×10^{-1}
Mobile retrieval system	2013	2052	200EW+	1.15×10^{-1}	1.31×10^{-1}	a	a	4.61×10^{-2}
Vacuum-based retrieval system	2053	2092	200EW	1.48×10^{-1}	1.68×10^{-1}	a	a	5.92×10^{-2}
HLW Melter Interim Storage Facility	2018	2192	WTP_AS	a	a	a	a	a
Effluent Treatment Facility	2006	2095	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator replacement	2006	2093	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2102	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
IHLW Interim Storage Facility	2093	2093	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2078	2079	WTP_AS	1.01×10^{1}	2.18×10^{1}	3.17×10^{-1}	9.78×10^{-1}	3.67×10^{1}
Modified sluicing retrieval system	2013	2092	200EW	2.36×10^{1}	9.95×10^{-1}	8.78×10^{-2}	2.93×10^{-4}	9.07×10^{-1}
Mobile retrieval system	2013	2052	200EW+	1.25×10^{1}	9.82×10^{-1}	8.16×10^{-2}	3.00×10^{-4}	5.17×10^{-1}
Vacuum-based retrieval system	2053	2092	200EW	4.73×10^{-1}	3.71×10^{-2}	3.37×10^{-3}	1.13×10^{-5}	1.93×10^{-2}
Administrative controls	2094	2193	200EW+	1.36×10^{1}	1.54×10^{1}	a	a	5.44
Waste Treatment Plant upgrade	2094	2095	WTP_AS	1.01×10^{1}	2.18×10^{1}	3.17×10^{-1}	9.78×10^{-1}	2.11×10^{-1}
Cesium and Strontium Capsule Processing Facility	2094	2094	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Effluent Treatment Facility replacement 2	2096	2096	WTP_AS	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2043	2043	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 2	2068	2068	200E	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator replacement 3	2094	2094	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007a, 2008.

Table G–12. Tank Closure Alternative 2A Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Underground transfer lines	2009	2009	200EW+	a	a	a	a	a	a	a
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	WTP_AS	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Cesium and Strontium Capsule Processing Facility	2088	2091	200E	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Tank risers	2013	2056	200EW	1.98×10^{-1}	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	200EW	1.07×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2052	200EW	9.99×10^{-2}	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	200EW	1.28×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2040	2041	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2065	2066	WTP_AS	a	a	a	a	a	a	a
Double-shell tank replacement	2013	2054	200EW+	a	a	a	a	a	a	a
Waste Treatment Plant replacement	2065	2076	WTP_AS	2.00	4.19×10^{-1}	1.16×10^{-2}	3.78×10^{-1}	a	2.62	7.86×10^{-1}
Underground transfer line replacement	2044	2044	200EW+	a	a	a	a	a	a	a
Effluent Treatment Facility	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility upgrade	2053	2055	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator upgrade 1	2040	2042	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator upgrade 2	2065	2067	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Operations										
IHLW Interim Storage Facility	2018	2092	WTP_AS	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2092	200EW	a	a	a	a	a	a	a
Routine operations	2006	2092	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2092	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2092	200EW+	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2092	WTP_PS	1.52	9.56×10^{-3}	3.45×10^{-6}	1.07×10^{-4}	2.42×10^{-2}	2.69×10^{-4}	9.06×10^{-4}

Table G–12. Tank Closure Alternative 2A Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
Waste Treatment Plant, cesium and strontium capsules	2093	2093	WTP_PS	1.52	9.56×10^{-3}	3.45×10^{-6}	1.07×10^{-4}	a	2.69×10^{-4}	9.06×10^{-4}
Cesium and Strontium Capsule Processing Facility	2092	2093	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Modified sluicing retrieval system	2013	2092	200EW+	1.07×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2052	200EW+	9.99×10^{-2}	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	200EW	1.28×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2192	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2095	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator replacement	2006	2093	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2102	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation										
IHLW Interim Storage Facility	2093	2093	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2078	2079	WTP_AS	1.52×10^{-1}	9.56×10^{-4}	3.45×10^{-7}	1.07×10^{-5}	2.42×10^{-3}	2.69×10^{-5}	9.06×10^{-5}
Modified sluicing retrieval system	2013	2092	200EW	a	a	a	a	a	a	a
Mobile retrieval system	2013	2052	200EW+	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	200EW	a	a	a	a	a	a	a
Administrative controls	2094	2193	200EW+	1.18×10^{1}	a	a	a	a	a	a
Waste Treatment Plant upgrade	2094	2095	WTP_AS	1.52×10^{-1}	9.56×10^{-4}	3.45×10^{-7}	1.07×10^{-5}	2.42×10^{-3}	2.69×10^{-5}	9.06×10^{-5}
Cesium and Strontium Capsule Processing Facility	2094	2094	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 2	2096	2096	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2043	2043	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 2	2068	2068	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 3	2094	2094	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}

Table G–12. Tank Closure Alternative 2A Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure										
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–13. Tank Closure Alternative 2B Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.34
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	1.85×10^{2}	4.09×10^{1}	1.65×10^{2}	2.50×10^{-1}	1.15×10^{1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	1.84×10^{1}	8.19	7.42×10^{-1}	1.72×10^{-3}	2.06
Modified sluicing retrieval system	2013	2043	200EW+	6.69×10^{1}	2.58	1.43	6.19×10^{-4}	2.62
Mobile retrieval system	2013	2028	200EW	6.27×10^{1}	2.72×10^{1}	5.24	8.72×10^{-3}	4.15
Vacuum-based retrieval system	2029	2043	200EW	6.69×10^{1}	3.03×10^{1}	6.08	9.64×10^{-3}	4.55
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Effluent Treatment Facility	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a
Routine operations	2006	2043	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2043	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2043	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2043	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Modified sluicing retrieval system	2013	2043	200EW+	1.86×10^{1}	1.15	8.87×10^{-2}	2.96×10^{-4}	7.98×10^{-1}
Mobile retrieval system	2013	2028	200EW+	2.88×10^{-1}	3.27×10^{-1}	a	a	1.15×10^{-1}
Vacuum-based retrieval system	2029	2043	200EW	4.56×10^{-1}	5.17×10^{-1}	a	a	1.82×10^{-1}
HLW Melter Interim Storage Facility	2018	2145	WTP_AS	a	a	a	a	a
Effluent Treatment Facility	2006	2045	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}

Table G–13. Tank Closure Alternative 2B Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Evaporator replacement	2006	2043	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2052	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	2.36×10^{1}	5.24×10^{1}	9.08×10^{-1}	2.69	8.86×10^{-1}
Modified sluicing retrieval system	2013	2043	200EW+	4.76×10^{1}	2.01	1.77×10^{-1}	5.91×10^{-4}	1.83
Mobile retrieval system	2013	2028	200EW	3.13×10^{1}	2.45	2.04×10^{-1}	7.50×10^{-4}	1.29
Vacuum-based retrieval system	2029	2043	200EW	1.46	1.14×10^{-1}	1.04×10^{-2}	3.49×10^{-5}	5.96×10^{-2}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement	2056	2056	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement	2044	2044	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Ancillary equipment grouting	2013	2037	200EW	3.46×10^{-1}	1.50	1.63	4.82×10^{-4}	1.16×10^{-1}
Ancillary equipment removal	2032	2037	200EW	3.28	1.50×10^{1}	4.40×10^{1}	4.92×10^{-3}	1.19
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Grout facility (tank-filling) construction	2032	2033	200EW	2.18	8.29	4.20	2.71×10^{-3}	6.82×10^{-1}
Grout facility (tank-filling) operations	2034	2043	200EW	2.25×10^{1}	8.32×10^{1}	4.51×10^{1}	2.70×10^{-2}	6.68
Grout facility (tank-filling) deactivation	2044	2044	200EW	1.45	3.41	2.10×10^{1}	1.12×10^{-3}	2.95×10^{-1}
Containment structure construction	2028	2031	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
BX and SX tank farm soil removal	2032	2037	200EW	3.99×10^{1}	1.13×10^{2}	2.56×10^{2}	3.73×10^{-2}	9.55
Containment structure deactivation	2038	2040	200EW	9.04×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	200EW	1.64×10^{3}	1.50×10^{3}	3.48×10^{3}	2.27	1.83×10^{2}
Postclosure care	2046	2145	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–14. Tank Closure Alternative 2B Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	7.08×10^{-2}	3.05×10^{-2}	4.50×10^{-4}	1.74×10^{-2}	a	3.54×10^{-1}	1.01×10^{-1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.18	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	200EW+	2.17×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2028	200EW	2.50×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	200EW	3.95×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Operations										
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a	a	a
Routine operations	2006	2043	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2043	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	6.97×10^{-2}	6.27×10^{-4}	2.11×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	a	6.27×10^{-4}	2.11×10^{-3}

Table G–14. Tank Closure Alternative 2B Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Modified sluicing retrieval system	2013	2043	200EW+	2.17×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2028	200EW+	2.50×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	200EW	3.95×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2145	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2045	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2043	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2052	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation										
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	3.53×10^{-1}	2.23×10^{-3}	8.05×10^{-7}	2.49×10^{-5}	9.06×10^{-2}	6.27×10^{-5}	2.11×10^{-4}
Modified sluicing retrieval system	2013	2043	200EW+	a	a	a	a	a	a	a
Mobile retrieval system	2013	2028	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	200EW	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement	2056	2056	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement	2044	2044	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Ancillary equipment grouting	2013	2037	200EW	2.69×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	200EW	1.72×10^{-5}	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
Grout facility (tank-filling) construction	2032	2033	200EW	3.33×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) operations	2034	2043	200EW	1.17×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2044	2044	200EW	a	a	a	a	a	a	a
Containment structure construction	2028	2031	200EW	a	a	a	a	a	a	a

Table G–14. Tank Closure Alternative 2B Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
BX and SX tank farm soil removal	2032	2037	200EW	8.33×10^{-4}	a	a	a	a	a	a
Containment structure deactivation	2038	2040	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	200EW	2.41	4.80×10^{-1}	1.39×10^{-2}	4.49×10^{-1}	a	2.75	8.32×10^{-1}
Postclosure care	2046	2145	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–15. Tank Closure Alternative 3A Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.80×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.33
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	1.84×10^{1}	8.19	7.42×10^{-1}	1.72×10^{-3}	2.06
Modified sluicing retrieval system	2013	2039	200EW+	7.68×10^{1}	2.96	1.64	7.11×10^{-4}	3.01
Mobile retrieval system	2013	2026	200EW	7.17×10^{1}	3.11×10^{1}	5.98	9.97×10^{-3}	4.74
Vacuum-based retrieval system	2027	2039	200EW	7.72×10^{1}	3.49×10^{1}	7.02	1.11×10^{-2}	5.25
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	3.27×10^{1}	7.22	7.03	4.41×10^{-2}	2.04
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	2.68×10^{1}	5.92	3.02	3.62×10^{-2}	1.67
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	8.66×10^{-1}	2.53	2.08×10^{1}	6.38×10^{-4}	1.46×10^{-1}
Bulk Vitrification Facility, 200-West Area	2016	2017	200W	8.96×10^{1}	1.98×10^{1}	1.22×10^{1}	1.21×10^{-1}	5.58
Solid-Liquid Separations Facility	2016	2017	SUPW	2.75×10^{1}	7.15	8.74	3.72×10^{-2}	1.79
Bulk Vitrification Facility, 200-East Area	2016	2017	200E	8.95×10^{1}	1.98×10^{1}	1.22×10^{1}	1.21×10^{-1}	5.58
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a
Other infrastructure upgrades	2006	2039	200EW	a	a	a	a	a
Routine operations	2006	2039	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2039	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2039	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2039	WTP_PS	1.01×10^{2}	2.22×10^{2}	3.61	1.08×10^{1}	3.66×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	1.01×10^{2}	2.22×10^{2}	3.61	1.08×10^{1}	3.66×10^{2}

Table G–15. Tank Closure Alternative 3A Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Modified sluicing retrieval system	2013	2039	200EW+	2.13×10^{1}	1.32	1.02×10^{-1}	3.39×10^{-4}	9.16×10^{-1}
Mobile retrieval system	2013	2026	200EW+	3.29×10^{-1}	3.73×10^{-1}	a	a	1.32×10^{-1}
Vacuum-based retrieval system	2027	2039	200EW	5.26×10^{-1}	5.97×10^{-1}	a	a	2.11×10^{-1}
HLW Melter Interim Storage Facility	2018	2141	WTP_AS	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	1.38×10^{2}	1.26×10^{1}	8.55×10^{-1}	1.85×10^{-1}	7.32
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	2.74×10^{1}	1.75	1.17×10^{-1}	3.68×10^{-2}	1.40
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2018	2039	200W	7.80	1.66×10^{1}	1.76	4.44	8.25
Solid-Liquid Separations Facility	2018	2039	SUPW	7.25×10^{1}	1.24×10^{1}	8.54×10^{-1}	9.77×10^{-2}	4.26
Bulk Vitrification Facility, 200-East Area	2018	2039	200E	6.95	2.58×10^{1}	2.75	6.80	7.90
Effluent Treatment Facility	2006	2042	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2040	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2052	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
Modified sluicing retrieval system	2013	2039	200EW+	5.47×10^{1}	2.31	2.04×10^{-1}	6.79×10^{-4}	2.10
Mobile retrieval system	2013	2026	200EW	3.58×10^{1}	2.81	2.33×10^{-1}	8.57×10^{-4}	1.48
Vacuum-based retrieval system	2027	2039	200EW	1.68	1.32×10^{-1}	1.20×10^{-2}	4.03×10^{-5}	6.87×10^{-2}
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2041	2042	WTP_AS	1.01×10^{1}	2.22×10^{1}	3.61×10^{-1}	1.08	3.66×10^{1}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	1.38×10^{1}	1.26	8.55×10^{-2}	1.85×10^{-2}	7.32×10^{-1}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	2.74	1.75×10^{-1}	1.17×10^{-2}	3.68×10^{-3}	1.40×10^{-1}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2040	2041	200W	7.80×10^{-1}	1.66	1.76×10^{-1}	4.44×10^{-1}	8.25×10^{-1}
Solid-Liquid Separations Facility	2040	2041	SUPW	7.25	1.24	8.54×10^{-2}	9.77×10^{-3}	4.26×10^{-1}
Bulk Vitrification Facility, 200-East Area	2040	2041	200E	6.95×10^{-1}	2.58	2.75×10^{-1}	6.80×10^{-1}	7.90×10^{-1}
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2043	2043	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47

Table G–15. Tank Closure Alternative 3A Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Deactivation *(continued)*								
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2041	2041	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Grout facility (tank-filling) construction	2028	2029	200EW	2.18	8.29	4.20	2.71×10^{-3}	6.82×10^{-1}
Grout facility (tank-filling) operations	2030	2039	200EW	2.25×10^{1}	8.32×10^{1}	4.51×10^{1}	2.70×10^{-2}	6.68
Grout facility (tank-filling) deactivation	2040	2040	200EW	1.45	3.41	2.10×10^{1}	1.12×10^{-3}	2.95×10^{-1}
Ancillary equipment grouting	2012	2032	200EW	4.12×10^{-1}	1.79	1.94	5.73×10^{-4}	1.38×10^{-1}
Ancillary equipment removal	2028	2033	200EW	3.28	1.50×10^{1}	4.40×10^{1}	4.92×10^{-3}	1.19
BX and SX tank farm soil removal	2028	2033	200EW	3.99×10^{1}	1.13×10^{2}	2.56×10^{2}	3.73×10^{-2}	9.55
Containment structure construction	2024	2027	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure deactivation	2034	2036	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	200EW	1.64×10^{3}	1.50×10^{3}	3.48×10^{3}	2.27	1.83×10^{2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Postclosure care	2042	2141	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; SUPW=200-West Area supplemental treatment facility; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–16. Tank Closure Alternative 3A Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.18	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	200EW+	2.49×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW	2.86×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	4.56×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	1.25×10^{-2}	5.38×10^{-3}	7.94×10^{-5}	3.07×10^{-3}	a	6.25×10^{-2}	1.79×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	1.02×10^{-2}	4.42×10^{-3}	6.51×10^{-5}	2.52×10^{-3}	a	5.12×10^{-2}	1.47×10^{-2}
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200 West Area	2016	2017	200W	3.43×10^{-2}	1.48×10^{-2}	2.18×10^{-4}	8.43×10^{-3}	a	1.71×10^{-1}	4.90×10^{-2}
Solid-Liquid Separations Facility	2016	2017	SUPW	1.22×10^{-2}	4.74×10^{-3}	7.63×10^{-5}	2.87×10^{-3}	a	5.23×10^{-2}	1.50×10^{-2}
Bulk Vitrification Facility, 200-East Area	2016	2017	200E	3.43×10^{-2}	1.48×10^{-2}	2.18×10^{-4}	8.43×10^{-3}	a	1.71×10^{-1}	4.90×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Operations										
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2039	200EW	a	a	a	a	a	a	a
Routine operations	2006	2039	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2039	200EW	4.09×10^{-2}	a	a	a	a	a	a

Table G–16. Tank Closure Alternative 3A Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
Double-shell tank interim stabilization	2006	2039	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2039	WTP_PS	1.51	9.54×10^{-3}	3.44×10^{-6}	1.06×10^{-4}	6.11×10^{-2}	2.69×10^{-4}	9.06×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	1.51	9.54×10^{-3}	3.44×10^{-6}	1.06×10^{-4}	a	2.69×10^{-4}	9.06×10^{-4}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Modified sluicing retrieval system	2013	2039	200EW+	2.49×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW+	2.86×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	4.56×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	2.48×10^{-2}	1.94×10^{-2}	1.79×10^{-4}	8.34×10^{-3}	a	2.70×10^{-1}	7.66×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	3.75×10^{-3}	3.73×10^{-3}	2.89×10^{-5}	1.46×10^{-3}	a	5.39×10^{-2}	1.53×10^{-2}
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2018	2039	200W	9.36×10^{-3}	2.19×10^{-4}	2.52×10^{-8}	1.07×10^{-6}	9.95×10^{-3}	2.83×10^{-5}	8.06×10^{-5}
Solid-Liquid Separations Facility	2018	2039	SUPW	2.20×10^{-2}	1.13×10^{-2}	1.44×10^{-4}	5.29×10^{-3}	a	1.40×10^{-1}	3.99×10^{-2}
Bulk Vitrification Facility, 200-East Area	2018	2039	200E	1.30×10^{-2}	2.09×10^{-4}	3.27×10^{-8}	1.24×10^{-6}	1.10×10^{-2}	2.35×10^{-5}	6.74×10^{-5}
Effluent Treatment Facility	2006	2042	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2040	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2052	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation										
Modified sluicing retrieval system	2013	2039	200EW+	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	WTP_AS	1.51×10^{-1}	9.54×10^{-4}	3.44×10^{-7}	1.06×10^{-5}	6.11×10^{-3}	2.69×10^{-5}	9.06×10^{-5}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	2.48×10^{-3}	1.94×10^{-3}	1.79×10^{-5}	8.34×10^{-4}	a	2.70×10^{-2}	7.66×10^{-3}

Table G–16. Tank Closure Alternative 3A Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*										
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	3.75×10^{-4}	3.73×10^{-4}	2.89×10^{-6}	1.46×10^{-4}	a	5.39×10^{-3}	1.53×10^{-3}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2040	2041	200W	9.36×10^{-4}	2.19×10^{-5}	2.52×10^{-9}	1.07×10^{-7}	9.95×10^{-4}	2.83×10^{-6}	8.06×10^{-6}
Solid-Liquid Separations Facility	2040	2041	SUPW	2.20×10^{-3}	1.13×10^{-3}	1.44×10^{-5}	5.29×10^{-4}	a	1.40×10^{-2}	3.99×10^{-3}
Bulk Vitrification Facility, 200-East Area	2040	2041	200E	1.30×10^{-2}	2.09×10^{-4}	3.27×10^{-8}	1.24×10^{-6}	1.10×10^{-2}	2.35×10^{-5}	6.74×10^{-5}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2043	2043	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2041	2041	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Grout facility (tank-filling) construction	2028	2029	200EW	3.33×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	200EW	1.17×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	200EW	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	200EW	3.20×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	200EW	1.72×10^{-5}	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	200EW	8.33×10^{-4}	a	a	a	a	a	a
Containment structure construction	2024	2027	200EW	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	200EW	2.41	4.80×10^{-1}	1.39×10^{-2}	4.49×10^{-1}	a	2.75	8.32×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
Postclosure care	2042	2141	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–17. Tank Closure Alternative 3B Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.33
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.10
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	1.84×10^{1}	8.19	7.42×10^{-1}	1.72×10^{-3}	2.06
Modified sluicing retrieval system	2013	2039	200EW+	7.68×10^{1}	2.96	1.64	7.11×10^{-4}	3.01
Mobile retrieval system	2013	2026	200EW	7.17×10^{1}	3.11×10^{1}	5.98	9.97×10^{-3}	4.74
Vacuum-based retrieval system	2027	2039	200EW	7.72×10^{1}	3.49×10^{1}	7.02	1.11×10^{-2}	5.25
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	3.27×10^{1}	7.22	7.03	4.41×10^{-2}	2.04
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	2.68×10^{1}	5.92	3.02	3.62×10^{-2}	1.67
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	8.66×10^{-1}	2.53	2.08×10^{1}	6.38×10^{-4}	1.46×10^{-1}
Cast Stone Facility, 200-West Area	2016	2017	200W	6.11×10^{1}	1.35×10^{1}	2.57×10^{1}	8.25×10^{-2}	3.81
Solid-Liquid Separations Facility	2016	2017	SUPW	2.75×10^{1}	7.15	8.74	3.72×10^{-2}	1.79
Cast Stone Facility, 200-East Area	2016	2017	200E	6.11×10^{1}	1.35×10^{1}	2.57×10^{1}	8.25×10^{-2}	3.81
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a
Other infrastructure upgrades	2006	2039	200EW	a	a	a	a	a
Routine operations	2006	2039	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2039	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2039	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2039	WTP_PS	1.01×10^{2}	2.22×10^{2}	3.61	1.08×10^{1}	3.66×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	1.01×10^{2}	2.22×10^{2}	3.61	1.08×10^{1}	3.66×10^{2}

Table G–17. Tank Closure Alternative 3B Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Modified sluicing retrieval system	2013	2039	200EW+	2.13×10^{1}	1.32	1.02×10^{-1}	3.39×10^{-4}	9.16×10^{-1}
Mobile retrieval system	2013	2026	200EW+	3.29×10^{-1}	3.73×10^{-1}	a	a	1.32×10^{-1}
Vacuum-based retrieval system	2027	2039	200EW	5.26×10^{-1}	5.97×10^{-1}	a	a	2.11×10^{-1}
HLW Melter Interim Storage Facility	2018	2141	WTP_AS	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	1.38×10^{2}	1.26×10^{1}	8.55×10^{-1}	1.85×10^{-1}	7.32
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	2.74×10^{1}	1.75	1.17×10^{-1}	3.68×10^{-2}	1.40
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a
Cast Stone Facility, 200-West Area	2018	2039	200W	1.48×10^{2}	3.20×10^{1}	2.25	2.00×10^{-1}	9.19
Solid-Liquid Separations Facility	2018	2039	SUPW	7.25×10^{1}	1.24×10^{1}	8.54×10^{-1}	9.77×10^{-2}	4.26
Cast Stone Facility, 200-East Area	2018	2039	200E	1.27×10^{2}	4.88×10^{1}	3.45	1.73×10^{-1}	9.41
Effluent Treatment Facility	2006	2042	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2040	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2052	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
Modified sluicing retrieval system	2013	2039	200EW+	5.47×10^{1}	2.31	2.04×10^{-1}	6.79×10^{-4}	2.10
Mobile retrieval system	2013	2026	200EW	3.58×10^{1}	2.81	2.33×10^{-1}	8.57×10^{-4}	1.48
Vacuum-based retrieval system	2027	2039	200EW	1.68	1.32×10^{-1}	1.20×10^{-2}	4.03×10^{-5}	6.87×10^{-2}
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2041	2042	WTP_AS	1.01×10^{1}	2.22×10^{1}	3.61×10^{-1}	1.08	3.66×10^{1}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	1.38×10^{1}	1.26	8.55×10^{-2}	1.85×10^{-2}	7.32×10^{-1}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	2.74	1.75×10^{-1}	1.17×10^{-2}	3.68×10^{-3}	1.40×10^{-1}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a
Cast Stone Facility, 200-West Area	2040	2041	200W	1.48×10^{1}	3.20	2.25×10^{-1}	2.00×10^{-2}	9.19×10^{-1}
Solid-Liquid Separations Facility	2040	2041	SUPW	7.25	1.24	8.54×10^{-2}	9.77×10^{-3}	4.26×10^{-1}
Cast Stone Facility, 200-East Area	2040	2041	200E	1.27×10^{1}	4.88	3.45×10^{-1}	1.73×10^{-2}	9.41×10^{-1}
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2043	2043	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47

Table G–17. Tank Closure Alternative 3B Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Deactivation *(continued)*								
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2041	2041	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Grout facility (tank-filling) construction	2028	2029	200EW	2.18	8.29	4.20	2.71×10^{-3}	6.82×10^{-1}
Grout facility (tank-filling) operations	2030	2039	200EW	2.25×10^{1}	8.32×10^{1}	4.51×10^{1}	2.70×10^{-2}	6.68
Grout facility (tank-filling) deactivation	2040	2040	200EW	1.45	3.41	2.10×10^{1}	1.12×10^{-3}	2.95×10^{-1}
Ancillary equipment grouting	2012	2032	200EW	4.12×10^{-1}	1.79	1.94	5.73×10^{-4}	1.38×10^{-1}
Ancillary equipment removal	2028	2033	200EW	3.28	1.50×10^{1}	4.40×10^{1}	4.92×10^{-3}	1.19
BX and SX tank farm soil removal	2028	2033	200EW	3.99×10^{1}	1.13×10^{2}	2.56×10^{2}	3.73×10^{-2}	9.55
Containment structure construction	2024	2027	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure deactivation	2034	2036	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	200EW	1.64×10^{3}	1.50×10^{3}	3.48×10^{3}	2.27	1.83×10^{2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Postclosure care	2042	2141	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–18. Tank Closure Alternative 3B Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.18	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	200EW+	2.49×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW	2.86×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	4.56×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	1.25×10^{-2}	5.38×10^{-3}	7.94×10^{-5}	3.07×10^{-3}	a	6.25×10^{-2}	1.79×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	1.02×10^{-2}	4.42×10^{-3}	6.51×10^{-5}	2.52×10^{-3}	a	5.12×10^{-2}	1.47×10^{-2}
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2016	2017	200W	2.34×10^{-2}	1.01×10^{-2}	1.49×10^{-4}	5.75×10^{-3}	a	1.17×10^{-1}	3.35×10^{-2}
Solid-Liquid Separations Facility	2016	2017	SUPW	1.22×10^{-2}	4.74×10^{-3}	7.63×10^{-5}	2.87×10^{-3}	a	5.23×10^{-2}	1.50×10^{-2}
Cast Stone Facility, 200-East Area	2016	2017	200E	2.34×10^{-2}	1.01×10^{-2}	1.49×10^{-4}	5.75×10^{-3}	a	1.17×10^{-1}	3.35×10^{-2}
Effluent Treatment Facility	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Operations										
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2039	200EW	a	a	a	a	a	a	a
Routine operations	2006	2039	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2039	200EW	4.09×10^{-2}	a	a	a	a	a	a

Table G–18. Tank Closure Alternative 3B Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
Double-shell tank interim stabilization	2006	2039	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2039	WTP_PS	1.51	9.54×10^{-3}	3.44×10^{-6}	1.06×10^{-4}	6.11×10^{-2}	2.69×10^{-4}	9.06×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	1.51	9.54×10^{-3}	3.44×10^{-6}	1.06×10^{-4}	a	2.69×10^{-4}	9.06×10^{-4}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Modified sluicing retrieval system	2013	2039	200EW+	2.49×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW+	2.86×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	4.56×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	2.48×10^{-2}	1.94×10^{-2}	1.79×10^{-4}	8.34×10^{-3}	a	2.70×10^{-1}	7.66×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	3.75×10^{-3}	3.73×10^{-3}	2.89×10^{-5}	1.46×10^{-3}	a	5.39×10^{-2}	1.53×10^{-2}
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2018	2039	200W	5.55×10^{-2}	2.43×10^{-2}	3.53×10^{-4}	1.38×10^{-2}	a	2.84×10^{-1}	8.13×10^{-2}
Solid-Liquid Separations Facility	2018	2039	SUPW	2.20×10^{-2}	1.13×10^{-2}	1.44×10^{-4}	5.29×10^{-3}	a	1.40×10^{-1}	3.99×10^{-2}
Cast Stone Facility, 200-East Area	2018	2039	200E	8.10×10^{-2}	2.48×10^{-2}	4.90×10^{-4}	1.73×10^{-2}	a	2.36×10^{-1}	6.86×10^{-2}
Effluent Treatment Facility replacement 1	2006	2042	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator replacement 1	2006	2040	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2052	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation										
Modified sluicing retrieval system	2013	2039	200EW+	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	WTP_AS	1.51×10^{-1}	9.54×10^{-4}	3.44×10^{-7}	1.06×10^{-5}	6.11×10^{-3}	2.69×10^{-5}	9.06×10^{-5}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	2.48×10^{-3}	1.94×10^{-3}	1.79×10^{-5}	8.34×10^{-4}	a	2.70×10^{-2}	7.66×10^{-3}

Table G–18. Tank Closure Alternative 3B Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*										
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	3.75×10^{-4}	3.73×10^{-4}	2.89×10^{-6}	1.46×10^{-4}	a	5.39×10^{-3}	1.53×10^{-3}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2040	2041	200W	5.55×10^{-3}	2.43×10^{-3}	3.53×10^{-5}	1.38×10^{-3}	a	2.84×10^{-2}	8.13×10^{-3}
Solid-Liquid Separations Facility	2040	2041	SUPW	2.20×10^{-3}	1.13×10^{-3}	1.44×10^{-5}	5.29×10^{-4}	a	1.40×10^{-2}	3.99×10^{-3}
Cast Stone Facility, 200-East Area	2040	2041	200E	8.10×10^{-3}	2.48×10^{-3}	4.90×10^{-5}	1.73×10^{-3}	a	2.36×10^{-2}	6.86×10^{-3}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2043	2043	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2041	2041	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Grout facility (tank-filling) construction	2028	2029	200EW	3.33×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	200EW	1.17×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	200EW	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	200EW	3.20×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	200EW	1.72×10^{-5}	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	200EW	8.33×10^{-4}	a	a	a	a	a	a
Containment structure construction	2024	2027	200EW	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	200EW	2.41	4.80×10^{-1}	1.39×10^{-2}	4.49×10^{-1}	a	2.75	8.32×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
Postclosure care	2042	2141	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–19. Tank Closure Alternative 3C Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.33
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	1.84×10^{1}	8.19	7.42×10^{-1}	1.72×10^{-3}	2.06
Modified sluicing retrieval system	2013	2039	200EW+	7.68×10^{1}	2.96	1.64	7.11×10^{-4}	3.01
Mobile retrieval system	2013	2026	200EW	7.17×10^{1}	3.11×10^{1}	5.98	9.97×10^{-3}	4.74
Vacuum-based retrieval system	2027	2039	200EW	7.72×10^{1}	3.49×10^{1}	7.02	1.11×10^{-2}	5.25
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	3.27×10^{1}	7.22	7.03	4.41×10^{-2}	2.04
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	2.68×10^{1}	5.92	3.02	3.62×10^{-2}	1.67
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	8.66×10^{-1}	2.53	2.08×10^{1}	6.38×10^{-4}	1.46×10^{-1}
Steam Reforming Facility, 200-West Area	2016	2017	200W	2.06×10^{2}	4.55×10^{1}	3.58×10^{1}	2.78×10^{-1}	1.28×10^{1}
Solid-Liquid Separations Facility	2016	2017	SUPW	2.75×10^{1}	7.15	8.74	3.72×10^{-2}	1.79
Steam Reforming Facility, 200-East Area	2016	2017	200E	4.11×10^{2}	9.09×10^{1}	6.51×10^{1}	5.55×10^{-1}	2.56×10^{1}
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a
Other infrastructure upgrades	2006	2039	200EW	a	a	a	a	a
Routine operations	2006	2039	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2039	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2039	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2039	WTP_PS	1.01×10^{2}	2.22×10^{2}	3.61	1.08×10^{1}	3.66×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	1.01×10^{2}	2.22×10^{2}	3.61	1.08×10^{1}	3.66×10^{2}

Table G–19. Tank Closure Alternative 3C Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Modified sluicing retrieval system	2013	2039	200EW+	2.13×10^{1}	1.32	1.02×10^{-1}	3.39×10^{-4}	9.16×10^{-1}
Mobile retrieval system	2013	2026	200EW+	3.29×10^{-1}	3.73×10^{-1}	a	a	1.32×10^{-1}
Vacuum-based retrieval system	2027	2039	200EW	5.26×10^{-1}	5.97×10^{-1}	a	a	2.11×10^{-1}
HLW Melter Interim Storage Facility	2018	2141	WTP_AS	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	1.38×10^{2}	1.26×10^{1}	8.55×10^{-1}	1.85×10^{-1}	7.32
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	2.74×10^{1}	1.75	1.17×10^{-1}	3.68×10^{-2}	1.40
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2018	2039	200W	1.84×10^{2}	6.08×10^{1}	8.37×10^{-3}	2.23×10^{-1}	2.53×10^{1}
Solid-Liquid Separations Facility	2018	2039	SUPW	7.25×10^{1}	1.24×10^{1}	8.54×10^{-1}	9.77×10^{-2}	4.26
Steam Reforming Facility, 200-East Area	2018	2039	200E	2.40×10^{2}	7.59×10^{1}	7.71×10^{-3}	1.89×10^{-1}	2.24×10^{1}
Effluent Treatment Facility	2006	2042	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2040	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2052	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
Modified sluicing retrieval system	2013	2039	200EW+	5.47×10^{1}	2.31	2.04×10^{-1}	6.79×10^{-4}	2.10
Mobile retrieval system	2013	2026	200EW+	3.58×10^{1}	2.81	2.33×10^{-1}	8.57×10^{-4}	1.48
Vacuum-based retrieval system	2027	2039	200EW	1.68	1.32×10^{-1}	1.20×10^{-2}	4.03×10^{-5}	6.87×10^{-2}
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2041	2042	WTP_AS	1.01×10^{1}	2.22×10^{1}	3.61×10^{-1}	1.08	3.66×10^{1}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	1.38×10^{1}	1.26	8.55×10^{-2}	1.85×10^{-2}	7.32×10^{-1}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	2.74	1.75×10^{-1}	1.17×10^{-2}	3.68×10^{-3}	1.40×10^{-1}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2040	2041	200W	1.84×10^{1}	6.08	8.37×10^{-4}	2.23×10^{-2}	2.53
Solid-Liquid Separations Facility	2040	2041	SUPW	7.25	1.24	8.54×10^{-2}	9.77×10^{-3}	4.26×10^{-1}
Steam Reforming Facility, 200-East Area	2040	2041	200E	2.40×10^{1}	7.59	7.71×10^{-4}	1.89×10^{-2}	2.24
Effluent Treatment facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2043	2043	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47

Table G–19. Tank Closure Alternative 3C Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Deactivation *(continued)*								
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2041	2041	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Grout facility (tank-filling) construction	2028	2029	200EW	2.18	8.29	4.20	2.71×10^{-3}	6.82×10^{-1}
Grout facility (tank-filling) operations	2030	2039	200EW	2.25×10^{1}	8.32×10^{1}	4.51×10^{1}	2.70×10^{-2}	6.68
Grout facility (tank-filling) deactivation	2040	2040	200EW	1.45	3.41	2.10×10^{1}	1.12×10^{-3}	2.95×10^{-1}
Ancillary equipment grouting	2012	2032	200EW	4.12×10^{-1}	1.79	1.94	5.73×10^{-4}	1.38×10^{-1}
Ancillary equipment removal	2028	2033	200EW	3.28	1.50×10^{1}	4.40×10^{1}	4.92×10^{-3}	1.19
BX and SX tank farm soil removal	2028	2033	200EW	3.99×10^{1}	1.13×10^{2}	2.56×10^{2}	3.73×10^{-2}	9.55
Containment structure construction	2024	2027	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure deactivation	2034	2036	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	200EW	1.64×10^{3}	1.50×10^{3}	3.48×10^{3}	2.27	1.83×10^{2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Postclosure care	2042	2141	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–20. Tank Closure Alternative 3C Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.18	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	200EW+	2.49×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW	2.86×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	4.56×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	1.25×10^{-2}	5.38×10^{-3}	7.94×10^{-5}	3.07×10^{-3}	a	6.25×10^{-2}	1.79×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	1.02×10^{-2}	4.42×10^{-3}	6.51×10^{-5}	2.52×10^{-3}	a	5.12×10^{-2}	1.47×10^{-2}
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2016	2017	200W	7.86×10^{-2}	3.39×10^{-2}	5.00×10^{-4}	1.94×10^{-2}	a	3.93×10^{-1}	1.13×10^{-1}
Solid-Liquid Separations Facility	2016	2017	SUPW	1.22×10^{-2}	4.74×10^{-3}	7.63×10^{-5}	2.87×10^{-3}	a	5.23×10^{-2}	1.50×10^{-2}
Steam Reforming Facility, 200-East Area	2016	2017	200E	1.57×10^{-1}	6.78×10^{-2}	1.00×10^{-3}	3.87×10^{-2}	a	7.86×10^{-1}	2.25×10^{-1}
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Operations										
IHLW Interim Storage Facility	2018	2066	WTP_AS	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2039	200EW	a	a	a	a	a	a	a
Routine operations	2006	2039	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2039	200EW	4.09×10^{-2}	a	a	a	a	a	a

Table G–20. Tank Closure Alternative 3C Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
Double-shell tank interim stabilization	2006	2039	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2039	WTP_PS	1.51	9.54×10^{-3}	3.44×10^{-6}	1.06×10^{-4}	6.11×10^{-2}	2.69×10^{-4}	9.06×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	1.51	9.54×10^{-3}	3.44×10^{-6}	1.06×10^{-4}	a	2.69×10^{-4}	9.06×10^{-4}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Modified sluicing retrieval system	2013	2039	200EW+	2.49×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW+	2.86×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	4.56×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	2.48×10^{-2}	1.94×10^{-2}	1.79×10^{-4}	8.34×10^{-3}	a	2.70×10^{-1}	7.66×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	3.75×10^{-3}	3.73×10^{-3}	2.89×10^{-5}	1.46×10^{-3}	a	5.39×10^{-2}	1.53×10^{-2}
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2018	2039	200W	9.14×10^{-2}	6.60×10^{-4}	2.10×10^{-7}	6.65×10^{-6}	9.96×10^{-3}	3.02×10^{-5}	9.41×10^{-5}
Solid-Liquid Separations Facility	2018	2039	SUPW	2.20×10^{-2}	1.13×10^{-2}	1.44×10^{-4}	5.29×10^{-3}	a	1.40×10^{-1}	3.99×10^{-2}
Steam Reforming Facility, 200-East Area	2018	2039	200E	8.26×10^{-2}	5.83×10^{-4}	1.90×10^{-7}	5.98×10^{-6}	1.10×10^{-2}	2.51×10^{-5}	7.88×10^{-5}
Effluent Treatment Facility	2006	2042	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2040	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2052	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation										
Modified sluicing retrieval system	2013	2039	200EW+	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	200EW+	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	WTP_AS	1.51×10^{-1}	9.54×10^{-4}	3.44×10^{-7}	1.06×10^{-5}	6.11×10^{-3}	2.69×10^{-5}	9.06×10^{-5}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	2.48×10^{-3}	1.94×10^{-3}	1.79×10^{-5}	8.34×10^{-4}	a	2.70×10^{-2}	7.66×10^{-3}

Table G–20. Tank Closure Alternative 3C Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*										
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	3.75×10^{-4}	3.73×10^{-4}	2.89×10^{-6}	1.46×10^{-4}	a	5.39×10^{-3}	1.53×10^{-3}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2040	2041	200W	9.14×10^{-3}	6.60×10^{-5}	2.10×10^{-8}	6.65×10^{-7}	9.96×10^{-4}	3.02×10^{-6}	9.41×10^{-6}
Solid-Liquid Separations Facility	2040	2041	SUPW	2.20×10^{-3}	1.13×10^{-3}	1.44×10^{-5}	5.29×10^{-4}	a	1.40×10^{-2}	3.99×10^{-3}
Steam Reforming Facility, 200-East Area	2040	2041	200E	8.26×10^{-3}	5.83×10^{-5}	1.90×10^{-8}	5.98×10^{-7}	1.10×10^{-3}	2.51×10^{-6}	7.88×10^{-6}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2043	2043	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2041	2041	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Grout facility (tank-filling) construction	2028	2029	200EW	3.33×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	200EW	1.17×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	200EW	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	200EW	3.20×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	200EW	1.72×10^{-5}	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	200EW	8.33×10^{-4}	a	a	a	a	a	a
Containment structure construction	2024	2027	200EW	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	200EW	2.41	4.80×10^{-1}	1.39×10^{-2}	4.49×10^{-1}	a	2.75	8.32×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
Postclosure care	2042	2141	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–21. Tank Closure Alternative 4 Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.34
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Cesium and Strontium Capsule Processing Facility	2038	2041	200E	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	2.01×10^{1}	8.94	8.10×10^{-1}	1.88×10^{-3}	2.25
Mobile retrieval system	2013	2042	200EW	8.98×10^{1}	3.90×10^{1}	7.49	1.25×10^{-2}	5.94
Vacuum-based retrieval system	2013	2042	200EW	3.35×10^{1}	1.51×10^{1}	3.04	4.82×10^{-3}	2.27
Chemical wash system	2013	2042	200EW	2.27×10^{-1}	1.21	1.51×10^{-1}	3.78×10^{-4}	7.56×10^{-2}
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	3.27×10^{1}	7.22	7.03	4.41×10^{-2}	2.04
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	2.68×10^{1}	5.92	3.02	3.62×10^{-2}	1.67
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	8.66×10^{-1}	2.53	2.08×10^{1}	6.38×10^{-4}	1.46×10^{-1}
Bulk Vitrification Facility	2016	2017	200W	8.96×10^{1}	1.98×10^{1}	1.22×10^{1}	1.21×10^{-1}	5.58
Solid-Liquid Separations Facility	2016	2017	SUPW	2.75×10^{1}	7.15	8.74	3.72×10^{-2}	1.79
Cast Stone Facility	2016	2017	200E	6.11×10^{1}	1.35×10^{1}	2.57×10^{1}	8.25×10^{-2}	3.81
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a
Other infrastructure upgrades	2006	2042	200EW	a	a	a	a	a
Routine operations	2006	2042	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2042	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}

Table G–21. Tank Closure Alternative 4 Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Double-shell tank interim stabilization	2006	2042	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2042	WTP_PS	1.01×10^{2}	2.17×10^{2}	3.03	9.43	3.67×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2043	2043	WTP_PS	1.01×10^{2}	2.17×10^{2}	3.03	9.43	3.67×10^{2}
Cesium and Strontium Capsule Processing Facility	2042	2043	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Mobile retrieval system	2013	2042	200EW	4.13×10^{-1}	4.68×10^{-1}	a	a	1.65×10^{-1}
Vacuum-based retrieval system	2013	2042	200EW	2.28×10^{-1}	2.58×10^{-1}	a	a	9.12×10^{-2}
Chemical wash system	2013	2042	200EW	1.51×10^{-1}	5.29×10^{-1}	1.59	1.50×10^{-4}	a
HLW Melter Interim Storage Facility	2018	2144	WTP_AS	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	1.38×10^{2}	1.26×10^{1}	8.55×10^{-1}	1.85×10^{-1}	7.32
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	2.74×10^{1}	1.75	1.17×10^{-1}	3.68×10^{-2}	1.40
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a
Bulk Vitrification Facility	2018	2039	200W	7.81	1.68×10^{1}	1.78	4.48	8.25
Solid-Liquid Separations Facility	2018	2039	SUPW	7.25×10^{1}	1.24×10^{1}	8.54×10^{-1}	9.77×10^{-2}	4.26
Cast Stone Facility	2018	2039	200E	1.27×10^{2}	4.88×10^{1}	3.46	1.73×10^{-1}	9.41
Effluent Treatment Facility	2006	2045	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2042	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2052	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
Mobile retrieval system	2013	2042	200EW	4.48×10^{1}	3.51	2.92×10^{-1}	1.07×10^{-3}	1.85
Vacuum-based retrieval system	2013	2042	200EW	7.29×10^{-1}	5.71×10^{-2}	5.19×10^{-3}	1.74×10^{-5}	2.98×10^{-2}
Chemical wash system	2013	2042	200EW	2.09	3.69×10^{-1}	3.11×10^{-2}	1.18×10^{-4}	9.94×10^{-2}
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	1.01×10^{1}	2.17×10^{1}	3.03×10^{-1}	9.43×10^{-1}	3.67×10^{1}
Cesium and Strontium Capsule Processing Facility	2044	2044	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	1.38×10^{1}	1.26	8.55×10^{-2}	1.85×10^{-2}	7.32×10^{-1}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	2.74	1.75×10^{-1}	1.17×10^{-2}	3.68×10^{-3}	1.40×10^{-1}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a
Bulk Vitrification Facility	2040	2041	200W	7.81×10^{-1}	1.68	1.78×10^{-1}	4.48×10^{-1}	8.25×10^{-1}

Table G–21. Tank Closure Alternative 4 Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Deactivation *(continued)*								
Solid-Liquid Separations Facility	2040	2041	SUPW	7.25	1.24	8.54×10^{-2}	9.77×10^{-3}	4.26×10^{-1}
Cast Stone Facility	2040	2041	200E	1.27×10^{1}	4.88	3.46×10^{-1}	1.73×10^{-2}	9.41×10^{-1}
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2046	2046	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2043	2043	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Grout facility (tank-filling) construction	2031	2032	200EW	2.18	8.29	4.20	2.71×10^{-3}	6.82×10^{-1}
Grout facility (tank-filling) operations	2033	2042	200EW	1.75×10^{1}	6.58×10^{1}	4.63	2.68×10^{-2}	5.53
Grout facility (tank-filling) deactivation	2043	2043	200EW	1.45	3.41	2.10×10^{1}	1.12×10^{-3}	2.95×10^{-1}
Ancillary equipment grouting	2012	2032	200EW	2.98×10^{-1}	1.38	9.71×10^{-2}	4.70×10^{-4}	1.13×10^{-1}
Containment structure construction	2018	2021	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure deactivation	2042	2044	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2038	2044	200EW	9.15×10^{2}	8.39×10^{2}	2.14×10^{3}	1.27	1.03×10^{2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Postclosure care	2045	2144	200EW	a	a	a	a	a
BX tank farm removal	2022	2033	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
BX tank farm deep soil removal	2034	2041	200E	1.54×10^{1}	7.13×10^{1}	7.55	2.43×10^{-2}	5.82
SX tank farm removal	2022	2033	200EW	1.72×10^{1}	7.75×10^{1}	1.01×10^{1}	2.71×10^{-2}	6.35
SX tank farm deep soil removal	2034	2041	200W	4.69×10^{1}	2.18×10^{2}	2.31×10^{1}	7.40×10^{-2}	1.78×10^{1}
Preprocessing Facility construction	2019	2021	200E	7.88×10^{2}	5.70×10^{2}	1.71×10^{2}	1.08	7.74×10^{1}
Preprocessing Facility operations	2022	2042	200E	1.81×10^{1}	5.53	4.04×10^{-4}	4.05×10^{-1}	1.77×10^{1}
Preprocessing Facility deactivation	2043	2043	200E	1.90	5.81×10^{-1}	4.24×10^{-5}	4.25×10^{-2}	1.86

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; SUPW=200-West Area supplemental treatment facility; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–22. Tank Closure Alternative 4 Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Cesium and Strontium Capsule Processing Facility	2038	2041	200E	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.38	a	a	a	a	a	a
Mobile retrieval system	2013	2042	200EW	3.58×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2042	200EW	1.98×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2042	200EW	5.55×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	1.25×10^{-2}	5.38×10^{-3}	7.94×10^{-5}	3.07×10^{-3}	a	6.25×10^{-2}	1.79×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	1.02×10^{-2}	4.42×10^{-3}	6.51×10^{-5}	2.52×10^{-3}	a	5.12×10^{-2}	1.47×10^{-2}
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	200W	3.43×10^{-2}	1.48×10^{-2}	2.18×10^{-4}	8.43×10^{-3}	a	1.71×10^{-1}	4.90×10^{-2}
Solid-Liquid Separations Facility	2016	2017	SUPW	1.22×10^{-2}	4.74×10^{-3}	7.63×10^{-5}	2.87×10^{-3}	a	5.23×10^{-2}	1.50×10^{-2}
Cast Stone Facility	2016	2017	200E	2.34×10^{-2}	1.01×10^{-2}	1.49×10^{-4}	5.75×10^{-3}	a	1.17×10^{-1}	3.35×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Operations										
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2042	200EW	a	a	a	a	a	a	a
Routine operations	2006	2042	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2042	200EW	4.09×10^{-2}	a	a	a	a	a	a

Table G–22. Tank Closure Alternative 4 Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
Double-shell tank interim stabilization	2006	2042	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2042	WTP_PS	1.51	9.55×10^{-3}	3.45×10^{-6}	1.07×10^{-4}	5.44×10^{-2}	2.69×10^{-4}	9.07×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2043	2043	WTP_PS	1.51	9.55×10^{-3}	3.45×10^{-6}	1.07×10^{-4}	5.44×10^{-2}	2.69×10^{-4}	9.07×10^{-4}
Cesium and Strontium Capsule Processing Facility	2042	2043	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Mobile retrieval system	2013	2042	200EW	3.58×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2042	200EW	1.98×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2042	200EW	5.55×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2144	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	2.48×10^{-2}	1.94×10^{-2}	1.79×10^{-4}	8.34×10^{-3}	a	2.70×10^{-1}	7.66×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	3.75×10^{-3}	3.73×10^{-3}	2.89×10^{-5}	1.46×10^{-3}	a	5.39×10^{-2}	1.53×10^{-2}
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility	2018	2039	200W	9.36×10^{-3}	2.19×10^{-4}	2.52×10^{-8}	1.07×10^{-6}	1.00×10^{-2}	2.83×10^{-5}	8.06×10^{-5}
Solid-Liquid Separations Facility	2018	2039	SUPW	2.20×10^{-2}	1.13×10^{-2}	1.44×10^{-4}	5.29×10^{-3}	a	1.40×10^{-1}	3.99×10^{-2}
Cast Stone Facility	2018	2039	200E	8.10×10^{-2}	2.48×10^{-2}	4.90×10^{-4}	1.73×10^{-2}	a	2.36×10^{-1}	6.86×10^{-2}
Effluent Treatment Facility	2006	2045	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2042	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2052	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation										
Mobile retrieval system	2013	2042	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2042	200EW	a	a	a	a	a	a	a
Chemical wash system	2013	2042	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	1.51×10^{-1}	9.55×10^{-4}	3.45×10^{-7}	1.07×10^{-5}	5.44×10^{-3}	2.69×10^{-5}	9.07×10^{-5}
Cesium and Strontium Capsule Processing Facility	2044	2044	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	2.48×10^{-3}	1.94×10^{-3}	1.79×10^{-5}	8.34×10^{-4}	a	2.70×10^{-2}	7.66×10^{-3}

Table G–22. Tank Closure Alternative 4 Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*										
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	3.75×10^{-4}	3.73×10^{-4}	2.89×10^{-6}	1.46×10^{-4}	a	5.39×10^{-3}	1.53×10^{-3}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility	2040	2041	200W	9.36×10^{-4}	2.19×10^{-5}	2.52×10^{-9}	1.07×10^{-7}	1.00×10^{-3}	2.83×10^{-6}	8.06×10^{-6}
Solid-Liquid Separations Facility	2040	2041	SUPW	2.20×10^{-3}	1.13×10^{-3}	1.44×10^{-5}	5.29×10^{-4}	a	1.40×10^{-2}	3.99×10^{-3}
Cast Stone Facility	2040	2041	200E	8.10×10^{-3}	2.48×10^{-3}	4.90×10^{-5}	1.73×10^{-3}	a	2.36×10^{-2}	6.86×10^{-3}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2046	2046	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2043	2043	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Grout facility (tank-filling) construction	2031	2032	200EW	3.33×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) operations	2033	2042	200EW	1.04×10^{-1}	1.39×10^{-2}	5.83×10^{-4}	1.76×10^{-2}	a	6.10×10^{-3}	4.25×10^{-3}
Grout facility (tank-filling) deactivation	2043	2043	200EW	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	200EW	2.17×10^{-3}	2.92×10^{-4}	1.22×10^{-5}	3.70×10^{-4}	a	1.28×10^{-4}	8.93×10^{-5}
Containment structure construction	2018	2021	200EW	a	a	a	a	a	a	a
Containment structure deactivation	2042	2044	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2038	2044	200EW	1.35	7.60×10^{-2}	7.27×10^{-3}	2.19×10^{-1}	a	7.60×10^{-2}	5.30×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
Postclosure care	2045	2144	200EW	a	a	a	a	a	a	a
BX tank farm removal	2022	2033	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
BX tank farm deep soil removal	2034	2041	200E	1.12×10^{-1}	1.51×10^{-2}	6.32×10^{-4}	1.91×10^{-2}	a	6.61×10^{-3}	4.61×10^{-3}
SX tank farm removal	2022	2033	200EW	1.22×10^{-1}	1.65×10^{-2}	6.88×10^{-4}	2.08×10^{-2}	a	8.22×10^{-3}	5.30×10^{-3}
SX tank farm deep soil removal	2034	2041	200W	3.42×10^{-1}	4.61×10^{-2}	1.93×10^{-3}	5.83×10^{-2}	a	2.02×10^{-2}	1.41×10^{-2}
Preprocessing Facility construction	2019	2021	200E	9.20×10^{-1}	2.03×10^{-1}	5.38×10^{-3}	1.77×10^{-1}	a	1.37	4.10×10^{-1}

Table G–22. Tank Closure Alternative 4 Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
Preprocessing Facility operations	2022	2042	200E	8.28×10^{-3}	4.72×10^{-4}	2.90×10^{-8}	1.66×10^{-6}	a	7.15×10^{-5}	2.02×10^{-4}
Preprocessing Facility deactivation	2043	2043	200E	8.69×10^{-4}	4.96×10^{-5}	3.05×10^{-9}	1.74×10^{-7}	a	7.51×10^{-6}	2.12×10^{-5}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–23. Tank Closure Alternative 5 Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2019	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.34
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.65×10^{2}	6.21×10^{2}	1.25×10^{2}	1.06	8.00×10^{1}
Cesium and Strontium Capsule Processing Facility	2029	2032	200E	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	1.84×10^{1}	8.19	7.42×10^{-1}	1.72×10^{-3}	2.06
Double-shell tank replacement	2014	2019	200EW+	3.72×10^{1}	3.11×10^{1}	1.93×10^{2}	9.19×10^{-3}	3.15
Sulfate Removal Facility	2016	2017	WTP_AS	3.93×10^{2}	8.69×10^{1}	5.83×10^{1}	5.31×10^{-1}	2.45×10^{1}
Modified sluicing retrieval system	2013	2033	200EW	7.14×10^{1}	2.75	1.52	6.60×10^{-4}	2.80
Mobile retrieval system	2013	2023	200EW	9.13×10^{1}	3.96×10^{1}	7.62	1.27×10^{-2}	6.04
Vacuum-based retrieval system	2024	2033	200EW	1.00×10^{2}	4.54×10^{1}	9.12	1.45×10^{-2}	6.82
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	3.27×10^{1}	7.22	7.03	4.41×10^{-2}	2.04
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	2.68×10^{1}	5.92	3.02	3.62×10^{-2}	1.67
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	8.66×10^{-1}	2.53	2.08×10^{1}	6.38×10^{-4}	1.46×10^{-1}
Bulk Vitrification Facility	2016	2017	200W	8.96×10^{1}	1.98×10^{1}	1.22×10^{1}	1.21×10^{-1}	5.58
Solid-Liquid Separations Facility	2016	2017	SUPW	2.75×10^{1}	7.15	8.74	3.72×10^{-2}	1.79
Cast Stone Facility	2016	2017	200E	6.11×10^{1}	1.35×10^{1}	2.57×10^{1}	8.25×10^{-2}	3.81
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a
Other infrastructure upgrades	2006	2033	200EW	a	a	a	a	a
Routine operations	2006	2033	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2033	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2033	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2033	WTP_PS	2.49×10^{2}	7.63×10^{2}	5.13	1.74×10^{1}	1.26×10^{3}

Table G–23. Tank Closure Alternative 5 Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Waste Treatment Plant, cesium and strontium capsules	2034	2034	WTP_PS	2.49×10^{2}	7.63×10^{2}	5.13	1.74×10^{1}	1.26×10^{3}
Cesium and Strontium Capsule Processing Facility	2033	2034	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Double-shell tank replacement	2020	2033	200EW+	2.12×10^{-2}	2.40×10^{-2}	a	a	8.47×10^{-3}
Sulfate Removal Facility	2018	2033	WTP_AS	1.65×10^{2}	2.11×10^{1}	1.45	2.22×10^{-1}	9.18
Modified sluicing retrieval system	2013	2033	200EW	1.98×10^{1}	1.23	9.46×10^{-2}	3.15×10^{-4}	8.51×10^{-1}
Mobile retrieval system	2013	2023	200EW	4.19×10^{-1}	4.75×10^{-1}	a	a	1.68×10^{-1}
Vacuum-based retrieval system	2024	2033	200EW	6.84×10^{-1}	7.75×10^{-1}	a	a	2.74×10^{-1}
HLW Melter Interim Storage Facility	2018	2139	WTP_AS	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	1.38×10^{2}	1.26×10^{1}	8.55×10^{-1}	1.85×10^{-1}	7.32
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	2.74×10^{1}	1.75	1.17×10^{-1}	3.68×10^{-2}	1.40
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a
Bulk Vitrification Facility	2018	2033	200W	1.07×10^{1}	2.09×10^{1}	2.21	5.58	1.13×10^{1}
Solid-Liquid Separations Facility	2018	2033	SUPW	9.97×10^{1}	1.70×10^{1}	1.17	1.34×10^{-1}	5.85
Cast Stone Facility	2018	2033	200E	1.75×10^{2}	6.71×10^{1}	4.70	2.38×10^{-1}	1.29×10^{1}
Effluent Treatment Facility	2006	2036	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2034	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2052	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
Sulfate Removal Facility	2034	2035	WTP_AS	1.65×10^{1}	2.11	1.45×10^{-1}	2.22×10^{-2}	9.18×10^{-1}
Modified sluicing retrieval system	2013	2033	200EW	5.08×10^{1}	2.14	1.89×10^{-1}	6.31×10^{-4}	1.96
Mobile retrieval system	2013	2023	200EW	4.56×10^{1}	3.57	2.97×10^{-1}	1.09×10^{-3}	1.88
Vacuum-based retrieval system	2024	2033	200EW	2.19	1.71×10^{-1}	1.56×10^{-2}	5.23×10^{-5}	8.94×10^{-2}
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2035	2036	WTP_AS	2.38×10^{1}	8.10×10^{1}	1.52	1.64	1.19×10^{2}
Cesium and Strontium Capsule Processing Facility	2035	2035	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	1.38×10^{1}	1.26	8.55×10^{-2}	1.85×10^{-2}	7.32×10^{-1}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	2.74	1.75×10^{-1}	1.17×10^{-2}	3.68×10^{-3}	1.40×10^{-1}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a
Bulk Vitrification Facility	2034	2035	200W	1.07	2.09	2.21×10^{-1}	5.58×10^{-1}	1.13
Solid-Liquid Separations Facility	2034	2035	SUPW	9.97	1.70	1.17×10^{-1}	1.34×10^{-2}	5.85×10^{-1}

Table G–23. Tank Closure Alternative 5 Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Deactivation *(continued)*								
Cast Stone Facility	2034	2035	200E	1.75×10^{1}	6.71	4.70×10^{-1}	2.38×10^{-2}	1.29
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2037	2037	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2035	2035	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Grout facility (tank-filling) construction	2022	2023	200EW	2.18	8.29	4.20	2.71×10^{-3}	6.82×10^{-1}
Grout facility (tank-filling) operations	2024	2033	200EW	2.25×10^{1}	8.32×10^{1}	4.51×10^{1}	2.70×10^{-2}	6.68
Grout facility (tank-filling) deactivation	2034	2034	200EW	1.45	3.41	2.10×10^{1}	1.12×10^{-3}	2.95×10^{-1}
Ancillary equipment grouting	2013	2033	200EW	3.50×10^{-1}	1.52	1.65	4.87×10^{-4}	1.18×10^{-1}
Hanford barrier construction	2029	2039	200EW	1.74×10^{3}	1.59×10^{3}	3.48×10^{3}	2.41	1.95×10^{2}
Decontamination and decommissioning of 10 selected facilities	2012	2022	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Postclosure care	2040	2139	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; SUPW=200-West Area supplemental treatment facility; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–24. Tank Closure Alternative 5 Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.99×10^{-1}	2.10×10^{-1}	5.82×10^{-3}	1.89×10^{-1}	a	1.31	3.94×10^{-1}
Cesium and Strontium Capsule Processing Facility	2029	2032	200E	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.18	a	a	a	a	a	a
Double-shell tank replacement	2014	2019	200EW+	a	a	a	a	a	a	a
Sulfate Removal Facility	2016	2017	WTP_AS	1.50×10^{-1}	6.48×10^{-2}	9.55×10^{-4}	3.70×10^{-2}	a	7.51×10^{-1}	2.15×10^{-1}
Modified sluicing retrieval system	2013	2033	200EW	2.32×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2023	200EW	3.63×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	200EW	5.93×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	200EW	1.25×10^{-2}	5.38×10^{-3}	7.94×10^{-5}	3.07×10^{-3}	a	6.25×10^{-2}	1.79×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	200E	1.02×10^{-2}	4.42×10^{-3}	6.51×10^{-5}	2.52×10^{-3}	a	5.12×10^{-2}	1.47×10^{-2}
Transuranic Waste Interim Storage Facility	2008	2009	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	200W	3.43×10^{-2}	1.48×10^{-2}	2.18×10^{-4}	8.43×10^{-3}	a	1.71×10^{-1}	4.90×10^{-2}
Solid-Liquid Separations Facility	2016	2017	SUPW	1.22×10^{-2}	4.74×10^{-3}	7.63×10^{-5}	2.87×10^{-3}	a	5.23×10^{-2}	1.50×10^{-2}
Cast Stone Facility	2016	2017	200E	2.34×10^{-2}	1.01×10^{-2}	1.49×10^{-4}	5.75×10^{-3}	a	1.17×10^{-1}	3.35×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a

Table G–24. Tank Closure Alternative 5 Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations										
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2033	200EW	a	a	a	a	a	a	a
Routine operations	2006	2033	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2033	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2033	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2033	WTP_PS	5.69	3.28×10^{-2}	1.29×10^{-5}	3.93×10^{-4}	8.51×10^{-2}	5.02×10^{-4}	1.97×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2034	2034	WTP_PS	5.69	3.28×10^{-2}	1.29×10^{-5}	3.93×10^{-4}	a	5.02×10^{-4}	1.97×10^{-3}
Cesium and Strontium Capsule Processing Facility	2033	2034	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Double-shell tank replacement	2020	2033	200EW+	1.84×10^{-2}	a	a	a	a	a	a
Sulfate Removal Facility	2018	2033	WTP_AS	3.90×10^{-2}	2.44×10^{-2}	2.66×10^{-4}	1.15×10^{-2}	a	3.21×10^{-1}	9.13×10^{-2}
Modified sluicing retrieval system	2013	2033	200EW	2.32×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2023	200EW	3.63×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	200EW	5.93×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2139	WTP_AS	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	200EW	2.48×10^{-2}	1.94×10^{-2}	1.79×10^{-4}	8.34×10^{-3}	a	2.70×10^{-1}	7.66×10^{-2}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	200E	3.75×10^{-3}	3.73×10^{-3}	2.89×10^{-5}	1.46×10^{-3}	a	5.39×10^{-2}	1.53×10^{-2}
Transuranic Waste Interim Storage Facility	2009	2034	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility	2018	2033	200W	1.29×10^{-2}	3.01×10^{-4}	3.46×10^{-8}	1.47×10^{-6}	1.24×10^{-2}	3.89×10^{-5}	1.11×10^{-4}
Solid-Liquid Separations Facility	2018	2033	SUPW	3.03×10^{-2}	1.55×10^{-2}	1.98×10^{-4}	8.08×10^{-3}	a	1.92×10^{-1}	5.49×10^{-2}
Cast Stone Facility	2018	2033	200E	1.11×10^{-1}	3.41×10^{-2}	6.74×10^{-4}	2.38×10^{-2}	a	3.25×10^{-1}	9.43×10^{-2}
Effluent Treatment Facility	2006	2036	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2034	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2052	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}

Table G–24. Tank Closure Alternative 5 Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation										
Sulfate Removal Facility	2034	2035	WTP_AS	3.90×10^{-3}	2.44×10^{-3}	2.66×10^{-5}	1.15×10^{-3}	a	3.21×10^{-2}	9.13×10^{-3}
Modified sluicing retrieval system	2013	2033	200EW	a	a	a	a	a	a	a
Mobile retrieval system	2013	2023	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2035	2036	WTP_AS	5.36×10^{-1}	3.09×10^{-3}	1.21×10^{-6}	3.70×10^{-5}	8.01×10^{-3}	4.72×10^{-5}	1.85×10^{-4}
Cesium and Strontium Capsule Processing Facility	2035	2035	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	200EW	2.48×10^{-3}	1.94×10^{-3}	1.79×10^{-5}	8.34×10^{-4}	a	2.70×10^{-2}	7.66×10^{-3}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	200E	3.75×10^{-4}	3.73×10^{-4}	2.89×10^{-6}	1.46×10^{-4}	a	5.39×10^{-3}	1.53×10^{-3}
Transuranic Waste Interim Storage Facility	2035	2035	WTP_AS	a	a	a	a	a	a	a
Bulk Vitrification Facility	2034	2035	200W	1.29×10^{-3}	3.01×10^{-5}	3.46×10^{-9}	1.47×10^{-7}	1.24×10^{-3}	3.89×10^{-6}	1.11×10^{-5}
Solid-Liquid Separations Facility	2034	2035	SUPW	3.03×10^{-3}	1.55×10^{-3}	1.98×10^{-5}	8.08×10^{-4}	a	1.92×10^{-2}	5.49×10^{-3}
Cast Stone Facility	2034	2035	200E	1.11×10^{-2}	3.41×10^{-3}	6.74×10^{-5}	2.38×10^{-3}	a	3.25×10^{-2}	9.43×10^{-3}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2037	2037	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2035	2035	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Grout facility (tank-filling) construction	2022	2023	200EW	3.33×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) operations	2024	2033	200EW	1.17×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2034	2034	200EW	a	a	a	a	a	a	a
Ancillary equipment grouting	2013	2033	200EW	2.72×10^{-5}	a	a	a	a	a	a
Hanford barrier construction	2029	2039	200EW	2.55	5.09×10^{-1}	1.48×10^{-2}	4.77×10^{-1}	a	2.91	8.83×10^{-1}

Table G–24. Tank Closure Alternative 5 Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
Decontamination and decommissioning of 10 selected Facilities	2012	2022	200EW	a	a	a	a	a	a	a
Postclosure care	2040	2139	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; SUPW=200-West Area supplemental treatment facility; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–25. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2157	200E	5.33×10^{1}	6.35×10^{1}	2.10×10^{2}	1.94×10^{-2}	5.78
Other infrastructure upgrades	2006	2034	200EW	1.11	9.43×10^{-2}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant original	2006	2017	WTP_AS	3.37×10^{2}	2.41×10^{2}	2.86×10^{2}	4.64×10^{-1}	3.29×10^{1}
Cesium and Strontium Capsule Processing Facility	2158	2161	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Tank risers	2013	2016	200EW	2.01×10^{1}	8.94	8.10×10^{-1}	1.88×10^{-3}	2.25
Double-shell tank replacement 1	2029	2034	200EW+	2.60×10^{2}	2.17×10^{2}	1.35×10^{3}	6.43×10^{-2}	2.20×10^{1}
Double-shell tank replacement 2	2069	2074	200EW+	2.60×10^{2}	2.17×10^{2}	1.35×10^{3}	6.43×10^{-2}	2.20×10^{1}
Double-shell tank replacement 3	2109	2114	200EW+	2.60×10^{2}	2.17×10^{2}	1.35×10^{3}	6.43×10^{-2}	2.20×10^{1}
Mobile retrieval system	2013	2162	200EW	2.73×10^{1}	1.19×10^{1}	2.28	3.80×10^{-3}	1.81
Vacuum-based retrieval system	2013	2162	200EW	5.79	2.62	5.26×10^{-1}	8.34×10^{-4}	3.94×10^{-1}
Chemical wash system	2013	2162	200EW	5.84×10^{-2}	3.12×10^{-1}	3.89×10^{-2}	9.74×10^{-5}	1.95×10^{-2}
HLW Melter Interim Storage Facility 1	2017	2018	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 2	2037	2038	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 3	2057	2058	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 4	2077	2078	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 5	2097	2098	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 6	2117	2118	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 7	2137	2138	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
Underground transfer line replacement	2064	2064	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Waste Treatment Plant replacement 1	2067	2078	WTP_AS	3.30×10^{2}	2.36×10^{2}	2.34×10^{2}	4.54×10^{-1}	3.22×10^{1}
Waste Treatment Plant replacement 2	2127	2138	WTP_AS	3.30×10^{2}	2.36×10^{2}	2.34×10^{2}	4.54×10^{-1}	3.22×10^{1}
IHLW Shipping/Transfer Facility 1	2076	2078	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Shipping/Transfer Facility 2	2136	2138	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50

Table G–25. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction *(continued)*								
IHLW Shipping/Transfer Facility 3	2196	2198	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Module, additional	2078	2197	200E	1.45×10^{2}	1.73×10^{2}	5.72×10^{2}	5.27×10^{-2}	1.57×10^{1}
HLW Debris Storage Facility	2041	2110	200EW	3.37×10^{-1}	1.56	1.10×10^{-1}	5.31×10^{-4}	1.28×10^{-1}
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 2	2053	2055	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 3	2083	2085	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 4	2113	2115	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 5	2143	2145	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 2	2040	2042	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 3	2065	2067	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 4	2090	2092	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 5	2115	2117	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 6	2140	2142	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2262	200E	a	a	a	a	a
Other infrastructure upgrades	2006	2162	200EW	a	a	a	a	a
Routine operations	2006	2162	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2162	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2162	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2162	WTP_PS	2.71×10^{2}	5.32×10^{2}	2.08	1.07×10^{1}	9.91×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	WTP_PS	2.71×10^{2}	5.32×10^{2}	2.08	1.07×10^{1}	9.91×10^{2}
Cesium and Strontium Capsule Processing Facility	2162	2163	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Mobile retrieval system	2013	2162	200EW	1.26×10^{-1}	1.42×10^{-1}	a	a	5.02×10^{-2}
Vacuum-based retrieval system	2013	2162	200EW	3.95×10^{-2}	4.47×10^{-2}	a	a	1.58×10^{-2}
Chemical wash system	2013	2162	200EW	3.89×10^{-2}	1.36×10^{-1}	4.09×10^{-1}	3.87×10^{-5}	a

Table G–25. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
HLW Melter Interim Storage Facility	2018	2262	WTP_AS	a	a	a	a	a
HLW Debris Storage Facility	2042	2262	200EW	a	a	a	a	a
Effluent Treatment Facility	2006	2166	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2018	2163	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2167	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
Mobile retrieval system	2013	2162	200EW	1.36×10^{1}	1.07	8.89×10^{-2}	3.27×10^{-4}	5.63×10^{-1}
Vacuum-based retrieval system	2013	2162	200EW	1.26×10^{-1}	9.89×10^{-3}	8.99×10^{-4}	3.02×10^{-6}	5.15×10^{-3}
Chemical wash system	2013	2162	200EW	5.39×10^{-1}	9.51×10^{-2}	8.02×10^{-3}	3.03×10^{-5}	2.56×10^{-2}
IHLW Interim Storage Facility	2078	2197	WTP_AS	a	a	a	a	a
Waste Treatment Plant original	2078	2080	WTP_AS	1.51×10^{1}	2.97×10^{1}	1.16×10^{-1}	5.95×10^{-1}	5.54×10^{1}
Waste Treatment Plant replacement 1	2138	2140	WTP_AS	1.51×10^{1}	2.97×10^{1}	1.16×10^{-1}	5.95×10^{-1}	5.54×10^{1}
Waste Treatment Plant replacement 2	2164	2166	WTP_AS	1.51×10^{1}	2.97×10^{1}	1.16×10^{-1}	5.95×10^{-1}	5.54×10^{1}
Cesium and Strontium Capsule Processing Facility	2164	2164	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 3	2116	2116	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 4	2146	2146	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 5	2167	2167	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2043	2043	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 2	2068	2068	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 3	2093	2093	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 4	2118	2118	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 5	2143	2143	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 6	2168	2168	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}

Table G–25. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure								
Containment structure construction 1	2038	2041	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 2	2061	2064	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 3	2084	2087	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 4	2107	2110	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 5	2122	2125	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 6	2138	2141	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure deactivation 1	2062	2064	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 2	2085	2087	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 3	2108	2110	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 4	2123	2125	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 5	2146	2148	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	1.94
Containment structure deactivation 6	2138	2140	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	1.94
Containment structure deactivation 7	2162	2164	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2149	2150	200EW	1.72×10^{3}	1.57×10^{3}	3.65×10^{3}	2.38	1.93×10^{2}
Postclosure care	2151	2250	200EW	a	a	a	a	a
B tank farm removal	2065	2076	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
T tank farm removal	2126	2137	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
BY tank farm removal	2111	2122	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
BX tank farm removal	2042	2053	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
C tank farm removal	2088	2099	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
A tank farm removal	2142	2153	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
AX tank farm removal	2142	2153	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
S tank farm removal	2126	2137	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
TY tank farm removal	2111	2122	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
TX tank farm removal	2088	2099	200EW	2.07×10^{1}	9.31×10^{1}	1.21×10^{1}	3.25×10^{-2}	7.63

Table G–25. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
U tank farm removal	2065	2076	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
SX tank farm removal	2042	2053	200EW	1.72×10^{1}	7.75×10^{1}	1.01×10^{1}	2.71×10^{-2}	6.35
B tank farm deep soil removal	2077	2084	200E	3.84	1.78×10^{1}	1.89	6.06×10^{-3}	1.46
T tank farm deep soil removal	2138	2145	200W	2.95×10^{1}	1.37×10^{2}	1.45×10^{1}	4.66×10^{-2}	1.12×10^{1}
BX tank farm deep soil removal	2054	2061	200E	1.23×10^{2}	5.71×10^{2}	6.04×10^{1}	1.94×10^{-1}	4.66×10^{1}
C tank farm deep soil removal	2100	2107	200EW	2.33×10^{-1}	1.08	1.15×10^{-1}	3.68×10^{-4}	8.82×10^{-2}
A tank farm deep soil removal	2154	2161	200E	6.99×10^{-1}	3.24	3.43×10^{-1}	1.10×10^{-3}	2.65×10^{-1}
AX tank farm deep soil removal	2154	2161	200E	1.16×10^{1}	5.41×10^{1}	5.72	1.84×10^{-2}	4.41
TX tank farm deep soil removal	2100	2107	200EW	3.67×10^{1}	1.70×10^{2}	1.80×10^{1}	5.79×10^{-2}	1.39×10^{1}
U tank farm deep soil removal	2077	2084	200EW	1.92×10^{1}	8.92×10^{1}	9.44	3.03×10^{-2}	7.28
SX tank farm deep soil removal	2054	2061	200W	4.69×10^{1}	2.18×10^{2}	2.31×10^{1}	7.40×10^{-2}	1.78×10^{1}
Preprocessing Facility construction	2039	2041	200E	7.88×10^{2}	5.70×10^{2}	1.71×10^{2}	1.08	7.74×10^{1}
Preprocessing Facility operations	2042	2162	200E	3.53×10^{-1}	1.30×10^{-1}	1.16×10^{-2}	3.60×10^{-2}	3.42×10^{-1}
Preprocessing Facility deactivation	2163	2163	200E	5.54×10^{-2}	2.05×10^{-2}	1.82×10^{-3}	5.65×10^{-3}	5.38×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–26. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	WTP_AS	3.89×10^{-1}	8.63×10^{-2}	2.28×10^{-3}	7.49×10^{-2}	a	5.89×10^{-1}	1.75×10^{-1}
Cesium and Strontium Capsule Processing Facility	2158	2161	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Tank risers	2013	2016	200EW	2.38	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	200EW+	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	200EW+	a	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	200EW+	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	200EW	1.09×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	200EW	3.42×10^{-2}	a	a	a	a	a	a
Chemical wash system	2013	2162	200EW	1.43×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2017	2018	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	WTP_AS	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	200EW+	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	WTP_AS	3.81×10^{-1}	8.45×10^{-2}	2.23×10^{-3}	7.33×10^{-2}	a	5.76×10^{-1}	1.72×10^{-1}
Waste Treatment Plant replacement 2	2127	2138	WTP_AS	3.81×10^{-1}	8.45×10^{-2}	2.23×10^{-3}	7.33×10^{-2}	a	5.76×10^{-1}	1.72×10^{-1}
IHLW Shipping/Transfer Facility 1	2076	2078	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	200E	a	a	a	a	a	a	a

Table G–26. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction *(continued)*										
IHLW Interim Storage Module, additional	2078	2197	200E	a	a	a	a	a	a	a
HLW Debris Storage Facility	2041	2110	200EW	2.46×10^{-3}	3.31×10^{-4}	1.39×10^{-5}	4.18×10^{-4}	a	1.45×10^{-4}	1.01×10^{-4}
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 2	2053	2055	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 3	2083	2085	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 4	2113	2115	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 5	2143	2145	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 2	2040	2042	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 3	2065	2067	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 4	2090	2092	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 5	2115	2117	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 6	2140	2142	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Operations										
IHLW Interim Storage Facility	2018	2262	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2162	200EW	a	a	a	a	a	a	a
Routine operations	2006	2162	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2162	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2162	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2162	WTP_PS	4.09	2.58×10^{-2}	9.32×10^{-6}	2.88×10^{-4}	1.26×10^{-2}	7.29×10^{-4}	2.45×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	WTP_PS	4.09	2.58×10^{-2}	1.35×10^{-3}	2.88×10^{-4}	a	7.29×10^{-4}	2.45×10^{-3}
Cesium and Strontium Capsule Processing Facility	2162	2163	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Mobile retrieval system	2013	2162	200EW	1.09×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	200EW	3.42×10^{-2}	a	a	a	a	a	a
Chemical wash system	2013	2162	200EW	1.43×10^{-3}	a	a	a	a	a	a

Table G–26. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
HLW Melter Interim Storage Facility	2018	2262	WTP_AS	a	a	a	a	a	a	a
HLW Debris Storage Facility	2042	2262	200EW	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2166	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2018	2163	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2167	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation										
Mobile retrieval system	2013	2162	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	200EW	a	a	a	a	a	a	a
Chemical wash system	2013	2162	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2078	2197	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant original	2078	2080	WTP_AS	2.29×10^{-1}	1.44×10^{-3}	5.21×10^{-7}	1.61×10^{-5}	7.08×10^{-4}	4.07×10^{-5}	1.37×10^{-4}
Waste Treatment Plant replacement 1	2138	2140	WTP_AS	2.29×10^{-1}	1.44×10^{-3}	5.21×10^{-7}	1.61×10^{-5}	7.08×10^{-4}	4.07×10^{-5}	1.37×10^{-4}
Waste Treatment Plant replacement 2	2164	2166	WTP_AS	2.29×10^{-1}	1.44×10^{-3}	5.21×10^{-7}	1.61×10^{-5}	7.08×10^{-4}	4.07×10^{-5}	1.37×10^{-4}
Cesium and Strontium Capsule Processing Facility	2164	2164	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 3	2116	2116	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 4	2146	2146	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 5	2167	2167	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2043	2043	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 2	2068	2068	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 3	2093	2093	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 4	2118	2118	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 5	2143	2143	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 6	2168	2168	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}

Table G–26. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure										
Containment structure construction 1	2038	2041	200EW	a	a	a	a	a	a	a
Containment structure construction 2	2061	2064	200EW	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	200EW	a	a	a	a	a	a	a
Containment structure construction 4	2107	2110	200EW	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	200EW	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	200EW	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	200EW	a	a	a	a	a	a	a
Containment structure deactivation 2	2085	2087	200EW	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	200EW	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	200EW	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	200EW	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	200EW	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	200EW	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2149	2150	200EW	2.53	5.04×10^{-1}	1.46×10^{-2}	4.72×10^{-1}	a	2.88	8.74×10^{-1}
Postclosure care	2151	2250	200EW	a	a	a	a	a	a	a
B tank farm removal	2065	2076	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
T tank farm removal	2126	2137	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
BY tank farm removal	2111	2122	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
BX tank farm removal	2042	2053	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
C tank farm removal	2088	2099	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
A tank farm removal	2142	2153	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
AX tank farm removal	2142	2153	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
S tank farm removal	2126	2137	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
TY tank farm removal	2111	2122	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
TX tank farm removal	2088	2099	200NEW	1.46×10^{-1}	1.98×10^{-2}	8.25×10^{-4}	2.49×10^{-2}	a	9.86×10^{-3}	6.36×10^{-3}
U tank farm removal	2065	2076	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
SX tank farm removal	2042	2053	200EW	1.22×10^{-1}	1.65×10^{-2}	6.88×10^{-4}	2.08×10^{-2}	a	8.22×10^{-3}	5.30×10^{-3}
B tank farm deep soil removal	2077	2084	200E	2.80×10^{-2}	3.77×10^{-3}	1.58×10^{-4}	4.77×10^{-3}	a	1.65×10^{-3}	1.15×10^{-3}
T tank farm deep soil removal	2138	2145	200W	2.15×10^{-1}	2.90×10^{-2}	1.21×10^{-3}	3.67×10^{-2}	a	1.27×10^{-2}	8.85×10^{-3}

Table G–26. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
BX tank farm deep soil removal	2054	2061	200E	8.97×10^{-1}	1.21×10^{-1}	5.06×10^{-3}	1.53×10^{-1}	a	5.29×10^{-2}	3.69×10^{-2}
C tank farm deep soil removal	2100	2107	200EW	1.70×10^{-3}	2.29×10^{-4}	9.58×10^{-6}	2.89×10^{-4}	a	1.00×10^{-4}	6.99×10^{-5}
A tank farm deep soil removal	2154	2161	200E	5.10×10^{-3}	6.86×10^{-4}	2.88×10^{-5}	8.68×10^{-4}	a	3.01×10^{-4}	2.10×10^{-4}
AX tank farm deep soil removal	2154	2161	200E	8.50×10^{-2}	1.14×10^{-2}	4.79×10^{-4}	1.45×10^{-2}	a	5.01×10^{-3}	3.49×10^{-3}
TX tank farm deep soil removal	2100	2107	200EW	2.68×10^{-1}	3.60×10^{-2}	1.51×10^{-3}	4.56×10^{-2}	a	1.58×10^{-2}	1.10×10^{-2}
U tank farm deep soil removal	2077	2084	200EW	1.40×10^{-1}	1.89×10^{-2}	7.91×10^{-4}	2.39×10^{-2}	a	8.27×10^{-3}	5.76×10^{-3}
SX tank farm deep soil removal	2054	2061	200W	3.42×10^{-1}	4.61×10^{-2}	1.93×10^{-3}	5.83×10^{-2}	a	2.02×10^{-2}	1.41×10^{-2}
Preprocessing Facility construction	2039	2041	200E	9.20×10^{-1}	2.03×10^{-1}	5.38×10^{-3}	1.77×10^{-1}	a	1.37	4.10×10^{-1}
Preprocessing Facility operations	2042	2162	200E	1.60×10^{-4}	9.12×10^{-6}	5.60×10^{-10}	3.20×10^{-8}	1.69×10^{-5}	1.38×10^{-6}	3.90×10^{-6}
Preprocessing Facility deactivation	2163	2163	200E	2.51×10^{-5}	1.43×10^{-6}	8.80×10^{-11}	5.03×10^{-9}	a	2.17×10^{-7}	6.13×10^{-7}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–27. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2157	200E	5.33×10^{1}	6.35×10^{1}	2.10×10^{2}	1.94×10^{-2}	5.78
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant original	2006	2017	WTP_AS	3.37×10^{2}	2.41×10^{2}	2.86×10^{2}	4.64×10^{-1}	3.29×10^{1}
Cesium and Strontium Capsule Processing Facility	2158	2161	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Tank risers	2013	2016	200EW	2.01×10^{1}	8.94	8.10×10^{-1}	1.88×10^{-3}	2.25
Double-shell tank replacement 1	2029	2034	200EW+	2.60×10^{2}	2.17×10^{2}	1.35×10^{3}	6.43×10^{-2}	2.20×10^{1}
Double-shell tank replacement 2	2069	2074	200EW+	2.60×10^{2}	2.17×10^{2}	1.35×10^{3}	6.43×10^{-2}	2.20×10^{1}
Double-shell tank replacement 3	2109	2114	200EW+	2.60×10^{2}	2.17×10^{2}	1.35×10^{3}	6.43×10^{-2}	2.20×10^{1}
Mobile retrieval system	2013	2162	200EW	2.73×10^{1}	1.19×10^{1}	2.28	3.80×10^{-3}	1.81
Vacuum-based retrieval system	2013	2162	200EW	5.79	2.62	5.26×10^{-1}	8.34×10^{-4}	3.94×10^{-1}
Chemical wash system	2013	2162	200EW	5.84×10^{-2}	3.12×10^{-1}	3.89×10^{-2}	9.74×10^{-5}	1.95×10^{-2}
HLW Melter Interim Storage Facility 1	2017	2018	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 2	2037	2038	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 3	2057	2058	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 4	2077	2078	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 5	2097	2098	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 6	2117	2118	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 7	2137	2138	WTP_AS	6.17×10^{-1}	1.38	1.72×10^{1}	2.86×10^{-4}	6.73×10^{-2}
Underground transfer line replacement	2064	2064	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Waste Treatment Plant replacement 1	2067	2078	WTP_AS	3.30×10^{2}	2.36×10^{2}	2.34×10^{2}	4.54×10^{-1}	3.22×10^{1}
Waste Treatment Plant replacement 2	2127	2138	WTP_AS	3.30×10^{2}	2.36×10^{2}	2.34×10^{2}	4.54×10^{-1}	3.22×10^{1}
IHLW Shipping/Transfer Facility 1	2076	2078	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Shipping/Transfer Facility 2	2136	2138	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Shipping/Transfer Facility 3	2196	2198	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50

Table G–27. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction *(continued)*								
IHLW Interim Storage Module, additional	2078	2197	200E	1.45×10^{2}	1.73×10^{2}	5.72×10^{2}	5.27×10^{-2}	1.57×10^{1}
HLW Debris Storage Facility	2041	2110	200EW	3.37×10^{-1}	1.56	1.10×10^{-1}	5.31×10^{-4}	1.28×10^{-1}
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 2	2053	2055	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 3	2083	2085	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 4	2113	2115	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 5	2143	2145	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 2	2040	2042	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 3	2065	2067	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 4	2090	2092	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 5	2115	2117	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Evaporator replacement 6	2140	2142	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2262	200E	a	a	a	a	a
Other infrastructure upgrades	2006	2162	200EW	a	a	a	a	a
Routine operations	2006	2162	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2162	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2162	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2162	WTP_PS	2.71×10^{2}	5.32×10^{2}	2.08	1.07×10^{1}	9.91×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	WTP_PS	2.71×10^{2}	5.32×10^{2}	2.08	1.07×10^{1}	9.91×10^{2}
Cesium and Strontium Capsule Processing Facility	2162	2163	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Mobile retrieval system	2013	2162	200EW	1.26×10^{-1}	1.42×10^{-1}	a	a	5.02×10^{-2}
Vacuum-based retrieval system	2013	2162	200EW	3.95×10^{-2}	4.47×10^{-2}	a	a	1.58×10^{-2}
Chemical wash system	2013	2162	200EW	3.89×10^{-2}	1.36×10^{-1}	4.09×10^{-1}	3.87×10^{-5}	a
HLW Melter Interim Storage Facility	2018	2262	WTP_AS	a	a	a	a	a

Table G–27. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
HLW Debris Storage Facility	2042	2262	200EW	a	a	a	a	a
Effluent Treatment Facility	2006	2166	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2018	2163	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2167	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Deactivation								
Mobile retrieval system	2013	2162	200EW	1.36×10^{1}	1.07	8.89×10^{-2}	3.27×10^{-4}	5.63×10^{-1}
Vacuum-based retrieval system	2013	2162	200EW	1.26×10^{-1}	9.89×10^{-3}	8.99×10^{-4}	3.02×10^{-6}	5.15×10^{-3}
Chemical wash system	2013	2162	200EW	5.39×10^{-1}	9.51×10^{-2}	8.02×10^{-3}	3.03×10^{-5}	2.56×10^{-2}
IHLW Interim Storage Facility	2078	2197	WTP_AS	a	a	a	a	a
Waste Treatment Plant original	2079	2081	WTP_AS	1.51×10^{1}	2.97×10^{1}	1.16×10^{-1}	5.95×10^{-1}	5.54×10^{1}
Waste Treatment Plant replacement 1	2139	2141	WTP_AS	1.51×10^{1}	2.97×10^{1}	1.16×10^{-1}	5.95×10^{-1}	5.54×10^{1}
Waste Treatment Plant replacement 2	2164	2166	WTP_AS	1.51×10^{1}	2.97×10^{1}	1.16×10^{-1}	5.95×10^{-1}	5.54×10^{1}
Cesium and Strontium Capsule Processing Facility	2164	2164	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 3	2116	2116	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 4	2146	2146	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 5	2167	2167	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2043	2043	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 2	2068	2068	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 3	2093	2093	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 4	2118	2118	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 5	2143	2143	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 6	2168	2168	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Containment structure construction 1	2038	2041	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 2	2061	2064	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 3	2084	2087	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 4	2107	2110	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 5	2122	2125	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91

Table G–27. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
Containment structure construction 6	2138	2141	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure deactivation 1	2062	2064	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 2	2085	2087	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 3	2108	2110	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 4	2123	2125	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 5	2146	2148	200EW	4.52×10^{1}	4.70	1.55	1.46×10^{-3}	1.94
Containment structure deactivation 6	2138	2140	200EW	4.52×10^{1}	4.70	1.55	1.46×10^{-3}	1.94
Containment structure deactivation 7	2162	2164	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
B tank farm removal	2065	2076	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
T tank farm removal	2126	2137	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
BY tank farm removal	2111	2122	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
BX tank farm removal	2042	2053	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
C tank farm removal	2088	2099	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
A tank farm removal	2142	2153	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
AX tank farm removal	2142	2153	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
S tank farm removal	2126	2137	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
TY tank farm removal	2111	2122	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
TX tank farm removal	2088	2099	200EW	2.07×10^{1}	9.31×10^{1}	1.21×10^{1}	3.25×10^{-2}	7.63
U tank farm removal	2065	2076	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
SX tank farm removal	2042	2053	200EW	1.72×10^{1}	7.75×10^{1}	1.01×10^{1}	2.71×10^{-2}	6.35
B tank farm deep soil removal	2077	2084	200E	3.84	1.78×10^{1}	1.89	6.06×10^{-3}	1.46
T tank farm deep soil removal	2138	2145	200W	2.95×10^{1}	1.37×10^{2}	1.45×10^{1}	4.66×10^{-2}	1.12×10^{1}
BX tank farm deep soil removal	2054	2061	200E	1.23×10^{2}	5.71×10^{2}	6.04×10^{1}	1.94×10^{-1}	4.66×10^{1}
C tank farm deep soil removal	2100	2107	200E	2.33×10^{-1}	1.08	1.15×10^{-1}	3.68×10^{-4}	8.82×10^{-2}
A tank farm deep soil removal	2154	2161	200E	6.99×10^{-1}	3.24	3.43×10^{-1}	1.10×10^{-3}	2.65×10^{-1}
AX tank farm deep soil removal	2154	2161	200E	1.16×10^{1}	5.41×10^{1}	5.72	1.84×10^{-2}	4.41
TX tank farm deep soil removal	2100	2107	200EW	3.67×10^{1}	1.70×10^{2}	1.80×10^{1}	5.79×10^{-2}	1.39×10^{1}
U tank farm deep soil removal	2077	2084	200EW	1.92×10^{1}	8.92×10^{1}	9.44	3.03×10^{-2}	7.28
SX tank farm deep soil removal	2054	2061	200E	4.69×10^{1}	2.18×10^{2}	2.31×10^{1}	7.40×10^{-2}	1.78×10^{1}
B Area cribs and trenches (ditches) removal	2054	2084	200EW	5.41×10^{1}	2.51×10^{2}	2.66×10^{1}	8.54×10^{-2}	2.05×10^{1}

Table G–27. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
T Area cribs and trenches (ditches) removal	2100	2145	200EW	3.64×10^{1}	1.69×10^{2}	1.79×10^{1}	5.76×10^{-2}	1.38×10^{1}
B and T Area cribs and trenches (ditches) construction 1	2050	2053	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
B and T Area cribs and trenches (ditches) construction 2	2096	2099	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
B and T Area cribs and trenches (ditches) deactivation 1	2085	2087	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
B and T Area cribs and trenches (ditches) deactivation 2	2146	2148	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Preprocessing Facility construction	2039	2041	200E	1.58×10^{3}	1.14×10^{3}	3.41×10^{2}	2.18	1.55×10^{2}
Preprocessing Facility operations	2042	2162	200E	1.32	3.53	3.17×10^{-1}	7.98×10^{-1}	1.20
Preprocessing Facility deactivation	2163	2163	200E	2.07×10^{-1}	5.55×10^{-1}	4.99×10^{-2}	1.25×10^{-1}	1.89×10^{-1}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–28. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	WTP_AS	3.89×10^{-1}	8.63×10^{-2}	2.28×10^{-3}	7.49×10^{-2}	a	5.89×10^{-1}	1.75×10^{-1}
Cesium and Strontium Capsule Processing Facility	2158	2161	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Tank risers	2013	2016	200EW	2.38	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	200EW+	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	200EW+	a	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	200EW+	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	200EW	1.09×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	200EW	3.42×10^{-2}	a	a	a	a	a	a
Chemical wash system	2013	2162	200EW	1.43×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2017	2018	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	WTP_AS	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	200EW+	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	WTP_AS	3.81×10^{-1}	8.45×10^{-2}	2.23×10^{-3}	7.33×10^{-2}	a	5.76×10^{-1}	1.72×10^{-1}
Waste Treatment Plant replacement 2	2127	2138	WTP_AS	3.81×10^{-1}	8.45×10^{-2}	2.23×10^{-3}	7.33×10^{-2}	a	5.76×10^{-1}	1.72×10^{-1}
IHLW Shipping/Transfer Facility 1	2076	2078	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	200E	a	a	a	a	a	a	a
IHLW Interim Storage Module, additional	2078	2197	200E	a	a	a	a	a	a	a
HLW Debris Storage Facility	2041	2110	200EW	2.46×10^{-3}	3.31×10^{-4}	1.39×10^{-5}	4.18×10^{-4}	a	1.45×10^{-4}	1.01×10^{-4}

Table G–28. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction *(continued)*										
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 2	2053	2055	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 3	2083	2085	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 4	2113	2115	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 5	2143	2145	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 2	2040	2042	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 3	2065	2067	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 4	2090	2092	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 5	2115	2117	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Evaporator replacement 6	2140	2142	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Operations										
IHLW Interim Storage Facility	2018	2262	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2162	200EW	a	a	a	a	a	a	a
Routine operations	2006	2162	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2162	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2162	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2162	WTP_PS	4.09	2.58×10^{-2}	9.32×10^{-6}	2.88×10^{-4}	1.26×10^{-2}	7.29×10^{-4}	2.45×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	WTP_PS	4.09	2.58×10^{-2}	1.35×10^{-3}	2.88×10^{-4}	a	7.29×10^{-4}	2.45×10^{-3}
Cesium and Strontium Capsule Processing Facility	2162	2163	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Mobile retrieval system	2013	2162	200EW	1.09×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	200EW	3.42×10^{-2}	a	a	a	a	a	a
Chemical wash system	2013	2162	200EW	1.43×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2262	WTP_AS	a	a	a	a	a	a	a
HLW Debris Storage Facility	2042	2262	200EW	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2166	WTP_PS	4.54×10^{-3}	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2018	2163	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2167	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}

Table G–28. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation										
Mobile retrieval system	2013	2162	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	200EW	a	a	a	a	a	a	a
Chemical wash system	2013	2162	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2078	2197	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant original	2079	2081	WTP_AS	2.29×10^{-1}	1.44×10^{-3}	5.21×10^{-7}	1.61×10^{-5}	7.08×10^{-4}	4.07×10^{-5}	1.37×10^{-4}
Waste Treatment Plant replacement 1	2139	2141	WTP_AS	2.29×10^{-1}	1.44×10^{-3}	5.21×10^{-7}	1.61×10^{-5}	7.08×10^{-4}	4.07×10^{-5}	1.37×10^{-4}
Waste Treatment Plant replacement 2	2164	2166	WTP_AS	2.29×10^{-1}	1.44×10^{-3}	5.21×10^{-7}	1.61×10^{-5}	7.08×10^{-4}	4.07×10^{-5}	1.37×10^{-4}
Cesium and Strontium Capsule Processing Facility	2164	2164	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 3	2116	2116	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 4	2146	2146	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 5	2167	2167	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2043	2043	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 2	2068	2068	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 3	2093	2093	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 4	2118	2118	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 5	2143	2143	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 6	2168	2168	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Containment structure construction 1	2038	2041	200EW	a	a	a	a	a	a	a
Containment structure construction 2	2061	2064	200EW	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	200EW	a	a	a	a	a	a	a
Containment structure construction 4	2107	2110	200EW	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	200EW	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	200EW	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	200EW	a	a	a	a	a	a	a

Table G–28. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
Containment structure deactivation 2	2085	2087	200EW	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	200EW	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	200EW	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	200EW	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	200EW	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	200EW	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
B tank farm removal	2065	2076	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
T tank farm removal	2126	2137	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
BY tank farm removal	2111	2122	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
BX tank farm removal	2042	2053	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
C tank farm removal	2088	2099	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
A tank farm removal	2142	2153	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
AX tank farm removal	2142	2153	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
S tank farm removal	2126	2137	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
TY tank farm removal	2111	2122	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
TX tank farm removal	2088	2099	200EW	1.46×10^{-1}	1.98×10^{-2}	8.25×10^{-4}	2.49×10^{-2}	a	9.86×10^{-3}	6.36×10^{-3}
U tank farm removal	2065	2076	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
SX tank farm removal	2042	2053	200EW	1.22×10^{-1}	1.65×10^{-2}	6.88×10^{-4}	2.08×10^{-2}	a	8.22×10^{-3}	5.30×10^{-3}
B tank farm deep soil removal	2077	2084	200E	2.80×10^{-2}	3.77×10^{-3}	1.58×10^{-4}	4.77×10^{-3}	a	1.65×10^{-3}	1.15×10^{-3}
T tank farm deep soil removal	2138	2145	200W	2.15×10^{-1}	2.90×10^{-2}	1.21×10^{-3}	3.67×10^{-2}	a	1.27×10^{-2}	8.85×10^{-3}
BX tank farm deep soil removal	2054	2061	200E	8.97×10^{-1}	1.21×10^{-1}	5.06×10^{-3}	1.53×10^{-1}	a	5.29×10^{-2}	3.69×10^{-2}
C tank farm deep soil removal	2100	2107	200E	1.70×10^{-3}	2.29×10^{-4}	9.58×10^{-6}	2.89×10^{-4}	a	1.00×10^{-4}	6.99×10^{-5}
A tank farm deep soil removal	2154	2161	200E	5.10×10^{-3}	6.86×10^{-4}	2.88×10^{-5}	8.68×10^{-4}	a	3.01×10^{-4}	2.10×10^{-4}
AX tank farm deep soil removal	2154	2161	200E	8.50×10^{-2}	1.14×10^{-2}	4.79×10^{-4}	1.45×10^{-2}	a	5.01×10^{-3}	3.49×10^{-3}
TX tank farm deep soil removal	2100	2107	200EW	2.68×10^{-1}	3.60×10^{-2}	1.51×10^{-3}	4.56×10^{-2}	a	1.58×10^{-2}	1.10×10^{-2}
U tank farm deep soil removal	2077	2084	200EW	1.40×10^{-1}	1.89×10^{-2}	7.91×10^{-4}	2.39×10^{-2}	a	8.27×10^{-3}	5.76×10^{-3}
SX tank farm deep soil removal	2054	2061	200E	3.42×10^{-1}	4.61×10^{-2}	1.93×10^{-3}	5.83×10^{-2}	a	2.02×10^{-2}	1.41×10^{-2}
B Area cribs and trenches (ditches) removal	2054	2084	200EW	3.95×10^{-1}	5.31×10^{-2}	2.23×10^{-3}	6.72×10^{-2}	a	2.33×10^{-2}	1.62×10^{-2}

Table G–28. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
T Area cribs and trenches (ditches) removal	2100	2145	200EW	2.66×10^{-1}	3.58×10^{-2}	1.50×10^{-3}	4.53×10^{-2}	a	1.57×10^{-2}	1.09×10^{-2}
B and T Area cribs and trenches (ditches) construction 1	2050	2053	200EW	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) construction 2	2096	2099	200EW	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) deactivation 1	2085	2087	200EW	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) deactivation 2	2146	2148	200EW	a	a	a	a	a	a	a
Preprocessing Facility construction	2039	2041	200E	1.85	4.07×10^{-1}	1.08×10^{-2}	3.55×10^{-1}	a	2.76	8.22×10^{-1}
Preprocessing Facility operations	2042	2162	200E	5.62×10^{-4}	3.20×10^{-5}	1.97×10^{-9}	1.13×10^{-7}	a	4.85×10^{-6}	1.37×10^{-5}
Preprocessing Facility deactivation	2163	2163	200E	8.82×10^{-5}	5.04×10^{-6}	3.09×10^{-10}	1.77×10^{-8}	a	7.62×10^{-7}	2.15×10^{-6}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–29. Tank Closure Alternative 6B, Base Case, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules, three additional	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.34
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	1.85×10^{2}	4.09×10^{1}	1.65×10^{2}	2.50×10^{-1}	1.15×10^{1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	2.01×10^{1}	8.94	8.10×10^{-1}	1.88×10^{-3}	2.25
Mobile retrieval system	2013	2043	200EW	8.69×10^{1}	3.77×10^{1}	7.25	1.21×10^{-2}	5.75
Vacuum-based retrieval system	2013	2043	200EW	3.24×10^{1}	1.46×10^{1}	2.94	4.66×10^{-3}	2.20
Chemical wash system	2013	2043	200EW	2.19×10^{-1}	1.17	1.46×10^{-1}	3.66×10^{-4}	7.32×10^{-2}
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 2	2053	2055	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 3	2083	2085	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	WTP_AS	1.02	4.72	4.32×10^{1}	1.55×10^{-3}	3.86×10^{-1}
HLW Debris Storage Facilities	2021	2090	200EW	3.37×10^{-1}	1.56	1.10×10^{-1}	5.31×10^{-4}	1.28×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a
Routine operations	2006	2043	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2043	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2043	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2043	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}

Table G–29. Tank Closure Alternative 6B, Base Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Mobile retrieval system	2013	2043	200EW	3.99×10^{-1}	4.53×10^{-1}	a	a	1.60×10^{-1}
Vacuum-based retrieval system	2013	2043	200EW	2.21×10^{-1}	2.50×10^{-1}	a	a	8.83×10^{-2}
Chemical wash system	2013	2043	200EW	1.46×10^{-1}	5.12×10^{-1}	1.54	1.45×10^{-4}	a
HLW Melter Interim Storage Facility	2018	2199	WTP_AS	a	a	a	a	a
Effluent Treatment Facility	2006	2100	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2043	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	1.56×10^{-1}
Borrow Area C	2006	2102	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	WTP_AS	a	a	a	a	a
HLW Debris Storage Facilities	2023	2199	200EW	a	a	a	a	a
Deactivation								
Mobile retrieval system	2013	2043	200EW	4.34×10^{1}	3.40	2.83×10^{-1}	1.04×10^{-3}	1.79
Vacuum-based retrieval system	2013	2043	200EW	7.05×10^{-1}	5.53×10^{-2}	5.03×10^{-3}	1.69×10^{-5}	2.88×10^{-2}
Chemical wash system	2013	2043	200EW	2.03	3.57×10^{-1}	3.01×10^{-2}	1.14×10^{-4}	9.62×10^{-2}
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	2.36×10^{1}	5.24×10^{1}	9.08×10^{-1}	2.69	8.56×10^{1}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 3	2101	2101	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2044	2044	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Containment structure construction 1	2019	2022	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 2	2019	2022	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 3	2046	2049	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 4	2046	2049	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 5	2073	2076	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91

Table G–29. Tank Closure Alternative 6B, Base Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
Containment structure construction 6	2073	2076	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure deactivation 1	2043	2045	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 2	2043	2045	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 3	2070	2072	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 4	2062	2064	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 5	2089	2091	200EW	4.52×10^{1}	4.70	1.55	1.46×10^{-3}	1.94
Containment structure deactivation 6	2097	2099	200EW	4.52×10^{1}	4.70	1.55	1.46×10^{-3}	1.94
Containment structure deactivation 7	2097	2099	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2100	2101	200EW	1.72×10^{3}	1.57×10^{3}	3.65×10^{3}	2.38	1.93×10^{2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
B tank farm removal	2023	2034	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
T tank farm removal	2077	2088	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
BY tank farm removal	2050	2061	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
BX tank farm removal	2023	2034	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
C tank farm removal	2050	2061	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
A tank farm removal	2077	2088	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
AX tank farm removal	2077	2088	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
S tank farm removal	2077	2088	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
TY tank farm removal	2050	2061	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
TX tank farm removal	2050	2061	200EW	2.07×10^{1}	9.31×10^{1}	1.21×10^{1}	3.25×10^{-2}	7.63
U tank farm removal	2023	2034	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
SX tank farm removal	2023	2034	200EW	1.72×10^{1}	7.75×10^{1}	1.01×10^{1}	2.71×10^{-2}	6.35
B tank farm deep soil removal	2035	2042	200E	3.84	1.78×10^{1}	1.89	6.06×10^{-3}	1.46
T tank farm deep soil removal	2089	2096	200W	2.95×10^{1}	1.37×10^{2}	1.45×10^{1}	4.66×10^{-2}	1.12×10^{1}
BX tank farm deep soil removal	2035	2042	200E	1.23×10^{2}	5.71×10^{2}	6.04×10^{1}	1.94×10^{-1}	4.66×10^{1}
C tank farm deep soil removal	2062	2069	200E	2.33×10^{-1}	1.08	1.15×10^{-1}	3.68×10^{-4}	8.82×10^{-2}
A tank farm deep soil removal	2089	2096	200E	6.99×10^{-1}	3.24	3.43×10^{-1}	1.10×10^{-3}	2.65×10^{-1}
AX tank farm deep soil removal	2089	2096	200E	1.16×10^{1}	5.41×10^{1}	5.72	1.84×10^{-2}	4.41
TX tank farm deep soil removal	2062	2069	200EW	3.67×10^{1}	1.70×10^{2}	1.80×10^{1}	5.79×10^{-2}	1.39×10^{1}

Table G–29. Tank Closure Alternative 6B, Base Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
U tank farm deep soil removal	2035	2042	200EW	1.92×10^{1}	8.92×10^{1}	9.44	3.03×10^{-2}	7.28
SX tank farm deep soil removal	2035	2042	200W	4.69×10^{1}	2.18×10^{2}	2.31×10^{1}	7.40×10^{-2}	1.78×10^{1}
Preprocessing Facility construction	2020	2022	200E	7.88×10^{2}	5.70×10^{2}	1.71×10^{2}	1.08	7.74×10^{1}
Preprocessing Facility operation	2023	2099	200E	3.53×10^{-1}	1.30×10^{-1}	1.16×10^{-2}	3.60×10^{-2}	3.42×10^{-1}
Preprocessing Facility deactivation	2100	2100	200E	5.54×10^{-2}	2.05×10^{-2}	1.82×10^{-3}	5.65×10^{-3}	1.12×10^{-3}
Postclosure care	2102	2201	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–30. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	7.08×10^{-2}	3.05×10^{-2}	4.50×10^{-4}	1.74×10^{-2}	a	3.54×10^{-1}	1.01×10^{-1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.38	a	a	a	a	a	a
Mobile retrieval system	2013	2043	200EW	3.46×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	200EW	1.91×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2043	200EW	5.37×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 2	2053	2055	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 3	2083	2085	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	WTP_AS	7.42×10^{-3}	9.99×10^{-4}	a	a	a	4.38×10^{-4}	3.06×10^{-4}
HLW Debris Storage Facilities	2021	2090	200EW	2.46×10^{-3}	3.31×10^{-4}	1.39×10^{-5}	4.18×10^{-4}	a	1.45×10^{-4}	1.01×10^{-4}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a

Table G–30. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation										
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a	a	a
Routine operations	2006	2043	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2043	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	6.97×10^{-2}	6.27×10^{-4}	2.11×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	a	6.27×10^{-4}	2.11×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Mobile retrieval system	2013	2043	200EW	3.46×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	200EW	1.91×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2043	200EW	5.37×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2199	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2100	WTP_PS	1.44	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2043	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2102	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	WTP_AS	a	a	a	a	a	a	a
HLW Debris Storage Facilities	2023	2199	200EW	a	a	a	a	a	a	a
Deactivation										
Mobile retrieval system	2013	2043	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	200EW	a	a	a	a	a	a	a
Chemical wash system	2013	2043	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	3.53×10^{-1}	2.23×10^{-3}	8.05×10^{-7}	2.49×10^{-5}	9.06×10^{-2}	6.27×10^{-5}	2.11×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}

Table G–30. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*										
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 3	2101	2101	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement	2044	2044	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Containment structure construction 1	2019	2022	200EW	a	a	a	a	a	a	a
Containment structure construction 2	2019	2022	200EW	a	a	a	a	a	a	a
Containment structure construction 3	2046	2049	200EW	a	a	a	a	a	a	a
Containment structure construction 4	2046	2049	200EW	a	a	a	a	a	a	a
Containment structure construction 5	2073	2076	200EW	a	a	a	a	a	a	a
Containment structure construction 6	2073	2076	200EW	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	200EW	a	a	a	a	a	a	a
Containment structure deactivation 2	2043	2045	200EW	a	a	a	a	a	a	a
Containment structure deactivation 3	2070	2072	200EW	a	a	a	a	a	a	a
Containment structure deactivation 4	2062	2064	200EW	a	a	a	a	a	a	a
Containment structure deactivation 5	2089	2091	200EW	a	a	a	a	a	a	a
Containment structure deactivation 6	2097	2099	200EW	a	a	a	a	a	a	a
Containment structure deactivation 7	2097	2099	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2100	2101	200EW	2.53	5.04×10^{-1}	1.46×10^{-2}	4.72×10^{-1}	a	2.88	8.74×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
B tank farm removal	2023	2034	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
T tank farm removal	2077	2088	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
Removal of BY tank farm	2050	2061	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
BX tank farm removal	2023	2034	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
C tank farm removal	2050	2061	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
A tank farm removal	2077	2088	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
AX tank farm removal	2077	2088	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
S tank farm removal	2077	2088	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}

Table G–30. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
TY tank farm removal	2050	2061	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
TX tank farm removal	2050	2061	200EW	1.46×10^{-1}	1.98×10^{-2}	8.25×10^{-4}	2.49×10^{-2}	a	9.86×10^{-3}	6.36×10^{-3}
U tank farm removal	2023	2034	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
SX tank farm removal	2023	2034	200EW	1.22×10^{-1}	1.65×10^{-2}	6.88×10^{-4}	2.08×10^{-2}	a	8.22×10^{-3}	5.30×10^{-3}
B tank farm deep soil removal	2035	2042	200E	2.80×10^{-2}	3.77×10^{-3}	1.58×10^{-4}	4.77×10^{-3}	a	1.65×10^{-3}	1.15×10^{-3}
T tank farm deep soil removal	2089	2096	200W	2.15×10^{-1}	2.90×10^{-2}	1.21×10^{-3}	3.67×10^{-2}	a	1.27×10^{-2}	8.85×10^{-3}
BX tank farm deep soil removal	2035	2042	200E	8.97×10^{-1}	1.21×10^{-1}	5.06×10^{-3}	1.53×10^{-1}	a	5.29×10^{-2}	3.69×10^{-2}
C tank farm deep soil removal	2062	2069	200E	1.70×10^{-3}	2.29×10^{-4}	9.58×10^{-6}	2.89×10^{-4}	a	1.00×10^{-4}	6.99×10^{-5}
A tank farm deep soil removal	2089	2096	200E	5.10×10^{-3}	6.86×10^{-4}	2.88×10^{-5}	8.68×10^{-4}	a	3.01×10^{-4}	2.10×10^{-4}
AX tank farm deep soil removal	2089	2096	200E	8.50×10^{-2}	1.14×10^{-2}	4.79×10^{-4}	1.45×10^{-2}	a	5.01×10^{-3}	3.49×10^{-3}
TX tank farm deep soil removal	2062	2069	200EW	2.68×10^{-1}	3.60×10^{-2}	1.51×10^{-3}	4.56×10^{-2}	a	1.58×10^{-2}	1.10×10^{-2}
U tank farm deep soil removal	2035	2042	200EW	1.40×10^{-1}	1.89×10^{-2}	7.91×10^{-4}	2.39×10^{-2}	a	8.27×10^{-3}	5.76×10^{-3}
SX tank farm deep soil removal	2035	2042	200W	3.42×10^{-1}	4.61×10^{-2}	1.93×10^{-3}	5.83×10^{-2}	a	2.02×10^{-2}	1.41×10^{-2}
Preprocessing Facility construction	2020	2022	200E	9.20×10^{-1}	2.03×10^{-1}	5.38×10^{-3}	1.77×10^{-1}	a	1.37	4.10×10^{-1}
Preprocessing Facility operations	2023	2099	200E	1.60×10^{-4}	9.12×10^{-6}	5.60×10^{-10}	3.20×10^{-8}	a	1.38×10^{-6}	3.90×10^{-6}
Preprocessing Facility deactivation	2100	2100	200E	2.51×10^{-5}	1.43×10^{-6}	8.80×10^{-11}	5.03×10^{-9}	a	2.17×10^{-7}	6.13×10^{-7}
Postclosure care	2102	2201	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–31. Tank Closure Alternative 6B, Option Case, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	1.28	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules, three additional	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.34
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	1.85×10^{2}	4.09×10^{1}	1.65×10^{2}	2.50×10^{-1}	1.15×10^{1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	2.01×10^{1}	8.94	8.10×10^{-1}	1.88×10^{-3}	2.25
Mobile retrieval system	2013	2043	200EW	8.69×10^{1}	3.77×10^{1}	7.25	1.21×10^{-2}	5.75
Vacuum-based retrieval system	2013	2043	200EW	3.24×10^{1}	1.46×10^{1}	2.94	4.66×10^{-3}	2.20
Chemical wash system	2013	2043	200EW	2.19×10^{-1}	1.17	1.46×10^{-1}	3.66×10^{-4}	7.32×10^{-2}
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 2	2053	2055	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Effluent Treatment Facility replacement 3	2083	2085	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	4.51×10^{2}	6.53×10^{1}	1.76×10^{1}	6.07×10^{-1}	2.56×10^{1}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	WTP_AS	1.02	4.72	4.32×10^{1}	1.55×10^{-3}	3.86×10^{-1}
HLW Debris Storage Facilities	2021	2090	200EW	3.37×10^{-1}	1.56	1.10×10^{-1}	5.31×10^{-4}	1.28×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Operations								
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a
Routine operations	2006	2043	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2043	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2043	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}

Table G–31. Tank Closure Alternative 6B, Option Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Waste Treatment Plant	2018	2043	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Mobile retrieval system	2013	2043	200EW	3.99×10^{-1}	4.53×10^{-1}	a	a	1.60×10^{-1}
Vacuum-based retrieval system	2013	2043	200EW	2.21×10^{-1}	2.50×10^{-1}	a	a	8.83×10^{-2}
Chemical wash system	2013	2043	200EW	1.46×10^{-1}	5.12×10^{-1}	1.54	1.45×10^{-4}	a
HLW Melter Interim Storage Facility	2018	2199	WTP_AS	a	a	a	a	a
Effluent Treatment Facility	2006	2100	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2043	200E	1.21×10^{1}	5.60×10^{1}	1.70×10^{1}	1.90×10^{-2}	4.57
Borrow Area C	2006	2102	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	WTP_AS	a	a	a	a	a
HLW Debris Storage Facilities	2023	2199	200EW	a	a	a	a	a
Deactivation								
Mobile retrieval system	2013	2043	200EW	4.34×10^{1}	3.40	2.83×10^{-1}	1.04×10^{-3}	1.79
Vacuum-based retrieval system	2013	2043	200EW	7.05×10^{-1}	5.53×10^{-2}	5.03×10^{-3}	1.69×10^{-5}	2.88×10^{-2}
Chemical wash system	2013	2043	200EW	2.03	3.57×10^{-1}	3.01×10^{-2}	1.14×10^{-4}	9.62×10^{-2}
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	2.36×10^{1}	5.24×10^{1}	9.08×10^{-1}	2.69	8.56×10^{1}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 3	2101	2101	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement	2044	2044	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Closure								
Containment structure construction 1	2019	2022	200EW	1.36×10^{2}	1.41×10^{1}	5.48	4.38×10^{-3}	5.81
Containment structure construction 2	2046	2049	200EW	1.36×10^{2}	1.41×10^{1}	5.48	4.38×10^{-3}	5.81
Containment structure construction 3	2073	2076	200EW	1.36×10^{2}	1.41×10^{1}	5.48	4.38×10^{-3}	5.81
Containment structure deactivation 1	2043	2045	200EW	1.81×10^{2}	1.88×10^{1}	6.19	5.84×10^{-3}	7.75

Table G–31. Tank Closure Alternative 6B, Option Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
Containment structure deactivation 2	2070	2072	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 3	2062	2064	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 4	2089	2091	200EW	4.52×10^{1}	4.70	1.55	2.92×10^{-1}	1.94
Containment structure deactivation 5	2097	2099	200EW	1.36×10^{2}	1.41×10^{1}	4.64	8.77×10^{-1}	5.81
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
B tank farm removal	2023	2034	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
T tank farm removal	2077	2088	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
BY tank farm removal	2050	2061	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
BX tank farm removal	2023	2034	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
C tank farm removal	2050	2061	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
A tank farm removal	2077	2088	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
AX tank farm removal	2077	2088	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
S tank farm removal	2077	2088	200EW	1.38×10^{1}	6.20×10^{1}	8.04	2.17×10^{-2}	5.08
TY tank farm removal	2050	2061	200EW	6.89	3.10×10^{1}	4.02	1.08×10^{-2}	2.54
TX tank farm removal	2050	2061	200EW	2.07×10^{1}	9.31×10^{1}	1.21×10^{1}	3.25×10^{-2}	7.63
U tank farm removal	2023	2034	200EW	1.84×10^{1}	8.27×10^{1}	1.07×10^{1}	2.89×10^{-2}	6.78
SX tank farm removal	2023	2034	200EW	1.72×10^{1}	7.75×10^{1}	1.01×10^{1}	2.71×10^{-2}	6.35
B tank farm deep soil removal	2035	2042	200E	3.84	1.78×10^{1}	1.89	6.06×10^{-3}	1.46
T tank farm deep soil removal	2089	2096	200W	2.95×10^{1}	1.37×10^{2}	1.45×10^{1}	4.66×10^{-2}	1.12×10^{1}
BX tank farm deep soil removal	2035	2042	200E	1.23×10^{2}	5.71×10^{2}	6.04×10^{1}	1.94×10^{-1}	4.66×10^{1}
C tank farm deep soil removal	2062	2069	200E	2.33×10^{-1}	1.08	1.15×10^{-1}	3.68×10^{-4}	8.82×10^{-2}
A tank farm deep soil removal	2089	2096	200E	6.99×10^{-1}	3.24	3.43×10^{-1}	1.10×10^{-3}	2.65×10^{-1}
AX tank farm deep soil removal	2089	2096	200E	1.16×10^{1}	5.41×10^{1}	5.72	1.84×10^{-2}	4.41
TX tank farm deep soil removal	2062	2069	200EW	3.67×10^{1}	1.70×10^{2}	1.80×10^{1}	5.79×10^{-2}	1.39×10^{1}
U tank farm deep soil removal	2035	2042	200EW	1.92×10^{1}	8.92×10^{1}	9.44	3.03×10^{-2}	7.28
SX tank farm deep soil removal	2035	2042	200W	4.69×10^{1}	2.18×10^{2}	2.31×10^{1}	7.40×10^{-2}	1.78×10^{1}
B Area cribs and trenches (ditches) removal	2035	2061	200EW	6.21×10^{1}	2.88×10^{2}	3.05×10^{1}	9.81×10^{-2}	2.35×10^{1}
T Area cribs and trenches (ditches) removal	2062	2096	200EW	4.79×10^{1}	2.22×10^{2}	2.35×10^{1}	7.56×10^{-2}	1.82×10^{1}
Containment structure construction 1	2029	2032	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
Containment structure construction 2	2056	2059	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91

Table G–31. Tank Closure Alternative 6B, Option Case, Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
Containment structure deactivation 1	2062	2064	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Containment structure deactivation 2	2097	2099	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Preprocessing Facility construction	2020	2022	200E	1.58×10^{3}	1.14×10^{3}	3.41×10^{2}	2.18	1.55×10^{2}
Preprocessing Facility operations	2023	2099	200E	2.07	5.55	4.99×10^{-1}	1.25	1.89
Preprocessing Facility deactivation	2100	2100	200E	2.07×10^{-1}	5.55×10^{-1}	4.99×10^{-2}	1.25×10^{-1}	1.89×10^{-1}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–32. Tank Closure Alternative 6B, Option Case, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	1.31	3.93×10^{-1}
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	7.08×10^{-2}	3.05×10^{-2}	4.50×10^{-4}	1.74×10^{-2}	a	3.54×10^{-1}	1.01×10^{-1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.38	a	a	a	a	a	a
Mobile retrieval system	2013	2043	200EW	3.46×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	200EW	1.91×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2043	200EW	5.37×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 2	2053	2055	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Effluent Treatment Facility replacement 3	2083	2085	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	1.19×10^{-1}	6.80×10^{-2}	7.95×10^{-4}	3.35×10^{-2}	a	8.74×10^{-1}	2.49×10^{-1}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	WTP_AS	7.42×10^{-3}	9.99×10^{-4}	a	a	a	4.38×10^{-4}	3.06×10^{-4}
HLW Debris Storage Facilities	2021	2090	200EW	2.46×10^{-3}	3.31×10^{-4}	1.39×10^{-5}	4.18×10^{-4}	a	1.45×10^{-4}	1.01×10^{-4}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a

Table G–32. Tank Closure Alternative 6B, Option Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations										
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a	a	a
Routine operations	2006	2043	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2043	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	6.97×10^{-2}	6.27×10^{-4}	2.11×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	a	6.27×10^{-4}	2.11×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Mobile retrieval system	2013	2043	200EW	3.46×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	200EW	1.91×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2043	200EW	5.37×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2199	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2100	WTP_PS	1.44	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2043	200E	8.80×10^{-2}	1.18×10^{-2}	4.96×10^{-4}	1.50×10^{-2}	a	5.19×10^{-3}	3.62×10^{-3}
Borrow Area C	2006	2102	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	WTP_AS	a	a	a	a	a	a	a
HLW Debris Storage Facilities	2023	2199	200EW	a	a	a	a	a	a	a
Deactivation										
Mobile retrieval system	2013	2043	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	200EW	a	a	a	a	a	a	a
Chemical wash system	2013	2043	200EW	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	3.53×10^{-1}	2.23×10^{-3}	8.05×10^{-7}	2.49×10^{-5}	9.06×10^{-2}	6.27×10^{-5}	2.11×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2056	2056	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}

Table G–32. Tank Closure Alternative 6B, Option Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*										
Effluent Treatment Facility replacement 2	2086	2086	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 3	2101	2101	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement	2044	2044	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Closure										
Containment structure construction 1	2019	2022	200EW	a	a	a	a	a	a	a
Containment structure construction 2	2046	2049	200EW	a	a	a	a	a	a	a
Containment structure construction 3	2073	2076	200EW	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	200EW	a	a	a	a	a	a	a
Containment structure deactivation 2	2070	2072	200EW	a	a	a	a	a	a	a
Containment structure deactivation 3	2062	2064	200EW	a	a	a	a	a	a	a
Containment structure deactivation 4	2089	2091	200EW	a	a	a	a	a	a	a
Containment structure deactivation 5	2097	2099	200EW	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a
B tank farm removal	2023	2034	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
T tank farm removal	2077	2088	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
BY tank farm removal	2050	2061	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
BX tank farm removal	2023	2034	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
C tank farm removal	2050	2061	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
A tank farm removal	2077	2088	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
AX tank farm removal	2077	2088	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
S tank farm removal	2077	2088	200EW	9.76×10^{-2}	1.32×10^{-2}	5.50×10^{-4}	1.66×10^{-2}	a	6.58×10^{-3}	4.24×10^{-3}
TY tank farm removal	2050	2061	200EW	4.88×10^{-2}	6.59×10^{-3}	2.75×10^{-4}	8.31×10^{-3}	a	3.29×10^{-3}	2.12×10^{-3}
TX tank farm removal	2050	2061	200EW	1.46×10^{-1}	1.98×10^{-2}	8.25×10^{-4}	2.49×10^{-2}	a	9.86×10^{-3}	6.36×10^{-3}
U tank farm removal	2023	2034	200EW	1.30×10^{-1}	1.76×10^{-2}	7.34×10^{-4}	2.22×10^{-2}	a	8.77×10^{-3}	5.65×10^{-3}
SX tank farm removal	2023	2034	200EW	1.22×10^{-1}	1.65×10^{-2}	6.88×10^{-4}	2.08×10^{-2}	a	8.22×10^{-3}	5.30×10^{-3}
B tank farm deep soil removal	2035	2042	200E	2.80×10^{-2}	3.77×10^{-3}	1.58×10^{-4}	4.77×10^{-3}	a	1.65×10^{-3}	1.15×10^{-3}
T tank farm deep soil removal	2089	2096	200W	2.15×10^{-1}	2.90×10^{-2}	1.21×10^{-3}	3.67×10^{-2}	a	1.27×10^{-2}	8.85×10^{-3}
BX tank farm deep soil removal	2035	2042	200E	8.97×10^{-1}	1.21×10^{-1}	5.06×10^{-3}	1.53×10^{-1}	a	5.29×10^{-2}	3.69×10^{-2}

Table G–32. Tank Closure Alternative 6B, Option Case, Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
C tank farm deep soil removal	2062	2069	200E	1.70×10^{-3}	2.29×10^{-4}	9.58×10^{-6}	2.89×10^{-4}	a	1.00×10^{-4}	6.99×10^{-5}
A tank farm deep soil removal	2089	2096	200E	5.10×10^{-3}	6.86×10^{-4}	2.88×10^{-5}	8.68×10^{-4}	a	3.01×10^{-4}	2.10×10^{-4}
AX tank farm deep soil removal	2089	2096	200E	8.50×10^{-2}	1.14×10^{-2}	4.79×10^{-4}	1.45×10^{-2}	a	5.01×10^{-3}	3.49×10^{-3}
TX tank farm deep soil removal	2062	2069	200EW	2.68×10^{-1}	3.60×10^{-2}	1.51×10^{-3}	4.56×10^{-2}	a	1.58×10^{-2}	1.10×10^{-2}
U tank farm deep soil removal	2035	2042	200EW	1.40×10^{-1}	1.89×10^{-2}	7.91×10^{-4}	2.39×10^{-2}	a	8.27×10^{-3}	5.76×10^{-3}
SX tank farm deep soil removal	2035	2042	200W	3.42×10^{-1}	4.61×10^{-2}	1.93×10^{-3}	5.83×10^{-2}	a	2.02×10^{-2}	1.41×10^{-2}
B Area cribs and trenches (ditches) removal	2035	2061	200EW	4.53×10^{-1}	6.10×10^{-2}	2.56×10^{-3}	7.71×10^{-2}	a	2.67×10^{-2}	1.86×10^{-2}
T Area cribs and trenches (ditches) removal	2062	2096	200EW	3.50×10^{-1}	4.70×10^{-2}	1.97×10^{-3}	5.95×10^{-2}	a	2.06×10^{-2}	1.44×10^{-2}
Containment structure construction 1	2029	2032	200EW	a	a	a	a	a	a	a
Containment structure construction 2	2056	2059	200EW	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	200EW	a	a	a	a	a	a	a
Containment structure deactivation 2	2097	2099	200EW	a	a	a	a	a	a	a
Preprocessing Facility construction	2020	2022	200E	1.85	4.07×10^{-1}	1.08×10^{-2}	3.55×10^{-1}	a	2.76	8.22×10^{-1}
Preprocessing Facility operations	2023	2099	200E	8.82×10^{-4}	5.04×10^{-5}	3.09×10^{-9}	1.77×10^{-7}	a	7.62×10^{-6}	2.15×10^{-5}
Preprocessing Facility deactivation	2100	2100	200E	8.82×10^{-5}	5.04×10^{-6}	3.09×10^{-10}	1.77×10^{-8}	a	7.62×10^{-7}	2.15×10^{-6}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–33. Tank Closure Alternative 6C Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Canister Storage Building	2006	2016	200E	5.54	2.86×10^{-1}	9.05×10^{-1}	4.02×10^{-4}	2.86×10^{-1}
IHLW Shipping/Transfer Facility	2011	2013	200E	5.68×10^{1}	6.72×10^{1}	9.81×10^{1}	2.18×10^{-2}	6.50
IHLW Interim Storage Modules	2014	2022	200E	4.00×10^{1}	4.76×10^{1}	1.58×10^{2}	1.45×10^{-2}	4.34
Other infrastructure upgrades	2006	2034	200EW	1.11	8.05×10^{-1}	1.13	2.54×10^{-4}	9.43×10^{-2}
Tank upgrades	2006	2025	200EW	3.49×10^{2}	4.41×10^{1}	8.07	1.38×10^{-2}	1.56×10^{1}
Waste Treatment Plant	2006	2017	WTP_AS	7.64×10^{2}	6.20×10^{2}	4.16×10^{2}	1.05	7.99×10^{1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	7.59×10^{1}	2.71×10^{1}	2.41×10^{1}	8.75×10^{-3}	4.47
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	1.85×10^{2}	4.09×10^{1}	1.65×10^{2}	2.50×10^{-1}	1.15×10^{1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	8.41×10^{2}	1.22×10^{2}	1.80×10^{1}	1.13	4.78×10^{1}
Waste receiver facilities	2013	2017	200EW	1.15×10^{2}	9.65×10^{1}	3.31×10^{2}	2.92×10^{-2}	9.94
Tank risers	2013	2016	200EW	1.84×10^{1}	8.19	7.42×10^{-1}	1.72×10^{-3}	2.06
Modified sluicing retrieval system	2013	2043	200EW	6.69×10^{1}	2.58	1.43	6.19×10^{-4}	2.62
Mobile retrieval system	2013	2028	200EW	6.27×10^{1}	2.72×10^{1}	5.24	8.72×10^{-3}	4.15
Vacuum-based retrieval system	2029	2043	200EW	6.69×10^{1}	3.03×10^{1}	6.08	9.64×10^{-3}	4.55
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	6.17×10^{-1}	1.39	1.72×10^{1}	2.87×10^{-4}	6.73×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	200E	1.45×10^{3}	2.09×10^{2}	9.48×10^{2}	1.96	8.25×10^{1}
Evaporator replacement 1	2015	2017	200E	8.47×10^{1}	1.59×10^{1}	1.42×10^{1}	1.14×10^{-1}	5.07
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	WTP_AS	1.02	4.72	4.32×10^{1}	1.55×10^{-3}	3.86×10^{-1}
Operations								
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a
Routine operations	2006	2043	200EW	1.36×10^{1}	1.55×10^{1}	a	a	5.40
Retrieval operations	2006	2043	200EW	4.72×10^{-2}	5.35×10^{-2}	a	a	1.89×10^{-2}
Double-shell tank interim stabilization	2006	2043	200EW	3.09×10^{-1}	3.51×10^{-1}	a	a	1.24×10^{-1}
Waste Treatment Plant	2018	2043	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	2.36×10^{2}	5.24×10^{2}	9.08	2.69×10^{1}	8.56×10^{2}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	4.85×10^{1}	1.29	5.53×10^{1}	6.49×10^{-2}	2.34
Modified sluicing retrieval system	2013	2043	200EW	1.86×10^{1}	1.15	8.87×10^{-2}	2.96×10^{-4}	7.98×10^{-1}

Table G–33. Tank Closure Alternative 6C Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations *(continued)*								
Mobile retrieval system	2013	2028	200EW	2.88×10^{-1}	3.27×10^{-1}	a	a	1.15×10^{-1}
Vacuum-based retrieval system	2029	2043	200EW	4.56×10^{-1}	5.17×10^{-1}	a	a	1.82×10^{-1}
HLW Melter Interim Storage Facility	2018	2145	WTP_AS	a	a	a	a	a
Effluent Treatment Facility	2006	2045	WTP_PS	9.84	2.67	9.34×10^{2}	1.33×10^{-2}	6.48×10^{-1}
Evaporator	2006	2043	200E	1.23×10^{1}	5.70×10^{1}	1.71×10^{1}	1.94×10^{-2}	4.66
Borrow Area C	2006	2052	Area C	8.52×10^{1}	1.12×10^{2}	2.30×10^{2}	1.20×10^{-1}	1.20×10^{1}
Immobilized Low-Activity Waste Interim Storage Facility	2018	2145	WTP_AS	a	a	a	a	a
Deactivation								
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	2.36×10^{1}	5.24×10^{1}	9.08×10^{-1}	2.69	8.56×10^{1}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	2.24×10^{1}	5.96×10^{-1}	2.55×10^{1}	3.00×10^{-2}	1.08
Effluent Treatment Facility original	2026	2026	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Effluent Treatment Facility replacement 1	2046	2046	WTP_AS	1.09×10^{2}	4.78×10^{1}	4.70×10^{2}	1.48×10^{-1}	8.47
Evaporator original	2018	2018	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Evaporator replacement 1	2044	2044	200E	1.66	7.70	7.07	2.62×10^{-3}	6.28×10^{-1}
Modified sluicing retrieval system	2013	2043	200EW	4.76×10^{1}	2.01	1.77×10^{-1}	5.91×10^{-4}	1.83
Mobile retrieval system	2013	2028	200EW	3.13×10^{1}	2.45	2.04×10^{-1}	7.50×10^{-4}	1.29
Vacuum-based retrieval system	2029	2043	200EW	1.46	1.14×10^{-1}	1.04×10^{-2}	3.49×10^{-5}	5.96×10^{-2}
Closure								
Ancillary equipment grouting	2013	2037	200EW	3.46×10^{-1}	1.50	1.63	4.82×10^{-4}	1.16×10^{-1}
Ancillary equipment removal	2032	2037	200EW	3.28	1.50×10^{1}	4.40×10^{1}	4.92×10^{-3}	1.19
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	2.53	9.81	8.56	3.22×10^{-3}	7.93×10^{-1}
Grout facility (tank-filling) construction	2032	2033	200EW	2.18	8.29	4.20	2.71×10^{-3}	6.82×10^{-1}
Grout facility (tank-filling) operations	2034	2043	200EW	2.25×10^{1}	8.32×10^{1}	4.51×10^{1}	2.70×10^{-2}	6.68
Grout facility (tank-filling) deactivation	2044	2044	200EW	1.45	3.41	2.10×10^{1}	1.12×10^{-3}	2.95×10^{-1}
Containment structure construction	2028	2031	200EW	6.78×10^{1}	7.06	2.74	2.19×10^{-3}	2.91
BX and SX tank farm deep soil removal	2032	2037	200EW	3.99×10^{1}	1.13×10^{2}	2.56×10^{2}	3.73×10^{-2}	9.55

Table G–33. Tank Closure Alternative 6C Criteria Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Closure *(continued)*								
Containment structure deactivation	2038	2040	200EW	9.03×10^{1}	9.39	3.09	2.92×10^{-3}	3.88
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	200EW	1.64×10^{3}	1.50×10^{3}	3.48×10^{3}	2.27	1.83×10^{2}
Postclosure care	2046	2145	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–34. Tank Closure Alternative 6C Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Canister Storage Building	2006	2016	200E	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	200E	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	200EW	a	a	a	a	a	a	a
Tank upgrades	2006	2025	200EW	7.82×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	WTP_AS	9.98×10^{-1}	2.09×10^{-1}	5.81×10^{-3}	1.89×10^{-1}	a	3.93×10^{-1}	3.93×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	200EW+	a	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility expansion	2008	2017	200E	7.08×10^{-2}	3.05×10^{-2}	4.50×10^{-4}	1.74×10^{-2}	a	3.54×10^{-1}	1.01×10^{-1}
Cesium and Strontium Capsule Processing Facility	2035	2038	WTP_AS	2.22×10^{-1}	1.27×10^{-1}	1.49×10^{-3}	6.26×10^{-2}	a	1.63	4.64×10^{-1}
Waste receiver facilities	2013	2017	200EW	a	a	a	a	a	a	a
Tank risers	2013	2016	200EW	2.18	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	200EW	2.17×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2028	200EW	2.50×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	200EW	3.95×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	WTP_AS	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	200E	3.81×10^{-1}	2.19×10^{-1}	2.55×10^{-3}	1.08×10^{-1}	a	2.82	8.02×10^{-1}
Evaporator replacement 1	2015	2017	200E	2.79×10^{-2}	1.34×10^{-2}	1.81×10^{-4}	7.23×10^{-3}	a	1.63×10^{-1}	4.65×10^{-2}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	WTP_AS	7.42×10^{-3}	9.99×10^{-4}	a	a	a	4.38×10^{-4}	3.06×10^{-4}
Operations										
IHLW Interim Storage Facility	2018	2066	200E	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	200EW	a	a	a	a	a	a	a
Routine operations	2006	2043	200EW	1.18×10^{1}	a	a	a	a	a	a
Retrieval operations	2006	2043	200EW	4.09×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	200EW	2.68×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	6.97×10^{-2}	6.27×10^{-4}	2.11×10^{-3}

Table G–34. Tank Closure Alternative 6C Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*										
Waste Treatment Plant, cesium and strontium capsules	2040	2040	WTP_PS	3.53	2.23×10^{-2}	8.05×10^{-6}	2.49×10^{-4}	a	6.27×10^{-4}	2.11×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	WTP_AS	3.80×10^{-3}	6.24×10^{-3}	3.53×10^{-5}	2.11×10^{-3}	a	9.58×10^{-2}	2.70×10^{-2}
Modified sluicing retrieval system	2013	2043	200EW	2.17×10^{-1}	a	a	a	a	a	a
Mobile retrieval system	2013	2028	200EW	2.50×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	200EW	3.95×10^{-1}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2145	WTP_AS	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2045	WTP_PS	1.44	1.71×10^{-3}	2.83×10^{-5}	1.05×10^{-3}	a	1.86×10^{-2}	5.35×10^{-3}
Evaporator	2006	2043	200E	8.97×10^{-2}	1.21×10^{-2}	5.06×10^{-4}	1.53×10^{-2}	a	5.29×10^{-3}	3.69×10^{-3}
Borrow Area C	2006	2052	Area C	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Immobilized Low-Activity Waste Interim Storage Facility	2018	2145	WTP_AS	a	a	a	a	a	a	a
Deactivation										
IHLW Interim Storage Facility	2067	2067	WTP_AS	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	WTP_AS	3.53×10^{-1}	2.23×10^{-3}	8.05×10^{-7}	2.49×10^{-5}	9.06×10^{-2}	6.27×10^{-5}	2.11×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	WTP_AS	1.75×10^{-3}	2.88×10^{-3}	1.63×10^{-5}	9.76×10^{-4}	a	4.42×10^{-2}	1.25×10^{-2}
Effluent Treatment Facility original	2026	2026	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Effluent Treatment Facility replacement 1	2046	2046	WTP_AS	7.88×10^{-2}	2.23×10^{-2}	4.73×10^{-4}	1.64×10^{-2}	a	2.00×10^{-1}	5.81×10^{-2}
Evaporator original	2018	2018	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Evaporator replacement 1	2044	2044	200E	1.21×10^{-2}	1.63×10^{-3}	6.82×10^{-5}	2.06×10^{-3}	a	7.14×10^{-4}	4.97×10^{-4}
Modified sluicing retrieval system	2013	2043	200EW	a	a	a	a	a	a	a
Mobile retrieval system	2013	2028	200EW	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	200EW	a	a	a	a	a	a	a
Closure										
Ancillary equipment grouting	2013	2037	200EW	2.69×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	200EW	1.72×10^{-5}	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	200EW	a	a	a	a	a	a	a

Table G–34. Tank Closure Alternative 6C Toxic Pollutant Emissions *(continued)*

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*										
Grout facility (tank-filling) construction	2032	2033	200EW	3.33×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) operations	2034	2043	200EW	1.17×10^{-2}	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2044	2044	200EW	a	a	a	a	a	a	a
Containment structure construction	2028	2031	200EW	a	a	a	a	a	a	a
BX and SX tank farm deep soil removal	2032	2037	200EW	8.33×10^{-4}	a	a	a	a	a	a
Containment structure deactivation	2038	2040	200EW	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	200EW	2.41	4.80×10^{-1}	1.39×10^{-2}	4.49×10^{-1}	a	2.75	8.32×10^{-1}
Postclosure care	2046	2145	200EW	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200EW=200-East and 200-West Areas; 200EW+=200-East and 200-West Areas and Waste Treatment Plant area; HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; WTP_AS=Waste Treatment Plant area source; WTP_PS=Waste Treatment Plant point source.

Source: SAIC 2007a, 2008.

Table G–35. FFTF Decommissioning Alternative 1 Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Deactivation								
Administrative controls	2008	2107	400 Area	1.12	2.91×10^{-2}	1.78×10^{-3}	1.50×10^{-3}	5.40×10^{-2}

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.
Source: SAIC 2007b.

Table G–36. FFTF Decommissioning Alternative 1 Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation										
Administrative controls	2008	2107	400 Area	8.64×10^{-5}	1.44×10^{-4}	8.08×10^{-7}	4.85×10^{-5}	a	2.21×10^{-3}	6.24×10^{-4}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.
Key: FFTF=Fast Flux Test Facility.
Source: SAIC 2007b.

Table G–37. FFTF Decommissioning Alternative 2 Criteria Pollutant Emissions for Hanford Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Decommissioning								
Above-grade structure and equipment removal	2013	2020	400 Area	1.12×10^{1}	1.08×10^{1}	1.21×10^{1}	1.56×10^{-2}	1.29
Backfill of Reactor Containment Building with grout	2017	2017	400 Area	1.31	6.06	1.86	2.06×10^{-3}	4.95×10^{-1}
Backfill of Buildings 491 East and West with grout	2017	2017	400 Area	8.47×10^{-1}	3.94	3.76	1.33×10^{-3}	3.21×10^{-1}
Grout facility construction	2016	2016	400 Area	4.35	1.66×10^{1}	8.39	1.08	1.38
Grout facility operations	2017	2017	400 Area	7.97	3.70×10^{1}	2.60	1.26×10^{-2}	3.02
Grout facility deactivation	2018	2018	400 Area	2.42	5.68	3.50×10^{1}	3.73×10^{-1}	7.84×10^{-1}
Nonhazardous waste transportation	2013	2020	400 Area	4.37×10^{-3}	2.03×10^{-2}	1.43×10^{-3}	6.90×10^{-6}	1.66×10^{-3}
Construction								
Sodium Reaction Facility	2015	2016	400 Area	1.85×10^{2}	3.89×10^{1}	1.47×10^{1}	2.49×10^{-1}	1.14×10^{1}
Remote Treatment Project	2015	2016	400 Area	1.41	6.53	2.74×10^{1}	2.22×10^{-3}	5.31×10^{-1}
Operations								
Sodium preparation	2017	2017	400 Area	a	a	a	a	a
Sodium Reaction Facility	2017	2018	400 Area	a	a	a	a	a
Remote Treatment Project	2017	2017	400 Area	a	a	a	a	a
Deactivation								
Sodium Reaction Facility	2019	2019	400 Area	5.22×10^{1}	1.10×10^{1}	7.61×10^{-1}	7.05×10^{-2}	3.21
Remote Treatment Project	2018	2018	400 Area	a	a	a	a	a
Closure								
Site regrading	2021	2021	400 Area	2.81×10^{1}	6.01×10^{1}	2.15×10^{1}	4.07×10^{-2}	5.61
Site revegetation	2021	2021	400 Area	1.12	9.05×10^{-1}	1.73×10^{1}	1.55×10^{-3}	1.17×10^{-1}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2021	2021	400 Area	9.36×10^{1}	6.74×10^{1}	1.42×10^{1}	1.29×10^{-1}	9.17
Postclosure care	2022	2121	400 Area	1.86	4.84×10^{-2}	2.97×10^{-3}	2.50×10^{-3}	9.00×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007b.

Table G–38. FFTF Decommissioning Alternative 2 Toxic Pollutant Emissions for Hanford Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Decommissioning										
Above-grade structure and equipment removal	2013	2020	400 Area	1.72×10^{-2}	3.38×10^{-3}	9.97×10^{-5}	3.20×10^{-3}	a	1.87×10^{-2}	5.67×10^{-3}
Backfill of Reactor Containment Building with grout	2017	2017	400 Area	9.54×10^{-3}	1.28×10^{-3}	5.38×10^{-5}	1.62×10^{-3}	a	5.62×10^{-4}	3.92×10^{-4}
Backfill of Buildings 491 East and West with grout	2017	2017	400 Area	6.19×10^{-3}	8.32×10^{-4}	3.48×10^{-5}	1.05×10^{-3}	a	3.65×10^{-4}	2.54×10^{-4}
Grout facility construction	2016	2016	400 Area	1.11×10^{-1}	5.98×10^{-3}	2.45×10^{-4}	7.41×10^{-3}	a	4.99×10^{-3}	2.47×10^{-3}
Grout facility operations	2017	2017	400 Area	5.82×10^{-2}	7.83×10^{-3}	9.90×10^{-3}	3.28×10^{-4}	a	3.43×10^{-3}	2.39×10^{-3}
Grout facility deactivation	2018	2018	400 Area	a	2.04×10^{-3}	7.96×10^{-5}	2.43×10^{-3}	a	3.27×10^{-3}	1.26×10^{-3}
Nonhazardous waste transportation	2013	2020	400 Area	3.19×10^{-5}	4.29×10^{-6}	1.80×10^{-7}	5.43×10^{-6}	a	1.88×10^{-6}	1.31×10^{-6}
Construction										
Sodium Reaction Facility	2015	2016	400 Area	9.16	3.01×10^{-2}	4.32×10^{-4}	1.69×10^{-2}	a	3.54×10^{-1}	1.01×10^{-1}
Remote Treatment Project	2015	2016	400 Area	1.03×10^{-2}	1.38×10^{-3}	5.76×10^{-5}	1.74×10^{-3}	a	6.03×10^{-4}	4.21×10^{-4}
Operations										
Sodium preparation	2017	2017	400 Area	a	a	a	a	a	a	a
Sodium Reaction Facility	2017	2018	400 Area	a	a	a	a	a	a	a
Remote Treatment Project	2017	2017	400 Area	a	a	a	a	a	a	a
Deactivation										
Sodium Reaction Facility	2019	2019	400 Area	1.91×10^{-2}	8.50×10^{-3}	1.22×10^{-4}	4.77×10^{-3}	a	1.00×10^{-1}	2.86×10^{-2}
Remote Treatment Project	2018	2018	400 Area	a	a	a	a	a	a	a
Closure										
Site regrading	2021	2021	400 Area	9.51×10^{-2}	1.46×10^{-2}	5.40×10^{-4}	1.66×10^{-2}	a	3.57×10^{-2}	1.24×10^{-2}
Site revegetation	2021	2021	400 Area	1.46×10^{-3}	3.06×10^{-4}	8.48×10^{-6}	2.76×10^{-4}	a	1.93×10^{-3}	5.78×10^{-4}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2021	2021	400 Area	1.09×10^{-1}	2.40×10^{-2}	6.36×10^{-4}	2.09×10^{-2}	a	1.63×10^{-1}	4.86×10^{-2}
Postclosure care	2022	2121	400 Area	2.88×10^{-1}	4.80×10^{-1}	2.69×10^{-3}	1.62×10^{-1}	a	7.37	2.08

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–39. FFTF Decommissioning Alternative 3 Criteria Pollutant Emissions for Hanford Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Decommissioning								
Above-grade structure and equipment removal	2013	2020	400 Area	1.12×10^{1}	1.08×10^{1}	1.21×10^{1}	1.56×10^{-2}	1.29
Removal of Reactor Containment Building below-grade vessels, piping, and components	2013	2014	400 Area	4.34×10^{1}	1.71×10^{1}	5.59	5.90×10^{-2}	5.13×10^{-3}
Grout facility construction	2012	2012	400 Area	7.27	2.77×10^{1}	1.40×10^{1}	1.80	2.30
Grout facility operations	2013	2014	400 Area	3.98	1.85×10^{1}	1.30	6.29×10^{-3}	1.51
Grout facility deactivation	2015	2015	400 Area	2.42	5.68	3.50×10^{1}	3.73×10^{-1}	7.84×10^{-1}
Nonhazardous waste transportation	2013	2020	400 Area	4.37×10^{-3}	2.03×10^{-2}	1.43×10^{-3}	6.90×10^{-6}	1.66×10^{-3}
Construction								
Sodium Reaction Facility	2015	2016	400 Area	1.85×10^{2}	3.89×10^{1}	1.47×10^{1}	2.49×10^{-1}	1.14×10^{1}
Remote Treatment Project	2015	2016	400 Area	1.41	6.53	2.74×10^{1}	2.22×10^{-3}	5.31×10^{-1}
Operations								
Sodium preparation	2017	2017	400 Area	a	a	a	a	a
Sodium Reaction Facility	2017	2018	400 Area	a	a	a	a	a
Remote Treatment Project	2017	2017	400 Area	a	a	a	a	a
Deactivation								
Sodium Reaction Facility	2019	2019	400 Area	5.22×10^{1}	1.10×10^{1}	7.61×10^{-1}	7.05×10^{-2}	3.21
Remote Treatment Project	2018	2018	400 Area	a	a	a	a	a
Closure								
Site regrading	2018	2018	400 Area	4.00×10^{1}	8.01×10^{1}	2.51×10^{1}	5.77×10^{-2}	7.60
Site revegetation	2018	2018	400 Area	1.27	1.02	1.95×10^{1}	1.75×10^{-3}	1.32×10^{-1}
Postclosure care	2022	2121	400 Area	1.86	4.84×10^{-2}	2.97×10^{-3}	2.50×10^{-3}	9.00×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007b.

Table G–40. FFTF Decommissioning Alternative 3 Toxic Pollutant Emissions for Hanford Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Decommissioning										
Above-grade structure and equipment removal	2013	2020	400 Area	1.72×10^{-2}	3.38×10^{-3}	9.97×10^{-5}	3.20×10^{-3}	a	1.87×10^{-2}	5.67×10^{-3}
Removal of Reactor Containment Building below-grade vessels, piping, and components	2013	2014	400 Area	2.83×10^{-2}	8.53×10^{-3}	1.71×10^{-4}	6.02×10^{-3}	a	8.05×10^{-2}	2.33×10^{-2}
Grout facility construction	2012	2012	400 Area	1.11×10^{-1}	5.98×10^{-3}	2.45×10^{-4}	7.41×10^{-3}	a	4.99×10^{-3}	2.47×10^{-3}
Grout facility operations	2013	2014	400 Area	2.91×10^{-2}	3.91×10^{-3}	4.95×10^{-3}	1.64×10^{-4}	a	1.72×10^{-3}	1.20×10^{-3}
Grout facility deactivation	2015	2015	400 Area	a	2.04×10^{-3}	7.96×10^{-5}	2.43×10^{-3}	a	3.27×10^{-3}	1.26×10^{-3}
Nonhazardous waste transportation	2013	2020	400 Area	3.19×10^{-5}	4.29×10^{-6}	1.80×10^{-7}	5.43×10^{-6}	a	1.88×10^{-6}	1.31×10^{-6}
Construction										
Sodium Reaction Facility	2015	2016	400 Area	9.16	3.01×10^{-2}	4.32×10^{-4}	1.69×10^{-2}	a	3.54×10^{-1}	1.01×10^{-1}
Remote Treatment Project	2015	2016	400 Area	1.03×10^{-2}	1.38×10^{-3}	5.76×10^{-5}	1.74×10^{-3}	a	6.03×10^{-4}	4.21×10^{-4}
Operations										
Sodium preparation	2017	2017	400 Area	a	a	a	a	a	a	a
Sodium Reaction Facility	2017	2018	400 Area	a	a	a	a	a	a	a
Remote Treatment Project	2017	2017	400 Area	a	a	a	a	a	a	a
Deactivation										
Sodium Reaction Facility	2019	2019	400 Area	1.91×10^{-2}	8.50×10^{-3}	1.22×10^{-4}	4.77×10^{-3}	a	1.00×10^{-1}	2.86×10^{-2}
Remote Treatment Project	2018	2018	400 Area	a	a	a	a	a	a	a
Closure										
Site regrading	2018	2018	400 Area	1.27×10^{-1}	1.98×10^{-2}	7.21×10^{-4}	2.23×10^{-2}	a	5.27×10^{-2}	1.79×10^{-2}
Site revegetation	2018	2018	400 Area	1.64×10^{-3}	3.46×10^{-4}	9.57×10^{-6}	3.12×10^{-4}	a	2.17×10^{-3}	6.52×10^{-4}
Postclosure care	2022	2121	400 Area	2.88×10^{-1}	4.80×10^{-1}	2.69×10^{-3}	1.62×10^{-1}	a	7.37	2.08

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–41. FFTF Decommissioning Alternative 2 Criteria Pollutant Emissions for Idaho National Laboratory Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Sodium Processing Facility	2014	2014	MFC	8.82	1.28	4.40	1.19×10^{-2}	5.02×10^{-1}
Remote Treatment Project	2015	2016	MFC	1.43	6.62	2.86×10^{1}	2.25×10^{-3}	5.40×10^{-1}
Operations								
Sodium preparation	2015	2015	Hanford	a	a	a	a	a
Sodium Processing Facility	2015	2016	MFC	a	a	a	a	a
Remote Treatment Project	2017	2017	MFC	a	a	a	a	a
Deactivation								
Sodium Processing Facility	2016	2016	MFC	a	a	a	a	a
Remote Treatment Project	2018	2018	MFC	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; Hanford=Hanford Site; MFC=Materials and Fuels Complex; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007b.

Table G–42. FFTF Decommissioning Alternative 2 Toxic Pollutant Emissions for Idaho National Laboratory Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Sodium Processing Facility	2014	2014	MFC	a	a	a	a	a	a	a
Remote Treatment Project	2015	2016	MFC	a	a	a	a	a	a	a
Operations										
Sodium preparation	2015	2015	Hanford	a	a	a	a	a	a	a
Sodium Processing Facility	2015	2016	MFC	a	a	a	a	a	a	a
Remote Treatment Project	2017	2017	MFC	a	a	a	a	a	a	a
Deactivation										
Sodium Processing Facility	2016	2016	MFC	a	a	a	a	a	a	a
Remote Treatment Project	2018	2028	MFC	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; Hanford=Hanford Site; MFC=Materials and Fuels Complex.

Source: SAIC 2007b.

Table G–43. FFTF Decommissioning Alternative 3 Criteria Pollutant Emissions for Idaho National Laboratory Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Sodium Processing Facility	2014	2014	MFC	a	a	4.40	a	a
Remote Treatment Project	2015	2016	MFC	1.43	6.62	2.86×10^{1}	2.25×10^{-3}	5.40×10^{-1}
Operations								
Sodium preparation	2015	2015	Hanford	a	a	a	a	a
Sodium Processing Facility	2015	2016	MFC	a	a	a	a	a
Remote Treatment Project	2017	2017	MFC	a	a	a	a	a
Deactivation								
Sodium Processing Facility	2016	2016	MFC	a	a	a	a	a
Remote Treatment Project	2018	2018	MFC	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; Hanford=Hanford Site; MFC=Materials and Fuels Complex; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007b.

Table G–44. FFTF Decommissioning Alternative 3 Toxic Pollutant Emissions for Idaho National Laboratory Activities

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Sodium Processing Facility	2014	2014	MFC	a	a	a	a	a	a	a
Remote Treatment Project	2015	2016	MFC	a	a	a	a	a	a	a
Operations										
Sodium preparation	2015	2015	Hanford	a	a	a	a	a	a	a
Sodium Processing Facility	2015	2016	MFC	a	a	a	a	a	a	a
Remote Treatment Project	2017	2017	MFC	a	a	a	a	a	a	a
Deactivation										
Sodium Processing Facility	2016	2016	MFC	a	a	a	a	a	a	a
Remote Treatment Project	2018	2018	MFC	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; Hanford=Hanford Site; MFC=Materials and Fuels Complex.

Source: SAIC 2007b.

Table G–45. Waste Management Alternative 1 Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Operations								
Low-level radioactive waste burial grounds	2007	2035	200W	2.54	6.29	8.14×10^{1}	3.72×10^{-3}	5.68×10^{-1}
Deactivation								
Integrated Disposal Facility	2009	2009	200E	5.33×10^{1}	2.40×10^{2}	8.08×10^{2}	8.37×10^{-2}	1.96×10^{1}
Postclosure care	2036	2135	200EW	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007c.

Table G–46. Waste Management Alternative 1 Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations										
Low-level radioactive waste burial grounds	2007	2035	200W	9.93×10^{-3}	1.48×10^{-3}	5.63×10^{-5}	1.73×10^{-3}	a	2.93×10^{-3}	1.07×10^{-3}
Deactivation										
Integrated Disposal Facility	2009	2009	200E	3.77×10^{-1}	5.09×10^{-2}	2.13×10^{-3}	6.42×10^{-2}	a	2.54×10^{-2}	1.64×10^{-2}
Postclosure care	2036	2135	200EW	8.12×10^{-3}	2.48×10^{-3}	4.92×10^{-5}	1.74×10^{-3}	a	2.36×10^{-2}	6.83×10^{-3}
Low-level radioactive waste burial grounds	2007	2035	200W	9.93×10^{-3}	1.48×10^{-3}	5.63×10^{-5}	1.73×10^{-3}	a	2.93×10^{-3}	1.07×10^{-3}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas.

Source: SAIC 2007c.

Table G–47. Waste Management Alternative 2 (Treatment and Storage) Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
T Plant complex expansion	2011	2012	200W	6.27×10^{1}	1.16×10^{1}	2.69×10^{1}	8.46×10^{-2}	3.75
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	200W	7.15×10^{2}	1.33×10^{2}	1.27×10^{2}	9.64×10^{-1}	4.27×10^{1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	200W	5.26×10^{2}	7.62×10^{1}	8.10×10^{1}	7.08×10^{-1}	2.99×10^{1}
Central Waste Complex expansion	2011	2012	200W	2.38×10^{2}	4.42×10^{1}	4.22×10^{1}	3.21×10^{-1}	1.42×10^{1}
Operations								
T Plant complex expansion	2013	2050	200W	1.05×10^{2}	4.87×10^{2}	4.30×10^{1}	1.66×10^{-1}	3.98×10^{1}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	200W	2.83×10^{-1}	1.31	1.14×10^{2}	4.47×10^{-4}	1.07×10^{-1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	200W	1.13×10^{-1}	5.25×10^{-1}	1.14×10^{2}	1.79×10^{-4}	4.29×10^{-2}
Central Waste Complex expansion	2013	2050	200W	6.04×10^{1}	1.15×10^{1}	4.91×10^{2}	8.15×10^{-2}	3.63
Deactivation								
T Plant complex expansion	2051	2051	200W	7.48	9.89	5.05	1.05×10^{-2}	1.06
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	1.41×10^{-1}	6.56×10^{-1}	9.48×10^{1}	2.23×10^{-4}	5.36×10^{-2}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	5.66×10^{-2}	2.63×10^{-1}	3.79×10^{1}	8.93×10^{-5}	2.14×10^{-2}
Central Waste Complex expansion	2051	2051	200W	3.02×10^{1}	5.75	1.02×10^{1}	4.07×10^{-2}	1.82

Key: 200W=200-West Area; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound; TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–48. Waste Management Alternative 2 (Treatment and Storage) Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
T Plant complex expansion	2011	2012	200W	2.05×10^{-2}	9.92×10^{-3}	1.33×10^{-4}	5.32×10^{-3}	a	1.21×10^{-1}	3.45×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	200W	2.34×10^{-1}	1.13×10^{-1}	1.51×10^{-3}	6.06×10^{-2}	a	1.38	3.93×10^{-1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	200W	1.38×10^{-1}	7.93×10^{-2}	5.57×10^{-3}	2.34×10^{-1}	a	1.02	2.90×10^{-1}
Central Waste Complex expansion	2011	2012	200W	7.79×10^{-2}	3.77×10^{-2}	5.05×10^{-4}	2.02×10^{-2}	a	4.59×10^{-1}	1.31×10^{-1}
Operations										
T Plant complex expansion	2013	2050	200W	7.66×10^{-1}	1.03×10^{-1}	4.32×10^{-3}	1.30×10^{-1}	a	4.52×10^{-2}	3.15×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	200W	2.06×10^{-3}	2.78×10^{-4}	1.16×10^{-5}	3.51×10^{-4}	a	1.22×10^{-4}	8.48×10^{-5}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	200W	8.26×10^{-4}	1.11×10^{-4}	4.66×10^{-6}	1.41×10^{-4}	a	4.87×10^{-5}	3.39×10^{-5}
Central Waste Complex expansion	2013	2050	200W	2.02×10^{-2}	9.62×10^{-3}	1.31×10^{-4}	5.20×10^{-3}	a	1.16×10^{-1}	3.32×10^{-2}
Deactivation										
T Plant complex expansion	2051	2051	200W	3.11×10^{-1}	2.76×10^{-3}	9.03×10^{-5}	2.84×10^{-3}	a	1.16×10^{-2}	3.63×10^{-3}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	1.03×10^{-3}	1.39×10^{-4}	5.82×10^{-6}	1.76×10^{-4}	a	6.09×10^{-5}	4.24×10^{-5}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	4.13×10^{-4}	5.56×10^{-5}	2.33×10^{-6}	7.03×10^{-5}	a	2.44×10^{-5}	1.70×10^{-5}
Central Waste Complex expansion	2051	2051	200W	1.01×10^{-2}	4.81×10^{-3}	6.53×10^{-5}	2.60×10^{-3}	a	5.81×10^{-2}	1.66×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200W=200-West Area; TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–49. Waste Management Alternative 2, Disposal Group 1, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Integrated Disposal Facility	2006	2008	200E	9.29×10^{1}	3.32×10^{2}	2.13×10^{3}	1.41×10^{-1}	2.81×10^{1}
River Protection Project Disposal Facility	2019	2021	200EW	8.38×10^{1}	2.99×10^{2}	1.92×10^{3}	1.28×10^{-1}	2.53×10^{1}
Operations								
Low-level radioactive waste burial grounds	2007	2050	200W	2.52	6.24	8.14×10^{1}	3.70×10^{-3}	5.64×10^{-1}
Integrated Disposal Facility	2009	2050	200E	2.88×10^{1}	7.40×10^{1}	2.11×10^{3}	4.23×10^{-2}	6.63
River Protection Project Disposal Facility	2022	2050	200EW	7.25×10^{1}	1.08×10^{2}	1.64×10^{2}	1.03×10^{-1}	1.11×10^{1}
Closure								
Integrated Disposal Facility	2051	2052	200E	2.21×10^{3}	1.54×10^{3}	3.34×10^{2}	3.04	2.13×10^{2}
Postclosure care, Integrated Disposal Facility	2053	2152	200E	2.04×10^{1}	7.88	5.49×10^{-1}	2.77×10^{-2}	1.51
River Protection Project Disposal Facility	2051	2052	200EW	1.99×10^{3}	1.39×10^{3}	3.01×10^{2}	2.74	1.92×10^{2}
Postclosure care, River Protection Project Disposal Facility	2053	2152	200EW	1.84×10^{1}	7.11	4.96×10^{-1}	2.50×10^{-2}	1.37

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007c.

Table G–50. Waste Management Alternative 2, Disposal Group 1, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Integrated Disposal Facility	2006	2008	200E	5.23×10^{-1}	7.29×10^{-2}	2.95×10^{-3}	8.96×10^{-2}	a	7.32×10^{-2}	3.34×10^{-2}
River Protection Project Disposal Facility	2019	2021	200EW	4.72×10^{-1}	6.57×10^{-2}	2.66×10^{-3}	8.08×10^{-2}	a	6.61×10^{-2}	3.01×10^{-2}
Operations										
Low-level radioactive waste burial grounds	2007	2050	200W	9.85×10^{-3}	1.47×10^{-3}	5.59×10^{-5}	1.71×10^{-3}	a	2.92×10^{-3}	1.06×10^{-3}
Integrated Disposal Facility	2009	2050	200E	1.17×10^{-1}	1.72×10^{-2}	6.62×10^{-4}	2.03×10^{-2}	a	3.23×10^{-2}	1.20×10^{-2}
River Protection Project Disposal Facility	2022	2050	200EW	1.71×10^{-1}	2.89×10^{-2}	9.80×10^{-4}	3.06×10^{-2}	a	1.08×10^{-1}	3.45×10^{-2}
Closure										
Integrated Disposal Facility	2051	2052	200E	2.48	5.58×10^{-1}	1.45×10^{-2}	4.80×10^{-1}	a	3.87	1.15
Postclosure care, Integrated Disposal Facility	2053	2152	200E	1.31×10^{-2}	3.99×10^{-3}	7.91×10^{-5}	2.79×10^{-3}	a	3.79×10^{-2}	1.10×10^{-2}
River Protection Project Disposal Facility	2051	2052	200EW	2.24	5.03×10^{-1}	1.31×10^{-2}	4.33×10^{-1}	a	3.50	1.04
Postclosure care, River Protection Project Disposal Facility	2053	2152	200EW	1.18×10^{-2}	3.60×10^{-3}	7.14×10^{-5}	2.52×10^{-3}	a	3.42×10^{-2}	9.91×10^{-3}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas.

Source: SAIC 2007c.

Table G–51. Waste Management Alternative 2, Disposal Group 2, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Integrated Disposal Facility	2006	2008	200E	3.28×10^{1}	1.17×10^{2}	7.52×10^{2}	5.00×10^{-2}	9.92
River Protection Project Disposal Facility	2019	2021	200EW	6.49×10^{2}	2.32×10^{3}	1.49×10^{4}	9.89×10^{-1}	1.96×10^{2}
Operations								
Low-level radioactive waste burial grounds	2007	2050	200W	2.52	6.24	8.14×10^{1}	3.70×10^{-3}	5.64×10^{-1}
Integrated Disposal Facility	2009	2100	200E	1.02×10^{1}	2.61×10^{1}	7.46×10^{2}	1.50×10^{-2}	2.34
River Protection Project Disposal Facility	2022	2100	200EW	5.62×10^{2}	8.35×10^{2}	1.27×10^{3}	7.95×10^{-1}	8.59×10^{1}
Closure								
Integrated Disposal Facility	2101	2102	200E	7.81×10^{2}	5.42×10^{2}	1.18×10^{2}	1.07	7.51×10^{1}
Postclosure care, Integrated Disposal Facility	2103	2202	200E	7.22	2.78	1.94×10^{-1}	9.80×10^{-3}	5.35×10^{-1}
River Protection Project Disposal Facility	2101	2102	200EW	1.54×10^{4}	1.07×10^{4}	2.34×10^{3}	2.12×10^{1}	1.49×10^{3}
Postclosure care, River Protection Project Disposal Facility	2103	2202	200EW	1.43×10^{2}	5.51×10^{1}	3.84	1.94×10^{-1}	1.06×10^{1}

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007c.

Table G–52. Waste Management Alternative 2, Disposal Group 2, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Integrated Disposal Facility	2006	2008	200E	1.85×10^{-1}	2.57×10^{-2}	1.04×10^{-3}	3.17×10^{-2}	a	2.59×10^{-2}	1.18×10^{-2}
River Protection Project Disposal Facility	2019	2021	200EW	3.65	5.09×10^{-1}	2.06×10^{-2}	6.26×10^{-1}	a	5.12×10^{-1}	2.34×10^{-1}
Operations										
Low-level radioactive waste burial grounds	2007	2050	200W	9.85×10^{-3}	1.47×10^{-3}	5.59×10^{-5}	1.71×10^{-3}	a	2.92×10^{-3}	1.06×10^{-3}
Integrated Disposal Facility	2009	2100	200E	4.13×10^{-2}	6.09×10^{-3}	2.34×10^{-4}	7.16×10^{-3}	a	1.14×10^{-2}	4.22×10^{-3}
River Protection Project Disposal Facility	2022	2100	200EW	1.33	2.24×10^{-1}	7.59×10^{-3}	2.37×10^{-1}	a	8.36×10^{-1}	2.68×10^{-1}
Closure										
Integrated Disposal Facility	2101	2102	200E	8.77×10^{-1}	1.97×10^{-1}	5.14×10^{-3}	1.69×10^{-1}	a	1.37	4.07×10^{-1}
Postclosure care, Integrated Disposal Facility	2103	2202	200E	4.62×10^{-3}	1.41×10^{-3}	2.80×10^{-5}	9.87×10^{-4}	a	1.34×10^{-2}	3.88×10^{-3}
River Protection Project Disposal Facility	2101	2102	200EW	1.74×10^{1}	3.90	1.02×10^{-1}	3.35	a	2.71×10^{1}	8.05
Postclosure care, River Protection Project Disposal Facility	2103	2202	200EW	9.14×10^{-2}	2.79×10^{-2}	5.53×10^{-4}	1.95×10^{-2}	a	2.65×10^{-1}	7.68×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas.

Source: SAIC 2007c.

Table G–53. Waste Management Alternative 2, Disposal Group 3, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Integrated Disposal Facility	2006	2008	200E	3.28×10^{1}	1.17×10^{2}	7.52×10^{2}	5.00×10^{-2}	9.92
River Protection Project Disposal Facility	2019	2021	200EW	6.49×10^{2}	2.32×10^{3}	1.49×10^{4}	9.89×10^{-1}	1.96×10^{2}
Operations								
Low-level radioactive waste burial grounds	2007	2050	200W	2.52	6.24	8.14×10^{1}	3.70×10^{-3}	5.64×10^{-1}
Integrated Disposal Facility	2009	2165	200E	1.02×10^{1}	2.61×10^{1}	7.46×10^{2}	1.50×10^{-2}	2.34
River Protection Project Disposal Facility	2022	2165	200EW	5.62×10^{2}	8.35×10^{2}	1.27×10^{3}	7.95×10^{-1}	8.59×10^{1}
Closure								
Integrated Disposal Facility	2166	2167	200E	7.81×10^{2}	5.42×10^{2}	1.18×10^{2}	1.07	7.51×10^{1}
Postclosure care, Integrated Disposal Facility	2168	2267	200E	7.22	2.78	1.94×10^{-1}	9.80×10^{-3}	5.35×10^{-1}
River Protection Project Disposal Facility	2166	2167	200EW	1.54×10^{4}	1.07×10^{4}	2.34×10^{3}	2.12×10^{1}	1.49×10^{3}
Postclosure care, River Project Disposal Facility	2168	2267	200EW	1.43×10^{2}	5.51×10^{1}	3.84	1.94×10^{-1}	1.06×10^{1}

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007c.

Table G–54. Waste Management Alternative 2, Disposal Group 3, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Integrated Disposal Facility	2006	2008	200E	1.85×10^{-1}	2.57×10^{-2}	1.04×10^{-3}	3.17×10^{-2}	a	2.59×10^{-2}	1.18×10^{-2}
River Protection Project Disposal Facility	2019	2021	200EW	3.65	5.09×10^{-1}	2.06×10^{-2}	6.26×10^{-1}	a	5.12×10^{-1}	2.34×10^{-1}
Operations										
Low-level radioactive waste burial grounds	2007	2050	200W	9.85×10^{-3}	1.47×10^{-3}	5.59×10^{-5}	1.71×10^{-3}	a	2.92×10^{-3}	1.06×10^{-3}
Integrated Disposal Facility	2009	2165	200E	4.13×10^{-2}	6.09×10^{-3}	2.34×10^{-4}	7.16×10^{-3}	a	1.14×10^{-2}	4.22×10^{-3}
River Protection Project Disposal Facility	2022	2165	200EW	1.33	2.24×10^{-1}	7.59×10^{-3}	2.37×10^{-1}	a	8.36×10^{-1}	2.68×10^{-1}
Closure										
Integrated Disposal Facility	2166	2167	200E	8.77×10^{-1}	1.97×10^{-1}	5.14×10^{-3}	1.69×10^{-1}	a	1.37	4.07×10^{-1}
Postclosure care, Integrated Disposal Facility	2168	2267	200E	4.62×10^{-3}	1.41×10^{-3}	2.80×10^{-5}	9.87×10^{-4}	a	1.34×10^{-2}	3.88×10^{-3}
River Protection Project Disposal Facility	2166	2167	200EW	1.74×10^{1}	3.90	1.02×10^{-1}	3.35	a	2.71×10^{1}	8.05
Postclosure care, River Protection Project Disposal Facility	2168	2267	200EW	9.14×10^{-2}	2.79×10^{-2}	5.53×10^{-4}	1.95×10^{-2}	a	2.65×10^{-1}	7.68×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas.

Source: SAIC 2007c.

Table G–55. Waste Management Alternative 3 (Treatment and Storage) Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
T Plant complex expansion	2011	2012	200W	6.27×10^{1}	1.16×10^{1}	2.69×10^{1}	8.46×10^{-2}	3.75
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	200W	7.15×10^{2}	1.33×10^{2}	1.27×10^{2}	9.64×10^{-1}	4.27×10^{1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	200W	5.26×10^{2}	7.62×10^{1}	8.10×10^{1}	7.08×10^{-1}	2.99×10^{1}
Central Waste Complex expansion	2011	2012	200W	2.38×10^{2}	4.42×10^{1}	4.22×10^{1}	3.21×10^{-1}	1.42×10^{1}
Operations								
T Plant complex expansion	2013	2050	200W	1.05×10^{2}	4.87×10^{2}	4.30×10^{1}	1.66×10^{-1}	3.98×10^{1}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	200W	2.83×10^{-1}	1.31	1.14×10^{2}	4.47×10^{-4}	1.07×10^{-1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	200W	1.13×10^{-1}	5.25×10^{-1}	1.14×10^{2}	1.79×10^{-4}	4.29×10^{-2}
Central Waste Complex expansion	2013	2050	200W	6.04×10^{1}	1.15×10^{1}	4.91×10^{2}	8.15×10^{-2}	3.63
Deactivation								
T Plant complex expansion	2051	2051	200W	7.48	9.89	5.05	1.05×10^{-2}	1.06
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	1.41×10^{-1}	6.56×10^{-1}	9.48×10^{1}	2.23×10^{-4}	5.36×10^{-2}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	5.66×10^{-2}	2.63×10^{-1}	3.79×10^{1}	8.93×10^{-5}	2.14×10^{-2}
Central Waste Complex expansion	2051	2051	200W	3.02×10^{1}	5.75	1.02×10^{1}	4.07×10^{-2}	1.82

Key: 200W=200-West Area; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; TRU=transuranic; VOC=volatile organic compound; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–56. Waste Management Alternative 3 (Treatment and Storage) Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
T Plant complex expansion	2011	2012	200W	2.05×10^{-2}	9.92×10^{-3}	1.33×10^{-4}	5.32×10^{-3}	a	1.21×10^{-1}	3.45×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	200W	2.34×10^{-1}	1.13×10^{-1}	1.51×10^{-3}	6.06×10^{-2}	a	1.38	3.93×10^{-1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	200W	1.38×10^{-1}	7.93×10^{-2}	5.57×10^{-3}	2.34×10^{-1}	a	1.02	2.90×10^{-1}
Central Waste Complex expansion	2011	2012	200W	7.79×10^{-2}	3.77×10^{-2}	5.05×10^{-4}	2.02×10^{-2}	a	4.59×10^{-1}	1.31×10^{-1}
Operations										
T Plant complex expansion	2013	2050	200W	7.66×10^{-1}	1.03×10^{-1}	4.32×10^{-3}	1.30×10^{-1}	a	4.52×10^{-2}	3.15×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	200W	2.06×10^{-3}	2.78×10^{-4}	1.16×10^{-5}	3.51×10^{-4}	a	1.22×10^{-4}	8.48×10^{-5}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	200W	8.26×10^{-4}	1.11×10^{-4}	4.66×10^{-6}	1.41×10^{-4}	a	4.87×10^{-5}	3.39×10^{-5}
Central Waste Complex expansion	2013	2050	200W	2.02×10^{-2}	9.62×10^{-3}	1.31×10^{-4}	5.20×10^{-3}	a	1.16×10^{-1}	3.32×10^{-2}
Deactivation										
T Plant complex expansion	2051	2051	200W	3.11×10^{-1}	2.76×10^{-3}	9.03×10^{-5}	2.84×10^{-3}	a	1.16×10^{-2}	3.63×10^{-3}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	1.03×10^{-3}	1.39×10^{-4}	5.82×10^{-6}	1.76×10^{-4}	a	6.09×10^{-5}	4.24×10^{-5}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	200W	4.13×10^{-4}	5.56×10^{-5}	2.33×10^{-6}	7.03×10^{-5}	a	2.44×10^{-5}	1.70×10^{-5}
Central Waste Complex expansion	2051	2051	200W	1.01×10^{-2}	4.81×10^{-3}	6.53×10^{-5}	2.60×10^{-3}	a	5.81×10^{-2}	1.66×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with those of other activities or would be zero.

Key: 200W=200-West Area; TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–57. Waste Management Alternative 3, Disposal Group 1, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Integrated Disposal Facility, 200-East Area	2006	2008	200EW	1.24×10^{2}	4.84×10^{2}	1.97×10^{3}	1.91×10^{-1}	4.04×10^{1}
Integrated Disposal Facility, 200-West Area	2006	2008	200EW	1.01×10^{2}	4.62×10^{2}	1.91×10^{2}	1.59×10^{-1}	3.78×10^{1}
River Protection Project Disposal Facility	2019	2021	200EW	8.38×10^{1}	2.99×10^{2}	1.92×10^{3}	1.28×10^{-1}	2.53×10^{1}
Operations								
Low-level radioactive waste burial grounds	2007	2050	200W	2.52	6.24	8.14×10^{1}	3.70×10^{-3}	5.64×10^{-1}
Integrated Disposal Facility, 200-East Area	2009	2050	200E	2.74×10^{1}	7.28×10^{1}	1.94×10^{3}	4.05×10^{-2}	6.49
Integrated Disposal Facility, 200-West Area	2009	2050	200W	9.00	3.73×10^{1}	1.61×10^{2}	1.40×10^{-2}	3.09
River Protection Project Disposal Facility	2022	2050	200EW	7.25×10^{1}	1.08×10^{2}	1.64×10^{2}	1.03×10^{-1}	1.11×10^{1}
Closure								
Integrated Disposal Facility, 200-East Area	2051	2052	200E	2.05×10^{3}	1.45×10^{3}	3.09×10^{2}	2.82	1.99×10^{2}
Integrated Disposal Facility, 200-West Area	2051	2052	200W	2.25×10^{2}	2.14×10^{2}	3.20×10^{1}	3.13×10^{-1}	2.58×10^{1}
Postclosure care, Integrated Disposal Facility, 200-East Area	2053	2152	200E	1.87×10^{1}	7.23	5.04×10^{-1}	2.54×10^{-2}	1.39
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	200W	1.54	5.92×10^{-1}	4.13×10^{-2}	2.09×10^{-3}	1.14×10^{-1}
River Protection Project Disposal Facility	2051	2052	200EW	1.99×10^{3}	1.39×10^{3}	3.01×10^{2}	2.74	1.92×10^{2}
Postclosure care, River Protection Project Disposal Facility	2053	2152	200EW	1.84×10^{1}	7.11	4.96×10^{-1}	2.50×10^{-2}	1.37

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007c.

Table G–58. Waste Management Alternative 3, Disposal Group 1, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Integrated Disposal Facility, 200-East Area	2006	2008	200EW	7.62×10^{-1}	1.05×10^{-1}	4.30×10^{-3}	1.30×10^{-1}	a	8.38×10^{-2}	4.22×10^{-2}
Integrated Disposal Facility, 200-West Area	2006	2008	200EW	7.27×10^{-1}	9.80×10^{-2}	4.10×10^{-3}	1.24×10^{-1}	a	4.61×10^{-2}	3.08×10^{-2}
River Protection Project Disposal Facility	2019	2021	200EW	4.72×10^{-1}	6.57×10^{-2}	2.66×10^{-3}	8.08×10^{-2}	a	6.61×10^{-2}	3.01×10^{-2}
Operations										
Low-level radioactive waste burial grounds	2007	2050	200W	9.85×10^{-3}	1.47×10^{-3}	5.59×10^{-5}	1.71×10^{-3}	a	2.92×10^{-3}	1.06×10^{-3}
Integrated Disposal Facility, 200-East Area	2009	2050	200E	1.15×10^{-1}	1.69×10^{-2}	6.52×10^{-4}	1.99×10^{-2}	a	3.01×10^{-2}	1.13×10^{-2}
Integrated Disposal Facility, 200-West Area	2009	2050	200W	5.87×10^{-2}	8.01×10^{-3}	3.31×10^{-4}	1.00×10^{-2}	a	5.37×10^{-3}	2.95×10^{-3}
River Protection Project Disposal Facility	2022	2050	200EW	1.71×10^{-1}	2.89×10^{-2}	9.80×10^{-4}	3.06×10^{-2}	a	1.08×10^{-1}	3.45×10^{-2}
Closure										
Integrated Disposal Facility, 200-East Area	2051	2052	200E	2.34	5.22×10^{-1}	1.37×10^{-2}	4.51×10^{-1}	a	3.59	1.07
Integrated Disposal Facility, 200-West Area	2051	2052	200W	3.43×10^{-1}	6.74×10^{-2}	1.98×10^{-3}	6.37×10^{-2}	a	3.76×10^{-1}	1.14×10^{-1}
Postclosure care, Integrated Disposal Facility, 200-East Area	2053	2152	200E	1.20×10^{-2}	3.66×10^{-3}	7.26×10^{-5}	2.56×10^{-3}	a	3.48×10^{-2}	1.01×10^{-2}
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	200W	9.83×10^{-4}	3.00×10^{-4}	5.95×10^{-6}	2.10×10^{-4}	a	2.85×10^{-3}	8.26×10^{-4}
River Protection Project Disposal Facility	2051	2052	200EW	2.24	5.03×10^{-1}	1.31×10^{-2}	4.33×10^{-1}	a	3.50	1.04
Postclosure care, River Protection Project Disposal Facility	2053	2152	200EW	1.18×10^{-2}	3.60×10^{-3}	7.14×10^{-5}	2.52×10^{-3}	a	3.42×10^{-2}	9.91×10^{-3}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas.

Source: SAIC 2007c.

Table G–59. Waste Management Alternative 3, Disposal Group 2, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Integrated Disposal Facility, 200-East Area	2006	2008	200EW	1.07×10^{2}	4.68×10^{2}	6.35×10^{2}	1.67×10^{-1}	3.85×10^{1}
Integrated Disposal Facility, 200-West Area	2006	2008	200EW	1.01×10^{2}	4.62×10^{2}	1.91×10^{2}	1.59×10^{-1}	3.78×10^{1}
River Protection Project Disposal Facility	2019	2021	200EW	6.49×10^{2}	2.32×10^{3}	1.49×10^{4}	9.89×10^{-1}	1.96×10^{2}
Operations								
Low-level radioactive waste burial grounds	2007	2050	200W	2.52	6.24	8.14×10^{1}	3.70×10^{-3}	5.64×10^{-1}
Integrated Disposal Facility, 200-East Area	2009	2100	200E	9.62	2.76×10^{1}	6.04×10^{2}	1.43×10^{-2}	2.43
Integrated Disposal Facility, 200-West Area	2009	2050	200W	9.00	3.73×10^{1}	1.61×10^{2}	1.40×10^{-2}	3.09
River Protection Project Disposal Facility	2022	2100	200EW	5.62×10^{2}	8.35×10^{2}	1.27×10^{3}	7.95×10^{-1}	8.59×10^{1}
Closure								
Integrated Disposal Facility, 200-East Area	2101	2102	200E	6.82×10^{2}	5.22×10^{2}	1.01×10^{2}	9.39×10^{-1}	6.91×10^{1}
Integrated Disposal Facility, 200-West Area	2051	2052	200W	2.25×10^{2}	2.14×10^{2}	3.20×10^{1}	3.13×10^{-1}	2.58×10^{1}
Postclosure care, Integrated Disposal Facility, 200-East Area	2103	2202	200E	5.83	2.25	1.57×10^{-1}	7.92×10^{-3}	4.32×10^{-1}
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	200W	1.54	5.92×10^{-1}	4.13×10^{-2}	2.09×10^{-3}	1.14×10^{-1}
River Protection Project Disposal Facility	2101	2102	200EW	1.54×10^{4}	1.07×10^{4}	2.34×10^{3}	2.12×10^{1}	1.49×10^{3}
Postclosure care, River Protection Project Disposal Facility	2103	2202	200EW	1.43×10^{2}	5.51×10^{1}	3.84	1.94×10^{-1}	1.06×10^{1}

Key: 200E=200-East Area; 200W=200-West Area; 200EW=200-East and 200-West Areas; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007c.

Table G–60. Waste Management Alternative 3, Disposal Group 2, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Integrated Disposal Facility, 200-East Area	2006	2008	200EW	7.36×10^{-1}	9.97×10^{-2}	4.15×10^{-3}	1.25×10^{-1}	a	5.55×10^{-2}	3.36×10^{-2}
Integrated Disposal Facility, 200-West Area	2006	2008	200EW	7.27×10^{-1}	9.80×10^{-2}	4.10×10^{-3}	1.24×10^{-1}	a	4.61×10^{-2}	3.08×10^{-2}
River Protection Project Disposal Facility	2019	2021	200EW	3.65	5.09×10^{-1}	2.06×10^{-2}	6.26×10^{-1}	a	5.12×10^{-1}	2.34×10^{-1}
Operations										
Low-level radioactive waste burial grounds	2007	2050	200W	9.85×10^{-3}	1.47×10^{-3}	5.59×10^{-5}	1.71×10^{-3}	a	2.92×10^{-3}	1.06×10^{-3}
Integrated Disposal Facility, 200-East Area	2009	2100	200E	4.36×10^{-2}	6.30×10^{-3}	2.47×10^{-4}	7.53×10^{-3}	a	9.84×10^{-3}	3.84×10^{-3}
Integrated Disposal Facility, 200-West Area	2009	2050	200W	5.87×10^{-2}	8.01×10^{-3}	3.31×10^{-4}	1.00×10^{-2}	a	5.37×10^{-3}	2.95×10^{-3}
River Protection Project Disposal Facility	2022	2100	200EW	1.33	2.24×10^{-1}	7.59×10^{-3}	2.37×10^{-1}	a	8.36×10^{-1}	2.68×10^{-1}
Closure										
Integrated Disposal Facility, 200-East Area	2101	2102	200E	8.42×10^{-1}	1.81×10^{-1}	4.91×10^{-3}	1.61×10^{-1}	a	1.18	3.52×10^{-1}
Integrated Disposal Facility, 200-West Area	2051	2052	200W	3.43×10^{-1}	6.74×10^{-2}	1.98×10^{-3}	6.37×10^{-2}	a	3.76×10^{-1}	1.14×10^{-1}
Postclosure care, Integrated Disposal Facility, 200-East Area	2103	2202	200E	3.74×10^{-3}	1.14×10^{-3}	2.26×10^{-5}	7.98×10^{-4}	a	1.08×10^{-2}	3.14×10^{-3}
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	200W	9.83×10^{-4}	3.00×10^{-4}	5.95×10^{-6}	2.10×10^{-4}	a	2.85×10^{-3}	8.26×10^{-4}
River Protection Project Disposal Facility	2101	2102	200EW	1.74×10^{1}	3.90	1.02×10^{-1}	3.35	a	2.71×10^{1}	8.05
Postclosure care, River Protection Project Disposal Facility	2103	2202	200EW	9.14×10^{-2}	2.79×10^{-2}	5.53×10^{-4}	1.95×10^{-2}	a	2.65×10^{-1}	7.68×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area.

Source: SAIC 2007c.

Table G–61. Waste Management Alternative 3, Disposal Group 3, Criteria Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)				
				Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide	VOCs
Construction								
Integrated Disposal Facility, 200-East Area	2006	2008	200EW	1.07×10^{2}	4.68×10^{2}	6.35×10^{2}	1.67×10^{-1}	3.85×10^{1}
Integrated Disposal Facility, 200-West Area	2006	2008	200EW	1.01×10^{2}	4.62×10^{2}	1.91×10^{2}	1.59×10^{-1}	3.78×10^{1}
River Protection Project Disposal Facility	2019	2021	200EW	6.49×10^{2}	2.32×10^{3}	1.49×10^{4}	9.89×10^{-1}	1.96×10^{2}
Operations								
Low-level radioactive waste burial grounds	2007	2050	200W	2.52	6.24	8.14×10^{1}	3.70×10^{-3}	5.64×10^{-1}
Integrated Disposal Facility, 200-East Area	2009	2165	200E	8.23	2.12×10^{1}	6.03×10^{2}	1.21×10^{-2}	1.90
Integrated Disposal Facility, 200-West Area	2009	2050	200W	9.00	3.73×10^{1}	1.61×10^{2}	1.40×10^{-2}	3.09
River Protection Project Disposal Facility	2022	2165	200EW	5.62×10^{2}	8.35×10^{2}	1.27×10^{3}	7.95×10^{-1}	8.59×10^{1}
Closure								
Integrated Disposal Facility, 200-East Area	2166	2167	200E	6.82×10^{2}	5.22×10^{2}	1.01×10^{2}	9.39×10^{-1}	6.91×10^{1}
Integrated Disposal Facility, 200-West Area	2051	2052	200W	2.25×10^{2}	2.14×10^{2}	3.20×10^{1}	3.13×10^{-1}	2.58×10^{1}
Postclosure care, Integrated Disposal Facility, 200-East Area	2168	2267	200E	5.83	2.25	1.57×10^{-1}	7.92×10^{-3}	4.32×10^{-1}
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	200W	1.54	5.92×10^{-1}	4.13×10^{-2}	2.09×10^{-3}	1.14×10^{-1}
River Protection Project Disposal Facility	2166	2167	200EW	1.54×10^{4}	1.07×10^{4}	2.34×10^{3}	2.12×10^{1}	1.49×10^{3}
Postclosure care, River Protection Project Disposal Facility	2168	2267	200EW	1.43×10^{2}	5.51×10^{1}	3.84	1.94×10^{-1}	1.06×10^{1}

Key: 200E=200-East Area; 200W=200-West Area; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; VOC=volatile organic compound.

Source: SAIC 2007c.

Table G–62. Waste Management Alternative 3, Disposal Group 3, Toxic Pollutant Emissions

Facility/System	Start Year	End Year	Location	Emission Rate (metric tons per year)						
				Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction										
Integrated Disposal Facility, 200-East Area	2006	2008	200EW	7.36×10^{-1}	9.97×10^{-2}	4.15×10^{-3}	1.25×10^{-1}	a	5.55×10^{-2}	3.36×10^{-2}
Integrated Disposal Facility, 200-West Area	2006	2008	200EW	7.27×10^{-1}	9.80×10^{-2}	4.10×10^{-3}	1.24×10^{-1}	a	4.61×10^{-2}	3.08×10^{-2}
River Protection Project Disposal Facility	2019	2021	200EW	3.65	5.09×10^{-1}	2.06×10^{-2}	6.26×10^{-1}	a	5.12×10^{-1}	2.34×10^{-1}
Operations										
Low-level radioactive waste burial grounds	2007	2050	200W	9.85×10^{-3}	1.47×10^{-3}	5.59×10^{-5}	1.71×10^{-3}	a	2.92×10^{-3}	1.06×10^{-3}
Integrated Disposal Facility, 200-East Area	2009	2165	200E	3.35×10^{-2}	4.94×10^{-3}	1.90×10^{-4}	5.80×10^{-3}	a	9.24×10^{-3}	3.42×10^{-3}
Integrated Disposal Facility, 200-West Area	2009	2050	200W	5.87×10^{-2}	8.01×10^{-3}	3.31×10^{-4}	1.00×10^{-2}	a	5.37×10^{-3}	2.95×10^{-3}
River Protection Project Disposal Facility	2022	2165	200EW	1.33	2.24×10^{-1}	7.59×10^{-3}	2.37×10^{-1}	a	8.36×10^{-1}	2.68×10^{-1}
Closure										
Integrated Disposal Facility, 200-East Area	2166	2167	200E	8.42×10^{-1}	1.81×10^{-1}	4.91×10^{-3}	1.61×10^{-1}	a	1.18	3.52×10^{-1}
Integrated Disposal Facility, 200-West Area	2051	2052	200W	3.43×10^{-1}	6.74×10^{-2}	1.98×10^{-3}	6.37×10^{-2}	a	3.76×10^{-1}	1.14×10^{-1}
Postclosure care, Integrated Disposal Facility, 200-East Area	2168	2267	200E	3.74×10^{-3}	1.14×10^{-3}	2.26×10^{-5}	7.98×10^{-4}	a	1.08×10^{-2}	3.14×10^{-3}
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	200W	9.83×10^{-4}	3.00×10^{-4}	5.95×10^{-6}	2.10×10^{-4}	a	2.85×10^{-3}	8.26×10^{-4}
River Protection Project Disposal Facility	2166	2167	200EW	1.74×10^{1}	3.90	1.02×10^{-1}	3.35	a	2.71×10^{1}	8.05
Postclosure care, River Protection Project Disposal Facility	2168	2267	200EW	9.14×10^{-2}	2.79×10^{-2}	5.53×10^{-4}	1.95×10^{-2}	a	2.65×10^{-1}	7.68×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: 200E=200-East Area; 200W=200-West Area.

Source: SAIC 2007c.

Table G–63. Tank Closure Alternative 1 Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2008	a	a	a	a
Other infrastructure upgrades	2006	2008	a	a	a	a
Tank upgrades	2006	2008	a	a	a	a
Waste Treatment Plant	2006	2008	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Operations						
Routine operations	2006	2008	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Closure						
Administrative controls	2008	2107	5.99×10^{1}	2.81×10^{2}	2.54×10^{1}	9.07×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–64. Tank Closure Alternative 1 Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2008	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2008	a	a	a	a	a	a	a
Tank upgrades	2006	2008	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2008	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Operations									
Routine operations	2006	2008	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Closure									
Administrative controls	2008	2107	4.35×10^{-1}	6.62×10^{-2}	a	a	a	2.90×10^{-2}	2.00×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007a, 2008.

Table G–65. Tank Closure Alternative 2A Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Underground transfer lines	2009	2009	a	a	a	a
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2019	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Cesium and Strontium Capsule Processing Facility	2088	2091	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Tank risers	2013	2056	a	a	a	a
Modified sluicing retrieval system	2013	2092	a	a	a	a
Mobile retrieval system	2013	2052	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a
HLW Melter Interim Storage Facility 2	2040	2041	a	a	a	a
HLW Melter Interim Storage Facility 3	2065	2066	a	a	a	a
Double-shell tank replacement	2013	2054	a	a	a	a
Waste Treatment Plant replacement	2065	2076	2.17×10^{1}	1.01×10^{2}	8.26×10^{2}	3.42×10^{-2}
Underground transfer line replacement	2044	2044	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Effluent Treatment Facility replacement 2	2053	2055	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Evaporator replacement 2	2040	2042	3.61	2.95	2.80×10^{2}	4.98×10^{-3}
Evaporator replacement 3	2065	2067	3.61	2.95	2.80×10^{2}	4.98×10^{-3}
Operations						
IHLW Interim Storage Facility	2018	2092	a	a	a	a
Other infrastructure upgrades	2006	2092	a	a	a	a
Routine operations	2006	2092	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2092	a	a	a	a
Double-shell tank interim stabilization	2006	2092	a	a	a	a
Waste Treatment Plant	2018	2092	5.56	2.58×10^{1}	1.37×10^{2}	8.77×10^{-3}

Table G–65. Tank Closure Alternative 2A Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Waste Treatment Plant, cesium and strontium capsules	2093	2093	5.56	2.58×10^{1}	1.37×10^{2}	8.77×10^{-3}
Cesium and Strontium Capsule Processing Facility	2092	2093	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Modified sluicing retrieval system	2013	2092	a	a	a	a
Mobile retrieval system	2013	2052	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	a	a	a
HLW Melter Interim Storage Facility	2018	2192	a	a	a	a
Effluent Treatment Facility	2006	2095	6.46×10^{2}	1.68×10^{1}	2.83×10^{3}	8.66×10^{-1}
Evaporator	2006	2093	3.22	8.38×10^{-2}	8.51×10^{2}	4.32×10^{-3}
Borrow Area C	2006	2102	a	a	4.24×10^{2}	a
Deactivation						
IHLW Interim Storage Facility	2093	2093	a	a	a	a
Waste Treatment Plant	2078	2079	5.56×10^{-1}	2.58	1.37×10^{1}	8.77×10^{-4}
Modified sluicing retrieval system	2013	2092	a	a	a	a
Mobile retrieval system	2013	2052	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	a	a	a
Administrative controls	2094	2193	1.63×10^{1}	7.71×10^{-1}	8.44×10^{-2}	2.22×10^{-4}
Waste Treatment Plant replacement	2094	2095	5.56×10^{-1}	2.58	1.37×10^{1}	8.77×10^{-4}
Cesium and Strontium Capsule Processing Facility	2094	2094	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement 2	2096	2096	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement 1	2043	2043	7.89×10^{-1}	2.05×10^{-2}	8.25	1.06×10^{-3}
Evaporator replacement 2	2068	2068	7.89×10^{-1}	2.05×10^{-2}	8.25	1.06×10^{-3}
Evaporator replacement 3	2094	2094	7.89×10^{-1}	2.05×10^{-2}	8.25	1.06×10^{-3}

Table G–65. Tank Closure Alternative 2A Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure						
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–66. Tank Closure Alternative 2A Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Underground transfer lines	2009	2009	a	a	a	a	a	a	a
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Cesium and Strontium Capsule Processing Facility	2088	2091	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Tank risers	2013	2056	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	a	a	a	a	a	a	a
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2040	2041	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2065	2066	a	a	a	a	a	a	a
Double-shell tank replacement	2013	2054	a	a	a	a	a	a	a
Waste Treatment Plant replacement	2065	2076	1.58×10^{-1}	2.13×10^{-2}	8.92×10^{-4}	4.48×10^{-2}	a	9.33×10^{-3}	6.50×10^{-3}
Underground transfer line replacement	2044	2044	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Effluent Treatment Facility replacement 2	2053	2055	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Evaporator replacement 2	2040	2042	4.74×10^{-3}	9.92×10^{-4}	7.95×10^{-4}	8.97×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 3	2065	2067	4.74×10^{-3}	9.92×10^{-4}	7.95×10^{-4}	8.97×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Operations									
IHLW Interim Storage Facility	2018	2092	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2092	a	a	a	a	a	a	a
Routine operations	2006	2092	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2092	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2092	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2092	4.05×10^{-2}	5.46×10^{-3}	2.29×10^{-4}	6.90×10^{-3}	a	2.39×10^{-3}	1.67×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2093	2093	4.05×10^{-2}	5.46×10^{-3}	2.29×10^{-4}	6.90×10^{-3}	a	2.39×10^{-3}	1.67×10^{-3}

Table G–66. Tank Closure Alternative 2A Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Cesium and Strontium Capsule Processing Facility	2092	2093	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	a	a	a	a	a	a	a
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2192	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2095	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2093	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2102	1.78×10^{-1}	3.12×10^{-2}	1.02×10^{-3}	3.21×10^{-2}	a	1.32×10^{-1}	4.15×10^{-2}
Deactivation									
IHLW Interim Storage Facility	2093	2093	a	a	a	a	a	a	a
Waste Treatment Plant	2078	2079	4.05×10^{-3}	5.46×10^{-4}	2.29×10^{-5}	6.90×10^{-4}	a	2.39×10^{-4}	1.67×10^{-4}
Modified sluicing retrieval system	2013	2092	a	a	a	a	a	a	a
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	a	a	a	a	a	a
Administrative controls	2094	2193	1.81×10^{-3}	2.18×10^{-3}	a	a	a	3.18×10^{-2}	9.07×10^{-3}
Waste Treatment Plant replacement	2094	2095	4.05×10^{-3}	5.46×10^{-4}	2.29×10^{-5}	6.90×10^{-4}	a	2.39×10^{-4}	1.67×10^{-4}
Cesium and Strontium Capsule Processing Facility	2094	2094	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Effluent Treatment Facility replacement 2	2096	2096	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2043	2043	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 2	2068	2068	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 3	2094	2094	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–67. Tank Closure Alternative 2B Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Low-Activity Waste Vitrification Facility	2008	2017	1.54	7.16	5.43×10^{1}	2.43×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2038	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Modified sluicing retrieval system	2013	2043	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a
Effluent Treatment replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a
Routine operations	2006	2043	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2043	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a
Waste Treatment Plant	2018	2043	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Cesium and Strontium Capsule Processing Facility	2039	2040	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Modified sluicing retrieval system	2013	2043	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a

Table G–67. Tank Closure Alternative 2B Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
HLW Melter Interim Storage Facility	2018	2145	a	a	a	a
Effluent Treatment Facility	2006	2045	6.46×10^{2}	1.68×10^{1}	4.03×10^{2}	8.66×10^{-1}
Evaporator	2006	2043	3.22	8.38×10^{-2}	3.81×10^{2}	4.32×10^{-3}
Borrow Area C	2006	2052	a	a	4.24×10^{2}	a
Deactivation						
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2044	2045	2.34	1.08×10^{1}	5.07×10^{1}	3.69×10^{-3}
Modified sluicing retrieval system	2013	2043	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement	2056	2056	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement	2044	2044	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Closure						
Ancillary equipment grouting	2013	2037	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
Grout facility (tank-filling) construction	2032	2033	a	a	a	a
Grout facility (tank-filling) operations	2034	2043	a	a	a	a
Grout facility (tank-filling) deactivation	2044	2044	a	a	a	a
Containment structure construction	2028	2031	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a
Containment structure deactivation	2038	2040	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	1.70×10^{1}	7.88×10^{1}	6.68×10^{2}	2.68×10^{-2}

Table G–67. Tank Closure Alternative 2B Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure *(continued)*						
Postclosure care	2046	2145	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–68. Tank Closure Alternative 2B Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Low-Activity Waste Vitrification Facility	2008	2017	1.13×10^{-2}	1.51×10^{-3}	6.35×10^{-5}	1.92×10^{-3}	a	6.64×10^{-4}	4.63×10^{-4}
Cesium and Strontium Capsule Processing Facility	2035	2038	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	a	a	a	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a	a	a	a
Routine operations	2006	2043	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2043	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Modified sluicing retrieval system	2013	2043	a	a	a	a	a	a	a

Table G–68. Tank Closure Alternative 2B Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2145	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2045	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2043	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2052	a	a	a	a	a	a	a
Deactivation									
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	1.71×10^{-2}	2.30×10^{-3}	9.62×10^{-5}	2.90×10^{-3}	a	1.01×10^{-3}	7.01×10^{-4}
Modified sluicing retrieval system	2013	2043	a	a	a	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2044	2044	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Ancillary equipment grouting	2013	2037	a	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Grout facility (tank-filling) construction	2032	2033	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2034	2043	a	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2044	2044	a	a	a	a	a	a	a
Containment structure construction	2028	2031	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a	a	a	a
Containment structure deactivation	2038	2040	a	a	a	a	a	a	a

Table G–68. Tank Closure Alternative 2B Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*									
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	1.24×10^{-1}	3.10×10^{-1}	1.30×10^{-2}	3.92×10^{-1}	a	1.36×10^{-1}	9.47×10^{-2}
Postclosure care	2046	2145	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–69. Tank Closure Alternative 3A Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Cesium and Strontium Capsule Processing Facility	2035	2038	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	5.81×10^{-1}	2.69	1.67×10^{1}	9.17×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	4.73×10^{-1}	2.20	1.36×10^{1}	7.47×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2016	2017	1.54	7.15	4.47×10^{1}	2.43×10^{-3}
Solid-Liquid Separations Facility	2016	2017	2.41×10^{-1}	1.12	8.32	3.80×10^{-4}
Bulk Vitrification Facility, 200-East Area	2016	2017	1.54	7.15	4.47×10^{1}	2.43×10^{-3}
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2039	a	a	a	a
Routine operations	2006	2039	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2039	a	a	a	a
Double-shell tank interim stabilization	2006	2039	a	a	a	a
Waste Treatment Plant	2018	2039	7.61	3.53×10^{1}	1.82×10^{2}	1.20×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	7.61	3.53×10^{1}	1.82×10^{2}	1.20×10^{-2}
Cesium and Strontium Capsule Processing Facility	2039	2040	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}

Table G–69. Tank Closure Alternative 3A Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	2.47	1.15×10^{1}	6.31×10^{1}	3.90×10^{-3}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.86×10^{-2}	8.63×10^{-2}	4.75×10^{-1}	2.94×10^{-5}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2018	2039	3.80	1.76×10^{1}	1.01×10^{2}	6.00×10^{-3}
Solid-Liquid Separations Facility	2018	2039	1.09	5.07	2.79×10^{1}	1.72×10^{-3}
Bulk Vitrification Facility, 200-East Area	2018	2039	6.26	2.91×10^{1}	1.67×10^{2}	9.89×10^{-3}
Effluent Treatment Facility	2006	2042	6.46×10^{2}	1.68×10^{1}	3.37×10^{2}	8.66×10^{-1}
Evaporator	2006	2040	3.22	8.38×10^{-2}	5.14×10^{-3}	4.32×10^{-3}
Borrow Area C	2006	2052	a	a	4.24×10^{2}	a
Deactivation						
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2041	2042	7.61×10^{-1}	3.53	1.82×10^{1}	1.20×10^{-3}
Cesium and Strontium Capsule Processing Facility	2041	2041	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	2.47×10^{-1}	1.15	6.31	3.90×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.86×10^{-3}	8.63×10^{-3}	4.75×10^{-2}	2.94×10^{-6}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2040	2041	3.80×10^{-1}	1.76	1.01×10^{1}	6.00×10^{-4}
Solid-Liquid Separations Facility	2040	2041	1.09×10^{-1}	5.07×10^{-1}	2.79	1.72×10^{-4}
Bulk Vitrification Facility, 200-East Area	2040	2041	6.26×10^{-1}	2.91	1.67×10^{1}	9.89×10^{-4}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement	2043	2043	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement	2041	2041	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}

Table G–69. Tank Closure Alternative 3A Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure						
Grout facility (tank-filling) construction	2028	2029	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a
Containment structure deactivation	2034	2036	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	1.70×10^{1}	7.88×10^{1}	6.68×10^{2}	2.68×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
Postclosure care	2042	2141	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–70. Tank Closure Alternative 3A Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2038	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	4.24×10^{-3}	5.70×10^{-4}	2.39×10^{-5}	7.21×10^{-4}	a	2.50×10^{-4}	1.74×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	3.45×10^{-3}	4.64×10^{-4}	1.95×10^{-5}	5.87×10^{-4}	a	2.04×10^{-4}	1.42×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2016	2017	1.12×10^{-2}	3.68×10^{-2}	6.34×10^{-5}	1.91×10^{-3}	a	1.61×10^{-2}	1.12×10^{-2}
Solid-Liquid Separations Facility	2016	2017	1.76×10^{-3}	2.37×10^{-4}	9.91×10^{-6}	2.99×10^{-4}	a	1.04×10^{-4}	7.23×10^{-5}
Bulk Vitrification Facility, 200-East Area	2016	2017	1.12×10^{-2}	3.68×10^{-2}	6.34×10^{-5}	1.91×10^{-3}	a	1.61×10^{-2}	1.12×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2039	a	a	a	a	a	a	a
Routine operations	2006	2039	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2039	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2039	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2039	5.55×10^{-2}	7.47×10^{-3}	3.13×10^{-4}	9.45×10^{-3}	a	3.28×10^{-3}	2.28×10^{-3}

Table G–70. Tank Closure Alternative 3A Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Waste Treatment Plant, cesium and strontium capsules	2040	2040	5.55×10^{-2}	7.47×10^{-3}	3.13×10^{-4}	9.45×10^{-3}	a	3.28×10^{-3}	2.28×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	1.80×10^{-2}	2.43×10^{-3}	1.02×10^{-4}	3.07×10^{-3}	a	1.06×10^{-3}	7.41×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.36×10^{-4}	1.83×10^{-5}	7.65×10^{-7}	2.31×10^{-5}	a	8.01×10^{-6}	5.58×10^{-6}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2018	2039	2.77×10^{-2}	9.08×10^{-2}	1.56×10^{-4}	4.72×10^{-3}	a	3.98×10^{-2}	2.77×10^{-2}
Solid-Liquid Separations Facility	2018	2039	7.97×10^{-3}	1.07×10^{-3}	4.49×10^{-5}	1.36×10^{-3}	a	4.70×10^{-4}	3.27×10^{-4}
Bulk Vitrification Facility, 200-East Area	2018	2039	4.57×10^{-2}	1.50×10^{-1}	2.58×10^{-4}	7.78×10^{-3}	a	6.56×10^{-2}	4.57×10^{-2}
Effluent Treatment Facility	2006	2042	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2040	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2052	a	a	a	a	a	a	a
Deactivation									
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	5.55×10^{-3}	7.47×10^{-4}	3.13×10^{-5}	9.45×10^{-4}	a	3.28×10^{-4}	2.28×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	1.80×10^{-3}	2.43×10^{-4}	1.02×10^{-5}	3.07×10^{-4}	a	1.06×10^{-4}	7.41×10^{-5}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.36×10^{-5}	1.83×10^{-6}	7.65×10^{-8}	2.31×10^{-6}	a	8.01×10^{-7}	5.58×10^{-7}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2040	2041	2.77×10^{-3}	9.08×10^{-3}	1.56×10^{-5}	4.72×10^{-4}	a	3.98×10^{-3}	2.77×10^{-3}
Solid-Liquid Separations Facility	2040	2041	7.97×10^{-4}	1.07×10^{-4}	4.49×10^{-6}	1.36×10^{-4}	a	4.70×10^{-5}	3.27×10^{-5}
Bulk Vitrification Facility, 200-East Area	2040	2041	4.57×10^{-2}	1.50×10^{-1}	2.58×10^{-4}	7.78×10^{-3}	a	6.56×10^{-2}	4.57×10^{-2}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}

Table G–70. Tank Closure Alternative 3A Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*									
Effluent Treatment Facility replacement	2043	2043	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2041	2041	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	a	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	1.24×10^{-1}	3.10×10^{-1}	1.30×10^{-2}	3.92×10^{-1}	a	1.36×10^{-1}	9.47×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–71. Tank Closure Alternative 3B Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Cesium and Strontium Capsule Processing Facility	2035	2038	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	5.81×10^{-1}	2.69	1.67×10^{1}	9.17×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	4.73×10^{-1}	2.20	1.36×10^{1}	7.47×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a
Cast Stone Facility, 200-West Area	2016	2017	1.05	4.89	3.05×10^{1}	1.66×10^{-3}
Solid-Liquid Separations Facility	2016	2017	2.41×10^{-1}	1.12	8.32	3.80×10^{-4}
Cast Stone Facility, 200-East Area	2016	2017	1.05	4.89	3.05×10^{1}	1.66×10^{-3}
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	4.74×10^{2}	5.00×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2039	a	a	a	a
Routine operations	2006	2039	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2039	a	a	a	a

Table G–71. Tank Closure Alternative 3B Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Double-shell tank interim stabilization	2006	2039	a	a	a	a
Waste Treatment Plant	2018	2039	8.08	3.75×10^{1}	1.92×10^{2}	1.28×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	7.61	3.53×10^{1}	1.82×10^{2}	1.20×10^{-2}
Cesium and Strontium Capsule Processing Facility	2039	2040	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	2.47	1.15×10^{1}	6.31×10^{1}	3.90×10^{-3}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.86×10^{-2}	8.63×10^{-2}	4.75×10^{-1}	2.94×10^{-5}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a
Cast Stone Facility, 200-West Area	2018	2039	9.98	4.63×10^{1}	2.52×10^{2}	1.58×10^{-2}
Solid-Liquid Separations Facility	2018	2039	1.09	5.07	2.79×10^{1}	1.72×10^{-3}
Cast Stone Facility, 200-East Area	2018	2039	1.68×10^{1}	7.81×10^{1}	4.24×10^{2}	2.66×10^{-2}
Effluent Treatment Facility	2006	2042	6.46×10^{2}	1.68×10^{1}	3.37×10^{2}	8.66×10^{-1}
Evaporator	2006	2040	3.22	8.38×10^{-2}	1.35×10^{2}	4.32×10^{-3}
Borrow Area C	2006	2052	a	a	4.24×10^{2}	a
Deactivation						
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2041	2042	8.08×10^{-1}	3.75	1.92×10^{1}	1.28×10^{-3}
Cesium and Strontium Capsule Processing Facility	2041	2041	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	2.47×10^{-1}	1.15	6.31	3.90×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.86×10^{-3}	8.63×10^{-3}	4.75×10^{-2}	2.94×10^{-6}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a
Cast Stone Facility, 200-West Area	2040	2041	9.98×10^{-1}	4.63	2.52×10^{1}	1.58×10^{-3}
Solid-Liquid Separations Facility	2040	2041	1.09×10^{-1}	5.07×10^{-1}	2.79	1.72×10^{-4}
Cast Stone Facility, 200-East Area	2040	2041	1.68	7.81	4.24×10^{1}	2.66×10^{-3}

Table G–71. Tank Closure Alternative 3B Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Deactivation *(continued)*						
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2043	2043	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement 1	2041	2041	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Closure						
Grout facility (tank-filling) construction	2028	2029	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a
Containment structure deactivation	2034	2036	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	1.70×10^{1}	7.88×10^{1}	6.68×10^{2}	2.68×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
Postclosure care	2042	2141	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–72. Tank Closure Alternative 3B Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2038	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	4.24×10^{-3}	5.70×10^{-4}	2.39×10^{-5}	7.21×10^{-4}	a	2.50×10^{-4}	1.74×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	3.45×10^{-3}	4.64×10^{-4}	1.95×10^{-5}	5.87×10^{-4}	a	2.04×10^{-4}	1.42×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2016	2017	7.69×10^{-3}	1.03×10^{-3}	4.33×10^{-5}	1.31×10^{-3}	a	4.53×10^{-4}	3.16×10^{-4}
Solid-Liquid Separations Facility	2016	2017	1.76×10^{-3}	2.37×10^{-4}	9.91×10^{-6}	2.99×10^{-4}	a	1.04×10^{-4}	7.23×10^{-5}
Cast Stone Facility, 200-East Area	2016	2017	7.69×10^{-3}	1.03×10^{-3}	4.33×10^{-5}	1.31×10^{-3}	a	4.53×10^{-4}	3.16×10^{-4}
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2039	a	a	a	a	a	a	a
Routine operations	2006	2039	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2039	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2039	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2039	5.90×10^{-2}	7.94×10^{-3}	3.33×10^{-4}	1.00×10^{-2}	a	3.48×10^{-3}	2.42×10^{-3}

Table G–72. Tank Closure Alternative 3B Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Waste Treatment Plant, cesium and strontium capsules	2040	2040	5.55×10^{-2}	7.47×10^{-3}	3.13×10^{-4}	9.45×10^{-3}	a	3.28×10^{-3}	2.28×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	1.80×10^{-2}	2.43×10^{-3}	1.02×10^{-4}	3.07×10^{-3}	a	1.06×10^{-3}	7.41×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.36×10^{-4}	1.83×10^{-5}	7.65×10^{-7}	2.31×10^{-5}	a	8.01×10^{-6}	5.58×10^{-6}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2018	2039	7.29×10^{-2}	9.81×10^{-3}	4.11×10^{-4}	1.24×10^{-2}	a	4.30×10^{-3}	3.00×10^{-3}
Solid-Liquid Separations Facility	2018	2039	7.97×10^{-3}	1.07×10^{-3}	4.49×10^{-5}	1.36×10^{-3}	a	4.70×10^{-4}	3.27×10^{-4}
Cast Stone Facility, 200-East Area	2018	2039	1.23×10^{-1}	1.65×10^{-2}	6.93×10^{-4}	2.09×10^{-2}	a	7.25×10^{-3}	5.05×10^{-3}
Effluent Treatment Facility	2006	2042	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2040	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2052	a	a	a	a	a	a	a
Deactivation									
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	5.90×10^{-3}	7.94×10^{-4}	3.33×10^{-5}	1.00×10^{-3}	a	3.48×10^{-4}	2.42×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	1.80×10^{-3}	2.43×10^{-4}	1.02×10^{-5}	3.07×10^{-4}	a	1.06×10^{-4}	7.41×10^{-5}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.36×10^{-5}	1.83×10^{-6}	7.65×10^{-8}	2.31×10^{-6}	a	8.01×10^{-7}	5.58×10^{-7}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2040	2041	7.29×10^{-3}	9.81×10^{-4}	4.11×10^{-5}	1.24×10^{-3}	a	4.30×10^{-4}	3.00×10^{-4}
Solid-Liquid Separations Facility	2040	2041	7.97×10^{-4}	1.07×10^{-4}	4.49×10^{-6}	1.36×10^{-4}	a	4.70×10^{-5}	3.27×10^{-5}
Cast Stone Facility, 200-East Area	2040	2041	1.23×10^{-2}	1.65×10^{-3}	6.93×10^{-5}	2.09×10^{-3}	a	7.25×10^{-4}	5.05×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}

Table G–72. Tank Closure Alternative 3B Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*									
Effluent Treatment Facility replacement 1	2043	2043	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2041	2041	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	a	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	1.24×10^{-1}	3.10×10^{-1}	1.30×10^{-2}	3.92×10^{-1}	a	1.36×10^{-1}	9.47×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–73. Tank Closure Alternative 3C Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Cesium and Strontium Capsule Processing Facility	2035	2038	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	5.81×10^{-1}	2.69	1.67×10^{1}	9.17×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	4.73×10^{-1}	2.20	1.36×10^{1}	7.47×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a
Steam Reforming Facility, 200-West Area	2016	2017	3.52	1.63×10^{1}	1.02×10^{2}	5.55×10^{-3}
Solid-Liquid Separations Facility	2016	2017	2.41×10^{-1}	1.12	8.32	3.80×10^{-4}
Steam Reforming Facility, 200-East Area	2016	2017	7.02	3.26×10^{1}	2.04×10^{2}	1.11×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2039	a	a	a	a
Routine operations	2006	2039	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2039	a	a	a	a
Double-shell tank interim stabilization	2006	2039	a	a	a	a
Waste Treatment Plant	2018	2039	7.61	3.53×10^{1}	1.82×10^{2}	1.20×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	7.61	3.53×10^{1}	1.82×10^{2}	1.20×10^{-2}

Table G–73. Tank Closure Alternative 3C Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Cesium and Strontium Capsule Processing Facility	2039	2040	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	2.47	1.15×10^{1}	6.31×10^{1}	3.90×10^{-3}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.86×10^{-2}	8.63×10^{-2}	4.75×10^{-1}	2.94×10^{-5}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a
Steam Reforming Facility, 200-West Area	2018	2039	1.20×10^{2}	5.59×10^{2}	2.80×10^{3}	1.90×10^{-1}
Solid-Liquid Separations Facility	2018	2039	1.09	5.07	2.79×10^{1}	1.72×10^{-3}
Steam Reforming Facility, 200-East Area	2018	2039	1.05×10^{2}	4.87×10^{2}	2.44×10^{3}	1.66×10^{-1}
Effluent Treatment Facility	2006	2042	6.46×10^{2}	1.68×10^{1}	3.37×10^{2}	8.66×10^{-1}
Evaporator	2006	2040	3.22	8.38×10^{-2}	1.35×10^{2}	4.32×10^{-3}
Borrow Area C	2006	2052	a	a	8.48×10^{2}	a
Deactivation						
Modified sluicing retrieval system	2013	2039	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2041	2042	7.61×10^{-1}	3.53	1.82×10^{1}	1.20×10^{-3}
Cesium and Strontium Capsule Processing Facility	2041	2041	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	2.47×10^{-1}	1.15	6.31	3.90×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.86×10^{-3}	8.63×10^{-3}	4.75×10^{-2}	2.94×10^{-6}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a
Steam Reforming Facility, 200-West Area	2040	2041	1.20×10^{1}	5.59×10^{1}	2.80×10^{2}	1.90×10^{-2}
Solid-Liquid Separations Facility	2040	2041	1.09×10^{-1}	5.07×10^{-1}	2.79	1.72×10^{-4}
Steam Reforming Facility, 200-East Area	2040	2041	1.05×10^{1}	4.87×10^{1}	2.44×10^{2}	1.66×10^{-2}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2043	2043	3.23×10^{2}	8.41	1.95	4.33×10^{-1}

Table G–73. Tank Closure Alternative 3C Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Deactivation *(continued)*						
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement 1	2041	2041	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Closure						
Grout facility (tank-filling) construction	2028	2029	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a
Containment structure deactivation	2034	2036	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	1.70×10^{1}	7.88×10^{1}	6.68×10^{2}	2.68×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
Postclosure care	2042	2141	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–74. Tank Closure Alternative 3C Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2038	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	4.24×10^{-3}	5.70×10^{-4}	2.39×10^{-5}	7.21×10^{-4}	a	2.50×10^{-4}	1.74×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	3.45×10^{-3}	4.64×10^{-4}	1.95×10^{-5}	5.87×10^{-4}	a	2.04×10^{-4}	1.42×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2016	2017	2.57×10^{-2}	3.45×10^{-3}	1.45×10^{-4}	4.37×10^{-3}	a	1.51×10^{-3}	1.05×10^{-3}
Solid-Liquid Separations Facility	2016	2017	1.76×10^{-3}	2.37×10^{-4}	9.91×10^{-6}	2.99×10^{-4}	a	1.04×10^{-4}	7.23×10^{-5}
Steam Reforming Facility, 200-East Area	2016	2017	5.13×10^{-2}	6.90×10^{-3}	2.89×10^{-4}	8.72×10^{-3}	a	3.02×10^{-3}	2.11×10^{-3}
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2039	a	a	a	a	a	a	a
Routine operations	2006	2039	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2039	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2039	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2039	5.55×10^{-2}	7.47×10^{-3}	3.13×10^{-4}	9.45×10^{-3}	a	3.28×10^{-3}	2.28×10^{-3}

Table G–74. Tank Closure Alternative 3C Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Waste Treatment Plant, cesium and strontium capsules	2040	2040	5.55×10^{-2}	7.47×10^{-3}	3.13×10^{-4}	9.45×10^{-3}	a	3.28×10^{-3}	2.28×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2141	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	1.80×10^{-2}	2.43×10^{-3}	1.02×10^{-4}	3.07×10^{-3}	a	1.06×10^{-3}	7.41×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.36×10^{-4}	1.83×10^{-5}	7.65×10^{-7}	2.31×10^{-5}	a	8.01×10^{-6}	5.58×10^{-6}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2018	2039	8.79×10^{-1}	1.18×10^{-1}	4.96×10^{-3}	1.50×10^{-1}	a	5.18×10^{-2}	3.61×10^{-2}
Solid-Liquid Separations Facility	2018	2039	7.97×10^{-3}	1.07×10^{-3}	4.49×10^{-5}	1.36×10^{-3}	a	4.70×10^{-4}	3.27×10^{-4}
Steam Reforming Facility, 200-East Area	2018	2039	7.66×10^{-1}	1.03×10^{-1}	4.32×10^{-3}	1.30×10^{-1}	a	4.52×10^{-2}	3.15×10^{-2}
Effluent Treatment Facility	2006	2042	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2040	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2052	a	a	a	a	a	a	a
Deactivation									
Modified sluicing retrieval system	2013	2039	a	a	a	a	a	a	a
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	5.55×10^{-3}	7.47×10^{-4}	3.13×10^{-5}	9.45×10^{-4}	a	3.28×10^{-4}	2.28×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	1.80×10^{-3}	2.43×10^{-4}	1.02×10^{-5}	3.07×10^{-4}	a	1.06×10^{-4}	7.41×10^{-5}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.36×10^{-5}	1.83×10^{-6}	7.65×10^{-8}	2.31×10^{-6}	a	8.01×10^{-7}	5.58×10^{-7}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2040	2041	8.79×10^{-2}	1.18×10^{-2}	4.96×10^{-4}	1.50×10^{-2}	a	5.18×10^{-3}	3.61×10^{-3}
Solid-Liquid Separations Facility	2040	2041	7.97×10^{-4}	1.07×10^{-4}	4.49×10^{-6}	1.36×10^{-4}	a	4.70×10^{-5}	3.27×10^{-5}
Steam Reforming Facility, 200-East Area	2040	2041	7.66×10^{-2}	1.03×10^{-2}	4.32×10^{-4}	1.30×10^{-2}	a	4.52×10^{-3}	3.15×10^{-3}

Table G–74. Tank Closure Alternative 3C Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*									
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Effluent Treatment Facility replacement 1	2043	2043	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2041	2041	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	a	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	1.24×10^{-1}	3.10×10^{-1}	1.30×10^{-2}	3.92×10^{-1}	a	1.36×10^{-1}	9.47×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–75. Tank Closure Alternative 4 Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Cesium and Strontium Capsule Processing Facility	2038	2041	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Mobile retrieval system	2013	2042	a	a	a	a
Vacuum-based retrieval system	2013	2042	a	a	a	a
Chemical wash system	2013	2042	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	5.81×10^{-1}	2.69	1.67×10^{1}	9.17×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	4.73×10^{-1}	2.20	1.36×10^{1}	7.47×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a
Bulk Vitrification Facility	2016	2017	1.54	7.15	4.47×10^{1}	2.43×10^{-3}
Solid-Liquid Separations Facility	2016	2017	2.41×10^{-1}	1.12	8.32	3.80×10^{-4}
Cast Stone Facility	2016	2017	1.05	4.89	3.05×10^{1}	1.66×10^{-3}
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2042	a	a	a	a
Routine operations	2006	2042	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2042	a	a	a	a
Double-shell tank interim stabilization	2006	2042	a	a	a	a

Table G–75. Tank Closure Alternative 4 Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Waste Treatment Plant	2018	2042	7.24	3.36×10^{1}	1.74×10^{2}	1.14×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2043	2043	7.24	3.36×10^{1}	1.74×10^{2}	1.14×10^{-2}
Cesium and Strontium Capsule Processing Facility	2042	2043	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Mobile retrieval system	2013	2042	a	a	a	a
Vacuum-based retrieval system	2013	2042	a	a	a	a
Chemical wash system	2013	2042	a	a	a	a
HLW Melter Interim Storage Facility	2018	2144	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	2.47	1.15×10^{1}	6.31×10^{1}	3.90×10^{-3}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.86×10^{-2}	8.63×10^{-2}	4.75×10^{-1}	2.94×10^{-5}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a
Bulk Vitrification Facility	2018	2039	3.80	1.76×10^{1}	1.01×10^{2}	6.00×10^{-3}
Solid-Liquid Separations Facility	2018	2039	1.09	5.07	2.79×10^{1}	1.72×10^{-3}
Cast Stone Facility	2018	2039	1.68×10^{1}	7.81×10^{1}	4.24×10^{2}	2.66×10^{-2}
Effluent Treatment Facility	2006	2045	6.46×10^{2}	1.68×10^{1}	4.03×10^{2}	8.66×10^{-1}
Evaporator	2006	2042	3.22	8.38×10^{-2}	1.51×10^{2}	4.32×10^{-3}
Borrow Area C	2006	2052	a	a	4.24×10^{2}	a
Deactivation						
Mobile retrieval system	2013	2042	a	a	a	a
Vacuum-based retrieval system	2013	2042	a	a	a	a
Chemical wash system	2013	2042	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2044	2045	7.24×10^{-1}	3.36	1.74×10^{1}	1.14×10^{-3}
Cesium and Strontium Capsule Processing Facility	2044	2044	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	2.47×10^{-1}	1.15	6.31	3.90×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.86×10^{-3}	8.63×10^{-3}	4.75×10^{-2}	2.94×10^{-6}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a
Bulk Vitrification Facility	2040	2041	3.80×10^{-1}	1.76	1.01×10^{1}	6.00×10^{-4}
Solid-Liquid Separations Facility	2040	2041	1.09×10^{-1}	5.07×10^{-1}	2.79	1.72×10^{-4}
Cast Stone Facility	2040	2041	1.68	7.81	4.24×10^{1}	2.66×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}

Table G–75. Tank Closure Alternative 4 Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Deactivation *(continued)*						
Effluent Treatment Facility replacement 1	2046	2046	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement 1	2043	2043	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Closure						
Grout facility (tank-filling) construction	2031	2032	a	a	a	a
Grout facility (tank-filling) operations	2033	2042	a	a	a	a
Grout facility (tank-filling) deactivation	2043	2043	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a
Containment structure construction	2018	2021	a	a	a	a
Containment structure deactivation	2042	2044	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2038	2044	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
Postclosure care	2045	2144	a	a	a	a
BX tank farm removal	2022	2033	a	a	a	a
BX tank farm deep soil removal	2034	2041	a	a	a	a
SX tank farm removal	2022	2033	a	a	a	a
SX tank farm deep soil removal	2034	2041	a	a	a	a
Preprocessing Facility construction	2019	2021	3.06×10^{1}	1.42×10^{2}	9.68×10^{2}	4.84×10^{-2}
Preprocessing Facility operations	2022	2042	8.79×10^{-1}	4.08	1.91×10^{1}	1.39×10^{-3}
Preprocessing Facility deactivation	2043	2043	9.23×10^{-2}	4.29×10^{-1}	2.00	1.46×10^{-4}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–76. Tank Closure Alternative 4 Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Cesium and Strontium Capsule Processing Facility	2038	2041	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Mobile retrieval system	2013	2042	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2042	a	a	a	a	a	a	a
Chemical wash system	2013	2042	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	4.24×10^{-3}	5.70×10^{-4}	2.39×10^{-5}	7.21×10^{-4}	a	2.50×10^{-4}	1.74×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	3.45×10^{-3}	4.64×10^{-4}	1.95×10^{-5}	5.87×10^{-4}	a	2.04×10^{-4}	1.42×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	1.12×10^{-2}	3.68×10^{-2}	6.34×10^{-5}	1.91×10^{-3}	a	1.61×10^{-2}	1.12×10^{-2}
Solid-Liquid Separations Facility	2016	2017	1.76×10^{-3}	2.37×10^{-4}	9.91×10^{-6}	2.99×10^{-4}	a	1.04×10^{-4}	7.23×10^{-5}
Cast Stone Facility	2016	2017	7.69×10^{-3}	1.03×10^{-3}	4.33×10^{-5}	1.31×10^{-3}	a	4.53×10^{-4}	3.16×10^{-4}
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2042	a	a	a	a	a	a	a
Routine operations	2006	2042	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2042	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2042	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2042	5.28×10^{-2}	7.11×10^{-3}	2.98×10^{-4}	8.99×10^{-3}	a	3.12×10^{-3}	2.17×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2043	2043	5.28×10^{-2}	7.11×10^{-3}	2.98×10^{-4}	8.99×10^{-3}	a	3.12×10^{-3}	2.17×10^{-3}

Table G–76. Tank Closure Alternative 4 Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Cesium and Strontium Capsule Processing Facility	2042	2043	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Mobile retrieval system	2013	2042	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2042	a	a	a	a	a	a	a
Chemical wash system	2013	2042	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2144	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	1.80×10^{-2}	2.43×10^{-3}	1.02×10^{-4}	3.07×10^{-3}	a	1.06×10^{-3}	7.41×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.36×10^{-4}	1.83×10^{-5}	7.65×10^{-7}	2.31×10^{-5}	a	8.01×10^{-6}	5.58×10^{-6}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a
Bulk Vitrification Facility	2018	2039	2.77×10^{-2}	9.08×10^{-2}	1.56×10^{-4}	4.72×10^{-3}	a	3.98×10^{-2}	2.77×10^{-2}
Solid-Liquid Separations Facility	2018	2039	7.97×10^{-3}	1.07×10^{-3}	4.49×10^{-5}	1.36×10^{-3}	a	4.70×10^{-4}	3.27×10^{-4}
Cast Stone Facility	2018	2039	1.23×10^{-1}	1.65×10^{-2}	6.93×10^{-4}	2.09×10^{-2}	a	7.25×10^{-3}	5.05×10^{-3}
Effluent Treatment Facility	2006	2045	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2042	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2052	a	a	a	a	a	a	a
Deactivation									
Mobile retrieval system	2013	2042	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2042	a	a	a	a	a	a	a
Chemical wash system	2013	2042	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	5.28×10^{-3}	7.11×10^{-4}	2.98×10^{-5}	8.99×10^{-4}	a	3.12×10^{-4}	2.17×10^{-4}
Cesium and Strontium Capsule Processing Facility	2044	2044	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	1.80×10^{-3}	2.43×10^{-4}	1.02×10^{-5}	3.07×10^{-4}	a	1.06×10^{-4}	7.41×10^{-5}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.36×10^{-5}	1.83×10^{-6}	7.65×10^{-8}	2.31×10^{-6}	a	8.01×10^{-7}	5.58×10^{-7}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a
Bulk Vitrification Facility	2040	2041	2.77×10^{-3}	9.08×10^{-3}	1.56×10^{-5}	4.72×10^{-4}	a	3.98×10^{-3}	2.77×10^{-3}
Solid-Liquid Separations Facility	2040	2041	7.97×10^{-4}	1.07×10^{-4}	4.49×10^{-6}	1.36×10^{-4}	a	4.70×10^{-5}	3.27×10^{-5}
Cast Stone Facility	2040	2041	1.23×10^{-2}	1.65×10^{-3}	6.93×10^{-5}	2.09×10^{-3}	a	7.25×10^{-4}	5.05×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Effluent Treatment Facility replacement 1	2046	2046	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2043	2043	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}

Table G–76. Tank Closure Alternative 4 Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure									
Grout facility (tank-filling) construction	2031	2032	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2033	2042	a	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2043	2043	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a	a	a	a
Containment structure construction	2018	2021	a	a	a	a	a	a	a
Containment structure deactivation	2042	2044	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2038	2044	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Postclosure care	2045	2144	a	a	a	a	a	a	a
BX tank farm removal	2022	2033	a	a	a	a	a	a	a
BX tank farm deep soil removal	2034	2041	a	a	a	a	a	a	a
SX tank farm removal	2022	2033	a	a	a	a	a	a	a
SX tank farm deep soil removal	2034	2041	a	a	a	a	a	a	a
Preprocessing Facility construction	2019	2021	2.24×10^{-1}	1.17×10^{-1}	4.90×10^{-3}	1.48×10^{-1}	a	5.12×10^{-2}	3.57×10^{-2}
Preprocessing Facility operations	2022	2042	6.42×10^{-3}	6.97×10^{-4}	2.92×10^{-5}	8.81×10^{-4}	a	3.05×10^{-4}	2.13×10^{-4}
Preprocessing Facility deactivation	2043	2043	6.74×10^{-4}	7.31×10^{-5}	3.07×10^{-6}	9.25×10^{-5}	a	3.21×10^{-5}	2.23×10^{-5}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–77. Tank Closure Alternative 5 Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2019	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	8.57×10^{-1}	3.98	3.02×10^{1}	1.35×10^{-3}
Cesium and Strontium Capsule Processing Facility	2029	2032	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Double-shell tank replacement	2014	2019	a	a	a	a
Sulfate Removal Facility	2016	2017	6.71	3.11×10^{1}	1.95×10^{2}	1.06×10^{-2}
Modified sluicing retrieval system	2013	2033	a	a	a	a
Mobile retrieval system	2013	2023	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	5.81×10^{-1}	2.69	1.67×10^{1}	9.17×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	4.73×10^{-1}	2.20	1.36×10^{1}	7.47×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a
Bulk Vitrification Facility	2016	2017	1.54	7.15	4.47×10^{1}	2.43×10^{-3}
Solid-Liquid Separations Facility	2016	2017	2.41×10^{-1}	1.12	8.32	3.80×10^{-4}
Cast Stone Facility	2016	2017	1.05	4.89	3.05×10^{1}	1.66×10^{-3}
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2033	a	a	a	a
Routine operations	2006	2033	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2033	a	a	a	a
Double-shell tank interim stabilization	2006	2033	a	a	a	a
Waste Treatment Plant	2018	2033	2.69×10^{1}	1.25×10^{2}	6.46×10^{2}	4.24×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2034	2034	2.69×10^{1}	1.25×10^{2}	6.46×10^{2}	4.24×10^{-2}
Cesium and Strontium Capsule Processing Facility	2033	2034	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}

Table G–77. Tank Closure Alternative 5 Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Double-shell tank replacement	2020	2033	a	a	a	a
Sulfate Removal Facility	2018	2033	6.19	2.87×10^{1}	1.51×10^{2}	9.77×10^{-3}
Modified sluicing retrieval system	2013	2033	a	a	a	a
Mobile retrieval system	2013	2023	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	a	a	a
HLW Melter Interim Storage Facility	2018	2139	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	2.47	1.15×10^{1}	6.31×10^{1}	3.90×10^{-3}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.86×10^{-2}	8.63×10^{-2}	4.75×10^{-1}	2.94×10^{-5}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a
Bulk Vitrification Facility	2018	2033	5.22	2.42×10^{1}	1.38×10^{2}	8.25×10^{-3}
Solid-Liquid Separations Facility	2018	2033	1.50	6.97	3.83×10^{1}	2.37×10^{-3}
Cast Stone Facility	2018	2033	2.31×10^{1}	1.07×10^{2}	5.84×10^{2}	3.65×10^{-2}
Effluent Treatment Facility	2006	2036	6.46×10^{2}	1.68×10^{1}	2.27×10^{2}	8.66×10^{-1}
Evaporator	2006	2034	3.22	8.38×10^{-2}	9.25×10^{1}	4.32×10^{-3}
Borrow Area C	2006	2052	a	a	4.24×10^{2}	a
Deactivation						
Sulfate Removal Facility	2034	2035	6.19×10^{-1}	2.87	1.51×10^{1}	9.77×10^{-4}
Modified sluicing retrieval system	2013	2033	a	a	a	a
Mobile retrieval system	2013	2023	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2035	2036	2.53	1.17×10^{1}	6.08×10^{1}	3.99×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2035	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	2.47×10^{-1}	1.15	6.31	3.90×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.86×10^{-3}	8.63×10^{-3}	4.75×10^{-2}	2.94×10^{-6}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a
Bulk Vitrification Facility	2034	2035	5.22×10^{-1}	2.42	1.38×10^{1}	8.25×10^{-4}
Solid-Liquid Separations Facility	2034	2035	1.50×10^{-1}	6.97×10^{-1}	3.83	2.37×10^{-4}
Cast Stone Facility	2034	2035	2.31	1.07×10^{1}	5.84×10^{1}	3.65×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2037	2037	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement 1	2035	2035	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}

Table G–77. Tank Closure Alternative 5 Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure						
Grout facility (tank-filling) construction	2022	2023	a	a	a	a
Grout facility (tank-filling) operations	2024	2033	a	a	a	a
Grout facility (tank-filling) deactivation	2034	2034	a	a	a	a
Ancillary equipment grouting	2013	2033	a	a	a	a
Hanford barrier construction	2029	2039	1.80×10^{1}	8.37×10^{1}	7.09×10^{2}	2.85×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2012	2022	a	a	a	a
Postclosure care	2040	2139	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–78. Tank Closure Alternative 5 Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	6.25×10^{-3}	8.41×10^{-4}	3.53×10^{-5}	1.06×10^{-3}	a	3.69×10^{-4}	2.57×10^{-4}
Cesium and Strontium Capsule Processing Facility	2029	2032	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Double-shell tank replacement	2014	2019	a	a	a	a	a	a	a
Sulfate Removal Facility	2016	2017	4.89×10^{-2}	6.59×10^{-3}	2.76×10^{-4}	8.33×10^{-3}	a	2.89×10^{-3}	2.01×10^{-3}
Modified sluicing retrieval system	2013	2033	a	a	a	a	a	a	a
Mobile retrieval system	2013	2023	a	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	4.24×10^{-3}	5.70×10^{-4}	2.39×10^{-5}	7.21×10^{-4}	a	2.50×10^{-4}	1.74×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	3.45×10^{-3}	4.64×10^{-4}	1.95×10^{-5}	5.87×10^{-4}	a	2.04×10^{-4}	1.42×10^{-4}
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	1.12×10^{-2}	3.68×10^{-2}	6.34×10^{-5}	1.91×10^{-3}	a	1.61×10^{-2}	1.12×10^{-2}
Solid-Liquid Separations Facility	2016	2017	1.76×10^{-3}	2.37×10^{-4}	9.91×10^{-6}	2.99×10^{-4}	a	1.04×10^{-4}	7.23×10^{-5}
Cast Stone Facility	2016	2017	7.69×10^{-3}	1.03×10^{-3}	4.33×10^{-5}	1.31×10^{-3}	a	4.53×10^{-4}	3.16×10^{-4}
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2033	a	a	a	a	a	a	a
Routine operations	2006	2033	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2033	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2033	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2033	1.96×10^{-1}	2.64×10^{-2}	1.11×10^{-3}	3.34×10^{-2}	a	1.16×10^{-2}	8.06×10^{-3}

Table G–78. Tank Closure Alternative 5 Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Waste Treatment Plant, cesium and strontium capsules	2034	2034	1.96×10^{-1}	2.64×10^{-2}	1.11×10^{-3}	3.34×10^{-2}	a	1.16×10^{-2}	8.06×10^{-3}
Cesium and Strontium Capsule Processing Facility	2033	2034	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Double-shell tank replacement	2020	2033	a	a	a	a	a	a	a
Sulfate Removal Facility	2018	2033	4.52×10^{-2}	6.08×10^{-3}	2.55×10^{-4}	7.69×10^{-3}	a	2.66×10^{-3}	1.86×10^{-3}
Modified sluicing retrieval system	2013	2033	a	a	a	a	a	a	a
Mobile retrieval system	2013	2023	a	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2139	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	1.80×10^{-2}	2.43×10^{-3}	1.02×10^{-4}	3.07×10^{-3}	a	1.06×10^{-3}	7.41×10^{-4}
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.36×10^{-4}	1.83×10^{-5}	7.65×10^{-7}	2.31×10^{-5}	a	8.01×10^{-6}	5.58×10^{-6}
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a
Bulk Vitrification Facility	2018	2033	3.81×10^{-2}	1.25×10^{-1}	2.15×10^{-4}	6.49×10^{-3}	a	5.47×10^{-2}	3.81×10^{-2}
Solid-Liquid Separations Facility	2018	2033	1.10×10^{-2}	1.47×10^{-3}	6.18×10^{-5}	1.86×10^{-3}	a	6.46×10^{-4}	4.50×10^{-4}
Cast Stone Facility	2018	2033	1.69×10^{-1}	2.27×10^{-2}	9.52×10^{-4}	2.87×10^{-2}	a	9.96×10^{-3}	6.94×10^{-3}
Effluent Treatment Facility	2006	2036	5.00×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2034	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2052	a	a	a	a	a	a	a
Deactivation									
Sulfate Removal Facility	2034	2035	4.52×10^{-3}	6.08×10^{-4}	2.55×10^{-5}	7.69×10^{-4}	a	2.66×10^{-4}	1.86×10^{-4}
Modified sluicing retrieval system	2013	2033	a	a	a	a	a	a	a
Mobile retrieval system	2013	2023	a	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2035	2036	1.85×10^{-2}	2.48×10^{-3}	1.04×10^{-4}	3.14×10^{-3}	a	1.09×10^{-3}	7.59×10^{-4}
Cesium and Strontium Capsule Processing Facility	2035	2035	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	1.80×10^{-3}	2.43×10^{-4}	1.02×10^{-5}	3.07×10^{-4}	a	1.06×10^{-4}	7.41×10^{-5}
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	1.36×10^{-5}	1.83×10^{-6}	7.65×10^{-8}	2.31×10^{-6}	a	8.01×10^{-7}	5.58×10^{-7}
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a
Bulk Vitrification Facility	2034	2035	3.81×10^{-3}	1.25×10^{-2}	2.15×10^{-5}	6.49×10^{-4}	a	5.47×10^{-3}	3.81×10^{-3}
Solid-Liquid Separations Facility	2034	2035	1.10×10^{-3}	1.47×10^{-4}	6.18×10^{-6}	1.86×10^{-4}	a	6.46×10^{-5}	4.50×10^{-5}
Cast Stone Facility	2034	2035	1.69×10^{-2}	2.27×10^{-3}	9.52×10^{-5}	2.87×10^{-3}	a	9.96×10^{-4}	6.94×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}

Table G–78. Tank Closure Alternative 5 Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*									
Effluent Treatment Facility replacement 1	2037	2037	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2035	2035	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Grout facility (tank-filling) construction	2022	2023	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2024	2033	a	a	a	a	a	a	a
Grout facility (tank-filling) deactivation	2034	2034	a	a	a	a	a	a	a
Ancillary equipment grouting	2013	2033	a	a	a	a	a	a	a
Hanford barrier construction	2029	2039	1.32×10^{-1}	3.29×10^{-1}	1.38×10^{-2}	4.16×10^{-1}	a	1.44×10^{-1}	1.00×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2012	2022	a	a	a	a	a	a	a
Postclosure care	2040	2139	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–79. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2157	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant original	2006	2017	8.67	4.02×10^{1}	1.08×10^{2}	1.37×10^{-2}
Cesium and Strontium Capsule Processing Facility	2158	2161	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Tank risers	2013	2016	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	a	a
Double-shell tank replacement 3	2109	2114	a	a	a	a
Mobile retrieval system	2013	2162	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	6.46	3.00×10^{1}	8.32×10^{1}	1.02×10^{-2}
Waste Treatment Plant replacement 2	2127	2138	6.46	3.00×10^{1}	8.32×10^{1}	1.02×10^{-2}
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a
IHLW Interim Storage Modules, additional	2078	2197	a	a	a	a
HLW Debris Storage Facility	2041	2110	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Effluent Treatment Facility replacement 2	2053	2055	1.24×10^{1}	1.33×10^{1}	1.89×10^{3}	1.73×10^{-2}
Effluent Treatment Facility replacement 3	2083	2085	1.24×10^{1}	1.33×10^{1}	1.89×10^{3}	1.73×10^{-2}
Effluent Treatment Facility replacement 4	2113	2115	1.24×10^{1}	1.33×10^{1}	1.89×10^{3}	1.73×10^{-2}

Table G–79. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction *(continued)*						
Effluent Treatment Facility replacement 5	2143	2145	1.24×10^{1}	1.33×10^{1}	1.89×10^{3}	1.73×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Evaporator replacement 2	2040	2042	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 3	2065	2067	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 4	2090	2092	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 5	2115	2117	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 6	2140	2142	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2262	a	a	a	a
Other infrastructure upgrades	2006	2162	a	a	a	a
Routine operations	2006	2162	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2162	a	a	a	a
Double-shell tank interim stabilization	2006	2162	a	a	a	a
Waste Treatment Plant	2018	2162	2.98×10^{1}	1.38×10^{2}	5.83×10^{2}	4.70×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	2.98×10^{1}	1.38×10^{2}	5.83×10^{2}	4.70×10^{-2}
Cesium and Strontium Capsule Processing Facility	2162	2163	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Mobile retrieval system	2013	2162	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a
HLW Melter Interim Storage Facility	2018	2262	a	a	a	a
HLW Debris Storage Facility	2042	2262	a	a	a	a
Effluent Treatment Facility	2006	2166	6.46×10^{2}	1.68×10^{1}	1.26×10^{4}	8.66×10^{-1}
Evaporator	2018	2163	3.22	8.38×10^{-2}	2.34×10^{3}	4.32×10^{-3}
Borrow Area C	2006	2167	a	a	4.24×10^{2}	a
Deactivation						
Mobile retrieval system	2013	2162	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a
IHLW Interim Storage Facility	2078	2197	a	a	a	a
Waste Treatment Plant original	2078	2080	6.92×10^{-1}	3.21	1.36×10^{1}	1.09×10^{-3}
Waste Treatment Plant replacement 1	2138	2140	6.92×10^{-1}	3.21	1.36×10^{1}	1.09×10^{-3}
Waste Treatment Plant replacement 2	2164	2166	6.92×10^{-1}	3.21	1.36×10^{1}	1.09×10^{-3}

Table G–79. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Deactivation *(continued)*						
Cesium and Strontium Capsule Processing Facility	2164	2164	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 3	2116	2116	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 4	2146	2146	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 5	2167	2167	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 1	2043	2043	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 2	2068	2068	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 3	2093	2093	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 4	2118	2118	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 5	2143	2143	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 6	2168	2168	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Closure						
Containment structure construction 1	2038	2041	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a
Containment structure construction 4	2107	2110	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2149	2150	1.78×10^{1}	8.28×10^{1}	7.01×10^{2}	2.81×10^{-2}
Postclosure care	2151	2250	a	a	a	a

Table G–79. Tank Closure Alternative 6A, Base Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure *(continued)*						
B tank farm removal	2065	2076	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a
BY tank farm removal	2111	2122	a	a	a	a
BX tank farm removal	2042	2053	a	a	a	a
C tank farm removal	2088	2099	a	a	a	a
A tank farm removal	2142	2153	a	a	a	a
AX tank farm removal	2142	2153	a	a	a	a
S tank farm removal	2126	2137	a	a	a	a
TY tank farm removal	2111	2122	a	a	a	a
TX tank farm removal	2088	2099	a	a	a	a
U tank farm removal	2065	2076	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a
A tank farm deep soil removal	2154	2161	a	a	a	a
AX tank farm deep soil removal	2154	2161	a	a	a	a
TX tank farm deep soil removal	2100	2107	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a
SX tank farm deep soil removal	2054	2061	a	a	a	a
Preprocessing Facility construction	2039	2041	3.06×10^{1}	1.42×10^{2}	9.68×10^{2}	4.84×10^{-2}
Preprocessing Facility operations	2042	2162	1.88×10^{-2}	8.75×10^{-2}	4.09×10^{-1}	2.98×10^{-5}
Preprocessing Facility deactivation	2163	2163	2.96×10^{-3}	1.37×10^{-2}	6.42×10^{-2}	4.68×10^{-6}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–80. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	6.33×10^{-2}	8.51×10^{-3}	3.57×10^{-4}	1.08×10^{-2}	a	8.51×10^{-3}	8.51×10^{-3}
Cesium and Strontium Capsule Processing Facility	2158	2161	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Tank risers	2013	2016	a	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	4.71×10^{-2}	6.34×10^{-3}	2.66×10^{-4}	8.02×10^{-3}	a	6.34×10^{-3}	6.34×10^{-3}
Waste Treatment Plant replacement 2	2127	2138	4.71×10^{-2}	6.34×10^{-3}	2.66×10^{-4}	8.02×10^{-3}	a	6.34×10^{-3}	6.34×10^{-3}
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a	a	a	a
IHLW Interim Storage Modules, additional	2078	2197	a	a	a	a	a	a	a
HLW Debris Storage Facility	2041	2110	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Effluent Treatment Facility replacement 2	2053	2055	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}

Table G–80. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction *(continued)*									
Effluent Treatment Facility replacement 3	2083	2085	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}
Effluent Treatment Facility replacement 4	2113	2115	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}
Effluent Treatment Facility replacement 5	2143	2145	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Evaporator replacement 2	2040	2042	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 3	2065	2067	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 4	2090	2092	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 5	2115	2117	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 6	2140	2142	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2262	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2162	a	a	a	a	a	a	a
Routine operations	2006	2162	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2162	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2162	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2162	2.17×10^{-1}	7.11×10^{-1}	1.23×10^{-3}	3.70×10^{-2}	a	3.12×10^{-1}	2.17×10^{-1}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	2.17×10^{-1}	7.11×10^{-1}	1.23×10^{-3}	3.70×10^{-2}	a	3.12×10^{-1}	2.17×10^{-1}
Cesium and Strontium Capsule Processing Facility	2162	2163	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Mobile retrieval system	2013	2162	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2262	a	a	a	a	a	a	a
HLW Debris Storage Facility	2042	2262	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2166	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2018	2163	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2167	a	a	a	a	a	a	a
Deactivation									
Mobile retrieval system	2013	2162	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2078	2197	a	a	a	a	a	a	a

Table G–80. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation *(continued)*									
Waste Treatment Plant original	2078	2080	5.05×10^{-3}	1.65×10^{-2}	2.85×10^{-5}	8.60×10^{-4}	a	7.25×10^{-3}	5.05×10^{-3}
Waste Treatment Plant replacement 1	2138	2140	5.05×10^{-3}	1.65×10^{-2}	2.85×10^{-5}	8.60×10^{-4}	a	7.25×10^{-3}	5.05×10^{-3}
Waste Treatment Plant replacement 2	2164	2166	5.05×10^{-3}	1.65×10^{-2}	2.85×10^{-5}	8.60×10^{-4}	a	7.25×10^{-3}	5.05×10^{-3}
Cesium and Strontium Capsule Processing Facility	2164	2164	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 3	2116	2116	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 4	2146	2146	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 5	2167	2167	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2043	2043	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 2	2068	2068	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 3	2093	2093	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 4	2118	2118	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 5	2143	2143	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 6	2168	2168	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Containment structure construction 1	2038	2041	a	a	a	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a	a	a	a
Containment structure construction 4	2107	2110	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a	a	a	a

Table G–80. Tank Closure Alternative 6A, Base Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*									
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2149	2150	1.30×10^{-1}	3.25×10^{-1}	1.36×10^{-2}	4.12×10^{-1}	a	1.43×10^{-1}	9.94×10^{-2}
Postclosure care	2151	2250	a	a	a	a	a	a	a
B tank farm removal	2065	2076	a	a	a	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a	a	a	a
BY tank farm removal	2111	2122	a	a	a	a	a	a	a
BX tank farm removal	2042	2053	a	a	a	a	a	a	a
C tank farm removal	2088	2099	a	a	a	a	a	a	a
A tank farm removal	2142	2153	a	a	a	a	a	a	a
AX tank farm removal	2142	2153	a	a	a	a	a	a	a
S tank farm removal	2126	2137	a	a	a	a	a	a	a
TY tank farm removal	2111	2122	a	a	a	a	a	a	a
TX tank farm removal	2088	2099	a	a	a	a	a	a	a
U tank farm removal	2065	2076	a	a	a	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
A tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a
AX tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a
TX tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a
SX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a
Preprocessing Facility construction	2039	2041	2.24×10^{-1}	1.17×10^{-1}	4.90×10^{-3}	1.48×10^{-1}	a	5.12×10^{-2}	3.57×10^{-2}
Preprocessing Facility operations	2042	2162	1.38×10^{-4}	1.34×10^{-5}	5.63×10^{-7}	1.70×10^{-5}	a	5.89×10^{-6}	4.11×10^{-6}
Preprocessing Facility deactivation	2163	2163	2.16×10^{-5}	2.11×10^{-6}	8.85×10^{-8}	2.67×10^{-6}	a	9.26×10^{-7}	6.45×10^{-7}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–81. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2157	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant original	2006	2017	8.67	4.02×10^{1}	1.08×10^{2}	1.37×10^{-2}
Cesium and Strontium Capsule Processing Facility	2158	2161	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Tank risers	2013	2016	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	a	a
Double-shell tank replacement 3	2109	2114	a	a	a	a
Mobile retrieval system	2013	2162	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	6.46	3.00×10^{1}	8.32×10^{1}	1.02×10^{-2}
Waste Treatment Plant replacement 2	2127	2138	6.46	3.00×10^{1}	8.32×10^{1}	1.02×10^{-2}
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a
IHLW Interim Storage Modules, additional	2078	2197	a	a	a	a
HLW Debris Storage Facility	2041	2110	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Effluent Treatment Facility replacement 2	2053	2055	1.24×10^{1}	1.33×10^{1}	6.77×10^{2}	1.73×10^{-2}
Effluent Treatment Facility replacement 3	2083	2085	1.24×10^{1}	1.33×10^{1}	6.77×10^{2}	1.73×10^{-2}
Effluent Treatment Facility replacement 4	2113	2115	1.24×10^{1}	1.33×10^{1}	6.77×10^{2}	1.73×10^{-2}

Table G–81. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction *(continued)*						
Effluent Treatment Facility replacement 5	2143	2145	1.24×10^{1}	1.33×10^{1}	6.77×10^{2}	1.73×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Evaporator replacement 2	2040	2042	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 3	2065	2067	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 4	2090	2092	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 5	2115	2117	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Evaporator replacement 6	2140	2142	3.61	2.94	6.98×10^{2}	4.98×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2262	a	a	a	a
Other infrastructure upgrades	2006	2162	a	a	a	a
Routine operations	2006	2162	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2162	a	a	a	a
Double-shell tank interim stabilization	2006	2162	a	a	a	a
Waste Treatment Plant	2018	2162	2.98×10^{1}	1.38×10^{2}	5.83×10^{2}	4.70×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	2.98×10^{1}	1.38×10^{2}	5.83×10^{2}	4.70×10^{-2}
Cesium and Strontium Capsule Processing Facility	2162	2163	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Mobile retrieval system	2013	2162	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a
HLW Melter Interim Storage Facility	2018	2262	a	a	a	a
HLW Debris Storage Facility	2042	2262	a	a	a	a
Effluent Treatment Facility	2006	2166	6.46×10^{2}	1.68×10^{1}	1.26×10^{4}	8.66×10^{-1}
Evaporator	2018	2163	3.22	8.38×10^{-2}	5.14×10^{-3}	4.32×10^{-3}
Borrow Area C	2006	2167	a	a	4.24×10^{2}	a
Deactivation						
Mobile retrieval system	2013	2162	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a
IHLW Interim Storage Facility	2078	2197	a	a	a	a
Waste Treatment Plant original	2079	2081	6.92×10^{-1}	3.21	1.36×10^{1}	1.09×10^{-3}
Waste Treatment Plant replacement 1	2139	2141	6.92×10^{-1}	3.21	1.36×10^{1}	1.09×10^{-3}
Waste Treatment Plant replacement 2	2164	2166	6.92×10^{-1}	3.21	1.36×10^{1}	1.09×10^{-3}

Table G–81. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Deactivation *(continued)*						
Cesium and Strontium Capsule Processing Facility	2164	2164	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 3	2116	2116	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 4	2146	2146	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Effluent Treatment Facility replacement 5	2167	2167	3.23×10^{2}	8.40	8.66	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 1	2043	2043	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 2	2068	2068	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 3	2093	2093	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 4	2118	2118	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 5	2143	2143	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Evaporator replacement 6	2168	2168	7.89×10^{-1}	2.05×10^{-2}	1.92×10^{1}	1.06×10^{-3}
Closure						
Containment structure construction 1	2038	2041	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a
Containment structure construction 4	2107	2110	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
B tank farm removal	2065	2076	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a

Table G–81. Tank Closure Alternative 6A, Option Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure *(continued)*						
BY tank farm removal	2111	2122	a	a	a	a
BX tank farm removal	2042	2053	a	a	a	a
C tank farm removal	2088	2099	a	a	a	a
A tank farm removal	2142	2153	a	a	a	a
AX tank farm removal	2142	2153	a	a	a	a
S tank farm removal	2126	2137	a	a	a	a
TY tank farm removal	2111	2122	a	a	a	a
TX tank farm removal	2088	2099	a	a	a	a
U tank farm removal	2065	2076	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a
A tank farm deep soil removal	2154	2161	a	a	a	a
AX tank farm deep soil removal	2154	2161	a	a	a	a
TX tank farm deep soil removal	2100	2107	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a
SX tank farm deep soil removal	2054	2061	a	a	a	a
B Area cribs and trenches (ditches) removal	2054	2084	a	a	a	a
T Area cribs and trenches (ditches) removal	2100	2145	a	a	a	a
B & T Area cribs and trenches (ditches) construction 1	2050	2053	a	a	a	a
B & T Area cribs and trenches (ditches) construction 2	2096	2099	a	a	a	a
B & T Area cribs and trenches (ditches) deactivation 1	2085	2087	a	a	a	a
B & T Area cribs and trenches (ditches) deactivation 2	2146	2148	a	a	a	a
Preprocessing Facility construction	2039	2041	2.68×10^{3}	1.25×10^{4}	5.88×10^{4}	4.24
Preprocessing Facility operations	2042	2162	3.48×10^{-1}	1.62	7.55	5.50×10^{-4}
Preprocessing Facility deactivation	2163	2163	5.47×10^{-2}	2.54×10^{-1}	1.19	8.64×10^{-5}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–82. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toulene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	6.33×10^{-2}	8.51×10^{-3}	3.57×10^{-4}	1.08×10^{-2}	a	8.51×10^{-3}	8.51×10^{-3}
Cesium and Strontium Capsule Processing Facility	2158	2161	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Tank risers	2013	2016	a	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	4.71×10^{-2}	6.34×10^{-3}	2.66×10^{-4}	8.02×10^{-3}	a	6.34×10^{-3}	6.34×10^{-3}
Waste Treatment Plant replacement 2	2127	2138	4.71×10^{-2}	6.34×10^{-3}	2.66×10^{-4}	8.02×10^{-3}	a	6.34×10^{-3}	6.34×10^{-3}
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a	a	a	a
IHLW Interim Storage Modules, additional	2078	2197	a	a	a	a	a	a	a
HLW Debris Storage Facility	2041	2110	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Effluent Treatment Facility replacement 2	2053	2055	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}

Table G–82. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toulene	Xylene
Construction *(continued)*									
Effluent Treatment Facility replacement 3	2083	2085	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}
Effluent Treatment Facility replacement 4	2113	2115	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}
Effluent Treatment Facility replacement 5	2143	2145	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.91×10^{-3}	a	2.02×10^{-2}	6.19×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Evaporator replacement 2	2040	2042	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 3	2065	2067	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 4	2090	2092	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 5	2115	2117	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Evaporator replacement 6	2140	2142	4.74×10^{-3}	9.91×10^{-4}	7.95×10^{-4}	8.96×10^{-4}	a	6.18×10^{-3}	1.85×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2262	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2162	a	a	a	a	a	a	a
Routine operations	2006	2162	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2162	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2162	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2162	2.17×10^{-1}	7.11×10^{-1}	1.23×10^{-3}	3.70×10^{-2}	a	3.12×10^{-1}	2.17×10^{-1}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	2.17×10^{-1}	7.11×10^{-1}	1.23×10^{-3}	3.70×10^{-2}	a	3.12×10^{-1}	2.17×10^{-1}
Cesium and Strontium Capsule Processing Facility	2162	2163	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Mobile retrieval system	2013	2162	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2262	a	a	a	a	a	a	a
HLW Debris Storage Facility	2042	2262	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2166	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2018	2163	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2167	a	a	a	a	a	a	a
Deactivation									
Mobile retrieval system	2013	2162	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2162	a	a	a	a	a	a	a
Chemical wash system	2013	2162	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2078	2197	a	a	a	a	a	a	a

Table G–82. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toulene	Xylene
Deactivation *(continued)*									
Waste Treatment Plant original	2079	2081	5.05×10^{-3}	1.65×10^{-2}	2.85×10^{-5}	8.60×10^{-4}	a	7.25×10^{-3}	5.05×10^{-3}
Waste Treatment Plant replacement 1	2139	2141	5.05×10^{-3}	1.65×10^{-2}	2.85×10^{-5}	8.60×10^{-4}	a	7.25×10^{-3}	5.05×10^{-3}
Waste Treatment Plant replacement 2	2164	2166	5.05×10^{-3}	1.65×10^{-2}	2.85×10^{-5}	8.60×10^{-4}	a	7.25×10^{-3}	5.05×10^{-3}
Cesium and Strontium Capsule Processing Facility	2164	2164	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 3	2116	2116	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 4	2146	2146	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 5	2167	2167	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2043	2043	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 2	2068	2068	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 3	2093	2093	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 4	2118	2118	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 5	2143	2143	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 6	2168	2168	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Containment structure construction 1	2038	2041	a	a	a	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a	a	a	a
Containment structure construction 4	2107	2110	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a

Table G–82. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toulene	Xylene
Closure *(continued)*									
B tank farm removal	2065	2076	a	a	a	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a	a	a	a
BY tank farm removal	2111	2122	a	a	a	a	a	a	a
BX tank farm removal	2042	2053	a	a	a	a	a	a	a
C tank farm removal	2088	2099	a	a	a	a	a	a	a
A tank farm removal	2142	2153	a	a	a	a	a	a	a
AX tank farm removal	2142	2153	a	a	a	a	a	a	a
S tank farm removal	2126	2137	a	a	a	a	a	a	a
TY tank farm removal	2111	2122	a	a	a	a	a	a	a
TX tank farm removal	2088	2099	a	a	a	a	a	a	a
U tank farm removal	2065	2076	a	a	a	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
A tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a
AX tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a
TX tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a
SX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a
B Area cribs and trenches (ditches) removal	2054	2084	a	a	a	a	a	a	a
T Area cribs and trenches (ditches) removal	2100	2145	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) construction 1	2050	2053	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) construction 2	2096	2099	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) deactivation 1	2085	2087	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) deactivation 2	2146	2148	a	a	a	a	a	a	a
Preprocessing Facility construction	2039	2041	1.96×10^{1}	2.34×10^{-1}	9.83×10^{-3}	2.97×10^{-1}	a	1.03×10^{-1}	7.16×10^{-2}

Table G–82. Tank Closure Alternative 6A, Option Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toulene	Xylene
Closure *(continued)*									
Preprocessing Facility operations	2042	2162	2.54×10^{-3}	4.72×10^{-5}	1.98×10^{-6}	5.97×10^{-5}	a	2.07×10^{-5}	1.44×10^{-5}
Preprocessing Facility deactivation	2163	2163	3.99×10^{-4}	7.42×10^{-6}	3.11×10^{-7}	9.39×10^{-6}	a	3.25×10^{-6}	2.27×10^{-6}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–83. Tank Closure Alternative 6B, Base Case, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Low-Activity Waste Vitrification Facility	2008	2017	1.54	7.16	5.43×10^{1}	2.43×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2038	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Mobile retrieval system	2013	2043	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Effluent Treatment Facility replacement 2	2053	2055	1.24×10^{1}	1.33×10^{1}	9.46×10^{2}	1.73×10^{-2}
Effluent Treatment Facility replacement 3	2083	2085	1.24×10^{1}	1.33×10^{1}	9.46×10^{2}	1.73×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	5.50	2.55×10^{1}	1.37×10^{2}	8.42×10^{-3}
HLW Debris Storage Facilities	2021	2090	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a
Routine operations	2006	2043	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2043	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a
Waste Treatment Plant	2018	2043	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Cesium and Strontium Capsule Processing Facility	2039	2040	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Mobile retrieval system	2013	2043	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a

Table G–83. Tank Closure Alternative 6B, Base Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Chemical wash system	2013	2043	a	a	a	a
HLW Melter Interim Storage Facility	2018	2199	a	a	a	a
Effluent Treatment Facility	2006	2100	6.46×10^{2}	1.68×10^{1}	3.25×10^{3}	8.66×10^{-1}
Evaporator	2006	2043	3.22	8.38×10^{-2}	1.59×10^{2}	4.32×10^{-3}
Borrow Area C	2006	2102	a	a	4.24×10^{2}	a
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	a	a	a
HLW Debris Storage Facilities	2023	2199	a	a	a	a
Deactivation						
Mobile retrieval system	2013	2043	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2044	2045	2.34	1.08×10^{1}	5.07×10^{1}	3.69×10^{-3}
Cesium and Strontium Capsule Processing Facility	2041	2041	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Effluent Treatment Facility replacement 3	2101	2101	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement	2044	2044	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Closure						
Containment structure construction 1	2019	2022	a	a	a	a
Containment structure construction 2	2019	2022	a	a	a	a
Containment structure construction 3	2046	2049	a	a	a	a
Containment structure construction 4	2046	2049	a	a	a	a
Containment structure construction 5	2073	2076	a	a	a	a
Containment structure construction 6	2073	2076	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a
Containment structure deactivation 2	2043	2045	a	a	a	a
Containment structure deactivation 3	2070	2072	a	a	a	a
Containment structure deactivation 4	2062	2064	a	a	a	a
Containment structure deactivation 5	2089	2091	a	a	a	a
Containment structure deactivation 6	2097	2099	a	a	a	a

Table G–83. Tank Closure Alternative 6B, Base Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure *(continued)*						
Containment structure deactivation 7	2097	2099	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2100	2101	1.78×10^{1}	8.28×10^{1}	7.01×10^{2}	2.81×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a
T tank farm removal	2077	2088	a	a	a	a
BY tank farm removal	2050	2061	a	a	a	a
BX tank farm removal	2023	2034	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a
B tank farm deep soil removal	2035	2042	a	a	a	a
T tank farm deep soil removal	2089	2096	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	a	a	a
C tank farm deep soil removal	2062	2069	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a
U tank farm deep soil removal	2035	2042	a	a	a	a
SX tank farm deep soil removal	2035	2042	a	a	a	a
Preprocessing Facility construction	2020	2022	3.06×10^{1}	1.42×10^{2}	9.68×10^{2}	4.84×10^{-2}
Preprocessing Facility operations	2023	2099	1.88×10^{-2}	8.75×10^{-2}	4.09×10^{-1}	2.98×10^{-5}
Preprocessing Facility deactivation	2100	2100	2.96×10^{-3}	1.37×10^{-2}	6.42×10^{-2}	4.68×10^{-6}
Postclosure care	2102	2201	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–84. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Low-Activity Waste Vitrification Facility	2008	2017	1.13×10^{-2}	1.51×10^{-3}	6.35×10^{-5}	1.92×10^{-3}	a	6.64×10^{-4}	4.63×10^{-4}
Cesium and Strontium Capsule Processing Facility	2035	2038	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Mobile retrieval system	2013	2043	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Effluent Treatment Facility replacement 2	2053	2055	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.92×10^{-3}	a	2.02×10^{-2}	6.20×10^{-3}
Effluent Treatment Facility replacement 3	2083	2085	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.92×10^{-3}	a	2.02×10^{-2}	6.20×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	4.01×10^{-2}	5.40×10^{-3}	a	a	a	5.40×10^{-3}	5.40×10^{-3}
HLW Debris Storage Facilities	2021	2090	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a	a	a	a
Routine operations	2006	2043	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2043	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Mobile retrieval system	2013	2043	a	a	a	a	a	a	a

Table G–84. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Vacuum-based retrieval system	2013	2043	a	a	a	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2199	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2100	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2043	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2102	a	a	a	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	a	a	a	a	a	a
HLW Debris Storage Facilities	2023	2199	a	a	a	a	a	a	a
Deactivation									
Mobile retrieval system	2013	2043	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	1.71×10^{-2}	2.30×10^{-3}	9.62×10^{-5}	2.90×10^{-3}	a	1.01×10^{-3}	7.01×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 3	2101	2101	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2044	2044	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Containment structure construction 1	2019	2022	a	a	a	a	a	a	a
Containment structure construction 2	2019	2022	a	a	a	a	a	a	a
Containment structure construction 3	2046	2049	a	a	a	a	a	a	a
Containment structure construction 4	2046	2049	a	a	a	a	a	a	a
Containment structure construction 5	2073	2076	a	a	a	a	a	a	a
Containment structure construction 6	2073	2076	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a	a	a	a
Containment structure deactivation 2	2043	2045	a	a	a	a	a	a	a
Containment structure deactivation 3	2070	2072	a	a	a	a	a	a	a
Containment structure deactivation 4	2062	2064	a	a	a	a	a	a	a

Table G–84. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*									
Containment structure deactivation 5	2089	2091	a	a	a	a	a	a	a
Containment structure deactivation 6	2097	2099	a	a	a	a	a	a	a
Containment structure deactivation 7	2097	2099	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2100	2101	1.30×10^{-1}	3.25×10^{-1}	1.36×10^{-2}	4.12×10^{-1}	a	1.43×10^{-1}	9.94×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a	a	a	a
T tank farm removal	2077	2088	a	a	a	a	a	a	a
BY tank farm removal	2050	2061	a	a	a	a	a	a	a
BX tank farm removal	2023	2034	a	a	a	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a	a	a	a
B tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
T tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
C tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
U tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
SX tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
Preprocessing Facility construction	2020	2022	2.24×10^{-1}	1.17×10^{-1}	4.90×10^{-3}	1.48×10^{-1}	a	5.12×10^{-2}	3.57×10^{-2}

Table G–84. Tank Closure Alternative 6B, Base Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*									
Preprocessing Facility operations	2023	2099	1.38×10^{-4}	1.34×10^{-5}	5.63×10^{-7}	1.70×10^{-5}	a	5.89×10^{-6}	4.11×10^{-6}
Preprocessing Facility deactivation	2100	2100	2.16×10^{-5}	2.11×10^{-6}	8.85×10^{-8}	2.67×10^{-6}	a	9.26×10^{-7}	6.45×10^{-7}
Postclosure care	2102	2201	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–85. Tank Closure Alternative 6B, Option Case, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Low-Activity Waste Vitrification Facility	2008	2017	1.54	7.16	5.43×10^{1}	2.43×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2038	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Mobile retrieval system	2013	2043	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Effluent Treatment Facility replacement 2	2053	2055	1.24×10^{1}	1.33×10^{1}	9.46×10^{2}	1.73×10^{-2}
Effluent Treatment Facility replacement 3	2083	2085	1.24×10^{1}	1.33×10^{1}	9.46×10^{2}	1.73×10^{-2}
Evaporator replacement 1	2015	2017	3.62	2.96	1.41×10^{2}	5.00×10^{-3}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	5.50	2.55×10^{1}	1.37×10^{2}	8.42×10^{-3}
HLW Debris Storage Facilities	2021	2090	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a
Routine operations	2006	2043	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2043	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a
Waste Treatment Plant	2018	2043	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Cesium and Strontium Capsule Processing Facility	2039	2040	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}

Table G–85. Tank Closure Alternative 6B, Option Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Mobile retrieval system	2013	2043	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a
HLW Melter Interim Storage Facility	2018	2199	a	a	a	a
Effluent Treatment Facility	2006	2100	6.46×10^{2}	1.68×10^{1}	3.25×10^{3}	8.66×10^{-1}
Evaporator	2006	2043	3.22	8.38×10^{-2}	1.59×10^{2}	4.32×10^{-3}
Borrow Area C	2006	2102	a	a	4.24×10^{2}	a
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	a	a	a
HLW Debris Storage Facilities	2023	2199	a	a	a	a
Deactivation						
Mobile retrieval system	2013	2043	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2044	2045	2.34	1.08×10^{1}	5.07×10^{1}	3.69×10^{-3}
Cesium and Strontium Capsule Processing Facility	2041	2041	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Effluent Treatment Facility replacement 3	2101	2101	3.23×10^{2}	8.40	5.97	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement	2044	2044	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Closure						
Containment structure construction 1	2019	2022	a	a	a	a
Containment structure construction 2	2046	2049	a	a	a	a
Containment structure construction 3	2073	2076	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a
Containment structure deactivation 2	2070	2072	a	a	a	a
Containment structure deactivation 3	2062	2064	a	a	a	a
Containment structure deactivation 4	2089	2091	a	a	a	a
Containment structure deactivation 5	2097	2099	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a

Table G–85. Tank Closure Alternative 6B, Option Case, Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Closure *(continued)*						
T tank farm removal	2077	2088	a	a	a	a
BY tank farm removal	2050	2061	a	a	a	a
BX tank farm removal	2023	2034	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a
B tank farm deep soil removal	2035	2042	a	a	a	a
T tank farm deep soil removal	2089	2096	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	a	a	a
C tank farm deep soil removal	2062	2069	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a
U tank farm deep soil removal	2035	2042	a	a	a	a
SX tank farm deep soil removal	2035	2042	a	a	a	a
B Area cribs and trenches (ditches) removal	2035	2061	a	a	a	a
T Area cribs and trenches (ditches) removal	2062	2096	a	a	a	a
Containment structure construction 1	2029	2032	a	a	a	a
Containment structure construction 2	2056	2059	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a
Containment structure deactivation 2	2097	2099	a	a	a	a
Preprocessing Facility construction	2020	2022	2.68×10^{3}	1.25×10^{4}	5.88×10^{4}	4.24
Preprocessing Facility operations	2023	2099	5.47×10^{-1}	2.54	1.19×10^{1}	8.64×10^{-4}
Preprocessing Facility deactivation	2100	2100	5.47×10^{-2}	2.54×10^{-1}	1.19	8.64×10^{-5}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–86. Tank Closure Alternative 6B, Option Case, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Low-Activity Waste Vitrification Facility	2008	2017	1.13×10^{-2}	1.51×10^{-3}	6.35×10^{-5}	1.92×10^{-3}	a	6.64×10^{-4}	4.63×10^{-4}
Cesium and Strontium Capsule Processing Facility	2035	2038	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Mobile retrieval system	2013	2043	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Effluent Treatment Facility replacement 2	2053	2055	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.92×10^{-3}	a	2.02×10^{-2}	6.20×10^{-3}
Effluent Treatment Facility replacement 3	2083	2085	2.13×10^{-2}	4.00×10^{-3}	1.23×10^{-4}	3.92×10^{-3}	a	2.02×10^{-2}	6.20×10^{-3}
Evaporator replacement 1	2015	2017	4.76×10^{-3}	9.96×10^{-4}	7.95×10^{-4}	9.01×10^{-4}	a	6.20×10^{-3}	1.86×10^{-3}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	4.01×10^{-2}	5.40×10^{-3}	a	a	a	5.40×10^{-3}	5.40×10^{-3}
HLW Debris Storage Facilities	2021	2090	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a	a	a	a
Routine operations	2006	2043	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2043	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}
Cesium and Strontium Capsule Processing Facility	2039	2040	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Mobile retrieval system	2013	2043	a	a	a	a	a	a	a

Table G–86. Tank Closure Alternative 6B, Option Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Vacuum-based retrieval system	2013	2043	a	a	a	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2199	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2100	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2043	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2102	a	a	a	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	a	a	a	a	a	a
HLW Debris Storage Facilities	2023	2199	a	a	a	a	a	a	a
Deactivation									
Mobile retrieval system	2013	2043	a	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	a	a	a	a	a	a	a
Chemical wash system	2013	2043	a	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	1.71×10^{-2}	2.30×10^{-3}	9.62×10^{-5}	2.90×10^{-3}	a	1.01×10^{-3}	7.01×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 1	2056	2056	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 2	2086	2086	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Effluent Treatment Facility replacement 3	2101	2101	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.39×10^{-1}	1.80×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2044	2044	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Closure									
Containment structure construction 1	2019	2022	a	a	a	a	a	a	a
Containment structure construction 2	2046	2049	a	a	a	a	a	a	a
Containment structure construction 3	2073	2076	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a	a	a	a
Containment structure deactivation 2	2070	2072	a	a	a	a	a	a	a
Containment structure deactivation 3	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 4	2089	2091	a	a	a	a	a	a	a
Containment structure deactivation 5	2097	2099	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a	a	a	a
T tank farm removal	2077	2088	a	a	a	a	a	a	a
BY tank farm removal	2050	2061	a	a	a	a	a	a	a

Table G–86. Tank Closure Alternative 6B, Option Case, Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*									
BX tank farm removal	2023	2034	a	a	a	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a	a	a	a
B tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
T tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
C tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
U tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
SX tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
B Area cribs and trenches (ditches) removal	2035	2061	a	a	a	a	a	a	a
T Area cribs and trenches (ditches) removal	2062	2096	a	a	a	a	a	a	a
Containment structure construction 1	2029	2032	a	a	a	a	a	a	a
Containment structure construction 2	2056	2059	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 2	2097	2099	a	a	a	a	a	a	a
Preprocessing Facility construction	2020	2022	1.96×10^{1}	2.34×10^{-1}	9.83×10^{-3}	2.97×10^{-1}	a	1.03×10^{-1}	7.16×10^{-2}
Preprocessing Facility operations	2023	2099	3.99×10^{-3}	7.42×10^{-5}	3.11×10^{-6}	9.39×10^{-5}	a	3.25×10^{-5}	2.27×10^{-5}
Preprocessing Facility deactivation	2100	2100	3.99×10^{-4}	7.42×10^{-6}	3.11×10^{-7}	9.39×10^{-6}	a	3.25×10^{-6}	2.27×10^{-6}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–87. Tank Closure Alternative 6C Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Canister Storage Building	2006	2016	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a
Waste Treatment Plant	2006	2017	1.08×10^{1}	5.03×10^{1}	4.13×10^{2}	1.71×10^{-2}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	1.54	7.16	5.43×10^{1}	2.43×10^{-3}
Cesium and Strontium Capsule Processing Facility	2035	2038	3.13	1.28×10^{1}	4.24×10^{2}	4.85×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a
Tank risers	2013	2016	a	a	a	a
Modified sluicing retrieval system	2013	2043	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	1.25×10^{1}	1.34×10^{1}	4.75×10^{2}	1.74×10^{-2}
Evaporator replacement 1	2015	2017	1.16	2.19	1.41×10^{2}	1.67×10^{-3}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	5.50	2.55×10^{1}	1.37×10^{2}	8.42×10^{-3}
Operations						
IHLW Interim Storage Facility	2018	2066	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a
Routine operations	2006	2043	3.10×10^{1}	1.44×10^{2}	1.32×10^{1}	4.73×10^{-2}
Retrieval operations	2006	2043	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a
Waste Treatment Plant	2018	2043	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	2.34×10^{1}	1.08×10^{2}	5.07×10^{2}	3.69×10^{-2}
Cesium and Strontium Capsule Processing Facility	2039	2040	2.71	1.12×10^{1}	8.61×10^{-1}	4.20×10^{-3}
Modified sluicing retrieval system	2013	2043	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a
HLW Melter Interim Storage Facility	2018	2145	a	a	a	a

Table G–87. Tank Closure Alternative 6C Criteria Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations *(continued)*						
Effluent Treatment Facility	2006	2045	6.46×10^{2}	1.68×10^{1}	4.03×10^{2}	8.66×10^{-1}
Evaporator	2006	2043	3.22	8.38×10^{-2}	1.15×10^{-1}	4.32×10^{-3}
Borrow Area C	2006	2052	a	a	4.24×10^{2}	a
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2145	a	a	a	a
Deactivation						
IHLW Interim Storage Facility	2067	2067	a	a	a	a
Waste Treatment Plant	2044	2045	2.34	1.08×10^{1}	5.07×10^{1}	3.69×10^{-3}
Cesium and Strontium Capsule Processing Facility	2041	2041	1.31	5.16	3.78×10^{-1}	2.02×10^{-3}
Effluent Treatment Facility original	2026	2026	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Effluent Treatment Facility replacement 1	2046	2046	3.23×10^{2}	8.41	1.95	4.33×10^{-1}
Evaporator original	2018	2018	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Evaporator replacement 1	2044	2044	7.89×10^{-1}	2.05×10^{-2}	2.75	1.06×10^{-3}
Modified sluicing retrieval system	2013	2043	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a
Closure						
Ancillary equipment grouting	2013	2037	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a
Tank-filling grout facility construction	2032	2033	a	a	a	a
Tank-filling grout facility operations	2034	2043	a	a	a	a
Tank-filling grout facility deactivation	2044	2044	a	a	a	a
Containment structure construction	2028	2031	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a
Containment structure deactivation	2038	2040	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	1.70×10^{1}	7.88×10^{1}	6.68×10^{2}	2.68×10^{-2}
Postclosure care	2046	2145	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–88. Tank Closure Alternative 6C Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	7.91×10^{-2}	1.06×10^{-2}	4.46×10^{-4}	2.24×10^{-2}	a	4.66×10^{-3}	3.25×10^{-3}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	1.13×10^{-2}	1.51×10^{-3}	6.35×10^{-5}	1.92×10^{-3}	a	6.64×10^{-4}	4.63×10^{-4}
Cesium and Strontium Capsule Processing Facility	2035	2038	2.01×10^{-2}	2.75×10^{-3}	1.13×10^{-4}	3.43×10^{-3}	a	1.94×10^{-3}	1.04×10^{-3}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	a	a	a	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	2.14×10^{-2}	4.02×10^{-3}	1.23×10^{-4}	3.93×10^{-3}	a	2.02×10^{-2}	6.22×10^{-3}
Evaporator replacement 1	2015	2017	3.46×10^{-3}	5.48×10^{-4}	1.81×10^{-4}	6.10×10^{-4}	a	1.58×10^{-3}	5.29×10^{-4}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	4.01×10^{-2}	5.40×10^{-3}	a	a	a	5.40×10^{-3}	5.40×10^{-3}
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2043	a	a	a	a	a	a	a
Routine operations	2006	2043	2.26×10^{-1}	3.42×10^{-2}	a	a	a	1.50×10^{-2}	1.04×10^{-2}
Retrieval operations	2006	2043	a	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	a	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	1.71×10^{-1}	2.30×10^{-2}	9.62×10^{-4}	2.90×10^{-2}	a	1.01×10^{-2}	7.01×10^{-3}

Table G–88. Tank Closure Alternative 6C Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations *(continued)*									
Cesium and Strontium Capsule Processing Facility	2039	2040	1.76×10^{-2}	2.40×10^{-3}	9.93×10^{-5}	3.00×10^{-3}	a	1.63×10^{-3}	8.90×10^{-4}
Modified sluicing retrieval system	2013	2043	a	a	a	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2145	a	a	a	a	a	a	a
Effluent Treatment Facility	2006	2045	4.99×10^{-2}	8.32×10^{-2}	4.67×10^{-4}	2.80×10^{-2}	a	1.28	3.61×10^{-1}
Evaporator	2006	2043	2.49×10^{-4}	4.15×10^{-4}	2.33×10^{-6}	1.40×10^{-4}	a	6.38×10^{-3}	1.80×10^{-3}
Borrow Area C	2006	2052	a	a	a	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2145	a	a	a	a	a	a	a
Deactivation									
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	1.71×10^{-2}	2.30×10^{-3}	9.62×10^{-5}	2.90×10^{-3}	a	1.01×10^{-3}	7.01×10^{-4}
Cesium and Strontium Capsule Processing Facility	2041	2041	8.12×10^{-3}	1.12×10^{-3}	4.59×10^{-5}	1.39×10^{-3}	a	8.76×10^{-4}	4.45×10^{-4}
Effluent Treatment Facility original	2026	2026	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Effluent Treatment Facility replacement 1	2046	2046	2.50×10^{-2}	4.16×10^{-2}	2.34×10^{-4}	1.40×10^{-2}	a	6.40×10^{-1}	1.81×10^{-1}
Evaporator original	2018	2018	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Evaporator replacement 1	2044	2044	6.10×10^{-5}	1.02×10^{-4}	5.70×10^{-7}	3.42×10^{-5}	a	1.56×10^{-3}	4.40×10^{-4}
Modified sluicing retrieval system	2013	2043	a	a	a	a	a	a	a
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	a	a	a	a	a	a
Closure									
Ancillary equipment grouting	2013	2037	a	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Tank-filling grout facility construction	2032	2033	a	a	a	a	a	a	a
Tank-filling grout facility operations	2034	2043	a	a	a	a	a	a	a
Tank-filling grout facility deactivation	2044	2044	a	a	a	a	a	a	a
Containment structure construction	2028	2031	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a	a	a	a

Table G–88. Tank Closure Alternative 6C Toxic Pollutant Emissions from Mobile Sources *(continued)*

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Closure *(continued)*									
Containment structure deactivation	2038	2040	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	1.24×10^{-1}	3.10×10^{-1}	1.30×10^{-2}	3.92×10^{-1}	a	1.36×10^{-1}	9.47×10^{-2}
Postclosure care	2046	2145	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–89. FFTF Decommissioning Alternative 1 Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate from Mobile Sources (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Deactivation						
Administrative controls	2008	2107	a	a	3.14×10^{-1}	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007b.

Table G–90. FFTF Decommissioning Alternative 1 Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Deactivation									
Administrative controls	2008	2107	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–91. FFTF Decommissioning Alternative 2 Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Decommissioning						
Above-grade structure and equipment removal	2013	2020	4.38×10^{-1}	2.03	8.25×10^{2}	6.91×10^{-4}
Backfill of Reactor Containment Building with grout	2017	2017	3.32×10^{-3}	1.54×10^{-2}	1.48×10^{-1}	5.24×10^{-6}
Backfill of Buildings 491 East and West with grout	2017	2017	a	a	a	a
Grout facility construction	2016	2016	a	a	a	a
Grout facility operations	2017	2017	a	a	2.18×10^{1}	a
Grout facility deactivation	2018	2018	a	a	a	a
Nonhazardous waste transportation	2013	2020	a	a	6.88×10^{-2}	a
Construction						
Hanford Site Sodium Reaction Facility	2015	2016	a	a	3.24	a
Hanford Site Remote Treatment Project	2015	2016	4.45×10^{1}	3.20	8.28×10^{1}	5.97×10^{-2}
Idaho National Laboratory Sodium Processing Facility	2014	2014	8.83	1.28	8.78×10^{-2}	1.19×10^{-2}
Idaho National Laboratory Remote Treatment Project	2015	2016	4.42×10^{1}	3.19	2.14×10^{-1}	5.92×10^{-2}
Operations						
Hanford Site sodium preparation	2017	2017	3.44	6.96×10^{-1}	2.00×10^{-1}	4.65×10^{-3}
Hanford Site Sodium Reaction Facility	2017	2018	1.71×10^{-2}	7.96×10^{-2}	3.19×10^{-2}	2.71×10^{-5}
Hanford Site Remote Treatment Project	2017	2017	2.05×10^{-3}	9.53×10^{-3}	6.92×10^{-2}	3.25×10^{-6}
Idaho National Laboratory sodium production	2015	2015	3.44	6.96×10^{-1}	4.81×10^{-2}	4.65×10^{-3}
Idaho National Laboratory Sodium Processing Facility	2015	2016	7.66×10^{-1}	3.56	2.50×10^{-1}	1.21×10^{-3}
Idaho National Laboratory Remote Treatment Project	2017	2017	5.45×10^{-2}	2.53×10^{-1}	1.78×10^{-2}	8.60×10^{-5}
Deactivation						
Hanford Site Sodium Reaction Facility	2019	2019	a	a	a	a
Hanford Site Remote Treatment Project	2018	2018	1.03×10^{-3}	4.76×10^{-3}	3.46×10^{-2}	1.62×10^{-6}
Idaho National Laboratory Sodium Processing Facility	2016	2016	a	a	a	a
Idaho National Laboratory Remote Treatment Project	2018	2018	1.03×10^{-3}	4.76×10^{-3}	3.35×10^{-4}	1.62×10^{-6}
Closure						
Site regrading	2021	2021	a	a	1.45×10^{2}	a
Site revegetation	2021	2021	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2021	2021	a	a	1.84×10^{1}	a
Postclosure care	2022	2121	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007b.

Table G–92. FFTF Decommissioning Alternative 2 Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Decommissioning									
Above-grade structure and equipment removal	2013	2020	3.19×10^{-3}	4.30×10^{-4}	1.80×10^{-5}	5.44×10^{-4}	a	1.88×10^{-4}	1.31×10^{-4}
Backfill of Reactor Containment Building with grout	2017	2017	2.42×10^{-5}	3.26×10^{-6}	1.37×10^{-7}	4.12×10^{-6}	a	1.43×10^{-6}	9.95×10^{-7}
Backfill of Buildings 491 East and West with grout	2017	2017	a	a	a	a	a	a	a
Grout facility construction	2016	2016	a	a	a	a	a	a	a
Grout facility operations	2017	2017	a	a	a	a	a	a	a
Grout facility deactivation	2018	2018	a	a	a	a	a	a	a
Nonhazardous waste transportation	2013	2020	a	a	a	a	a	a	a
Construction									
Hanford Site Sodium Reaction Facility	2015	2016	a	a	a	a	a	a	a
Hanford Site Remote Treatment Project	2015	2016	6.62×10^{-3}	6.12×10^{-3}	4.99×10^{-5}	2.45×10^{-3}	a	1.32×10^{-3}	2.47×10^{-2}
Idaho National Laboratory Sodium Processing Facility	2014	2014	2.32×10^{-3}	1.33×10^{-3}	1.56×10^{-5}	6.55×10^{-4}	a	1.71×10^{-2}	4.87×10^{-3}
Idaho National Laboratory Remote Treatment Project	2015	2016	6.60×10^{-3}	6.06×10^{-3}	4.99×10^{-5}	2.45×10^{-3}	a	8.66×10^{-2}	2.45×10^{-2}
Operations									
Hanford Site sodium preparation	2017	2017	1.21×10^{-3}	5.55×10^{-4}	3.07×10^{-4}	7.80×10^{-6}	a	6.61×10^{-3}	1.89×10^{-3}
Hanford Site Sodium Reaction Facility	2017	2018	1.81×10^{-5}	1.68×10^{-5}	7.06×10^{-7}	2.13×10^{-5}	a	7.38×10^{-6}	5.14×10^{-6}
Hanford Site Remote Treatment Project	2017	2017	1.50×10^{-5}	2.01×10^{-6}	1.50×10^{-4}	6.89×10^{-3}	a	8.85×10^{-7}	6.16×10^{-7}
Idaho National Laboratory sodium production	2015	2015	1.21×10^{-3}	5.55×10^{-4}	3.07×10^{-4}	7.80×10^{-6}	a	6.61×10^{-3}	1.89×10^{-3}
Idaho National Laboratory Sodium Processing Facility	2015	2016	a	7.52×10^{-4}	3.15×10^{-5}	9.51×10^{-4}	a	3.30×10^{-4}	2.30×10^{-4}
Idaho National Laboratory Remote Treatment Project	2017	2017	3.97×10^{-4}	5.35×10^{-5}	1.25×10^{-6}	3.78×10^{-5}	a	2.35×10^{-5}	1.63×10^{-5}
Deactivation									
Hanford Site Sodium Reaction Facility	2019	2019	a	a	a	a	a	a	a
Hanford Site Remote Treatment Project	2018	2018	7.48×10^{-6}	1.01×10^{-6}	3.74×10^{-8}	1.13×10^{-6}	a	4.42×10^{-7}	3.08×10^{-7}
Idaho National Laboratory Sodium Processing Facility	2016	2016	a	a	a	a	a	a	a
Idaho National Laboratory Remote Treatment Project	2018	2018	7.48×10^{-6}	1.01×10^{-6}	3.74×10^{-8}	1.13×10^{-6}	a	4.42×10^{-7}	3.08×10^{-7}
Closure									
Site regrading	2021	2021	a	a	a	a	a	a	a
Site revegetation	2021	2021	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2021	2021	a	a	a	a	a	a	a
Postclosure care	2022	2121	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–93. FFTF Decommissioning Alternative 3 Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Decommissioning						
Above-grade structure and equipment removal	2013	2020	4.38×10^{-1}	2.03	8.25×10^{2}	6.91×10^{-4}
Removal of Reactor Containment Building below-grade vessels, piping, and components	2013	2014	1.35×10^{-2}	6.28×10^{-2}	4.84×10^{-1}	2.14×10^{-5}
Grout facility construction	2012	2012	a	a	a	a
Grout facility operations	2013	2014	a	a	2.18×10^{1}	a
Grout facility deactivation	2015	2015	a	a	a	a
Nonhazardous waste transportation	2013	2020	a	a	6.88×10^{-2}	a
Construction						
Hanford Site Sodium Reaction Facility	2015	2016	a	a	3.24	a
Hanford Site Remote Treatment Project	2015	2016	a	a	8.28×10^{1}	a
Idaho National Laboratory Sodium Processing Facility	2014	2014	8.83	1.28	8.78×10^{-2}	1.19×10^{-2}
Idaho National Laboratory Remote Treatment Project	2015	2016	4.42×10^{1}	3.19	2.14×10^{-1}	5.92×10^{-2}
Operations						
Hanford Site sodium preparation	2017	2017	3.44	6.96×10^{-1}	2.00×10^{-1}	4.65×10^{-3}
Hanford Site Sodium Reaction Facility	2017	2018	1.71×10^{-2}	7.96×10^{-2}	3.19×10^{-2}	2.71×10^{-5}
Hanford Site Remote Treatment Project	2017	2017	2.05×10^{-3}	9.53×10^{-3}	6.92×10^{-2}	3.25×10^{-6}
Idaho National Laboratory sodium preparation	2015	2015	3.44	6.96×10^{-1}	4.81×10^{-2}	4.65×10^{-3}
Idaho National Laboratory Sodium Processing Facility	2015	2016	7.66×10^{-1}	3.56	2.50×10^{-1}	1.21×10^{-3}
Idaho National Laboratory Remote Treatment Project	2017	2017	5.45×10^{-2}	2.53×10^{-1}	1.78×10^{-2}	8.60×10^{-5}
Deactivation						
Hanford Site Sodium Reaction Facility	2019	2019	1.03×10^{-3}	4.76×10^{-3}	3.46×10^{-2}	1.62×10^{-6}
Hanford Site Remote Treatment Project	2018	2018	a	a	2.18×10^{2}	a
Idaho National Laboratory Sodium Processing Facility	2016	2016	a	a	a	a
Idaho National Laboratory Remote Treatment Project	2018	2018	1.03×10^{-3}	4.76×10^{-3}	3.35×10^{-4}	1.62×10^{-6}
Closure						
Site regrading	2018	2018	a	a	2.18×10^{2}	a
Site revegetation	2018	2018	a	a	a	a
Postclosure care	2022	2121	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007b.

Table G–94. FFTF Decommissioning Alternative 3 Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Decommissioning									
Above-grade structure and equipment removal	2013	2020	3.19×10^{-3}	4.30×10^{-4}	1.80×10^{-5}	5.44×10^{-4}	a	1.88×10^{-4}	1.31×10^{-4}
Removal of Reactor Containment Building below-grade vessels, piping, and components	2013	2014	9.88×10^{-5}	1.33×10^{-5}	5.57×10^{-7}	1.68×10^{-5}	a	5.82×10^{-6}	4.06×10^{-6}
Grout facility construction	2012	2012	a	a	a	a	a	a	a
Grout facility operations	2013	2014	a	a	a	a	a	a	a
Grout facility deactivation	2015	2015	a	a	a	a	a	a	a
Nonhazardous waste transportation	2013	2020	a	a	a	a	a	a	a
Construction									
Hanford Site Sodium Reaction Facility	2015	2016	a	a	a	a	a	a	a
Hanford Site Remote Treatment Project	2015	2016	6.62×10^{-3}	6.12×10^{-3}	4.99×10^{-5}	2.45×10^{-3}	a	1.32×10^{-3}	2.47×10^{-2}
Idaho National Laboratory Sodium Processing Facility	2014	2014	2.32×10^{-3}	1.33×10^{-3}	1.56×10^{-5}	6.55×10^{-4}	a	1.71×10^{-2}	4.87×10^{-3}
Idaho National Laboratory Remote Treatment Project	2015	2016	6.60×10^{-3}	6.06×10^{-3}	4.99×10^{-5}	2.45×10^{-3}	a	8.66×10^{-2}	2.45×10^{-2}
Operations									
Hanford Site sodium preparation	2017	2017	1.21×10^{-3}	5.55×10^{-4}	3.07×10^{-4}	7.80×10^{-6}	a	6.61×10^{-3}	1.89×10^{-3}
Hanford Site Sodium Reaction Facility	2017	2018	1.81×10^{-5}	1.68×10^{-5}	7.06×10^{-7}	2.13×10^{-5}	a	7.38×10^{-6}	5.14×10^{-6}
Hanford Site Remote Treatment Project	2017	2017	1.50×10^{-5}	2.01×10^{-6}	1.50×10^{-4}	6.89×10^{-3}	a	8.85×10^{-7}	6.16×10^{-7}
Idaho National Laboratory sodium preparation	2015	2015	1.21×10^{-3}	5.55×10^{-4}	3.07×10^{-4}	7.80×10^{-6}	a	6.61×10^{-3}	1.89×10^{-3}
Idaho National Laboratory Sodium Processing Facility	2015	2016	a	7.52×10^{-4}	3.15×10^{-5}	9.51×10^{-4}	a	3.30×10^{-4}	2.30×10^{-4}
Idaho National Laboratory Remote Treatment Project	2017	2017	3.97×10^{-4}	5.35×10^{-5}	1.25×10^{-6}	3.78×10^{-5}	a	2.35×10^{-5}	1.63×10^{-5}
Deactivation									
Hanford Site Sodium Reaction Facility	2019	2019	a	a	a	a	a	a	a
Hanford Site Remote Treatment Project	2018	2018	7.48×10^{-6}	1.01×10^{-6}	3.74×10^{-8}	1.13×10^{-6}	a	4.42×10^{-7}	3.08×10^{-7}
Idaho National Laboratory Sodium Processing Facility	2016	2016	a	a	a	a	a	a	a
Idaho National Laboratory Remote Treatment Project	2018	2018	7.48×10^{-6}	1.01×10^{-6}	3.74×10^{-8}	1.13×10^{-6}	a	4.42×10^{-7}	3.08×10^{-7}
Closure									
Site regrading	2018	2018	a	a	a	a	a	a	a
Site revegetation	2018	2018	a	a	a	a	a	a	a
Postclosure care	2022	2121	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007c.

Table G–95. Waste Management Alternative 1 Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Operations						
Low-level radioactive waste burial grounds	2007	2035	a	a	2.61	a
Deactivation						
Integrated Disposal Facility	2009	2009	a	a	2.92×10^{2}	a
Postclosure care	2036	2135	1.27×10^{1}	4.89	6.13×10^{-1}	1.72×10^{-2}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–96. Waste Management Alternative 1 Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Operations									
Low-level radioactive waste burial grounds	2007	2035	a	a	a	a	a	a	a
Deactivation									
Integrated Disposal Facility	2009	2009	a	a	a	a	a	a	a
Postclosure care	2036	2135	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007c.

Table G–97. Waste Management Alternative 2 (Treatment and Storage) Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
T Plant complex expansion	2011	2012	1.84	6.15	3.80×10^{1}	2.79×10^{-3}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	8.89	1.47×10^{1}	4.28×10^{2}	1.27×10^{-2}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	4.23	3.53	7.67×10^{2}	5.84×10^{-3}
Central Waste Complex expansion	2011	2012	2.98	4.94	1.44×10^{2}	4.25×10^{-3}
Operations						
T Plant complex expansion	2013	2050	9.93×10^{3}	2.58×10^{2}	1.36×10^{4}	1.33×10^{1}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	7.69	2.00×10^{-1}	1.10×10^{4}	1.03×10^{-2}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	3.14	8.16×10^{-2}	3.12×10^{3}	4.20×10^{-3}
Central Waste Complex expansion	2013	2050	3.19	8.28×10^{-2}	5.11×10^{2}	4.27×10^{-3}
Deactivation						
T Plant complex expansion	2051	2051	7.48	9.89	6.64	1.05×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	4.71	1.22×10^{-1}	2.32	6.31×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	1.88	4.90×10^{-2}	2.32	2.52×10^{-3}
Central Waste Complex expansion	2051	2051	1.59	4.13×10^{-2}	1.69	2.13×10^{-3}

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; TRU=transuranic; WRAP=Waste Receiving and Processing Facility.
Source: SAIC 2007c.

Table G–98. Waste Management Alternative 2 (Treatment and Storage) Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
T Plant complex expansion	2011	2012	9.69×10^{-3}	1.37×10^{-3}	5.48×10^{-5}	1.66×10^{-3}	a	1.60×10^{-3}	6.88×10^{-4}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	2.33×10^{-2}	3.82×10^{-3}	1.33×10^{-4}	4.14×10^{-3}	a	1.27×10^{-2}	4.15×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	5.68×10^{-3}	1.18×10^{-3}	5.57×10^{-3}	6.43×10^{-3}	a	7.21×10^{-3}	2.17×10^{-3}
Central Waste Complex expansion	2011	2012	7.84×10^{-3}	1.28×10^{-3}	4.47×10^{-5}	1.39×10^{-3}	a	4.27×10^{-3}	1.39×10^{-3}
Operations									
T Plant complex expansion	2013	2050	7.28×10^{-1}	1.28	7.17×10^{-3}	4.31×10^{-1}	a	1.96×10^{1}	5.54
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	5.95×10^{-4}	9.90×10^{-4}	5.56×10^{-6}	3.34×10^{-4}	a	1.52×10^{-2}	4.29×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	2.43×10^{-4}	4.04×10^{-4}	2.27×10^{-6}	1.36×10^{-4}	a	6.21×10^{-3}	1.75×10^{-3}
Central Waste Complex expansion	2013	2050	2.46×10^{-4}	4.10×10^{-4}	2.30×10^{-6}	1.38×10^{-4}	a	6.30×10^{-3}	1.78×10^{-3}
Deactivation									
T Plant complex expansion	2051	2051	8.26×10^{-4}	2.76×10^{-3}	9.03×10^{-5}	2.84×10^{-3}	a	1.16×10^{-2}	3.63×10^{-3}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	3.64×10^{-4}	6.06×10^{-4}	3.40×10^{-6}	2.04×10^{-4}	a	9.31×10^{-3}	2.63×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	1.46×10^{-4}	2.42×10^{-4}	1.36×10^{-6}	8.17×10^{-5}	a	3.72×10^{-3}	1.05×10^{-3}
Central Waste Complex expansion	2051	2051	1.23×10^{-4}	2.04×10^{-4}	1.15×10^{-6}	6.89×10^{-5}	a	3.14×10^{-3}	8.86×10^{-4}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–99. Waste Management Alternative 2, Disposal Group 1, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Integrated Disposal Facility	2006	2008	a	a	2.00×10^{3}	a
River Protection Project Disposal Facility	2019	2021	a	a	6.64×10^{2}	a
Operations						
Low-level radioactive waste burial grounds	2007	2050	a	a	2.61	a
Integrated Disposal Facility	2009	2050	a	a	2.69×10^{1}	a
River Protection Project Disposal Facility	2022	2050	a	a	7.05×10^{1}	a
Closure						
Integrated Disposal Facility	2051	2052	a	a	4.62×10^{2}	a
Postclosure care, Integrated Disposal Facility	2053	2152	a	a	6.72×10^{-2}	a
River Protection Project Disposal Facility	2051	2052	a	a	1.52×10^{2}	a
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	1.27×10^{-1}	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–100. Waste Management Alternative 2, Disposal Group 1, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Integrated Disposal Facility	2006	2008	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2050	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility	2051	2052	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility	2053	2152	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2051	2052	a	a	a	a	a	a	a
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007c.

Table G–101. Waste Management Alternative 2, Disposal Group 2, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Integrated Disposal Facility	2006	2008	a	a	7.06×10^{2}	a
River Protection Project Disposal Facility	2019	2021	a	a	5.15×10^{3}	a
Operations						
Low-level radioactive waste burial grounds	2007	2050	a	a	2.61	a
Integrated Disposal Facility	2009	2100	a	a	4.34	a
River Protection Project Disposal Facility	2022	2100	a	a	2.00×10^{2}	a
Closure						
Integrated Disposal Facility	2101	2102	a	a	1.63×10^{2}	a
Postclosure care, Integrated Disposal Facility	2103	2202	a	a	2.38×10^{-2}	a
River Protection Project Disposal Facility	2101	2102	a	a	1.18×10^{3}	a
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	1.27×10^{-1}	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–102. Waste Management Alternative 2, Disposal Group 2, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Integrated Disposal Facility	2006	2008	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility	2009	2100	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2100	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility	2101	2102	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility	2103	2202	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2101	2102	a	a	a	a	a	a	a
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007c.

Table G–103. Waste Management Alternative 2, Disposal Group 3, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Integrated Disposal Facility	2006	2008	a	a	7.06×10^{2}	a
River Protection Project Disposal Facility	2019	2021	a	a	5.15×10^{3}	a
Operations						
Low-level radioactive waste burial grounds	2007	2050	a	a	2.61	a
Integrated Disposal Facility	2009	2165	a	a	2.54	a
River Protection Project Disposal Facility	2022	2165	a	a	1.10×10^{2}	a
Closure						
Integrated Disposal Facility	2166	2167	a	a	1.63×10^{2}	a
Postclosure care, Integrated Disposal Facility	2168	2267	a	a	2.38×10^{-2}	a
River Protection Project Disposal Facility	2166	2167	a	a	1.18×10^{3}	a
Postclosure care, River Project Disposal Facility	2168	2267	a	a	1.27×10^{-1}	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–104. Waste Management Alternative 2, Disposal Group 3, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Integrated Disposal Facility	2006	2008	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility	2009	2165	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2165	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility	2166	2167	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility	2168	2267	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2166	2167	a	a	a	a	a	a	a
Postclosure care, River Project Disposal Facility	2168	2267	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007c.

Table G–105. Waste Management Alternative 3 (Treatment and Storage) Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
T Plant complex expansion	2011	2012	1.84	6.15	3.80×10^{1}	2.79×10^{-3}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	8.89	1.47×10^{1}	4.28×10^{2}	1.27×10^{-2}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	4.23	3.53	7.67×10^{2}	5.84×10^{-3}
Central Waste Complex expansion	2011	2012	2.98	4.94	1.44×10^{2}	4.25×10^{-3}
Operations						
T Plant complex expansion	2013	2050	9.93×10^{3}	2.58×10^{2}	1.36×10^{4}	1.33×10^{1}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	7.69	2.00×10^{-1}	1.10×10^{4}	1.03×10^{-2}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	3.14	8.16×10^{-2}	3.12×10^{3}	4.20×10^{-3}
Central Waste Complex expansion	2013	2050	3.19	8.28×10^{-2}	5.11×10^{2}	4.27×10^{-3}
Deactivation						
T Plant complex expansion	2051	2051	7.48	9.89	6.64	1.05×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	4.71	1.22×10^{-1}	2.32	6.31×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	1.88	4.90×10^{-2}	2.32	2.52×10^{-3}
Central Waste Complex expansion	2051	2051	1.59	4.13×10^{-2}	1.69	2.13×10^{-3}

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; TRU=transuranic; WRAP=Waste Receiving and Processing Facility.
Source: SAIC 2007c.

Table G–106. Waste Management Alternative 3 (Treatment and Storage) Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
T Plant complex expansion	2011	2012	9.69×10^{-3}	1.37×10^{-3}	5.48×10^{-5}	1.66×10^{-3}	a	1.60×10^{-3}	6.88×10^{-4}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	2.33×10^{-2}	3.82×10^{-3}	1.33×10^{-4}	4.14×10^{-3}	a	1.27×10^{-2}	4.15×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	5.68×10^{-3}	1.18×10^{-3}	5.57×10^{-3}	6.43×10^{-3}	a	7.21×10^{-3}	2.17×10^{-3}
Central Waste Complex expansion	2011	2012	7.84×10^{-3}	1.28×10^{-3}	4.47×10^{-5}	1.39×10^{-3}	a	4.27×10^{-3}	1.39×10^{-3}
Operations									
T Plant complex expansion	2013	2050	7.28×10^{-1}	1.28	7.17×10^{-3}	4.31×10^{-1}	a	1.96×10^{1}	5.54
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	5.95×10^{-4}	9.90×10^{-4}	5.56×10^{-6}	3.34×10^{-4}	a	1.52×10^{-2}	4.29×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	2.43×10^{-4}	4.04×10^{-4}	2.27×10^{-6}	1.36×10^{-4}	a	6.21×10^{-3}	1.75×10^{-3}
Central Waste Complex expansion	2013	2050	2.46×10^{-4}	4.10×10^{-4}	2.30×10^{-6}	1.38×10^{-4}	a	6.30×10^{-3}	1.78×10^{-3}
Deactivation									
T Plant complex expansion	2051	2051	8.26×10^{-4}	2.76×10^{-3}	9.03×10^{-5}	2.84×10^{-3}	a	1.16×10^{-2}	3.63×10^{-3}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	3.64×10^{-4}	6.06×10^{-4}	3.40×10^{-6}	2.04×10^{-4}	a	9.31×10^{-3}	2.63×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	1.46×10^{-4}	2.42×10^{-4}	1.36×10^{-6}	8.17×10^{-5}	a	3.72×10^{-3}	1.05×10^{-3}
Central Waste Complex expansion	2051	2051	1.23×10^{-4}	2.04×10^{-4}	1.15×10^{-6}	6.89×10^{-5}	a	3.14×10^{-3}	8.86×10^{-4}

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–107. Waste Management Alternative 3, Disposal Group 1, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	1.25×10^{3}	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	1.03×10^{2}	a
River Protection Project Disposal Facility	2019	2021	a	a	6.64×10^{2}	a
Operations						
Low-level radioactive waste burial grounds	2007	2050	a	a	2.61	a
Integrated Disposal Facility, 200-East Area	2009	2050	a	a	2.47×10^{1}	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	2.03	a
River Protection Project Disposal Facility	2022	2050	a	a	7.05×10^{1}	a
Closure						
Integrated Disposal Facility, 200-East Area	2051	2052	a	a	3.32×10^{2}	a
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	2.72×10^{1}	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2053	2152	a	a	9.07×10^{-2}	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	7.43×10^{-3}	a
River Protection Project Disposal Facility	2051	2052	a	a	1.52×10^{2}	a
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	1.53×10^{-1}	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–108. Waste Management Alternative 3, Disposal Group 1, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2050	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility, 200-East Area	2051	2052	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2053	2152	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2051	2052	a	a	a	a	a	a	a
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007c.

Table G–109. Waste Management Alternative 3, Disposal Group 2, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	3.91×10^{2}	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	1.03×10^{2}	a
River Protection Project Disposal Facility	2019	2021	a	a	5.15×10^{3}	a
Operations						
Low-level radioactive waste burial grounds	2007	2050	a	a	2.61	a
Integrated Disposal Facility, 200-East Area	2009	2100	a	a	3.52	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	2.03	a
River Protection Project Disposal Facility	2022	2100	a	a	2.00×10^{2}	a
Closure						
Integrated Disposal Facility, 200-East Area	2101	2102	a	a	1.03×10^{2}	a
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	2.72×10^{1}	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2103	2202	a	a	2.83×10^{-2}	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	7.43×10^{-3}	a
River Protection Project Disposal Facility	2101	2102	a	a	1.18×10^{3}	a
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	1.18	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–110. Waste Management Alternative 3, Disposal Group 2, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2100	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2100	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility, 200-East Area	2101	2102	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2103	2202	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2101	2102	a	a	a	a	a	a	a
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007c.

Table G–111. Waste Management Alternative 3, Disposal Group 3, Criteria Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)			
			Carbon Monoxide	Nitrogen Dioxide	PM_{10}	Sulfur Dioxide
Construction						
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	3.91×10^{2}	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	1.03×10^{2}	a
River Protection Project Disposal Facility	2019	2021	a	a	5.15×10^{3}	a
Operations						
Low-level radioactive waste burial grounds	2007	2050	a	a	2.61	a
Integrated Disposal Facility, 200-East Area	2009	2165	a	a	2.06	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	2.03	a
River Protection Project Disposal Facility	2022	2165	a	a	1.10×10^{2}	a
Closure						
Integrated Disposal Facility, 200-East Area	2166	2167	a	a	1.03×10^{2}	a
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	2.72×10^{1}	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2168	2267	a	a	2.83×10^{-2}	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	7.43×10^{-3}	a
River Protection Project Disposal Facility	2166	2167	a	a	1.18×10^{3}	a
Postclosure care, River Protection Project Disposal Facility	2168	2267	a	a	1.18	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–112. Waste Management Alternative 3, Disposal Group 3, Toxic Pollutant Emissions from Mobile Sources

Facility/System	Start Year	End Year	Emission Rate (metric tons per year)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
Construction									
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2165	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2165	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility, 200-East Area	2166	2167	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2168	2267	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2166	2167	a	a	a	a	a	a	a
Postclosure care, River Protection Project Disposal Facility	2168	2267	a	a	a	a	a	a	a

[a] Emissions for this activity and pollutant were not calculated because annual fuel use for this activity and the resulting emissions would be small compared with other activities or would be zero.

Source: SAIC 2007c.

G.3 AIR QUALITY IMPACTS UNDER THE ALTERNATIVES

Maximum concentrations of each air pollutant for defined averaging periods were calculated for each alternative. Using the average emissions for an activity, the maximum air pollutant concentrations at a point of public access was determined for the activity for each of the averaging periods. The combined impact for an averaging period was determined by summing the contributions for each pollutant and averaging period from all activities that would be ongoing during a year. The year (or years) with the highest concentration—the peak year—was identified for each pollutant for each averaging period for each alternative. The peak year can therefore differ depending on the pollutant and the averaging period. Presented in Tables G–113 through G–166 is a summary of the contribution of each activity to the peak-year concentrations. Totals may not equal the sum of the contributions due to rounding. The data in these tables correspond to the peak years identified in the summary tables in the air quality sections of Chapter 4. The total concentrations presented are the sums of highest possible peak year concentrations attributable to the various activities as modeled at different receptor locations. Therefore these totals are overestimates of the peak year concentrations. Included in the text of Chapter 4 is a discussion of the activities that would contribute to exceedances of the ambient standards; potential exceedances are indicated in the tables total row by bold type. The figures in Chapter 4 show the duration of the various activities and of potential exceedances of PM_{10}.

Results of the air quality modeling indicate possible exceedances of the 24-hour ambient standard for PM_{10} and $PM_{2.5}$ under all Tank Closure and Waste Management alternatives. The primary activities contributing to these exceedances vary by alternative. For tank closure, they include construction of certain major facilities such as the WTP and replacements, waste receiver facilities, modified RCRA Subtitle C barriers, Hanford landfill barriers, double-shell tanks, Contact-Handled Mixed Transuranic Waste Facilities, and the Effluent Treatment Facility and replacements, as well as operation of Borrow Area C. Major considerations in estimating construction-related particulate matter emissions include construction equipment types and activity, windblown particulates from disturbed areas, resuspension of road dust, fuel combustion, and concrete batch plant operations. Exceedances of the 24-hour PM_{10} standard under the Tank Closure alternatives could occur over as few as 3 years under Tank Closure Alternative 1 to as many as 192 years under Tank Closure Alternative 6A, Base or Option Case. Similar exceedances of $PM_{2.5}$ could occur.

The primary activities contributing to exceedances of the PM_{10} and $PM_{2.5}$ 24-hour ambient standards under Waste Management alternatives would include (1) construction and closure of major facilities such as the Integrated Disposal Facility and the River Protection Project Disposal Facility; (2) operation of the Central Waste Complex, Remote-Handled Mixed Transuranic/Transuranic waste facility (Waste Receiving and Processing Facility expansion), Contact-Handled Mixed Transuranic/Transuranic waste facility (Waste Receiving and Processing Facility expansion), Integrated Disposal Facility, and Central Waste Complex expansion storage facility; and (3) deactivation of the Integrated Disposal Facility. Exceedances of the 24-hour PM_{10} standard could occur over as many as 162 years under Waste Management Alternative 2, Disposal Group 3.

Factored into estimates of particulate matter emissions from general construction activities are fugitive dust emissions from disturbed construction areas, including dust suspended by wind and by equipment and vehicle activity. The emission factor used for these estimates is intended to provide a gross estimate of total suspended particulate emissions, albeit an estimate for which more-detailed engineering of the construction activity would allow for a more-refined estimate of dust emissions. For the purpose of this analysis, emissions of PM_{10} and $PM_{2.5}$ from general construction activities were assumed to be the same as total suspended particulate emissions. The resulting estimate of general construction activity emissions, the primary contributor to construction particulate matter emissions, thus entails a substantial overestimate of PM_{10} and $PM_{2.5}$ emissions for the primary construction activities. Further, as discussed in

Chapter 4, the analysis did not consider appropriate emission controls that could be applied in the construction areas. A refined analysis of emissions based on more-detailed engineering of the construction activities and application of appropriate control technologies should result in substantially lower major construction–related emissions and ambient concentrations under each alternative.

The results of the air quality modeling also indicate possible exceedances of the 1-hour carbon monoxide standard under Tank Closure Alternatives 2A, 3A, 3B, 3C, and 5. Exceedances of that standard could occur over as many as 7 years under each of these alternatives. The primary activities contributing to these exceedances would include construction of certain large facilities such as the WTP, Cesium and Strontium Capsule Processing Facility, Sulfate Removal Facility, and modified RCRA Subtitle C barriers. Exceedances of the carbon monoxide standards are also indicated under the various disposal groups under Waste Management Alternatives 2 and 3. These carbon monoxide concentrations would result from combustion of fuel in construction equipment.

Table G–113. Tank Closure Alternative 1 Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2008	2008	2008	2006–2008	2006–2008	2006–2008	2006–2008	2006–2008	2006–2008
Construction											
Canister Storage Building	2006	2008	4.37×10^{1}	6.76	6.39×10^{-3}	4.82×10^{-1}	4.54×10^{-3}	3.17×10^{-3}	1.14×10^{-3}	2.14×10^{-4}	2.02×10^{-6}
Other infrastructure upgrades	2006	2008	1.80×10^{1}	2.88	6.70×10^{-3}	1.27	9.42×10^{-3}	4.12×10^{-3}	1.40×10^{-3}	2.86×10^{-4}	2.11×10^{-6}
Tank upgrades	2006	2008	5.67×10^{3}	9.09×10^{2}	3.67×10^{-1}	9.09	6.72×10^{-2}	2.24×10^{-1}	7.63×10^{-2}	1.56×10^{-2}	1.15×10^{-4}
Waste Treatment Plant	2006	2008	1.72×10^{4}	2.42×10^{3}	7.81	5.36×10^{2}	5.23	2.38×10^{1}	7.92	1.36	1.33×10^{-2}
Operations											
Routine operations	2006	2008	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Deactivation											
Administrative controls	2008	2107	3.37×10^{2}	5.65×10^{1}	2.86×10^{-1}	b	b	b	b	b	b
Total			2.33×10^{4}	3.41×10^{3}	8.56	**5.46×10^{2}**	5.32	2.40×10^{1}	8.00	1.37	1.34×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–114. Tank Closure Alternative 1 Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2008	2006–2008	2006–2008	2006–2008	c	2006–2008	2006–2008
Construction									
Canister Storage Building	2006	2008	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2008	b	b	b	b	b	b	b
Tank upgrades	2006	2008	8.81×10^{-2}	b	b	b	b	b	b
Waste Treatment Plant	2006	2008	1.29	2.64×10^{-3}	7.32×10^{-5}	2.38×10^{-3}	b	1.69	5.06×10^{-1}
Operations									
Routine operations	2006	2008	5.59	b	b	b	b	b	b
Deactivation									
Administrative controls	2008	2107	1.91×10^{1}	b	b	b	b	b	b
Total			2.61×10^{1}	2.64×10^{-3}	7.32×10^{-5}	2.38×10^{-3}	0	1.69	5.06×10^{-1}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

c There is no peak year because no emissions were calculated.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Source: SAIC 2007a, 2008.

Table G–115. Tank Closure Alternative 2A Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066
Construction											
Underground transfer lines	2009	2009	a	a	a	a	a	a	a	a	a
Canister Storage Building	2006	2016	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	a	a	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2088	2091	a	a	a	a	a	a	a	a	a
Tank risers	2013	2056	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	5.38×10^{2}	8.62×10^{1}	1.06×10^{-2}	7.96×10^{-1}	5.88×10^{-3}	4.97×10^{-3}	1.69×10^{-3}	3.45×10^{-4}	2.55×10^{-6}
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	3.52×10^{2}	5.65×10^{1}	8.17×10^{-2}	2.22	1.64×10^{-2}	5.08×10^{-2}	1.73×10^{-2}	3.52×10^{-3}	2.60×10^{-5}
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2040	2041	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2065	2066	1.39×10^{1}	1.96	1.75×10^{-2}	2.22×10^{1}	2.17×10^{-1}	6.46×10^{-3}	2.15×10^{-3}	3.69×10^{-4}	3.61×10^{-6}
Double-shell tank replacement	2013	2054	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement	2065	2076	3.44×10^{4}	4.85×10^{3}	1.56×10^{1}	1.07×10^{3}	1.05×10^{1}	4.75×10^{1}	1.58×10^{1}	2.72	2.66×10^{-2}
Underground transfer line replacement	2044	2044	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a	a	a
Evaporator replacement 2	2040	2042	a	a	a	a	a	a	a	a	a
Evaporator replacement 3	2065	2067	3.56×10^{3}	5.50×10^{2}	3.27×10^{-1}	9.34	8.79×10^{-2}	4.79	1.71	3.23×10^{-1}	3.04×10^{-3}

Table G–115. Tank Closure Alternative 2A Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066
Operations											
IHLW Interim Storage Facility	2018	2092	b	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2092	b	b	b	b	b	b	b	b	b
Routine operations	2006	2092	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2092	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2092	7.66	1.28	6.50×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2092	1.13×10^{2}	3.47×10^{1}	1.17	3.65×10^{-1}	1.70×10^{-2}	1.09×10^{1}	6.71	1.12	5.23×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2093	2093	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2092	2093	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	2.28×10^{2}	3.81×10^{1}	1.06×10^{-2}	7.11×10^{-2}	8.13×10^{-4}	3.62×10^{-3}	1.32×10^{-3}	2.37×10^{-4}	2.71×10^{-6}
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	2.40	3.85×10^{-1}	1.40×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2192	b	b	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2095	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2093	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2102	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
IHLW Interim Storage Facility	2093	2093	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2078	2079	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	3.83×10^{2}	6.14×10^{1}	8.28×10^{-3}	9.88×10^{-2}	7.31×10^{-4}	4.75×10^{-3}	1.61×10^{-3}	3.29×10^{-4}	2.44×10^{-6}
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	7.68	1.23	3.09×10^{-4}	3.79×10^{-3}	2.80×10^{-5}	1.84×10^{-4}	6.25×10^{-5}	1.27×10^{-5}	9.42×10^{-8}
Administrative controls	2094	2193	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement	2094	2095	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2094	2094	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a

Table G–115. Tank Closure Alternative 2A Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066	2065–2066
Deactivation *(continued)*											
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2096	2096	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2043	2043	a	a	a	a	a	a	a	a	a
Evaporator replacement 2	2068	2068	a	a	a	a	a	a	a	a	a
Evaporator replacement 3	2094	2094	a	a	a	a	a	a	a	a	a
Closure											
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
Total			**4.06×10^{4}**	6.01×10^{3}	1.84×10^{1}	**1.60×10^{3}**	1.55×10^{1}	6.46×10^{1}	2.51×10^{1}	4.40	8.27×10^{-2}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–116. Tank Closure Alternative 2A Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2094	2065–2067	2065–2067	2065–2067	2078–2079	2065–2067	2065–2067
Construction									
Underground transfer lines	2009	2009	a	a	a	a	a	a	a
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2088	2091	a	a	a	a	a	a	a
Tank risers	2013	2056	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	a	b	b	b	b	b	b
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	b	b	b	b	b	b
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2040	2041	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2065	2066	a	b	b	b	a	b	b
Double-shell tank replacement	2013	2054	a	a	a	a	a	a	a
Waste Treatment Plant replacement	2065	2076	a	5.27×10^{-3}	1.46×10^{-4}	4.76×10^{-3}	a	3.37	1.01
Underground transfer line replacement	2044	2044	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a
Evaporator replacement 2	2040	2042	a	a	a	a	a	a	a
Evaporator replacement 3	2065	2067	a	3.41×10^{-4}	3.98×10^{-6}	1.68×10^{-4}	a	4.65×10^{-1}	1.32×10^{-1}
Operations									
IHLW Interim Storage Facility	2018	2092	a	b	b	b	b	b	b
Other infrastructure upgrades	2006	2092	a	b	b	b	b	b	b
Routine operations	2006	2092	a	b	b	b	b	b	b
Retrieval operations	2006	2092	a	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2092	a	b	b	b	b	b	b
Waste Treatment Plant	2018	2092	a	5.12×10^{-5}	1.85×10^{-8}	5.72×10^{-7}	2.78×10^{-3}	3.09×10^{-5}	1.04×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2093	2093	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2092	2093	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2092	a	b	b	b	b	b	b
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a

Table G–116. Tank Closure Alternative 2A Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2094	2065–2067	2065–2067	2065–2067	2078–2079	2065–2067	2065–2067
Operations *(continued)*									
Vacuum-based retrieval system	2053	2092	a	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2192	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2095	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2093	a	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	b	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2102	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
IHLW Interim Storage Facility	2093	2093	a	a	a	a	a	a	a
Waste Treatment Plant	2078	2079	a	a	a	a	3.12×10^{-3}	a	a
Modified sluicing retrieval system	2013	2092	a	b	b	b	b	b	b
Mobile retrieval system	2013	2052	a	a	a	a	a	a	a
Vacuum-based retrieval system	2053	2092	a	b	b	b	b	b	b
Administrative controls	2094	2193	1.91×10^{1}	a	a	a	a	a	a
Waste Treatment Plant replacement	2094	2095	1.95×10^{-1}	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2094	2094	2.26×10^{-3}	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2096	2096	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement 1	2043	2043	a	a	a	a	a	a	a
Evaporator replacement 2	2068	2068	a	a	a	a	a	a	a
Evaporator replacement 3	2094	2094	6.44×10^{-3}	a	a	a	a	a	a
Closure									
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Total			1.96×10^{1}	5.92×10^{-3}	1.60×10^{-4}	5.22×10^{-3}	5.90×10^{-3}	4.07	1.22

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–117. Tank Closure Alternative 2B Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2015–2016	2040	2040	2040	2040	2040	2040	2040	2040
Construction											
Canister Storage Building	2006	2016	4.37×10^{1}	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	b	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	3.15×10^{2}	a	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	1.80×10^{1}	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	5.67×10^{3}	a	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.72×10^{4}	a	a	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	1.46×10^{3}	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	a	a	a	a	a	a	a	a
Waste receiver facilities	2013	2017	1.87×10^{3}	a	a	a	a	a	a	a	a
Tank risers	2013	2016	2.99×10^{2}	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	1.66×10^{3}	2.78×10^{2}	4.78×10^{-2}	2.31	2.65×10^{-2}	1.53×10^{-2}	5.61×10^{-3}	1.00×10^{-3}	1.15×10^{-5}
Mobile retrieval system	2013	2028	1.02×10^{3}	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	1.74×10^{2}	2.52×10^{-1}	6.85	5.06×10^{-2}	1.56×10^{-1}	5.32×10^{-2}	1.08×10^{-2}	8.02×10^{-5}
HLW Melter Interim Storage Facility 1	2015	2016	1.39×10^{1}	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	3.56×10^{3}	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2043	b	b	b	b	b	b	b	b	b
Routine operations	2006	2043	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2043	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2043	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2043	a	8.11×10^{1}	2.80	1.04	4.86×10^{-2}	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	8.11×10^{1}	2.80	1.04	4.86×10^{-2}	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}
Cesium and Strontium Capsule Processing Facility	2039	2040	a	6.26×10^{1}	1.53×10^{-2}	4.00×10^{1}	6.56×10^{-1}	5.14×10^{-1}	1.76×10^{-1}	4.70×10^{-2}	7.71×10^{-4}
Modified sluicing retrieval system	2013	2043	4.60×10^{2}	7.70×10^{1}	2.14×10^{-2}	1.44×10^{-1}	1.64×10^{-3}	7.32×10^{-3}	2.68×10^{-3}	4.79×10^{-4}	5.48×10^{-6}
Mobile retrieval system	2013	2028	7.14	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	1.19	4.30×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2145	a	b	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2045	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}

Table G–117. Tank Closure Alternative 2B Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2015–2016	2040	2040	2040	2040	2040	2040	2040	2040
Operations *(continued)*											
Evaporator replacement	2006	2043	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2052	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	1.18×10^{3}	1.98×10^{2}	3.72×10^{-2}	2.87×10^{-1}	3.29×10^{-3}	1.46×10^{-2}	5.35×10^{-3}	9.57×10^{-4}	1.10×10^{-5}
Mobile retrieval system	2013	2028	5.09×10^{2}	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	3.79	9.51×10^{-4}	1.17×10^{-2}	8.65×10^{-5}	5.66×10^{-4}	1.93×10^{-4}	3.93×10^{-5}	2.90×10^{-7}
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement	2056	2056	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement	2044	2044	a	a	a	a	a	a	a	a	a
Closure											
Ancillary equipment grouting	2013	2037	5.61	a	a	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
Grout facility (tank-filling) construction	2032	2033	a	a	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2034	2043	a	5.86×10^{1}	6.92×10^{-1}	5.08×10^{1}	3.76×10^{-1}	4.39×10^{-1}	1.49×10^{-1}	3.04×10^{-2}	2.25×10^{-4}
Grout facility (tank-filling) deactivation	2044	2044	a	a	a	a	a	a	a	a	a
Containment structure construction	2028	2031	a	a	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a	a	a	a	a	a
Containment structure deactivation	2038	2040	a	2.35×10^{2}	7.82×10^{-2}	3.48	2.58×10^{-2}	4.74×10^{-2}	1.61×10^{-2}	3.29×10^{-3}	2.43×10^{-5}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	a	4.26×10^{3}	1.25×10^{1}	3.91×10^{3}	2.89×10^{1}	3.68×10^{1}	1.25×10^{1}	2.55	1.89×10^{-2}
Postclosure care	2046	2145	a	a	a	a	a	a	a	a	a
Total			3.63×10^{4}	5.84×10^{3}	2.04×10^{1}	**4.51×10^{3}**	3.48×10^{1}	9.94×10^{1}	5.06×10^{1}	9.05	3.08×10^{-1}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–118. Tank Closure Alternative 2B Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2040	2040	2040	2044–2045	2040	2040
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	b	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	b	a	a	a	a	a	a
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.29	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	3.76×10^{-2}	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	a	a	a	a	a	a
Waste receiver facilities	2013	2017	b	a	a	a	a	a	a
Tank risers	2013	2016	2.46	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	3.52×10^{-1}	b	b	b	a	b	b
Mobile retrieval system	2013	2028	2.81×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	b	b	b	a	b	b
HLW Melter Interim Storage Facility 1	2015	2016	b	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	b	b
Other infrastructure upgrades	2006	2043	b	b	b	b	a	b	b
Routine operations	2006	2043	5.59	b	b	b	a	b	b
Retrieval operations	2006	2043	4.60×10^{-2}	b	b	b	a	b	b
Double-shell tank interim stabilization	2006	2043	3.02×10^{-1}	b	b	b	a	b	b
Waste Treatment Plant	2018	2043	a	1.19×10^{-4}	4.31×10^{-8}	1.33×10^{-6}	a	7.21×10^{-5}	2.43×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	1.19×10^{-4}	4.31×10^{-8}	1.33×10^{-6}	a	7.21×10^{-5}	2.43×10^{-4}
Cesium and Strontium Capsule Processing Facility	2039	2040	a	7.41×10^{-5}	4.19×10^{-7}	2.51×10^{-5}	a	6.94×10^{-2}	1.96×10^{-2}
Modified sluicing retrieval system	2013	2043	3.52×10^{-1}	b	b	b	a	b	b
Mobile retrieval system	2013	2028	4.05×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	b	b	b	a	b	b
HLW Melter Interim Storage Facility	2018	2145	a	b	b	b	b	b	b
Effluent Treatment Facility	2006	2045	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2043	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	a	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2052	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}

Table G–118. Tank Closure Alternative 2B Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2040	2040	2040	2044–2045	2040	2040
Deactivation									
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	1.17×10^{-1}	a	a
Modified sluicing retrieval system	2013	2043	b	b	b	b	a	b	b
Mobile retrieval system	2013	2028	b	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	b	b	b	a	b	b
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement 1	2044	2044	a	a	a	a	b	a	a
Closure									
Ancillary equipment grouting	2013	2037	3.03×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Grout facility (tank-filling) construction	2032	2033	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2034	2043	a	b	b	b	a	b	b
Grout facility (tank-filling) deactivation	2044	2044	a	a	a	a	b	a	a
Containment structure construction	2028	2031	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a	a	a	a
Containment structure deactivation	2038	2040	a	b	b	b	a	b	b
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	a	4.00×10^{-3}	1.16×10^{-4}	3.74×10^{-3}	b	3.09	9.37×10^{-1}
Postclosure care	2046	2145	a	a	a	a	a	a	a
Total			1.17×10^{1}	4.56×10^{-3}	1.26×10^{-4}	4.06×10^{-3}	1.17×10^{-1}	3.40	1.03

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–119. Tank Closure Alternative 3A Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Construction											
Canister Storage Building	2006	2016	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	1.89×10^{4}	2.67×10^{3}	1.54	a	a	2.55×10^{1}	8.50	1.46	1.42×10^{-2}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	1.90×10^{3}	3.19×10^{2}	5.49×10^{-2}	2.66	3.04×10^{-2}	1.76×10^{-2}	6.44×10^{-3}	1.15×10^{-3}	1.32×10^{-5}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	1.25×10^{3}	2.01×10^{2}	2.91×10^{-1}	7.90	5.84×10^{-2}	1.81×10^{-1}	6.14×10^{-2}	1.25×10^{-2}	9.26×10^{-5}
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2016	2017	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-East Area	2016	2017	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	b	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2039	b	b	b	b	b	b	b	b	b
Routine operations	2006	2039	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2039	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2039	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2039	1.13×10^{2}	3.47×10^{1}	1.19	4.15×10^{-1}	1.93×10^{-2}	1.21×10^{1}	7.45	1.25	5.81×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	4.00×10^{1}	6.56×10^{-1}	a	a	a	a

Table G–119. Tank Closure Alternative 3A Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Operations *(continued)*											
Modified sluicing retrieval system	2013	2039	5.28×10^{2}	8.85×10^{1}	2.45×10^{-2}	1.65×10^{-1}	1.89×10^{-3}	8.41×10^{-3}	3.07×10^{-3}	5.50×10^{-4}	6.29×10^{-6}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	8.54	1.37	4.97×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2141	b	b	b	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2018	2039	3.98×10^{1}	1.09×10^{1}	8.08×10^{-2}	1.19	8.56×10^{-3}	2.27×10^{1}	9.60	3.00	2.16×10^{-2}
Solid-Liquid Separations Facility	2018	2039	3.04×10^{3}	4.35×10^{2}	1.29×10^{-1}	2.13	8.93×10^{-3}	4.09	1.36	2.44×10^{-1}	1.02×10^{-3}
Bulk Vitrification Facility, 200-East Area	2018	2039	2.28×10^{1}	4.89	1.38×10^{-1}	7.85×10^{-1}	1.47×10^{-2}	2.24×10^{1}	7.80	1.95	3.64×10^{-2}
Effluent Treatment Facility	2006	2042	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2040	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2052	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
Modified sluicing retrieval system	2013	2039	1.36×10^{3}	2.27×10^{2}	4.28×10^{-2}	3.30×10^{-1}	3.77×10^{-3}	1.68×10^{-2}	6.15×10^{-3}	1.10×10^{-3}	1.26×10^{-5}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	2.73×10^{1}	4.38	1.10×10^{-3}	1.35×10^{-2}	9.98×10^{-5}	6.54×10^{-4}	2.22×10^{-4}	4.53×10^{-5}	3.35×10^{-7}
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2035	2035	b	b	b	a	a	b	b	b	b
Bulk Vitrification Facility, 200-West Area	2040	2041	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-East Area	2040	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement	2043	2043	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement	2041	2041	a	a	a	a	a	a	a	a	a

Table G–119. Tank Closure Alternative 3A Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Closure											
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	3.66×10^{2}	5.86×10^{1}	6.92×10^{-1}	5.08×10^{1}	3.76×10^{-1}	4.39×10^{-1}	1.49×10^{-1}	3.04×10^{-2}	2.25×10^{-4}
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a	a	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	1.47×10^{3}	2.35×10^{2}	7.82×10^{-2}	a	a	4.74×10^{-2}	1.61×10^{-2}	3.29×10^{-3}	2.43×10^{-5}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	2.66×10^{4}	4.26×10^{3}	1.25×10^{1}	3.91×10^{3}	2.89×10^{1}	3.68×10^{1}	1.25×10^{1}	2.55	1.89×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a	a	a
Total			**5.66×10^{4}**	8.88×10^{3}	1.79×10^{1}	**4.51×10^{3}**	3.48×10^{1}	1.26×10^{2}	4.83×10^{1}	1.07×10^{1}	1.51×10^{-1}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold.**

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–120. Tank Closure Alternative 3A Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2094	2065–2067	2065–2067	2065–2067	2078–2079	2065–2067	2065–2067
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	b	a	a	a	b	a	a
Other infrastructure upgrades	2006	2034	b	a	a	a	b	a	a
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	b	a	a
Waste Treatment Plant	2006	2017	1.29	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	1.60×10^{-3}	1.87×10^{-5}	7.88×10^{-4}	b	2.10	5.97×10^{-1}
Waste receiver facilities	2013	2017	b	a	a	a	a	a	a
Tank risers	2013	2016	2.46	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	4.04×10^{-1}	b	b	b	b	b	b
Mobile retrieval system	2013	2026	3.21×10^{-1}	a	a	a	b	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2015	2016	b	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-West Area	2016	2017	3.23×10^{-2}	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	3.04×10^{-2}	a	a	a	a	a	a
Bulk Vitrification Facility, 200-East Area	2016	2017	1.82×10^{-2}	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	b	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	b	b
Other infrastructure upgrades	2006	2039	b	b	b	b	b	b	b
Routine operations	2006	2039	5.59	b	b	b	b	b	b
Retrieval operations	2006	2039	4.60×10^{-2}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2039	3.02×10^{-1}	b	b	b	b	b	b
Waste Treatment Plant	2018	2039	a	5.10×10^{-5}	1.84×10^{-8}	5.70×10^{-7}	7.02×10^{-3}	3.09×10^{-5}	1.04×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	a	b	a	a
Modified sluicing retrieval system	2013	2039	4.04×10^{-1}	b	b	b	b	b	b

Table G–120. Tank Closure Alternative 3A Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2094	2065–2067	2065–2067	2065–2067	2078–2079	2065–2067	2065–2067
Operations *(continued)*									
Mobile retrieval system	2013	2026	4.63×10^{-1}	a	a	a	b	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2141	a	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.99×10^{-3}	a	a	a	b	a	a
Transuranic Waste Interim Storage Facility	2009	2034	b	a	a	a	b	a	a
Bulk Vitrification Facility, 200-West Area	2018	2039	a	1.06×10^{-6}	1.23×10^{-10}	5.20×10^{-9}	6.72×10^{-3}	1.91×10^{-5}	5.44×10^{-5}
Solid-Liquid Separations Facility	2018	2039	a	1.18×10^{-4}	1.51×10^{-6}	5.53×10^{-5}	b	3.49×10^{-1}	9.96×10^{-2}
Bulk Vitrification Facility, 200-East Area	2018	2039	a	1.12×10^{-6}	1.75×10^{-10}	6.63×10^{-9}	3.13×10^{-3}	6.71×10^{-6}	1.93×10^{-5}
Effluent Treatment Facility	2006	2042	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2040	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	b	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2052	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
Modified sluicing retrieval system	2013	2039	b	b	b	b	b	b	b
Mobile retrieval system	2013	2026	b	a	a	a	b	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	b	b	b
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	b	a	a
Transuranic Waste Interim Storage Facility	2035	2035	a	b	b	b	b	b	b
Bulk Vitrification Facility, 200-West Area	2040	2041	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	a	a	a
Bulk Vitrification Facility, 200-East Area	2040	2041	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	b	a	a
Effluent Treatment Facility replacement 1	2043	2043	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	b	a	a
Evaporator replacement 1	2041	2041	a	a	a	a	a	a	a
Closure									
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	b	a	a
Grout facility (tank-filling) operations	2030	2039	a	b	b	b	b	b	b
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	3.61×10^{-5}	a	a	a	b	a	a

Table G–120. Tank Closure Alternative 3A Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	**Benzene**	**1,3-Butadiene**	**Formaldehyde**	**Mercury**	**Toluene**	**Xylene**
			24-hour	**Annual**	**Annual**	**Annual**	**24-hour**	**24-hour**	**24-hour**
			2094	**2065–2067**	**2065–2067**	**2065–2067**	**2078–2079**	**2065–2067**	**2065–2067**
Closure *(continued)*									
Ancillary equipment removal	2028	2033	a	a	a	a	b	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a	b	a	a
Containment structure construction	2024	2027	a	a	a	a	b	a	a
Containment structure deactivation	2034	2036	a	b	b	b	b	b	b
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	a	4.00×10^{-3}	1.16×10^{-4}	3.74×10^{-3}	b	3.09	9.37×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	b	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a
Total			1.19×10^{1}	6.02×10^{-3}	1.46×10^{-4}	4.87×10^{-3}	1.69×10^{-2}	5.78	1.71

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–121. Tank Closure Alternative 3B Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Construction											
Canister Storage Building	2006	2016	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	1.89×10^{4}	2.67×10^{3}	1.54	a	a	2.55×10^{1}	8.50	1.46	1.42×10^{-2}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	1.90×10^{3}	3.19×10^{2}	5.49×10^{-2}	2.66	3.04×10^{-2}	1.76×10^{-2}	6.44×10^{-3}	1.15×10^{-3}	1.32×10^{-5}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	1.25×10^{3}	2.01×10^{2}	2.91×10^{-1}	7.90	5.84×10^{-2}	1.81×10^{-1}	6.14×10^{-2}	1.25×10^{-2}	9.26×10^{-5}
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2016	2017	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	a	a	a	a	a	a	a	a	a
Cast Stone Facility, 200-East Area	2016	2017	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	b	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2039	b	b	b	b	b	b	b	b	b
Routine operations	2006	2039	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2039	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2039	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2039	1.13×10^{2}	3.47×10^{1}	1.19	4.15×10^{-1}	1.93×10^{-2}	1.21×10^{1}	7.45	1.25	5.81×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a	a	a

Table G–121. Tank Closure Alternative 3B Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Operations *(continued)*											
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	4.00×10^{1}	6.56×10^{-1}	a	a	a	a
Modified sluicing retrieval system	2013	2039	5.28×10^{2}	8.85×10^{1}	2.45×10^{-2}	1.65×10^{-1}	1.89×10^{-3}	8.41×10^{-3}	3.07×10^{-3}	5.50×10^{-4}	6.29×10^{-6}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	8.54	1.37	4.97×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2141	b	b	b	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2018	2039	7.58×10^{2}	2.07×10^{2}	1.56×10^{-1}	1.52	1.09×10^{-2}	1.02	4.33×10^{-1}	1.35×10^{-1}	9.75×10^{-4}
Solid-Liquid Separations Facility	2018	2039	3.04×10^{3}	4.35×10^{2}	1.29×10^{-1}	2.13	8.93×10^{-3}	4.09	1.36	2.44×10^{-1}	1.02×10^{-3}
Cast Stone Facility, 200-East Area	2018	2039	4.18×10^{2}	8.95×10^{1}	2.61×10^{-1}	9.88×10^{-1}	1.85×10^{-2}	5.68×10^{-1}	1.98×10^{-1}	4.95×10^{-2}	9.25×10^{-4}
Effluent Treatment Facility	2006	2042	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2040	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2052	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
Modified sluicing retrieval system	2013	2039	1.36×10^{3}	2.27×10^{2}	4.28×10^{-2}	3.30×10^{-1}	3.77×10^{-3}	1.68×10^{-2}	6.15×10^{-3}	1.10×10^{-3}	1.26×10^{-5}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	2.73×10^{1}	4.38	1.10×10^{-3}	1.35×10^{-2}	9.98×10^{-5}	6.54×10^{-4}	2.22×10^{-4}	4.53×10^{-5}	3.35×10^{-7}
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2035	2035	b	b	b	a	a	b	b	b	b
Cast Stone Facility, 200-West Area	2040	2041	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	a	a	a	a	a
Cast Stone Facility, 200-East Area	2040	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2043	2043	a	a	a	a	a	a	a	a	a

Table G–121. Tank Closure Alternative 3B Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Deactivation *(continued)*											
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2041	2041	a	a	a	a	a	a	a	a	a
Closure											
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	3.66×10^{2}	5.86×10^{1}	6.92×10^{-1}	5.08×10^{1}	3.76×10^{-1}	4.39×10^{-1}	1.49×10^{-1}	3.04×10^{-2}	2.25×10^{-4}
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a	a	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	1.47×10^{3}	2.35×10^{2}	7.82×10^{-2}	a	a	4.74×10^{-2}	1.61×10^{-2}	3.29×10^{-3}	2.43×10^{-5}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	2.66×10^{4}	4.26×10^{3}	1.25×10^{1}	3.91×10^{3}	2.89×10^{1}	3.68×10^{1}	1.25×10^{1}	2.55	1.89×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a	a	a
Total			**5.77×10^{4}**	9.16×10^{3}	1.81×10^{1}	**4.51×10^{3}**	3.48×10^{1}	8.21×10^{1}	3.15×10^{1}	5.96	9.52×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold.**

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–122. Tank Closure Alternative 3B Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2041–2042	2035–2038	2035–2038
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	b	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	b	a	a	a	a	a	a
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.29	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	1.60×10^{-3}	1.87×10^{-5}	7.88×10^{-4}	a	2.10	5.97×10^{-1}
Waste receiver facilities	2013	2017	b	a	a	a	a	a	a
Tank risers	2013	2016	2.46	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	4.04×10^{-1}	b	b	b	a	b	b
Mobile retrieval system	2013	2026	3.21×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	a	b	b
HLW Melter Interim Storage Facility	2015	2016	b	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2016	2017	2.20×10^{-2}	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	3.04×10^{-2}	a	a	a	a	a	a
Cast Stone Facility, 200-East Area	2016	2017	1.24×10^{-2}	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	b	b
Other infrastructure upgrades	2006	2039	b	b	b	b	a	b	b
Routine operations	2006	2039	5.59	b	b	b	a	b	b
Retrieval operations	2006	2039	4.60×10^{-2}	b	b	b	a	b	b
Double-shell tank interim stabilization	2006	2039	3.02×10^{-1}	b	b	b	a	b	b
Waste Treatment Plant	2018	2039	a	5.10×10^{-5}	1.84×10^{-8}	5.70×10^{-7}	a	3.09×10^{-5}	1.04×10^{-4}

Table G–122. Tank Closure Alternative 3B Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2041–2042	2035–2038	2035–2038
Operations *(continued)*									
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	4.04×10^{-1}	b	b	b	a	b	b
Mobile retrieval system	2013	2026	4.63×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	a	b	b
HLW Melter Interim Storage Facility	2018	2141	a	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.99×10^{-3}	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2009	2034	b	a	a	a	a	a	a
Cast Stone Facility, 200-West Area	2018	2039	a	1.18×10^{-4}	1.72×10^{-6}	6.69×10^{-5}	a	1.92×10^{-1}	5.49×10^{-2}
Solid-Liquid Separations Facility	2018	2039	a	1.18×10^{-4}	1.51×10^{-6}	5.53×10^{-5}	a	3.49×10^{-1}	9.96×10^{-2}
Cast Stone Facility, 200-East Area	2018	2039	a	1.33×10^{-4}	2.62×10^{-6}	9.27×10^{-5}	a	6.76×10^{-2}	1.96×10^{-2}
Effluent Treatment Facility	2006	2042	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2040	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	a	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2052	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
Modified sluicing retrieval system	2013	2039	b	b	b	b	a	b	b
Mobile retrieval system	2013	2026	b	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	a	b	b
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	a	a	a	a	7.87×10^{-3}	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	b	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2035	2035	a	b	b	b	a	b	b
Cast Stone Facility, 200-West Area	2040	2041	a	a	a	a	b	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	b	a	a
Cast Stone Facility, 200-East Area	2040	2041	a	a	a	a	b	a	a

Table G–122. Tank Closure Alternative 3B Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2041–2042	2035–2038	2035–2038
Deactivation *(continued)*									
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a
Effluent Treatment Facility replacement	2043	2043	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement	2041	2041	a	a	a	a	b	a	a
Closure									
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	a	b	b	b	a	b	b
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	3.61×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2028	2033	a	a	a	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	a	b	b	b	a	b	b
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	a	4.00×10^{-3}	1.16×10^{-4}	3.74×10^{-3}	b	3.09	9.37×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Postclosure care	2042	2141	a	a	a	a	b	a	a
Total			1.19×10^{1}	6.27×10^{-3}	1.50×10^{-4}	5.03×10^{-3}	7.87×10^{-3}	6.03	1.78

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–123. Tank Closure Alternative 3C Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Construction											
Canister Storage Building	2006	2016	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	1.89×10^{4}	2.67×10^{3}	1.54	a	a	2.55×10^{1}	8.50	1.46	1.42×10^{-2}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	1.90×10^{3}	3.19×10^{2}	5.49×10^{-2}	2.66	3.04×10^{-2}	1.76×10^{-2}	6.44×10^{-3}	1.15×10^{-3}	1.32×10^{-5}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	1.25×10^{3}	2.01×10^{2}	2.91×10^{-1}	7.90	5.84×10^{-2}	1.81×10^{-1}	6.14×10^{-2}	1.25×10^{-2}	9.26×10^{-5}
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2016	2017	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	a	a	a	a	a	a	a	a	a
Steam Reforming Facility, 200-East Area	2016	2017	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	b	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2039	b	b	b	b	b	b	b	b	b
Routine operations	2006	2039	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2039	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2039	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2039	1.13×10^{2}	3.47×10^{1}	1.19	4.15×10^{-1}	1.93×10^{-2}	1.21×10^{1}	7.45	1.25	5.81×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	4.00×10^{1}	6.56×10^{-1}	a	a	a	a

Table G–123. Tank Closure Alternative 3C Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Operations *(continued)*											
Modified sluicing retrieval system	2013	2039	5.28×10^{2}	8.85×10^{1}	2.45×10^{-2}	1.65×10^{-1}	1.89×10^{-3}	8.41×10^{-3}	3.07×10^{-3}	5.50×10^{-4}	6.29×10^{-6}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	8.54	1.37	4.97×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2141	b	b	b	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2009	2034	a	a	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2018	2039	5.63×10^{2}	1.54×10^{2}	1.77×10^{-1}	3.39×10^{-3}	2.44×10^{-5}	6.83×10^{-1}	2.90×10^{-1}	9.03×10^{-2}	6.51×10^{-4}
Solid-Liquid Separations Facility	2018	2039	3.04×10^{3}	4.35×10^{2}	1.29×10^{-1}	2.13	8.93×10^{-3}	4.09	1.36	2.44×10^{-1}	1.02×10^{-3}
Steam Reforming Facility, 200-East Area	2018	2039	4.73×10^{2}	1.01×10^{2}	2.44×10^{-1}	1.32×10^{-3}	2.48×10^{-5}	3.73×10^{-1}	1.30×10^{-1}	3.25×10^{-2}	6.07×10^{-4}
Effluent Treatment Facility	2006	2042	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2040	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2052	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
Modified sluicing retrieval system	2013	2039	1.36×10^{3}	2.27×10^{2}	4.28×10^{-2}	3.30×10^{-1}	3.77×10^{-3}	1.68×10^{-2}	6.15×10^{-3}	1.10×10^{-3}	1.26×10^{-5}
Mobile retrieval system	2013	2026	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2027	2039	2.73×10^{1}	4.38	1.10×10^{-3}	1.35×10^{-2}	9.98×10^{-5}	6.54×10^{-4}	2.22×10^{-4}	4.53×10^{-5}	3.35×10^{-7}
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2035	2035	b	b	b	a	a	b	b	b	b
Steam Reforming Facility, 200-West Area	2040	2041	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	a	a	a	a	a
Steam Reforming Facility, 200-East Area	2040	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2043	2043	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2041	2041	a	a	a	a	a	a	a	a	a

Table G–123. Tank Closure Alternative 3C Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2035–2036	2035–2036	2035–2036	2039	2039	2035–2036	2035–2036	2035–2036	2035–2036
Closure											
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2030	2039	3.66×10^{2}	5.86×10^{1}	6.92×10^{-1}	5.08×10^{1}	3.76×10^{-1}	4.39×10^{-1}	1.49×10^{-1}	3.04×10^{-2}	2.25×10^{-4}
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	a	a	a	a	a	a	a	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	a	a	a	a	a
BX and SX tank farm soil removal -closure	2028	2033	a	a	a	a	a	a	a	a	a
Containment structure construction	2024	2027	a	a	a	a	a	a	a	a	a
Containment structure deactivation	2034	2036	1.47×10^{3}	2.35×10^{2}	7.82×10^{-2}	a	a	4.74×10^{-2}	1.61×10^{-2}	3.29×10^{-3}	2.43×10^{-5}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	2.66×10^{4}	4.26×10^{3}	1.25×10^{1}	3.91×10^{3}	2.89×10^{1}	3.68×10^{1}	1.25×10^{1}	2.55	1.89×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a	a	a
Total			**5.76×10^{4}**	9.12×10^{3}	1.81×10^{1}	**4.51×10^{3}**	3.47×10^{1}	8.16×10^{1}	3.13×10^{1}	5.90	9.46×10^{-2}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–124. Tank Closure Alternative 3C Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2018–2039	2035–2038	2035–2038
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	b	a	a	a	b	a	a
Other infrastructure upgrades	2006	2034	b	a	a	a	b	a	a
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	b	a	a
Waste Treatment Plant	2006	2017	1.29	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	1.60×10^{-3}	1.87×10^{-5}	7.88×10^{-4}	b	2.10	5.97×10^{-1}
Waste receiver facilities	2013	2017	b	a	a	a	a	a	a
Tank risers	2013	2016	2.46	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2039	4.04×10^{-1}	b	b	b	b	b	b
Mobile retrieval system	2013	2026	3.21×10^{-1}	a	a	a	b	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2015	2016	b	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Steam Reforming Facility, 200-West Area	2016	2017	7.41×10^{-2}	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	3.04×10^{-2}	a	a	a	a	a	a
Steam Reforming Facility, 200-East Area	2016	2017	8.37×10^{-2}	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	b	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	a	a	a	a	a	a
Underground transfer lines	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	b	b
Other infrastructure upgrades	2006	2039	b	b	b	b	b	b	b
Routine operations	2006	2039	5.59	b	b	b	b	b	b
Retrieval operations	2006	2039	4.60×10^{-2}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2039	3.02×10^{-1}	b	b	b	b	b	b
Waste Treatment Plant	2018	2039	a	5.10×10^{-5}	1.84×10^{-8}	5.70×10^{-7}	7.02×10^{-3}	3.09×10^{-5}	1.04×10^{-4}

Table G–124. Tank Closure Alternative 3C Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2018–2039	2035–2038	2035–2038
Operations *(continued)*									
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	a	b	a	a
Modified sluicing retrieval system	2013	2039	4.04×10^{-1}	b	b	b	b	b	b
Mobile retrieval system	2013	2026	4.63×10^{-1}	a	a	a	b	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2141	a	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.99×10^{-3}	a	a	a	b	a	a
Transuranic Waste Interim Storage Facility	2009	2034	b	a	a	a	b	a	a
Steam Reforming Facility, 200-West Area	2018	2039	a	1.93×10^{-6}	6.14×10^{-10}	1.94×10^{-8}	4.04×10^{-3}	1.23×10^{-5}	3.81×10^{-5}
Solid-Liquid Separations Facility	2018	2039	a	1.18×10^{-4}	1.51×10^{-6}	5.53×10^{-5}	b	3.49×10^{-1}	9.96×10^{-2}
Steam Reforming Facility, 200-East Area	2018	2039	a	1.87×10^{-6}	6.09×10^{-10}	1.92×10^{-8}	1.88×10^{-3}	4.31×10^{-6}	1.35×10^{-5}
Effluent Treatment Facility	2006	2042	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2040	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	b	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2052	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
Modified sluicing retrieval system	2013	2039	b	b	b	b	b	b	b
Mobile retrieval system	2013	2026	b	a	a	a	b	a	a
Vacuum-based retrieval system	2027	2039	a	b	b	b	b	b	b
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2041	2042	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	b	a	a
Transuranic Waste Interim Storage Facility	2035	2035	a	b	b	b	b	b	b
Steam Reforming Facility, 200-West Area	2040	2041	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	a	a	a
Steam Reforming Facility, 200-East Area	2040	2041	a	a	a	a	a	a	a

Table G–124. Tank Closure Alternative 3C Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2018–2039	2035–2038	2035–2038
Deactivation *(continued)*									
Effluent Treatment Facility original	2026	2026	a	a	a	a	b	a	a
Effluent Treatment Facility replacement 1	2043	2043	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	b	a	a
Evaporator replacement 1	2041	2041	a	a	a	a	a	a	a
Closure									
Grout facility (tank-filling) construction	2028	2029	a	a	a	a	b	a	a
Grout facility (tank-filling) operations	2030	2039	a	b	b	b	b	b	b
Grout facility (tank-filling) deactivation	2040	2040	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	3.61×10^{-5}	a	a	a	b	a	a
Ancillary equipment removal	2028	2033	a	a	a	a	b	a	a
BX and SX tank farm soil removal-closure	2028	2033	a	a	a	a	b	a	a
Containment structure construction	2024	2027	a	a	a	a	b	a	a
Containment structure deactivation	2034	2036	a	b	b	b	b	b	b
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2035	2041	a	4.00×10^{-3}	1.16×10^{-4}	3.74×10^{-3}	b	3.09	9.37×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	b	a	a
Postclosure care	2042	2141	a	a	a	a	a	a	a
Total			1.20×10^{1}	6.02×10^{-3}	1.46×10^{-4}	4.87×10^{-3}	1.29×10^{-2}	5.78	1.71

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–125. Tank Closure Alternative 4 Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2038–2039	2042	2042	2038–2039	2038–2039	2038–2039	2038–2039
Construction											
Canister Storage Building	2006	2016	4.37×10^{1}	6.76	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	3.15×10^{2}	4.88×10^{1}	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	1.80×10^{1}	2.88	a	a	a	a	a	a	a
Tank upgrades	2006	2025	5.67×10^{3}	9.09×10^{2}	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.72×10^{4}	2.42×10^{3}	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2038	2041	a	a	6.13×10^{-1}	a	a	8.92	3.19	6.02×10^{-1}	5.67×10^{-3}
Waste receiver facilities	2013	2017	1.87×10^{3}	2.99×10^{2}	a	a	a	a	a	a	a
Tank risers	2013	2016	3.26×10^{2}	5.23×10^{1}	a	a	a	a	a	a	a
Mobile retrieval system	2013	2042	1.46×10^{3}	2.34×10^{2}	3.25×10^{-1}	8.44	6.24×10^{-2}	2.03×10^{-1}	6.89×10^{-2}	1.41×10^{-2}	1.04×10^{-4}
Vacuum-based retrieval system	2013	2042	5.43×10^{2}	8.71×10^{1}	1.26×10^{-1}	3.42	2.53×10^{-2}	7.82×10^{-2}	2.66×10^{-2}	5.42×10^{-3}	4.01×10^{-5}
Chemical wash system	2013	2042	3.68	5.90×10^{-1}	1.01×10^{-2}	1.70×10^{-1}	1.26×10^{-3}	6.14×10^{-3}	2.09×10^{-3}	4.26×10^{-4}	3.15×10^{-6}
HLW Melter Interim Storage Facility	2015	2016	1.39×10^{1}	1.96	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	1.08×10^{3}	1.97×10^{2}	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	1.15×10^{3}	1.65×10^{2}	a	a	a	a	a	a	a
Cast Stone Facility	2016	2017	4.82×10^{2}	7.46×10^{1}	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	3.56×10^{3}	5.50×10^{2}	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	a	a	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2042	b	b	b	b	b	b	b	b	b
Routine operations	2006	2042	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2042	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2042	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2042	a	a	1.16	3.48×10^{-1}	1.62×10^{-2}	1.06×10^{1}	6.48	1.08	5.05×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2043	2043	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2042	2043	a	a	a	4.00×10^{1}	6.56×10^{-1}	a	a	a	a
Mobile retrieval system	2013	2042	6.70	1.07	3.89×10^{-3}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2042	3.70	5.94×10^{-1}	2.15×10^{-3}	b	b	b	b	b	b

Table G–125. Tank Closure Alternative 4 Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2038–2039	2042	2042	2038–2039	2038–2039	2038–2039	2038–2039
Operations *(continued)*											
Chemical wash system	2013	2042	2.45	3.94×10^{-1}	4.40×10^{-3}	1.79	1.32×10^{-2}	2.44×10^{-3}	8.29×10^{-4}	1.69×10^{-4}	1.25×10^{-6}
HLW Melter Interim Storage Facility	2018	2144	a	a	b	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	2.16×10^{2}	3.35×10^{1}	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2009	2034	b	b	a	a	a	a	a	a	a
Bulk Vitrification Facility	2018	2039	a	a	8.16×10^{-2}	a	a	2.29×10^{1}	9.69	3.02	2.18×10^{-2}
Solid-Liquid Separations Facility	2018	2039	a	a	1.29×10^{-1}	a	a	4.09	1.36	2.44×10^{-1}	1.02×10^{-3}
Cast Stone Facility	2018	2039	a	a	2.61×10^{-1}	a	a	5.68×10^{-1}	1.98×10^{-1}	4.95×10^{-2}	9.25×10^{-4}
Effluent Treatment Facility	2006	2045	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2042	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2052	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
Mobile retrieval system	2013	2042	7.28×10^{2}	1.17×10^{2}	2.92×10^{-2}	3.29×10^{-1}	2.43×10^{-3}	1.74×10^{-2}	5.92×10^{-3}	1.21×10^{-3}	8.93×10^{-6}
Vacuum-based retrieval system	2013	2042	1.18×10^{1}	1.90	4.76×10^{-4}	5.85×10^{-3}	4.32×10^{-5}	2.83×10^{-4}	9.63×10^{-5}	1.96×10^{-5}	1.45×10^{-7}
Chemical wash system	2013	2042	3.40×10^{1}	5.45	3.07×10^{-3}	3.51×10^{-2}	2.59×10^{-4}	1.91×10^{-3}	6.49×10^{-4}	1.32×10^{-4}	9.79×10^{-7}
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2044	2044	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility	2040	2041	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	a	a	a	a	a
Cast Stone Facility	2040	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement	2046	2046	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement	2043	2043	a	a	a	a	a	a	a	a	a
Closure											
Grout facility (tank-filling) construction	2031	2032	a	a	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2033	2042	a	a	5.48×10^{-1}	5.21	3.85×10^{-2}	4.35×10^{-1}	1.48×10^{-1}	3.02×10^{-2}	2.23×10^{-4}
Grout facility (tank-filling) deactivation	2043	2043	a	a	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	4.83	7.74×10^{-1}	a	a	a	a	a	a	a
Containment structure construction	2018	2021	a	a	a	a	a	a	a	a	a

Table G–125. Tank Closure Alternative 4 Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2038–2039	2042	2042	2038–2039	2038–2039	2038–2039	2038–2039
Closure *(continued)*											
Containment structure deactivation	2042	2044	a	a	a	3.48	2.58×10^{-2}	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2038	2044	a	a	6.98	2.40×10^{3}	1.78×10^{1}	2.06×10^{1}	7.00	1.43	1.06×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
Postclosure care	2045	2144	a	a	a	a	a	a	a	a	a
BX tank farm removal	2022	2033	a	a	a	a	a	a	a	a	a
BX tank farm deep soil removal	2034	2041	a	a	3.57×10^{-1}	a	a	1.91×10^{-1}	6.85×10^{-2}	1.29×10^{-2}	1.22×10^{-4}
SX tank farm removal	2022	2033	a	a	a	a	a	a	a	a	a
SX tank farm deep soil removal	2034	2041	a	a	1.31	a	a	8.92×10^{-1}	3.43×10^{-1}	6.98×10^{-2}	4.46×10^{-4}
Preprocessing Facility construction	2019	2021	a	a	a	a	a	a	a	a	a
Preprocessing Facility operations	2022	2042	a	a	2.49×10^{-2}	9.72×10^{-5}	1.82×10^{-6}	1.12	3.91×10^{-1}	9.74×10^{-2}	1.82×10^{-3}
Preprocessing Facility deactivation	2043	2043	a	a	a	a	a	a	a	a	a
Total			3.57×10^{4}	5.55×10^{3}	1.31×10^{1}	$\mathbf{2.96\times10^{3}}$	2.33×10^{1}	7.18×10^{1}	2.98×10^{1}	6.89	9.39×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–126. Tank Closure Alternative 4 Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2016–2017	2038–2039	2038–2039	2018–2039	2016–2017	2016–2017
Construction									
Canister Storage Building	2006	2016	b	b	a	a	a	b	b
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	b	b	a	a	b	b	b
Other infrastructure upgrades	2006	2034	b	b	a	a	b	b	b
Tank upgrades	2006	2025	8.81×10^{-2}	b	a	a	b	b	b
Waste Treatment Plant	2006	2017	1.29	2.64×10^{-3}	a	a	a	1.69	5.06×10^{-1}
Cesium and Strontium Capsule Processing Facility	2038	2041	a	a	7.45×10^{-6}	3.14×10^{-4}	b	a	a
Waste receiver facilities	2013	2017	b	b	a	a	a	b	b
Tank risers	2013	2016	2.68	b	a	a	a	b	b
Mobile retrieval system	2013	2042	4.03×10^{-1}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2042	2.23×10^{-1}	b	b	b	b	b	b
Chemical wash system	2013	2042	6.25×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2015	2016	b	b	a	a	a	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	3.23×10^{-2}	8.90×10^{-5}	a	a	a	1.61×10^{-1}	4.62×10^{-2}
Solid-Liquid Separations Facility	2016	2017	3.04×10^{-2}	4.95×10^{-5}	a	a	a	1.30×10^{-1}	3.75×10^{-2}
Cast Stone Facility	2016	2017	1.24×10^{-2}	5.05×10^{-5}	a	a	a	6.22×10^{-2}	1.78×10^{-2}
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	b	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	3.41×10^{-4}	a	a	a	4.65×10^{-1}	1.32×10^{-1}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	b	b	b	a	a
Other infrastructure upgrades	2006	2042	b	b	b	b	b	b	b
Routine operations	2006	2042	5.59	b	b	b	b	b	b

Table G–126. Tank Closure Alternative 4 Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2016–2017	2038–2039	2038–2039	2018–2039	2016–2017	2016–2017
Operations *(continued)*									
Retrieval operations	2006	2042	4.60×10^{-2}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2042	3.02×10^{-1}	b	b	b	b	b	b
Waste Treatment Plant	2018	2042	a	a	1.85×10^{-8}	5.71×10^{-7}	6.25×10^{-3}	a	a
Waste Treatment Plant, cesium and strontium capsules	2043	2043	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2042	2043	a	a	a	a	a	a	a
Mobile retrieval system	2013	2042	4.03×10^{-1}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2042	2.23×10^{-1}	b	b	b	b	b	b
Chemical wash system	2013	2042	6.25×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2144	a	a	b	b	b	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	1.99×10^{-3}	1.87×10^{-5}	a	a	b	2.87×10^{-2}	8.12×10^{-3}
Transuranic Waste Interim Storage Facility	2009	2034	b	b	a	a	b	b	b
Bulk Vitrification Facility	2018	2039	a	a	1.23×10^{-10}	5.20×10^{-9}	6.78×10^{-3}	a	a
Solid-Liquid Separations Facility	2018	2039	a	a	1.51×10^{-6}	5.53×10^{-5}	b	a	a
Cast Stone Facility	2018	2039	a	a	2.62×10^{-6}	9.27×10^{-5}	b	a	a
Effluent Treatment Facility	2006	2045	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2042	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	b	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2052	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
Mobile retrieval system	2013	2042	b	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2042	b	b	b	b	b	b	b
Chemical wash system	2013	2042	b	b	b	b	b	b	b
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2044	2044	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a

Table G–126. Tank Closure Alternative 4 Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2016–2017	2038–2039	2038–2039	2018–2039	2016–2017	2016–2017
Deactivation *(continued)*									
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	b	a	a
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	b	a	a
Bulk Vitrification Facility	2040	2041	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2040	2041	a	a	a	a	a	a	a
Cast Stone Facility	2040	2041	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	b	a	a
Effluent Treatment Facility replacement 1	2046	2046	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	b	a	a
Evaporator replacement 1	2043	2043	a	a	a	a	a	a	a
Closure									
Grout facility (tank-filling) construction	2031	2032	a	a	a	a	b	a	a
Grout facility (tank-filling) operations	2033	2042	a	a	4.85×10^{-6}	1.46×10^{-4}	b	a	a
Grout facility (tank-filling) deactivation	2043	2043	a	a	a	a	a	a	a
Ancillary equipment grouting	2012	2032	2.44×10^{-3}	2.43×10^{-6}	a	a	b	1.44×10^{-4}	1.00×10^{-4}
Containment structure construction	2018	2021	a	a	a	a	b	a	a
Containment structure deactivation	2042	2044	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2038	2044	a	a	6.05×10^{-5}	1.82×10^{-3}	b	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	b	a	a
Postclosure care	2045	2144	a	a	a	a	a	a	a
BX tank farm removal	2022	2033	a	a	a	a	b	a	a
BX tank farm deep soil removal	2034	2041	a	a	3.17×10^{-6}	9.56×10^{-5}	b	a	a
SX tank farm removal	2022	2033	a	a	a	a	b	a	a
SX tank farm deep soil removal	2034	2041	a	a	1.16×10^{-5}	3.51×10^{-4}	b	a	a
Preprocessing Facility construction	2019	2021	a	a	a	a	b	a	a

Table G–126. Tank Closure Alternative 4 Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2016–2017	2038–2039	2038–2039	2018–2039	2016–2017	2016–2017
Closure *(continued)*									
Preprocessing Facility operations	2022	2042	a	a	1.31×10^{-10}	7.47×10^{-9}	b	a	a
Preprocessing Facility deactivation	2043	2043	a	a	a	a	a	a	a
Total			1.18×10^{1}	3.44×10^{-3}	1.01×10^{-4}	3.17×10^{-3}	1.30×10^{-2}	2.77	8.25×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–127. Tank Closure Alternative 5 Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2029–2032	2029–2032	2037	2037	2029–2032	2029–2032	2029–2032	2029–2032
Construction											
Canister Storage Building	2006	2016	4.37×10^{1}	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	3.15×10^{2}	a	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	1.80×10^{1}	2.88	6.70×10^{-3}	a	a	4.12×10^{-3}	1.40×10^{-3}	2.86×10^{-4}	2.11×10^{-6}
Tank upgrades	2006	2025	5.67×10^{3}	a	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.72×10^{4}	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2029	2032	a	1.03×10^{3}	6.13×10^{-1}	a	a	8.92	3.19	6.02×10^{-1}	5.67×10^{-3}
Waste receiver facilities	2013	2017	1.87×10^{3}	a	a	a	a	a	a	a	a
Tank risers	2013	2016	2.99×10^{2}	a	a	a	a	a	a	a	a
Double-shell tank replacement	2014	2019	9.21×10^{2}	a	a	a	a	a	a	a	a
Sulfate Removal Facility	2016	2017	8.85×10^{3}	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2033	1.16×10^{3}	1.86×10^{2}	2.29×10^{-2}	a	a	1.07×10^{-2}	3.64×10^{-3}	7.43×10^{-4}	5.50×10^{-6}
Mobile retrieval system	2013	2023	1.48×10^{3}	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	2.61×10^{2}	3.78×10^{-1}	a	a	2.35×10^{-1}	7.98×10^{-2}	1.63×10^{-2}	1.20×10^{-4}
HLW Melter Interim Storage Facility	2015	2016	1.39×10^{1}	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	1.08×10^{3}	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	1.15×10^{3}	a	a	a	a	a	a	a	a
Cast Stone Facility	2016	2017	4.82×10^{2}	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	3.56×10^{3}	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2033	b	b	b	a	a	b	b	b	b
Routine operations	2006	2033	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	a	a	b	b	b	b

Table G–127. Tank Closure Alternative 5 Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2029–2032	2029–2032	2037	2037	2029–2032	2029–2032	2029–2032	2029–2032
Operations *(continued)*											
Retrieval operations	2006	2033	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	a	a	b	b	b	b
Double-shell tank interim stabilization	2006	2033	5.02	8.05×10^{-1}	2.92×10^{-3}	a	a	b	b	b	b
Waste Treatment Plant	2018	2033	a	8.58×10^{1}	4.08	a	a	1.95×10^{1}	1.19×10^{1}	2.00	9.31×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2034	2034	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2033	2034	a	a	a	a	a	a	a	a	a
Double-shell tank replacement	2020	2033	a	8.79×10^{-2}	4.45×10^{-4}	a	a	b	b	b	b
Sulfate Removal Facility	2018	2033	a	2.18×10^{2}	2.55×10^{-1}	a	a	1.79	6.13×10^{-1}	1.64×10^{-1}	2.69×10^{-3}
Modified sluicing retrieval system	2013	2033	3.22×10^{2}	5.15×10^{1}	1.02×10^{-2}	a	a	5.12×10^{-3}	1.74×10^{-3}	3.55×10^{-4}	2.63×10^{-6}
Mobile retrieval system	2013	2023	6.81	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	1.78	6.45×10^{-3}	a	a	b	b	b	b
HLW Melter Interim Storage Facility	2018	2139	a	b	b	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	2.16×10^{2}	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2009	2034	b	b	b	a	a	b	b	b	b
Bulk Vitrification Facility	2018	2033	a	1.49×10^{1}	1.02×10^{-1}	a	a	2.85×10^{1}	1.21×10^{1}	3.77	2.72×10^{-2}
Solid-Liquid Separations Facility	2018	2033	a	5.98×10^{2}	1.78×10^{-1}	a	a	5.63	1.88	3.35×10^{-1}	1.40×10^{-3}
Cast Stone Facility	2018	2033	a	1.23×10^{2}	3.59×10^{-1}	a	a	7.82×10^{-1}	2.73×10^{-1}	6.80×10^{-2}	1.27×10^{-3}
Effluent Treatment Facility	2006	2036	7.85	2.41	1.02×10^{-2}	a	a	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2034	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	a	a	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2052	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
Sulfate Removal Facility	2034	2035	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2033	8.25×10^{2}	1.32×10^{2}	1.79×10^{-2}	a	a	1.02×10^{-2}	3.48×10^{-3}	7.10×10^{-4}	5.25×10^{-6}
Mobile retrieval system	2013	2023	7.40×10^{2}	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2024	2033	a	5.69	1.43×10^{-3}	a	a	8.50×10^{-4}	2.89×10^{-4}	5.89×10^{-5}	4.36×10^{-7}
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2035	2036	a	a	a	a	a	a	a	a	a

Table G–127. Tank Closure Alternative 5 Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2029–2032	2029–2032	2037	2037	2029–2032	2029–2032	2029–2032	2029–2032
Deactivation *(continued)*											
Cesium and Strontium Capsule Processing Facility	2035	2035	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a	a	a
Bulk Vitrification Facility	2034	2035	a	a	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2034	2035	a	a	a	a	a	a	a	a	a
Cast Stone Facility	2034	2035	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2037	2037	a	a	a	6.06×10^{2}	5.92	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2035	2035	a	a	a	a	a	a	a	a	a
Closure											
Grout facility (tank-filling) construction	2022	2023	a	a	a	a	a	a	a	a	a
Grout facility (tank-filling) operations	2024	2033	a	5.86×10^{1}	6.92×10^{-1}	a	a	4.39×10^{-1}	1.49×10^{-1}	3.04×10^{-2}	2.25×10^{-4}
Grout facility (tank-filling) deactivation	2034	2034	a	a	a	a	a	a	a	a	a
Ancillary equipment grouting	2013	2033	5.68	9.11×10^{-1}	1.27×10^{-2}	a	a	7.91×10^{-3}	2.69×10^{-3}	5.49×10^{-4}	4.06×10^{-6}
Hanford barrier construction	2029	2039	a	4.52×10^{3}	1.32×10^{1}	3.92×10^{3}	2.90×10^{1}	3.90×10^{1}	1.33×10^{1}	2.71	2.00×10^{-2}
Decontamination and decommissioning of 10 selected facilities	2012	2022	4.10×10^{1}	a	a	a	a	a	a	a	a
Postclosure care	2040	2139	a	a	a	a	a	a	a	a	a
Total			**4.73×10^{4}**	7.62×10^{3}	2.11×10^{1}	**4.92×10^{3}**	3.58×10^{1}	1.06×10^{2}	4.43×10^{1}	9.92	1.52×10^{-1}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–128. Tank Closure Alternative 5 Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2029–2032	2029–2032	2029–2032	2029–2032	2018–2033	2029–2032	2029–2032
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2019	a	a	a	a	b	a	a
Other infrastructure upgrades	2006	2034	b	b	b	b	b	b	b
Tank upgrades	2006	2025	a	a	a	a	b	a	a
Waste Treatment Plant	2006	2017	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2029	2032	1.18×10^{-1}	6.35×10^{-4}	7.45×10^{-6}	3.14×10^{-4}	b	8.67×10^{-1}	2.47×10^{-1}
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Double-shell tank replacement	2014	2019	a	a	a	a	b	a	a
Sulfate Removal Facility	2016	2017	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2033	2.61×10^{-1}	b	b	b	b	b	b
Mobile retrieval system	2013	2023	a	a	a	a	b	a	a
Vacuum-based retrieval system	2024	2033	6.68×10^{-1}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2015	2016	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2008	2008	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2013	2014	a	a	a	a	a	a	a
Transuranic Waste Interim Storage Facility	2008	2009	a	a	a	a	a	a	a
Bulk Vitrification Facility	2016	2017	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2016	2017	a	a	a	a	a	a	a
Cast Stone Facility	2016	2017	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	b	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a
Underground transfer lines	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2033	b	b	b	b	b	b	b
Routine operations	2006	2033	5.59	b	b	b	b	b	b
Retrieval operations	2006	2033	4.60×10^{-2}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2033	3.02×10^{-1}	b	b	b	b	b	b
Waste Treatment Plant	2018	2033	6.54×10^{-1}	1.76×10^{-4}	6.90×10^{-8}	2.10×10^{-6}	9.78×10^{-3}	5.76×10^{-5}	2.26×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2034	2034	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2033	2034	a	a	a	a	b	a	a
Double-shell tank replacement	2020	2033	2.97×10^{-2}	b	b	b	b	b	b

Table G–128. Tank Closure Alternative 5 Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2029–2032	2029–2032	2029–2032	2029–2032	2018–2033	2029–2032	2029–2032
Operations *(continued)*									
Sulfate Removal Facility	2018	2033	2.88×10^{-2}	2.95×10^{-4}	3.22×10^{-6}	1.40×10^{-4}	b	2.37×10^{-1}	6.74×10^{-2}
Modified sluicing retrieval system	2013	2033	2.61×10^{-1}	b	b	b	b	b	b
Mobile retrieval system	2013	2023	a	a	a	a	b	a	a
Vacuum-based retrieval system	2024	2033	6.68×10^{-1}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2139	b	b	b	b	b	b	b
Contact-Handled Mixed Transuranic Waste Facilities	2009	2010	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2015	2019	a	a	a	a	b	a	a
Transuranic Waste Interim Storage Facility	2009	2034	b	b	b	b	b	b	b
Bulk Vitrification Facility	2018	2033	8.69×10^{-3}	1.46×10^{-6}	1.68×10^{-10}	7.15×10^{-9}	8.39×10^{-3}	2.63×10^{-5}	7.48×10^{-5}
Solid-Liquid Separations Facility	2018	2033	7.55×10^{-2}	1.62×10^{-4}	2.07×10^{-6}	8.45×10^{-5}	b	4.80×10^{-1}	1.37×10^{-1}
Cast Stone Facility	2018	2033	3.18×10^{-2}	1.82×10^{-4}	3.60×10^{-6}	1.27×10^{-4}	b	9.30×10^{-2}	2.70×10^{-2}
Effluent Treatment Facility	2006	2036	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2034	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	b	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2052	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
Sulfate Removal Facility	2034	2035	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2033	b	b	b	b	b	b	b
Mobile retrieval system	2013	2023	a	a	a	a	b	a	a
Vacuum-based retrieval system	2024	2033	b	b	b	b	b	b	b
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2035	2036	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2035	a	a	a	a	a	a	a
Contact-Handled Mixed Transuranic Waste Facilities	2011	2012	a	a	a	a	a	a	a
Remote-Handled Mixed Transuranic Waste Facility	2020	2021	a	a	a	a	b	a	a
Transuranic Waste Interim Storage Facility	2035	2035	a	a	a	a	a	a	a
Bulk Vitrification Facility	2034	2035	a	a	a	a	a	a	a
Solid-Liquid Separations Facility	2034	2035	a	a	a	a	a	a	a
Cast Stone Facility	2034	2035	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	b	a	a
Effluent Treatment Facility replacement 1	2037	2037	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	b	a	a
Evaporator replacement 1	2035	2035	a	a	a	a	a	a	a

Table G–128. Tank Closure Alternative 5 Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2029–2032	2029–2032	2029–2032	2029–2032	2018–2033	2029–2032	2029–2032
Closure									
Grout facility (tank-filling) construction	2022	2023	a	a	a	a	b	a	a
Grout facility (tank-filling) operations	2024	2033	1.32×10^{-2}	b	b	b	b	b	b
Grout facility (tank-filling) deactivation	2034	2034	a	a	a	a	a	a	a
Ancillary equipment grouting	2013	2033	3.07×10^{-5}	b	b	b	b	b	b
Hanford barrier construction	2029	2039	2.87	4.24×10^{-3}	1.23×10^{-4}	3.97×10^{-3}	b	3.28	9.94×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2012	2022	a	a	a	a	b	a	a
Postclosure care	2040	2139	a	a	a	a	a	a	a
Total			1.20×10^{1}	5.94×10^{-3}	1.49×10^{-4}	4.92×10^{-3}	1.82×10^{-2}	5.19	1.55

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–129. Tank Closure Alternative 6A, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150
Construction											
Canister Storage Building	2006	2016	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	4.20×10^{2}	6.50×10^{1}	3.18×10^{-1}	1.12×10^{2}	1.05	1.53×10^{-1}	5.47×10^{-2}	1.03×10^{-2}	9.71×10^{-5}
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2158	2161	a	a	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	a	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	a	a	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	4.44×10^{2}	7.11×10^{1}	9.88×10^{-2}	2.57	1.90×10^{-2}	6.17×10^{-2}	2.10×10^{-2}	4.28×10^{-3}	3.16×10^{-5}
Vacuum-based retrieval system	2013	2162	9.40×10^{1}	1.51×10^{1}	2.18×10^{-2}	5.92×10^{-1}	4.38×10^{-3}	1.35×10^{-2}	4.60×10^{-3}	9.39×10^{-4}	6.94×10^{-6}
Chemical wash system	2013	2162	9.48×10^{-1}	1.52×10^{-1}	2.59×10^{-3}	4.38×10^{-2}	3.24×10^{-4}	1.58×10^{-3}	5.37×10^{-4}	1.10×10^{-4}	8.11×10^{-7}
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement 2	2127	2138	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Module, additional	2078	2197	1.14×10^{3}	1.77×10^{2}	8.65×10^{-1}	3.04×10^{2}	2.87	4.15×10^{-1}	1.49×10^{-1}	2.80×10^{-2}	2.64×10^{-4}
HLW Debris Storage Facility	2041	2110	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a	a	a

Table G–129. Tank Closure Alternative 6A, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150
Construction *(continued)*											
Effluent Treatment Facility replacement 4	2113	2115	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 5	2143	2145	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a	a	a
Evaporator replacement 2	2040	2042	a	a	a	a	a	a	a	a	a
Evaporator replacement 3	2065	2067	a	a	a	a	a	a	a	a	a
Evaporator replacement 4	2090	2092	a	a	a	a	a	a	a	a	a
Evaporator replacement 5	2115	2117	a	a	a	a	a	a	a	a	a
Evaporator replacement 6	2140	2142	a	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2262	b	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2162	b	b	b	b	b	b	b	b	b
Routine operations	2006	2162	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2162	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2162	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2162	3.03×10^{2}	9.32×10^{1}	2.85	2.39×10^{-1}	1.11×10^{-2}	1.19×10^{1}	7.32	1.22	5.70×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2162	2163	a	a	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	2.04	3.27×10^{-1}	1.18×10^{-3}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	6.41×10^{-1}	1.03×10^{-1}	3.72×10^{-4}	b	b	b	b	b	b
Chemical wash system	2013	2162	6.32×10^{-1}	1.01×10^{-1}	1.13×10^{-3}	4.60×10^{-1}	3.40×10^{-3}	6.28×10^{-4}	2.14×10^{-4}	4.36×10^{-5}	3.22×10^{-7}
HLW Melter Interim Storage Facility	2018	2262	b	b	b	b	b	b	b	b	b
HLW Debris Storage Facility	2042	2262	b	b	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2166	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2018	2163	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2167	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
Mobile retrieval system	2013	2162	2.22×10^{2}	3.55×10^{1}	8.90×10^{-3}	1.00×10^{-1}	7.40×10^{-4}	5.30×10^{-3}	1.80×10^{-3}	3.68×10^{-4}	2.72×10^{-6}
Vacuum-based retrieval system	2013	2162	2.05	3.28×10^{-1}	8.23×10^{-5}	1.01×10^{-3}	7.48×10^{-6}	4.90×10^{-5}	1.67×10^{-5}	3.40×10^{-6}	2.51×10^{-8}
Chemical wash system	2013	2162	8.75	1.40	7.91×10^{-4}	9.03×10^{-3}	6.68×10^{-5}	4.92×10^{-4}	1.67×10^{-4}	3.41×10^{-5}	2.52×10^{-7}
IHLW Interim Storage Facility	2078	2197	b	b	b	b	b	b	b	b	b

Table G–129. Tank Closure Alternative 6A, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150
Deactivation *(continued)*											
Waste Treatment Plant original	2078	2080	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2138	2140	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement 2	2164	2166	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2164	2164	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2116	2116	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 4	2146	2146	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 5	2167	2167	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2043	2043	a	a	a	a	a	a	a	a	a
Evaporator replacement 2	2068	2068	a	a	a	a	a	a	a	a	a
Evaporator replacement 3	2093	2093	a	a	a	a	a	a	a	a	a
Evaporator replacement 4	2118	2118	a	a	a	a	a	a	a	a	a
Evaporator replacement 5	2143	2143	a	a	a	a	a	a	a	a	a
Evaporator replacement 6	2168	2168	a	a	a	a	a	a	a	a	a
Closure											
Containment structure construction 1	2038	2041	a	a	a	a	a	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a	a	a	a	a	a
Containment structure construction 4	2107	2110	a	a	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a

Table G–129. Tank Closure Alternative 6A, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150	2149–2150
Closure *(continued)*											
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2149	2150	2.79×10^{4}	4.47×10^{3}	1.31×10^{1}	4.11×10^{3}	3.04×10^{1}	3.87×10^{1}	1.31×10^{1}	2.68	1.98×10^{-2}
Postclosure care	2151	2250	a	a	a	a	a	a	a	a	a
B tank farm removal	2065	2076	a	a	a	a	a	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a	a	a	a	a	a
BY tank farm removal	2111	2122	a	a	a	a	a	a	a	a	a
BX tank farm removal	2042	2053	a	a	a	a	a	a	a	a	a
C tank farm removal	2088	2099	a	a	a	a	a	a	a	a	a
A tank farm removal	2142	2153	1.12×10^{2}	1.79×10^{1}	2.58×10^{-1}	4.53	3.35×10^{-2}	1.76×10^{-1}	5.98×10^{-2}	1.22×10^{-2}	9.01×10^{-5}
AX tank farm removal	2142	2153	2.98×10^{2}	4.78×10^{1}	6.89×10^{-1}	1.21×10^{1}	8.93×10^{-2}	4.69×10^{-1}	1.59×10^{-1}	3.25×10^{-2}	2.40×10^{-4}
S tank farm removal	2126	2137	a	a	a	a	a	a	a	a	a
TY tank farm removal	2111	2122	a	a	a	a	a	a	a	a	a
TX tank farm removal	2088	2099	a	a	a	a	a	a	a	a	a
U tank farm removal	2065	2076	a	a	a	a	a	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a	a	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a	a	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a	a	a
A tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a	a	a
AX tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a	a	a
TX tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a	a	a
SX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a	a	a
Preprocessing Facility construction	2039	2041	a	a	a	a	a	a	a	a	a
Preprocessing Facility operations	2042	2162	9.76×10^{-1}	2.09×10^{-1}	5.87×10^{-4}	2.79×10^{-3}	5.22×10^{-5}	9.95×10^{-2}	3.47×10^{-2}	8.66×10^{-3}	1.62×10^{-4}
Preprocessing Facility deactivation	2163	2163	a	a	a	a	a	a	a	a	a
Total			3.19×10^{4}	5.33×10^{3}	1.93×10^{1}	**5.04×10^{3}**	3.91×10^{1}	5.33×10^{1}	2.17×10^{1}	4.23	7.85×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–130. Tank Closure Alternative 6A, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2149–2150	2149–2150	2149–2150	2149–2150	2078–2140	2149–2150	2149–2150
Construction									
Canister Storage Building	2006	2016	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2158	2161	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	1.23×10^{-1}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	3.85×10^{-2}	b	b	b	b	b	b
Chemical wash system	2013	2162	1.61×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a	b	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	a	a	a	a	b	a	a
Waste Treatment Plant replacement 2	2127	2138	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a	b	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a	a	a	a
IHLW Interim Storage Module, additional	2078	2197	b	b	b	b	b	b	b
HLW Debris Storage Facility	2041	2110	a	a	a	a	b	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 4	2113	2115	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 5	2143	2145	a	a	a	a	a	a	a

Table G–130. Tank Closure Alternative 6A, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2149–2150	2149–2150	2149–2150	2149–2150	2078–2140	2149–2150	2149–2150
Construction *(continued)*									
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a
Evaporator replacement 2	2040	2042	a	a	a	a	a	a	a
Evaporator replacement 3	2065	2067	a	a	a	a	a	a	a
Evaporator replacement 4	2090	2092	a	a	a	a	a	a	a
Evaporator replacement 5	2115	2117	a	a	a	a	a	a	a
Evaporator replacement 6	2140	2142	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2262	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2162	b	b	b	b	b	b	b
Routine operations	2006	2162	5.59	b	b	b	b	b	b
Retrieval operations	2006	2162	4.60×10^{-2}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2162	3.02×10^{-1}	b	b	b	b	b	b
Waste Treatment Plant	2018	2162	4.70×10^{-1}	1.38×10^{-4}	4.98×10^{-8}	1.54×10^{-6}	1.45×10^{-3}	8.37×10^{-5}	2.82×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2162	2163	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	1.23×10^{-1}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	3.85×10^{-2}	b	b	b	b	b	b
Chemical wash system	2013	2162	1.61×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2262	b	b	b	b	b	b	b
HLW Debris Storage Facility	2042	2262	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2166	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2018	2163	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	b	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2167	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
Mobile retrieval system	2013	2162	b	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	b	b	b	b	b	b	b
Chemical wash system	2013	2162	b	b	b	b	b	b	b
IHLW Interim Storage Facility	2078	2197	b	b	b	b	b	b	b
Waste Treatment Plant original	2078	2080	a	a	a	a	9.11×10^{-4}	a	a
Waste Treatment Plant replacement 1	2138	2140	a	a	a	a	a	a	a
Waste Treatment Plant replacement 2	2164	2166	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2164	2164	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a

Table G–130. Tank Closure Alternative 6A, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2149–2150	2149–2150	2149–2150	2149–2150	2078–2140	2149–2150	2149–2150
Deactivation *(continued)*									
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2116	2116	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 4	2146	2146	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 5	2167	2167	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement 1	2043	2043	a	a	a	a	a	a	a
Evaporator replacement 2	2068	2068	a	a	a	a	a	a	a
Evaporator replacement 3	2093	2093	a	a	a	a	a	a	a
Evaporator replacement 4	2118	2118	a	a	a	a	a	a	a
Evaporator replacement 5	2143	2143	a	a	a	a	a	a	a
Evaporator replacement 6	2168	2168	a	a	a	a	a	a	a
Closure									
Containment structure construction 1	2038	2041	a	a	a	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a	a	a	a
Containment structure construction 4	2107	2110	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2149	2150	2.84	4.20×10^{-3}	1.22×10^{-4}	3.93×10^{-3}	a	3.25	9.84×10^{-1}
Postclosure care	2151	2250	a	a	a	a	a	a	a
B tank farm removal	2065	2076	a	a	a	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a	a	a	a
BY tank farm removal	2111	2122	a	a	a	a	a	a	a

Table G–130. Tank Closure Alternative 6A, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2149–2150	2149–2150	2149–2150	2149–2150	2078–2140	2149–2150	2149–2150
Closure *(continued)*									
BX tank farm removal	2042	2053	a	a	a	a	a	a	a
C tank farm removal	2088	2099	a	a	a	a	a	a	a
A tank farm removal	2142	2153	5.49×10^{-2}	5.48×10^{-5}	2.29×10^{-6}	6.92×10^{-5}	a	3.70×10^{-3}	2.39×10^{-3}
AX tank farm removal	2142	2153	1.46×10^{-1}	1.46×10^{-4}	6.11×10^{-6}	1.84×10^{-4}	a	9.87×10^{-3}	6.37×10^{-3}
S tank farm removal	2126	2137	a	a	a	a	a	a	a
TY tank farm removal	2111	2122	a	a	a	a	a	a	a
TX tank farm removal	2088	2099	a	a	a	a	a	a	a
U tank farm removal	2065	2076	a	a	a	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a	b	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
A tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a
AX tank farm deep soil removal	2154	2161	a	a	a	a	a	a	a
TX tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a	b	a	a
SX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a
Preprocessing Facility construction	2039	2041	a	a	a	a	a	a	a
Preprocessing Facility operations	2042	2162	3.84×10^{-5}	4.10×10^{-8}	2.52×10^{-12}	1.44×10^{-10}	4.06×10^{-6}	3.32×10^{-7}	9.39×10^{-7}
Preprocessing Facility deactivation	2163	2163	a	a	a	a	a	a	a
Total			1.02×10^{1}	4.79×10^{-3}	1.40×10^{-4}	4.47×10^{-3}	2.37×10^{-3}	3.50	1.07

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–131. Tank Closure Alternative 6A, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2113–2114	2113–2114	2069–2074	2113–2114	2113–2114	2158–2161	2158–2161	2115	2158–2161
Construction											
Canister Storage Building	2006	2016	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	4.20×10^{2}	6.50×10^{1}	3.18×10^{-1}	1.12×10^{2}	1.05	a	a	1.03×10^{-2}	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2158	2161	a	a	a	a	a	2.55×10^{1}	8.50	a	1.42×10^{-2}
Tank risers	2013	2016	a	a	a	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	4.03	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	6.45×10^{3}	1.08×10^{3}	a	2.19×10^{3}	2.51×10^{1}	a	a	a	a
Mobile retrieval system	2013	2162	4.44×10^{2}	7.11×10^{1}	9.88×10^{-2}	2.57	1.90×10^{-2}	6.17×10^{-2}	2.10×10^{-2}	4.28×10^{-3}	3.16×10^{-5}
Vacuum-based retrieval system	2013	2162	9.40×10^{1}	1.51×10^{1}	2.18×10^{-2}	5.92×10^{-1}	4.38×10^{-3}	1.35×10^{-2}	4.60×10^{-3}	9.39×10^{-4}	6.94×10^{-6}
Chemical wash system	2013	2162	9.48×10^{-1}	1.52×10^{-1}	2.59×10^{-3}	4.38×10^{-2}	3.24×10^{-4}	1.58×10^{-3}	5.37×10^{-4}	1.10×10^{-4}	8.11×10^{-7}
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	a	a	2.97	a	a	a	a	a	a
Waste Treatment Plant replacement 2	2127	2138	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a	a	a	a	a	a

Table G–131. Tank Closure Alternative 6A, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2113–2114	2113–2114	2069–2074	2113–2114	2113–2114	2158–2161	2158–2161	2115	2158–2161
Construction *(continued)*											
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules, additional	2078	2197	1.14×10^{3}	1.77×10^{2}	a	3.04×10^{2}	2.87	4.15×10^{-1}	1.49×10^{-1}	2.80×10^{-2}	2.64×10^{-4}
HLW Debris Storage Facility	2041	2110	a	a	1.30×10^{-2}	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 4	2113	2115	1.15×10^{4}	1.77×10^{3}	a	5.05×10^{2}	4.75	a	a	1.04	a
Effluent Treatment Facility replacement 5	2143	2145	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a	a	a
Evaporator replacement 2	2040	2042	a	a	a	a	a	a	a	a	a
Evaporator replacement 3	2065	2067	a	a	a	a	a	a	a	a	a
Evaporator replacement 4	2090	2092	a	a	a	a	a	a	a	a	a
Evaporator replacement 5	2115	2117	a	a	a	a	a	a	a	3.23×10^{-1}	a
Evaporator replacement 6	2140	2142	a	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2262	b	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2162	b	b	b	b	b	b	b	b	b
Routine operations	2006	2162	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2162	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2162	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2162	3.03×10^{2}	9.32×10^{1}	2.85	2.39×10^{-1}	1.11×10^{-2}	1.19×10^{1}	7.32	1.22	5.70×10^{-2}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2162	2163	a	a	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	2.04	3.27×10^{-1}	1.18×10^{-3}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	6.41×10^{-1}	1.03×10^{-1}	3.72×10^{-4}	b	b	b	b	b	b
Chemical wash system	2013	2162	6.32×10^{-1}	1.01×10^{-1}	1.13×10^{-3}	4.60×10^{-1}	3.40×10^{-3}	6.28×10^{-4}	2.14×10^{-4}	4.36×10^{-5}	3.22×10^{-7}
HLW Melter Interim Storage Facility	2018	2262	b	b	b	b	b	b	b	b	b
HLW Debris Storage Facility	2042	2262	b	b	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2166	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2018	2163	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}

Table G–131. Tank Closure Alternative 6A, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2113–2114	2113–2114	2069–2074	2113–2114	2113–2114	2158–2161	2158–2161	2115	2158–2161
Operations *(continued)*											
Borrow Area C	2006	2167	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Deactivation											
Mobile retrieval system	2013	2162	2.22×10^{2}	3.55×10^{1}	8.90×10^{-3}	1.00×10^{-1}	7.40×10^{-4}	5.30×10^{-3}	1.80×10^{-3}	3.68×10^{-4}	2.72×10^{-6}
Vacuum-based retrieval system	2013	2162	2.05	3.28×10^{-1}	8.23×10^{-5}	1.01×10^{-3}	7.48×10^{-6}	4.90×10^{-5}	1.67×10^{-5}	3.40×10^{-6}	2.51×10^{-8}
Chemical wash system	2013	2162	8.75	1.40	7.91×10^{-4}	9.03×10^{-3}	6.68×10^{-5}	4.92×10^{-4}	1.67×10^{-4}	3.41×10^{-5}	2.52×10^{-7}
IHLW Interim Storage Facility	2078	2197	b	b	a	b	b	b	b	b	b
Waste Treatment Plant original	2079	2081	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2139	2141	a	a	a	a	a	a	a	a	a
Waste Treatment Plant replacement 2	2164	2166	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2164	2164	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2116	2116	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 4	2146	2146	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 5	2167	2167	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2043	2043	a	a	a	a	a	a	a	a	a
Evaporator replacement 2	2068	2068	a	a	a	a	a	a	a	a	a
Evaporator replacement 3	2093	2093	a	a	a	a	a	a	a	a	a
Evaporator replacement 4	2118	2118	a	a	a	a	a	a	a	a	a
Evaporator replacement 5	2143	2143	a	a	a	a	a	a	a	a	a
Evaporator replacement 6	2168	2168	a	a	a	a	a	a	a	a	a
Closure											
Containment structure construction 1	2038	2041	a	a	a	a	a	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a	a	a	a	a	a

Table G–131. Tank Closure Alternative 6A, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2113–2114	2113–2114	2069–2074	2113–2114	2113–2114	2158–2161	2158–2161	2115	2158–2161
Closure *(continued)*											
Containment structure construction 4	2107	2110	a	a	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
B tank farm removal	2065	2076	a	a	6.89×10^{-1}	a	a	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a	a	a	a	a	a
BY tank farm removal	2111	2122	2.24×10^{2}	3.59×10^{1}	a	9.06	6.70×10^{-2}	a	a	2.44×10^{-2}	a
BX tank farm removal	2042	2053	a	a	a	a	a	a	a	a	a
C tank farm removal	2088	2099	a	a	a	a	a	a	a	a	a
A tank farm removal	2142	2153	a	a	a	a	a	a	a	a	a
AX tank farm removal	2142	2153	a	a	a	a	a	a	a	a	a
S tank farm removal	2126	2137	a	a	a	a	a	a	a	a	a
TY tank farm removal	2111	2122	1.12×10^{2}	1.79×10^{1}	a	4.53	3.35×10^{-2}	a	a	1.22×10^{-2}	a
TX tank farm removal	2088	2099	a	a	a	a	a	a	a	a	a
U tank farm removal	2065	2076	a	a	6.89×10^{-1}	a	a	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a	a	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a	a	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a	a	a

Table G–131. Tank Closure Alternative 6A, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2113–2114	2113–2114	2069–2074	2113–2114	2113–2114	2158–2161	2158–2161	2115	2158–2161
Closure *(continued)*											
A tank farm deep soil removal	2154	2161	a	a	a	a	a	8.70×10^{-3}	3.11×10^{-3}	a	5.53×10^{-6}
AX tank farm deep soil removal	2154	2161	a	a	a	a	a	1.45×10^{-1}	5.19×10^{-2}	a	9.21×10^{-5}
TX tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a	a	a	a	a	a
SX tank farm deep soil removal	2054	2061	a	a	a	a	a	a	a	a	a
B Area cribs and trenches (ditches) removal	2054	2084	a	a	2.09	a	a	a	a	a	a
T Area cribs and trenches (ditches) removal	2100	2145	5.92×10^{2}	9.49×10^{1}	a	2.02×10^{1}	1.49×10^{-1}	a	a	6.48×10^{-2}	a
B and T Area cribs and trenches (ditches) construction 1	2050	2053	a	a	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) construction 2	2096	2099	a	a	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) deactivation 1	2085	2087	a	a	a	a	a	a	a	a	a
B and T Area cribs and trenches (ditches) deactivation 2	2146	2148	a	a	a	a	a	a	a	a	a
Preprocessing Facility construction	2039	2041	a	a	a	a	a	a	a	a	a
Preprocessing Facility operations	2042	2162	3.65	7.81×10^{-1}	1.59×10^{-2}	7.64×10^{-2}	1.43×10^{-3}	2.21	7.71×10^{-1}	1.92×10^{-1}	3.59×10^{-3}
Preprocessing Facility deactivation	2163	2163	a	a	a	a	a	a	a	a	a
Total			2.24×10^{4}	3.79×10^{3}	1.49×10^{1}	**3.65×10^{3}**	3.87×10^{1}	4.16×10^{1}	1.76×10^{1}	3.15	7.60×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–132. Tank Closure Alternative 6A, Option Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2041	2054–2055	2054–2055	2079–2141	2158–2161	2158–2161
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2157	b	b	b	b	b	a	a
Other infrastructure upgrades	2006	2034	b	a	a	a	a	a	a
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant original	2006	2017	5.01×10^{-1}	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2158	2161	a	a	a	a	a	2.10	5.97×10^{-1}
Tank risers	2013	2016	2.68	a	a	a	a	a	a
Double-shell tank replacement 1	2029	2034	a	a	a	a	a	a	a
Double-shell tank replacement 2	2069	2074	a	a	a	a	a	a	a
Double-shell tank replacement 3	2109	2114	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	1.23×10^{-1}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	3.85×10^{-2}	b	b	b	b	b	b
Chemical wash system	2013	2162	1.61×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility 1	2017	2018	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2037	2038	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 3	2057	2058	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 4	2077	2078	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 5	2097	2098	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 6	2117	2118	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 7	2137	2138	a	a	a	a	a	a	a
Underground transfer line replacement	2064	2064	a	a	a	a	a	a	a
Waste Treatment Plant replacement 1	2067	2078	a	a	a	a	a	a	a
Waste Treatment Plant replacement 2	2127	2138	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 1	2076	2078	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 2	2136	2138	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility 3	2196	2198	a	a	a	a	a	a	a
IHLW Interim Storage Modules, additional	2078	2197	a	a	a	a	b	b	b
HLW Debris Storage Facility	2041	2110	a	2.75×10^{-6}	1.15×10^{-7}	3.48×10^{-6}	b	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	1.28×10^{-5}	5.39×10^{-4}	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 4	2113	2115	a	a	a	a	a	a	a

Table G–132. Tank Closure Alternative 6A, Option Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2041	2054–2055	2054–2055	2079–2141	2158–2161	2158–2161
Construction *(continued)*									
Effluent Treatment Facility replacement 5	2143	2145	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	a	a	a	a	a	a
Evaporator replacement 2	2040	2042	a	3.41×10^{-4}	a	a	a	a	a
Evaporator replacement 3	2065	2067	a	a	a	a	a	a	a
Evaporator replacement 4	2090	2092	a	a	a	a	a	a	a
Evaporator replacement 5	2115	2117	a	a	a	a	a	a	a
Evaporator replacement 6	2140	2142	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2262	a	b	b	b	b	b	b
Other infrastructure upgrades	2006	2162	b	b	b	b	b	b	b
Routine operations	2006	2162	5.59	b	b	b	b	b	b
Retrieval operations	2006	2162	4.60×10^{-2}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2162	3.02×10^{-1}	b	b	b	b	b	b
Waste Treatment Plant	2018	2162	a	1.38×10^{-4}	4.98×10^{-8}	1.54×10^{-6}	1.45×10^{-3}	8.37×10^{-5}	2.82×10^{-4}
Waste Treatment Plant, cesium and strontium capsules	2163	2163	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2162	2163	a	a	a	a	a	a	a
Mobile retrieval system	2013	2162	1.23×10^{-1}	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	3.85×10^{-2}	b	b	b	b	b	b
Chemical wash system	2013	2162	1.61×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2262	a	b	b	b	b	b	b
HLW Debris Storage Facility	2042	2262	a	a	b	b	b	b	b
Effluent Treatment Facility	2006	2166	3.72×10^{-4}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2018	2163	a	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	b	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2167	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Deactivation									
Mobile retrieval system	2013	2162	b	b	b	b	b	b	b
Vacuum-based retrieval system	2013	2162	b	b	b	b	b	b	b
Chemical wash system	2013	2162	b	b	b	b	b	b	b
IHLW Interim Storage Facility	2078	2197	a	a	a	a	b	b	b
Waste Treatment Plant original	2079	2081	a	a	a	a	9.11×10^{-4}	a	a
Waste Treatment Plant replacement 1	2139	2141	a	a	a	a	a	a	a
Waste Treatment Plant replacement 2	2164	2166	a	a	a	a	a	a	a

Table G–132. Tank Closure Alternative 6A, Option Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2041	2054–2055	2054–2055	2079–2141	2158–2161	2158–2161
Deactivation *(continued)*									
Cesium and Strontium Capsule Processing Facility	2164	2164	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2116	2116	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 4	2146	2146	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 5	2167	2167	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement 1	2043	2043	a	a	a	a	a	a	a
Evaporator replacement 2	2068	2068	a	a	a	a	a	a	a
Evaporator replacement 3	2093	2093	a	a	a	a	a	a	a
Evaporator replacement 4	2118	2118	a	a	a	a	a	a	a
Evaporator replacement 5	2143	2143	a	a	a	a	a	a	a
Evaporator replacement 6	2168	2168	a	a	a	a	a	a	a
Closure									
Containment structure construction 1	2038	2041	a	b	a	a	a	a	a
Containment structure construction 2	2061	2064	a	a	a	a	a	a	a
Containment structure construction 3	2084	2087	a	a	a	a	a	a	a
Containment structure construction 4	2107	2110	a	a	a	a	a	a	a
Containment structure construction 5	2122	2125	a	a	a	a	a	a	a
Containment structure construction 6	2138	2141	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 2	2085	2087	a	a	a	a	a	a	a
Containment structure deactivation 3	2108	2110	a	a	a	a	a	a	a
Containment structure deactivation 4	2123	2125	a	a	a	a	a	a	a
Containment structure deactivation 5	2146	2148	a	a	a	a	a	a	a
Containment structure deactivation 6	2138	2140	a	a	a	a	a	a	a
Containment structure deactivation 7	2162	2164	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
B tank farm removal	2065	2076	a	a	a	a	a	a	a
T tank farm removal	2126	2137	a	a	a	a	a	a	a
BY tank farm removal	2111	2122	a	a	a	a	a	a	a
BX tank farm removal	2042	2053	a	a	a	a	a	a	a

Table G–132. Tank Closure Alternative 6A, Option Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2041	2054–2055	2054–2055	2079–2141	2158–2161	2158–2161
Closure *(continued)*									
C tank farm removal	2088	2099	a	a	a	a	a	a	a
A tank farm removal	2142	2153	a	a	a	a	a	a	a
AX tank farm removal	2142	2153	a	a	a	a	a	a	a
S tank farm removal	2126	2137	a	a	a	a	a	a	a
TY tank farm removal	2111	2122	a	a	a	a	a	a	a
TX tank farm removal	2088	2099	a	a	a	a	a	a	a
U tank farm removal	2065	2076	a	a	a	a	a	a	a
SX tank farm removal	2042	2053	a	a	a	a	a	a	a
B tank farm deep soil removal	2077	2084	a	a	a	a	b	a	a
T tank farm deep soil removal	2138	2145	a	a	a	a	a	a	a
BX tank farm deep soil removal	2054	2061	a	a	2.53×10^{-5}	7.65×10^{-4}	a	a	a
C tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
A tank farm deep soil removal	2154	2161	a	a	a	a	a	1.60×10^{-4}	1.12×10^{-4}
AX tank farm deep soil removal	2154	2161	a	a	a	a	a	2.67×10^{-3}	1.86×10^{-3}
TX tank farm deep soil removal	2100	2107	a	a	a	a	a	a	a
U tank farm deep soil removal	2077	2084	a	a	a	a	b	a	a
SX tank farm deep soil removal	2054	2061	a	a	9.67×10^{-6}	2.92×10^{-4}	a	a	a
B Area cribs and trenches (ditches) removal	2054	2084	a	a	1.85×10^{-5}	5.59×10^{-4}	b	a	a
T Area cribs and trenches (ditches) removal	2100	2145	a	a	a	a	a	a	a
B & T Area cribs and trenches (ditches) construction 1	2050	2053	a	a	a	a	a	a	a
B & T Area cribs and trenches (ditches) construction 2	2096	2099	a	a	a	a	a	a	a
B & T Area cribs and trenches (ditches) deactivation 1	2085	2087	a	a	a	a	a	a	a
B & T Area cribs and trenches (ditches) deactivation 2	2146	2148	a	a	a	a	a	a	a
Preprocessing Facility construction	2039	2041	a	2.04×10^{-3}	a	a	a	a	a
Preprocessing Facility operations	2042	2162	a	a	8.86×10^{-12}	5.06×10^{-10}	b	1.17×10^{-6}	3.30×10^{-6}
Preprocessing Facility deactivation	2163	2163	a	a	a	a	a	a	a
Total			9.91	2.78×10^{-3}	7.59×10^{-5}	2.45×10^{-3}	2.36×10^{-3}	2.34	6.76×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–133. Tank Closure Alternative 6B, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2101	2101	2101	2040	2040	2040	2040
Construction											
Canister Storage Building	2006	2016	4.37×10^{1}	6.76	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	3.15×10^{2}	4.88×10^{1}	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	1.80×10^{1}	2.88	a	a	a	a	a	a	a
Tank upgrades	2006	2025	5.67×10^{3}	9.09×10^{2}	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.72×10^{4}	2.42×10^{3}	a	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility expansion	2008	2017	1.46×10^{3}	2.26×10^{2}	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	a	a	a	a	a	a	a	a
Waste receiver facilities	2013	2017	1.87×10^{3}	2.99×10^{2}	a	a	a	a	a	a	a
Tank risers	2013	2016	3.26×10^{2}	5.23×10^{1}	a	a	a	a	a	a	a
Mobile retrieval system	2013	2043	1.41×10^{3}	2.26×10^{2}	a	a	a	1.96×10^{-1}	6.67×10^{-2}	1.36×10^{-2}	1.01×10^{-4}
Vacuum-based retrieval system	2013	2043	5.26×10^{2}	8.43×10^{1}	a	a	a	7.57×10^{-2}	2.57×10^{-2}	5.25×10^{-3}	3.88×10^{-5}
Chemical wash system	2013	2043	3.56	5.71×10^{-1}	a	a	a	5.94×10^{-3}	2.02×10^{-3}	4.12×10^{-4}	3.04×10^{-6}
HLW Melter Interim Storage Facility 1	2015	2016	1.39×10^{1}	1.96	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	3.56×10^{3}	5.50×10^{2}	a	a	a	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	2.29×10^{1}	3.22	a	a	a	3.49×10^{-2}	1.16×10^{-2}	2.00×10^{-3}	1.95×10^{-5}
HLW Debris Storage Facilities	2021	2090	a	a	a	a	a	8.63×10^{-3}	2.93×10^{-3}	5.98×10^{-4}	4.42×10^{-6}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	a	a	a	a	a	b	b	b	b
Other infrastructure upgrades	2006	2043	b	b	a	a	a	b	b	b	b
Routine operations	2006	2043	5.72×10^{1}	1.50×10^{1}	a	a	a	b	b	b	b
Retrieval operations	2006	2043	7.66×10^{-1}	1.23×10^{-1}	a	a	a	b	b	b	b
Double-shell tank interim stabilization	2006	2043	5.02	8.05×10^{-1}	a	a	a	b	b	b	b
Waste Treatment Plant	2018	2043	a	a	a	a	a	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}

Table G–133. Tank Closure Alternative 6B, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2101	2101	2101	2040	2040	2040	2040
Operations *(continued)*											
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	a	a	5.14×10^{-1}	1.76×10^{-1}	4.70×10^{-2}	7.71×10^{-4}
Mobile retrieval system	2013	2043	6.48	1.04	a	a	a	b	b	b	b
Vacuum-based retrieval system	2013	2043	3.58	5.74×10^{-1}	a	a	a	b	b	b	b
Chemical wash system	2013	2043	2.38	3.81×10^{-1}	a	a	a	2.36×10^{-3}	8.02×10^{-4}	1.64×10^{-4}	1.21×10^{-6}
HLW Melter Interim Storage Facility	2018	2199	a	a	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2100	7.85	2.41	a	a	a	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2043	2.00×10^{2}	3.09×10^{1}	a	a	a	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2102	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	a	b	b	b	b	b	b	b
HLW Debris Storage Facilities	2023	2199	a	a	b	b	b	b	b	b	b
Deactivation											
Mobile retrieval system	2013	2043	7.04×10^{2}	1.13×10^{2}	a	a	a	1.69×10^{-2}	5.73×10^{-3}	1.17×10^{-3}	8.64×10^{-6}
Vacuum-based retrieval system	2013	2043	1.15×10^{1}	1.84	a	a	a	2.74×10^{-4}	9.32×10^{-5}	1.90×10^{-5}	1.41×10^{-7}
Chemical wash system	2013	2043	3.29×10^{1}	5.27	a	a	a	1.85×10^{-3}	6.28×10^{-4}	1.28×10^{-4}	9.47×10^{-7}
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2101	2101	a	a	6.02×10^{-1}	6.06×10^{2}	5.92	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement	2044	2044	a	a	a	a	a	a	a	a	a
Closure											
Containment structure construction 1	2019	2022	a	a	a	a	a	a	a	a	a
Containment structure construction 2	2019	2022	a	a	a	a	a	a	a	a	a
Containment structure construction 3	2046	2049	a	a	a	a	a	a	a	a	a
Containment structure construction 4	2046	2049	a	a	a	a	a	a	a	a	a
Containment structure construction 5	2073	2076	a	a	a	a	a	a	a	a	a
Containment structure construction 6	2073	2076	a	a	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a	a	a	a	a	a

Table G–133. Tank Closure Alternative 6B, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2101	2101	2101	2040	2040	2040	2040
Closure *(continued)*											
Containment structure deactivation 2	2043	2045	a	a	a	a	a	a	a	a	a
Containment structure deactivation 3	2070	2072	a	a	a	a	a	a	a	a	a
Containment structure deactivation 4	2062	2064	a	a	a	a	a	a	a	a	a
Containment structure deactivation 5	2089	2091	a	a	a	a	a	a	a	a	a
Containment structure deactivation 6	2097	2099	a	a	a	a	a	a	a	a	a
Containment structure deactivation 7	2097	2099	a	a	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2100	2101	a	a	1.31×10^{1}	4.11×10^{3}	3.04×10^{1}	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
T tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a
BY tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
BX tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
B tank farm deep soil removal	2035	2042	a	a	a	a	a	4.78×10^{-2}	1.71×10^{-2}	3.23×10^{-3}	3.04×10^{-5}
T tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	a	a	a	a	1.53	5.48×10^{-1}	1.03×10^{-1}	9.72×10^{-4}
C tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a	a	a
U tank farm deep soil removal	2035	2042	a	a	a	a	a	4.92×10^{-1}	1.67×10^{-1}	3.42×10^{-2}	2.53×10^{-4}
SX tank farm deep soil removal	2035	2042	a	a	a	a	a	8.92×10^{-1}	3.43×10^{-1}	6.98×10^{-2}	4.46×10^{-4}
Preprocessing Facility construction	2020	2022	a	a	a	a	a	a	a	a	a

Table G–133. Tank Closure Alternative 6B, Base Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2101	2101	2101	2040	2040	2040	2040
Closure *(continued)*											
Preprocessing Facility operations	2023	2099	a	a	a	a	a	9.95×10^{-2}	3.47×10^{-2}	8.66×10^{-3}	1.62×10^{-4}
Preprocessing Facility deactivation	2100	2100	a	a	a	a	a	a	a	a	a
Postclosure care	2102	2201	a	a	a	a	a	a	a	a	a
Total			3.42×10^{4}	5.29×10^{3}	1.41×10^{1}	$\mathbf{5.11\times10^{3}}$	3.72×10^{1}	6.53×10^{1}	3.91×10^{1}	6.69	2.91×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–134. Tank Closure Alternative 6B, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2101	2101	2101	2044–2045	2101	2101
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	a	a
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	b	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	b	a	a	a	a	a	a
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.29	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	3.76×10^{-2}	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	a	a	a	a	a	a
Waste receiver facilities	2013	2017	b	a	a	a	a	a	a
Tank risers	2013	2016	2.68	a	a	a	a	a	a
Mobile retrieval system	2013	2043	3.90×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	2.15×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2043	6.05×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility 1	2015	2016	b	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	a	a	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	9.56×10^{-3}	a	a	a	a	a	a
HLW Debris Storage Facilities	2021	2090	a	a	a	a	b	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	a	a	a	b	a	a
Other infrastructure upgrades	2006	2043	b	a	a	a	a	a	a
Routine operations	2006	2043	5.59	a	a	a	a	a	a
Retrieval operations	2006	2043	4.60×10^{-2}	a	a	a	a	a	a
Double-shell tank interim stabilization	2006	2043	3.02×10^{-1}	a	a	a	a	a	a
Waste Treatment Plant	2018	2043	a	a	a	a	a	a	a
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	a	a	a	a
Mobile retrieval system	2013	2043	3.90×10^{-1}	a	a	a	a	a	a

Table G–134. Tank Closure Alternative 6B, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2101	2101	2101	2044–2045	2101	2101
Operations *(continued)*									
Vacuum-based retrieval system	2013	2043	2.15×10^{-1}	a	a	a	a	a	a
Chemical wash system	2013	2043	6.05×10^{-3}	a	a	a	a	a	a
HLW Melter Interim Storage Facility	2018	2199	a	b	b	b	b	b	b
Effluent Treatment Facility	2006	2100	1.18×10^{-1}	a	a	a	b	a	a
Evaporator	2006	2043	9.82×10^{-2}	a	a	a	a	a	a
Borrow Area C	2006	2102	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	b	b	b	b	b	b
HLW Debris Storage Facilities	2023	2199	a	b	b	b	b	b	b
Deactivation									
Mobile retrieval system	2013	2043	b	a	a	a	a	a	a
Vacuum-based retrieval system	2013	2043	b	a	a	a	a	a	a
Chemical wash system	2013	2043	b	a	a	a	a	a	a
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	1.17×10^{-1}	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2101	2101	a	2.81×10^{-4}	5.95×10^{-6}	2.06×10^{-4}	a	2.57×10^{-1}	7.49×10^{-2}
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement 1	2044	2044	a	a	a	a	b	a	a
Closure									
Containment structure construction 1	2019	2022	a	a	a	a	a	a	a
Containment structure construction 2	2019	2022	a	a	a	a	a	a	a
Containment structure construction 3	2046	2049	a	a	a	a	a	a	a
Containment structure construction 4	2046	2049	a	a	a	a	a	a	a
Containment structure construction 5	2073	2076	a	a	a	a	a	a	a
Containment structure construction 6	2073	2076	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a	b	a	a
Containment structure deactivation 2	2043	2045	a	a	a	a	b	a	a
Containment structure deactivation 3	2070	2072	a	a	a	a	a	a	a
Containment structure deactivation 4	2062	2064	a	a	a	a	a	a	a

Table G–134. Tank Closure Alternative 6B, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2101	2101	2101	2044–2045	2101	2101
Closure *(continued)*									
Containment structure deactivation 5	2089	2091	a	a	a	a	a	a	a
Containment structure deactivation 6	2097	2099	a	a	a	a	a	a	a
Containment structure deactivation 7	2097	2099	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2100	2101	a	4.20×10^{-3}	1.22×10^{-4}	3.93×10^{-3}	a	3.25	9.84×10^{-1}
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a	a	a	a
T tank farm removal	2077	2088	a	a	a	a	a	a	a
BY tank farm removal	2050	2061	a	a	a	a	a	a	a
BX tank farm removal	2023	2034	a	a	a	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a	a	a	a
B tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
T tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
C tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
U tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
SX tank farm deep soil removal	2035	2042	a	a	a	a	a	a	a
Preprocessing Facility construction	2020	2022	a	a	a	a	a	a	a

Table G–134. Tank Closure Alternative 6B, Base Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2101	2101	2101	2044–2045	2101	2101
Closure *(continued)*									
Preprocessing Facility operations	2023	2099	a	a	a	a	b	a	a
Preprocessing Facility deactivation	2100	2100	a	a	a	a	a	a	a
Postclosure care	2102	2201	a	a	a	a	a	a	a
Total			1.19×10^{1}	4.60×10^{-3}	1.32×10^{-4}	4.26×10^{-3}	1.17×10^{-1}	3.73	1.13

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–135. Tank Closure Alternative 6B, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2040	2016	2016	2040	2040	2040	2040
Construction											
Canister Storage Building	2006	2016	4.37×10^{1}	6.76	a	4.82×10^{-1}	4.54×10^{-3}	a	a	a	a
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	3.15×10^{2}	4.88×10^{1}	a	8.40×10^{1}	7.91×10^{-1}	a	a	a	a
Other infrastructure upgrades	2006	2034	1.80×10^{1}	2.88	a	1.27	9.42×10^{-3}	a	a	a	a
Tank upgrades	2006	2025	5.67×10^{3}	9.09×10^{2}	a	9.09	6.72×10^{-2}	a	a	a	a
Waste Treatment Plant	2006	2017	1.72×10^{4}	2.42×10^{3}	a	5.36×10^{2}	5.23	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	1.46×10^{3}	2.26×10^{2}	a	8.77×10^{1}	8.26×10^{-1}	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	a	a	a	a	a	a	a	a
Waste receiver facilities	2013	2017	1.87×10^{3}	2.99×10^{2}	a	3.73×10^{2}	2.75	a	a	a	a
Tank risers	2013	2016	3.26×10^{2}	5.23×10^{1}	a	9.12×10^{-1}	6.75×10^{-3}	a	a	a	a
Mobile retrieval system	2013	2043	1.41×10^{3}	2.26×10^{2}	3.14×10^{-1}	8.16	6.04×10^{-2}	1.96×10^{-1}	6.67×10^{-2}	1.36×10^{-2}	1.01×10^{-4}
Vacuum-based retrieval system	2013	2043	5.26×10^{2}	8.43×10^{1}	1.22×10^{-1}	3.31	2.45×10^{-2}	7.57×10^{-2}	2.57×10^{-2}	5.25×10^{-3}	3.88×10^{-5}
Chemical wash system	2013	2043	3.56	5.71×10^{-1}	9.74×10^{-3}	1.65×10^{-1}	1.22×10^{-3}	5.94×10^{-3}	2.02×10^{-3}	4.12×10^{-4}	3.04×10^{-6}
HLW Melter Interim Storage Facility 1	2015	2016	1.39×10^{1}	1.96	a	2.22×10^{1}	2.17×10^{-1}	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	3.56×10^{3}	5.50×10^{2}	a	9.34	8.79×10^{-2}	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	2.29×10^{1}	3.22	5.95×10^{-2}	5.57×10^{1}	5.44×10^{-1}	3.49×10^{-2}	1.16×10^{-2}	2.00×10^{-3}	1.95×10^{-5}
HLW Debris Storage Facilities	2021	2090	a	a	1.30×10^{-2}	a	a	8.63×10^{-3}	2.93×10^{-3}	5.98×10^{-4}	4.42×10^{-6}
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Operations											
IHLW Interim Storage Facility	2018	2066	a	a	b	a	a	b	b	b	b
Other infrastructure upgrades	2006	2043	b	b	b	b	b	b	b	b	b
Routine operations	2006	2043	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2043	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2043	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2043	a	a	2.80	a	a	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	2.80	a	a	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	1.53×10^{-2}	a	a	5.14×10^{-1}	1.76×10^{-1}	4.70×10^{-2}	7.71×10^{-4}
Mobile retrieval system	2013	2043	6.48	1.04	3.77×10^{-3}	b	b	b	b	b	b

Table G–135. Tank Closure Alternative 6B, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2040	2016	2016	2040	2040	2040	2040
Operations *(continued)*											
Vacuum-based retrieval system	2013	2043	3.58	5.74×10^{-1}	2.08×10^{-3}	b	b	b	b	b	b
Chemical wash system	2013	2043	2.38	3.81×10^{-1}	4.26×10^{-3}	1.73	1.28×10^{-2}	2.36×10^{-3}	8.02×10^{-4}	1.64×10^{-4}	1.21×10^{-6}
HLW Melter Interim Storage Facility	2018	2199	a	a	b	a	a	b	b	b	b
Effluent Treatment Facility	2006	2100	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2043	1.96×10^{2}	3.03×10^{1}	5.77×10^{-1}	1.86×10^{1}	1.75×10^{-1}	3.09×10^{-1}	1.11×10^{-1}	2.09×10^{-2}	1.96×10^{-4}
Borrow Area C	2006	2102	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	a	b	a	a	b	b	b	b
HLW Debris Storage Facilities	2023	2199	a	a	b	a	a	b	b	b	b
Deactivation											
Mobile retrieval system	2013	2043	7.04×10^{2}	1.13×10^{2}	2.83×10^{-2}	3.18×10^{-1}	2.35×10^{-3}	1.69×10^{-2}	5.73×10^{-3}	1.17×10^{-3}	8.64×10^{-6}
Vacuum-based retrieval system	2013	2043	1.15×10^{1}	1.84	4.60×10^{-4}	5.66×10^{-3}	4.18×10^{-5}	2.74×10^{-4}	9.32×10^{-5}	1.90×10^{-5}	1.41×10^{-7}
Chemical wash system	2013	2043	3.29×10^{1}	5.27	2.97×10^{-3}	3.39×10^{-2}	2.51×10^{-4}	1.85×10^{-3}	6.28×10^{-4}	1.28×10^{-4}	9.47×10^{-7}
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2101	2101	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2044	2044	a	a	a	a	a	a	a	a	a
Closure											
Containment structure construction 1	2019	2022	a	a	a	a	a	a	a	a	a
Containment structure construction 2	2046	2049	a	a	a	a	a	a	a	a	a
Containment structure construction 3	2073	2076	a	a	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a	a	a	a	a	a
Containment structure deactivation 2	2070	2072	a	a	a	a	a	a	a	a	a
Containment structure deactivation 3	2062	2064	a	a	a	a	a	a	a	a	a
Containment structure deactivation 4	2089	2091	a	a	a	a	a	a	a	a	a
Containment structure deactivation 5	2097	2099	a	a	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
T tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a

Table G–135. Tank Closure Alternative 6B, Option Case, Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2040	2016	2016	2040	2040	2040	2040
Closure *(continued)*											
BY tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
BX tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a	a	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a	a	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a	a	a	a	a	a
B tank farm deep soil removal	2035	2042	a	a	8.93×10^{-2}	a	a	4.78×10^{-2}	1.71×10^{-2}	3.23×10^{-3}	3.04×10^{-5}
T tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	a	2.86	a	a	1.53	5.48×10^{-1}	1.03×10^{-1}	9.72×10^{-4}
C tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a	a	a
U tank farm deep soil removal	2035	2042	a	a	7.42×10^{-1}	a	a	4.92×10^{-1}	1.67×10^{-1}	3.42×10^{-2}	2.53×10^{-4}
SX tank farm deep soil removal	2035	2042	a	a	1.31	a	a	8.92×10^{-1}	3.43×10^{-1}	6.98×10^{-2}	4.46×10^{-4}
B Area cribs and trenches (ditches) removal	2035	2061	a	a	2.40	a	a	1.59	5.41×10^{-1}	1.10×10^{-1}	8.16×10^{-4}
T Area cribs and trenches (ditches) removal	2062	2096	a	a	a	a	a	a	a	a	a
Containment structure construction 1	2029	2032	a	a	a	a	a	a	a	a	a
Containment structure construction 2	2056	2059	a	a	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a	a	a
Containment structure deactivation 2	2097	2099	a	a	a	a	a	a	a	a	a
Preprocessing Facility construction	2020	2022	a	a	a	a	a	a	a	a	a
Preprocessing Facility operations	2023	2099	a	a	2.50×10^{-2}	a	a	3.47	1.21	3.02×10^{-1}	5.65×10^{-3}
Preprocessing Facility deactivation	2100	2100	a	a	a	a	a	a	a	a	a
Total			3.42×10^{4}	5.29×10^{3}	1.47×10^{1}	**1.69×10^{3}**	1.53×10^{1}	7.03×10^{1}	4.08×10^{1}	7.10	2.97×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–136. Tank Closure Alternative 6B, Option Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2044–2045	2016–2017	2016–2017
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	b	b
IHLW Shipping/Transfer Facility and one IHLW Interim Storage Module	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules, three additional	2014	2022	b	a	a	a	a	b	b
Other infrastructure upgrades	2006	2034	b	a	a	a	a	b	b
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	a	b	b
Waste Treatment Plant	2006	2017	1.29	a	a	a	a	1.69	5.06×10^{-1}
Low-Activity Waste Vitrification Facility	2008	2017	3.76×10^{-2}	a	a	a	a	1.88×10^{-1}	5.39×10^{-2}
Cesium and Strontium Capsule Processing Facility	2035	2038	a	1.60×10^{-3}	1.87×10^{-5}	7.88×10^{-4}	a	a	a
Waste receiver facilities	2013	2017	b	a	a	a	a	b	b
Tank risers	2013	2016	2.68	a	a	a	a	b	b
Mobile retrieval system	2013	2043	3.90×10^{-1}	b	b	b	a	b	b
Vacuum-based retrieval system	2013	2043	2.15×10^{-1}	b	b	b	a	b	b
Chemical wash system	2013	2043	6.05×10^{-3}	b	b	b	a	b	b
HLW Melter Interim Storage Facility 1	2015	2016	b	a	a	a	a	b	b
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2053	2055	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2083	2085	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	6.32×10^{-2}	a	a	a	a	4.65×10^{-1}	1.32×10^{-1}
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	9.56×10^{-3}	1.26×10^{-5}	b	b	a	5.64×10^{-4}	3.94×10^{-4}
HLW Debris Storage Facilities	2021	2090	a	2.75×10^{-6}	1.15×10^{-7}	3.48×10^{-6}	b	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Operations									
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	a	a
Other infrastructure upgrades	2006	2043	b	b	b	b	a	b	b
Routine operations	2006	2043	5.59	b	b	b	a	b	b
Retrieval operations	2006	2043	4.60×10^{-2}	b	b	b	a	b	b
Double-shell tank interim stabilization	2006	2043	3.02×10^{-1}	b	b	b	a	b	b
Waste Treatment Plant	2018	2043	a	1.19×10^{-4}	4.31×10^{-8}	1.33×10^{-6}	a	a	a
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2039	2040	a	a	a	a	a	a	a
Mobile retrieval system	2013	2043	3.90×10^{-1}	b	b	b	a	b	b
Vacuum-based retrieval system	2013	2043	2.15×10^{-1}	b	b	b	a	b	b

Table G–136. Tank Closure Alternative 6B, Option Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2044–2045	2016–2017	2016–2017
Operations *(continued)*									
Chemical wash system	2013	2043	6.05×10^{-3}	b	b	b	a	b	b
HLW Melter Interim Storage Facility	2018	2199	a	b	b	b	b	a	a
Effluent Treatment Facility	2006	2100	1.18×10^{-1}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2043	9.64×10^{-2}	1.22×10^{-4}	5.12×10^{-6}	1.54×10^{-4}	a	5.69×10^{-3}	3.96×10^{-3}
Borrow Area C	2006	2102	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2199	a	b	b	b	b	a	a
HLW Debris Storage Facilities	2023	2199	a	b	b	b	b	a	a
Deactivation									
Mobile retrieval system	2013	2043	b	b	b	b	a	b	b
Vacuum-based retrieval system	2013	2043	b	b	b	b	a	b	b
Chemical wash system	2013	2043	b	b	b	b	a	b	b
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	1.17×10^{-1}	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2056	2056	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 2	2086	2086	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 3	2101	2101	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement	2044	2044	a	a	a	a	b	a	a
Closure									
Containment structure construction 1	2019	2022	a	a	a	a	a	a	a
Containment structure construction 2	2046	2049	a	a	a	a	a	a	a
Containment structure construction 3	2073	2076	a	a	a	a	a	a	a
Containment structure deactivation 1	2043	2045	a	a	a	a	b	a	a
Containment structure deactivation 2	2070	2072	a	a	a	a	a	a	a
Containment structure deactivation 3	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 4	2089	2091	a	a	a	a	a	a	a
Containment structure deactivation 5	2097	2099	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a
B tank farm removal	2023	2034	a	a	a	a	a	a	a
T tank farm removal	2077	2088	a	a	a	a	a	a	a

Table G–136. Tank Closure Alternative 6B, Option Case, Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2035–2038	2035–2038	2035–2038	2044–2045	2016–2017	2016–2017
Closure *(continued)*									
BY tank farm removal	2050	2061	a	a	a	a	a	a	a
BX tank farm removal	2023	2034	a	a	a	a	a	a	a
C tank farm removal	2050	2061	a	a	a	a	a	a	a
A tank farm removal	2077	2088	a	a	a	a	a	a	a
AX tank farm removal	2077	2088	a	a	a	a	a	a	a
S tank farm removal	2077	2088	a	a	a	a	a	a	a
TY tank farm removal	2050	2061	a	a	a	a	a	a	a
TX tank farm removal	2050	2061	a	a	a	a	a	a	a
U tank farm removal	2023	2034	a	a	a	a	a	a	a
SX tank farm removal	2023	2034	a	a	a	a	a	a	a
B tank farm deep soil removal	2035	2042	a	1.89×10^{-5}	7.92×10^{-7}	2.39×10^{-5}	a	a	a
T tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
BX tank farm deep soil removal	2035	2042	a	6.05×10^{-4}	2.53×10^{-5}	7.65×10^{-4}	a	a	a
C tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
A tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
AX tank farm deep soil removal	2089	2096	a	a	a	a	a	a	a
TX tank farm deep soil removal	2062	2069	a	a	a	a	a	a	a
U tank farm deep soil removal	2035	2042	a	1.57×10^{-4}	6.58×10^{-6}	1.99×10^{-4}	a	a	a
SX tank farm deep soil removal	2035	2042	a	2.78×10^{-4}	1.16×10^{-5}	3.51×10^{-4}	a	a	a
B Area cribs and trenches (ditches) removal	2035	2061	a	5.08×10^{-4}	2.13×10^{-5}	6.42×10^{-4}	b	a	a
T Area cribs and trenches (ditches) removal	2062	2096	a	a	a	a	a	a	a
Containment structure construction 1	2029	2032	a	a	a	a	a	a	a
Containment structure construction 2	2056	2059	a	a	a	a	a	a	a
Containment structure deactivation 1	2062	2064	a	a	a	a	a	a	a
Containment structure deactivation 2	2097	2099	a	a	a	a	a	a	a
Preprocessing Facility construction	2020	2022	a	a	a	a	a	a	a
Preprocessing Facility operations	2023	2099	a	2.27×10^{-7}	1.39×10^{-11}	7.96×10^{-10}	b	a	a
Preprocessing Facility deactivation	2100	2100	a	a	a	a	a	a	a
Total			1.18×10^{1}	3.55×10^{-3}	9.38×10^{-5}	3.06×10^{-3}	1.17×10^{-1}	2.58	7.69×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–137. Tank Closure Alternative 6C Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2040	2040	2040	2040	2040	2040	2040	2040	2040
Construction											
Canister Storage Building	2006	2016	a	a	a	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	a	a	a	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	a	a	a	a	a	a	a	a	a
Tank upgrades	2006	2025	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	a	a	a	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	a	a	a	a	a	a	a	a
Waste receiver facilities	2013	2017	a	a	a	a	a	a	a	a	a
Tank risers	2013	2016	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	1.09×10^{3}	1.74×10^{2}	2.15×10^{-2}	1.61	1.19×10^{-2}	1.00×10^{-2}	3.42×10^{-3}	6.97×10^{-4}	5.15×10^{-6}
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	1.09×10^{3}	1.74×10^{2}	2.52×10^{-1}	6.85	5.06×10^{-2}	1.56×10^{-1}	5.32×10^{-2}	1.08×10^{-2}	8.02×10^{-5}
HLW Melter Interim Storage Facility 1	2015	2016	a	a	a	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	a	a	a	a	a	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	2.29×10^{1}	3.22	5.95×10^{-2}	5.57×10^{1}	5.44×10^{-1}	3.49×10^{-2}	1.16×10^{-2}	2.00×10^{-3}	1.95×10^{-5}
Operations											
IHLW Interim Storage Facility	2018	2066	b	b	b	b	b	b	b	b	b
Other infrastructure upgrades	2006	2043	b	b	b	b	b	b	b	b	b
Routine operations	2006	2043	5.72×10^{1}	1.50×10^{1}	8.27×10^{-2}	b	b	b	b	b	b
Retrieval operations	2006	2043	7.66×10^{-1}	1.23×10^{-1}	4.45×10^{-4}	b	b	b	b	b	b
Double-shell tank interim stabilization	2006	2043	5.02	8.05×10^{-1}	2.92×10^{-3}	b	b	b	b	b	b
Waste Treatment Plant	2018	2043	2.64×10^{2}	8.11×10^{1}	2.80	1.04	4.86×10^{-2}	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}

Table G–137. Tank Closure Alternative 6C Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2040	2040	2040	2040	2040	2040	2040	2040	2040
Operations *(continued)*											
Waste Treatment Plant, cesium and strontium capsules	2040	2040	2.64×10^{2}	8.11×10^{1}	2.80	1.04	4.86×10^{-2}	3.01×10^{1}	1.85×10^{1}	3.09	1.44×10^{-1}
Cesium and Strontium Capsule Processing Facility	2039	2040	3.84×10^{2}	6.26×10^{1}	1.53×10^{-2}	4.00×10^{1}	6.56×10^{-1}	5.14×10^{-1}	1.76×10^{-1}	4.70×10^{-2}	7.71×10^{-4}
Modified sluicing retrieval system	2013	2043	3.01×10^{2}	4.83×10^{1}	9.60×10^{-3}	9.98×10^{-2}	7.38×10^{-4}	4.80×10^{-3}	1.63×10^{-3}	3.33×10^{-4}	2.46×10^{-6}
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	7.41	1.19	4.30×10^{-3}	b	b	b	b	b	b
HLW Melter Interim Storage Facility	2018	2145	b	b	b	b	b	b	b	b	b
Effluent Treatment Facility	2006	2045	7.85	2.41	1.02×10^{-2}	7.66×10^{1}	3.57	1.06×10^{-2}	6.52×10^{-3}	1.09×10^{-3}	5.08×10^{-5}
Evaporator	2006	2043	2.00×10^{2}	3.09×10^{1}	5.88×10^{-1}	1.87×10^{1}	1.76×10^{-1}	3.15×10^{-1}	1.13×10^{-1}	2.13×10^{-2}	2.00×10^{-4}
Borrow Area C	2006	2052	6.91×10^{2}	2.83×10^{2}	4.42×10^{-1}	3.98×10^{2}	9.10×10^{-1}	9.72×10^{-1}	6.58×10^{-1}	2.07×10^{-1}	4.75×10^{-4}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2145	b	b	b	b	b	b	b	b	b
Deactivation											
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2046	2046	a	a	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a	a	a
Evaporator replacement 1	2044	2044	a	a	a	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	7.73×10^{2}	1.24×10^{2}	1.67×10^{-2}	2.00×10^{-1}	1.48×10^{-3}	9.60×10^{-3}	3.26×10^{-3}	6.66×10^{-4}	4.92×10^{-6}
Mobile retrieval system	2013	2028	a	a	a	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	2.37×10^{1}	3.79	9.51×10^{-4}	1.17×10^{-2}	8.65×10^{-5}	5.66×10^{-4}	1.93×10^{-4}	3.93×10^{-5}	2.90×10^{-7}
Closure											
Ancillary equipment grouting	2013	2037	a	a	a	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a	a	a

Table G–137. Tank Closure Alternative 6C Maximum Criteria Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2040	2040	2040	2040	2040	2040	2040	2040	2040
Closure *(continued)*											
Tank-filling grout facility construction	2032	2033	a	a	a	a	a	a	a	a	a
Tank-filling grout facility operations	2034	2043	3.66×10^{2}	5.86×10^{1}	6.92×10^{-1}	5.08×10^{1}	3.76×10^{-1}	4.39×10^{-1}	1.49×10^{-1}	3.04×10^{-2}	2.25×10^{-4}
Tank-filling grout facility deactivation	2044	2044	a	a	a	a	a	a	a	a	a
Containment structure construction	2028	2031	a	a	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a	a	a	a	a	a
Containment structure deactivation	2038	2040	1.47×10^{3}	2.35×10^{2}	7.82×10^{-2}	3.48	2.58×10^{-2}	4.74×10^{-2}	1.61×10^{-2}	3.29×10^{-3}	2.43×10^{-5}
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	2.66×10^{4}	4.26×10^{3}	1.25×10^{1}	3.91×10^{3}	2.89×10^{1}	3.68×10^{1}	1.25×10^{1}	2.55	1.89×10^{-2}
Postclosure care	2046	2145	a	a	a	a	a	a	a	a	a
Total			3.36×10^{4}	5.64×10^{3}	2.04×10^{1}	**4.57×10^{3}**	3.53×10^{1}	9.95×10^{1}	5.06×10^{1}	9.05	3.08×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007a, 2008.

Table G–138. Tank Closure Alternative 6C Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2040	2040	2040	2044–2045	2040	2040
Construction									
Canister Storage Building	2006	2016	b	a	a	a	a	a	a
IHLW Shipping/Transfer Facility	2011	2013	a	a	a	a	a	a	a
IHLW Interim Storage Modules	2014	2022	b	a	a	a	a	a	a
Other infrastructure upgrades	2006	2034	b	a	a	a	a	a	a
Tank upgrades	2006	2025	8.81×10^{-2}	a	a	a	a	a	a
Waste Treatment Plant	2006	2017	1.29	a	a	a	a	a	a
Underground transfer line 1,000-foot sections	2009	2009	a	a	a	a	a	a	a
Low-Activity Waste Vitrification Facility	2008	2017	3.76×10^{-2}	a	a	a	a	a	a
Cesium and Strontium Capsule Processing Facility	2035	2038	a	a	a	a	a	a	a
Waste receiver facilities	2013	2017	b	a	a	a	a	a	a
Tank risers	2013	2016	2.46	a	a	a	a	a	a
Modified sluicing retrieval system	2013	2043	2.44×10^{-1}	b	b	b	a	b	b
Mobile retrieval system	2013	2028	2.81×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	b	b	b	a	b	b
HLW Melter Interim Storage Facility 1	2015	2016	b	a	a	a	a	a	a
HLW Melter Interim Storage Facility 2	2029	2030	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2023	2025	a	a	a	a	a	a	a
Evaporator replacement 1	2015	2017	1.49×10^{-2}	a	a	a	a	a	a
Immobilized Low-Activity Waste Interim Storage Facilities	2016	2043	9.56×10^{-3}	1.26×10^{-5}	b	b	a	5.64×10^{-4}	3.94×10^{-4}
Operations									
IHLW Interim Storage Facility	2018	2066	a	b	b	b	b	b	b
Other infrastructure upgrades	2006	2043	b	b	b	b	a	b	b
Routine operations	2006	2043	5.59	b	b	b	a	b	b
Retrieval operations	2006	2043	4.60×10^{-2}	b	b	b	a	b	b
Double-shell tank interim stabilization	2006	2043	3.02×10^{-1}	b	b	b	a	b	b
Waste Treatment Plant	2018	2043	a	1.19×10^{-4}	4.31×10^{-8}	1.33×10^{-6}	a	7.21×10^{-5}	2.43×10^{-4}

Table G–138. Tank Closure Alternative 6C Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2040	2040	2040	2044–2045	2040	2040
Operations *(continued)*									
Waste Treatment Plant, cesium and strontium capsules	2040	2040	a	1.19×10^{-4}	4.31×10^{-8}	1.33×10^{-6}	a	7.21×10^{-5}	2.43×10^{-4}
Cesium and Strontium Capsule Processing Facility	2039	2040	a	7.41×10^{-5}	4.19×10^{-7}	2.51×10^{-5}	a	6.94×10^{-2}	1.96×10^{-2}
Modified sluicing retrieval system	2013	2043	2.44×10^{-1}	b	b	b	a	b	b
Mobile retrieval system	2013	2028	2.81×10^{-1}	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	b	b	b	a	b	b
HLW Melter Interim Storage Facility	2018	2145	a	b	b	b	b	b	b
Effluent Treatment Facility	2006	2045	1.18×10^{-1}	6.54×10^{-6}	1.08×10^{-7}	4.03×10^{-6}	b	1.53×10^{-3}	4.39×10^{-4}
Evaporator	2006	2043	9.82×10^{-2}	1.24×10^{-4}	5.22×10^{-6}	1.57×10^{-4}	a	5.79×10^{-3}	4.04×10^{-3}
Borrow Area C	2006	2052	3.08×10^{-1}	1.24×10^{-4}	4.04×10^{-6}	1.27×10^{-4}	b	2.28×10^{-1}	7.18×10^{-2}
Immobilized Low-Activity Waste Interim Storage Facilities	2018	2145	a	b	b	b	b	b	b
Deactivation									
IHLW Interim Storage Facility	2067	2067	a	a	a	a	a	a	a
Waste Treatment Plant	2044	2045	a	a	a	a	1.17×10^{-1}	a	a
Cesium and Strontium Capsule Processing Facility	2041	2041	a	a	a	a	a	a	a
Effluent Treatment Facility original	2026	2026	a	a	a	a	a	a	a
Effluent Treatment Facility replacement 1	2046	2046	a	a	a	a	a	a	a
Evaporator original	2018	2018	a	a	a	a	a	a	a
Evaporator replacement 1	2044	2044	a	a	a	a	b	a	a
Modified sluicing retrieval system	2013	2043	b	b	b	b	a	b	b
Mobile retrieval system	2013	2028	b	a	a	a	a	a	a
Vacuum-based retrieval system	2029	2043	a	b	b	b	a	b	b
Closure									
Ancillary equipment grouting	2013	2037	3.03×10^{-5}	a	a	a	a	a	a
Ancillary equipment removal	2032	2037	a	a	a	a	a	a	a
Decontamination and decommissioning of 10 selected facilities	2018	2028	a	a	a	a	a	a	a

Table G–138. Tank Closure Alternative 6C Maximum Toxic Pollutant Concentrations of Peak Activity Periods *(continued)*

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2040	2040	2040	2044–2045	2040	2040
Closure *(continued)*									
Tank-filling grout facility construction	2032	2033	a	a	a	a	a	a	a
Tank-filling grout facility operations	2034	2043	a	b	b	b	a	b	b
Tank-filling grout facility deactivation	2044	2044	a	a	a	a	b	a	a
Containment structure construction	2028	2031	a	a	a	a	a	a	a
BX and SX tank farm soil removal	2032	2037	a	a	a	a	a	a	a
Containment structure deactivation	2038	2040	a	b	b	b	a	b	b
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2039	2045	a	4.00×10^{-3}	1.16×10^{-4}	3.74×10^{-3}	b	3.09	9.37×10^{-1}
Postclosure care	2046	2145	a	a	a	a	a	a	a
Total			1.14×10^{1}	4.58×10^{-3}	1.26×10^{-4}	4.06×10^{-3}	1.17×10^{-1}	3.40	1.03

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: HLW=high-level radioactive waste; IHLW=immobilized high-level radioactive waste.

Source: SAIC 2007a, 2008.

Table G–139. FFTF Decommissioning Alternative 1 Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2008–2107	2008–2107	2008–2107	2008–2107	2008–2107	2008–2107	2008–2107	2008–2107	2008–2107
Deactivation											
Administrative controls	2008	2107	3.13×10^{1}	4.35	6.44×10^{-4}	2.72×10^{-3}	3.95×10^{-5}	4.19×10^{-2}	1.40×10^{-2}	2.29×10^{-3}	3.32×10^{-5}
Total			3.13×10^{1}	4.35	6.44×10^{-4}	2.72×10^{-3}	3.95×10^{-5}	4.19×10^{-2}	1.40×10^{-2}	2.29×10^{-3}	3.32×10^{-5}

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.
Source: SAIC 2007b.

Table G–140. FFTF Decommissioning Alternative 1 Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2008–2107	2008–2107	2008–2107	2008–2107	c	2008–2107	2008–2107
Deactivation									
Administrative controls	2008	2107	1.32×10^{-4}	3.19×10^{-6}	1.79×10^{-8}	1.07×10^{-6}	b	3.38×10^{-3}	9.54×10^{-4}
Total			1.32×10^{-4}	3.19×10^{-6}	1.79×10^{-8}	1.07×10^{-6}	0	3.38×10^{-3}	9.54×10^{-4}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.
[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.
[c] There is no peak year because no emissions were calculated.
Key: FFTF=Fast Flux Test Facility.
Source: SAIC 2007b.

Table G–141. FFTF Decommissioning Alternative 2 Maximum Criteria Pollutant Concentrations of Peak Hanford Site Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2016	2016	2021	2016	2016	2016	2016	2016	2016
Decommissioning											
Above-grade structure and equipment removal	2013	2020	3.13×10^{2}	4.36×10^{1}	a	1.85×10^{1}	2.68×10^{-1}	4.35×10^{-1}	1.45×10^{-1}	2.38×10^{-2}	3.45×10^{-4}
Backfill of Reactor Containment Building with grout	2017	2017	a	a	a	a	a	a	a	a	a
Backfill of Buildings 491 East and West with grout	2017	2017	a	a	a	a	a	a	a	a	a
Grout facility construction	2016	2016	1.22×10^{2}	1.69×10^{1}	a	1.28×10^{1}	1.86×10^{-1}	3.02×10^{1}	1.01×10^{1}	1.65	2.39×10^{-2}
Grout facility operations	2017	2017	a	a	a	a	a	a	a	a	a
Grout facility deactivation	2018	2018	a	a	a	a	a	a	a	a	a
Nonhazardous waste transportation	2013	2020	1.22×10^{-1}	1.70×10^{-2}	a	2.18×10^{-3}	3.16×10^{-5}	1.93×10^{-4}	6.43×10^{-5}	1.05×10^{-5}	1.53×10^{-7}
Construction											
Sodium Reactor Facility	2015	2016	5.16×10^{3}	7.19×10^{2}	a	2.25×10^{1}	3.26×10^{-1}	6.97	2.32	3.81×10^{-1}	5.52×10^{-3}
Remote Treatment Project	2015	2016	3.93×10^{1}	5.47	a	4.19×10^{1}	6.08×10^{-1}	6.20×10^{-2}	2.07×10^{-2}	3.39×10^{-3}	4.91×10^{-5}
Operations											
Sodium preparation	2017	2017	a	a	a	a	a	a	a	a	a
Sodium Reactor Facility	2017	2018	a	a	a	a	a	a	a	a	a
Remote Treatment Project	2017	2017	a	a	a	a	a	a	a	a	a
Deactivation											
Sodium Reactor Facility	2019	2019	a	a	a	a	a	a	a	a	a
Remote Treatment Project	2018	2018	a	a	a	a	a	a	a	a	a
Closure											
Site regrading	2021	2021	a	a	1.33	a	a	a	a	a	a
Site revegetation	2021	2021	a	a	2.00×10^{-2}	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2021	2021	a	a	1.49	a	a	a	a	a	a
Postclosure care	2022	2121	a	a	a	a	a	a	a	a	a
Total			5.64×10^{3}	7.85×10^{2}	2.84	9.58×10^{1}	1.39	3.76×10^{1}	1.25×10^{1}	2.06	2.98×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007b.

Table G–142. FFTF Decommissioning Alternative 2 Maximum Toxic Pollutant Concentrations of Peak Hanford Site Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2016	2022–2121	2017	2022–2121	c	2022–2121	2022–2121
Decommissioning									
Above-grade structure and equipment removal	2013	2020	2.63×10^{-2}	a	2.21×10^{-6}	a	a	a	a
Backfill of Reactor Containment Building with grout	2017	2017	a	a	1.19×10^{-6}	a	a	a	a
Backfill of Buildings 491 East and West with grout	2017	2017	a	a	7.72×10^{-7}	a	a	a	a
Grout facility construction	2016	2016	1.70×10^{-1}	a	a	a	a	a	a
Grout facility operations	2017	2017	a	a	2.19×10^{-4}	a	a	a	a
Grout facility deactivation	2018	2018	a	a	a	a	a	a	a
Nonhazardous waste transportation	2013	2020	4.87×10^{-5}	a	3.98×10^{-9}	a	a	a	a
Construction									
Sodium Reactor Facility	2015	2016	1.40×10^{1}	a	a	a	a	a	a
Remote Treatment Project	2015	2016	1.57×10^{-2}	a	a	a	a	a	a
Operations									
Sodium preparation	2017	2017	a	a	b	a	a	a	a
Sodium Reactor Facility	2017	2018	a	a	b	a	a	a	a
Remote Treatment Project	2017	2017	a	a	b	a	a	a	a
Deactivation									
Sodium Reactor Facility	2019	2019	a	a	a	a	a	a	a
Remote Treatment Project	2018	2018	a	a	a	a	a	a	a
Closure									
Site regrading	2021	2021	a	a	a	a	a	a	a
Site revegetation	2021	2021	a	a	a	a	a	a	a
Modified Resource Conservation and Recovery Act Subtitle C barrier construction	2021	2021	a	a	a	a	a	a	a
Postclosure care	2022	2121	a	1.06×10^{-2}	a	3.58×10^{-3}	a	1.13×10^{1}	3.18
Total			1.42×10^{1}	1.06×10^{-2}	2.23×10^{-4}	3.58×10^{-3}	0	1.13×10^{1}	3.18

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

c There is no peak year because no emissions were calculated.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–143. FFTF Decommissioning Alternative 3 Maximum Criteria Pollutant Concentrations of Peak Hanford Site Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2015	2015	2018	2015	2015	2012	2012	2012	2012
Decommissioning											
Above-grade structure and equipment removal	2013	2020	3.13×10^{2}	4.36×10^{1}	2.38×10^{-1}	1.85×10^{1}	2.68×10^{-1}	a	a	a	a
Removal of Reactor Containment Building below-grade vessels, piping, and components	2013	2014	a	a	a	a	a	a	a	a	a
Grout facility construction	2012	2012	a	a	a	a	a	5.04×10^{1}	1.68×10^{1}	2.75	3.99×10^{-2}
Grout facility operations	2013	2014	a	a	a	a	a	a	a	a	a
Grout facility deactivation	2015	2015	6.78×10^{1}	9.43	a	5.35×10^{1}	7.75×10^{-1}	a	a	a	a
Nonhazardous waste transportation	2013	2020	1.22×10^{-1}	1.70×10^{-2}	4.49×10^{-4}	2.18×10^{-3}	3.16×10^{-5}	a	a	a	a
Construction											
Sodium Reactor Facility	2015	2016	5.16×10^{3}	7.19×10^{2}	a	2.25×10^{1}	3.26×10^{-1}	a	a	a	a
Remote Treatment Project	2015	2016	3.93×10^{1}	5.47	a	4.19×10^{1}	6.08×10^{-1}	a	a	a	a
Operations											
Sodium preparation	2017	2017	a	a	a	a	a	a	a	a	a
Sodium Reactor Facility	2017	2018	a	a	b	a	a	a	a	a	a
Remote Treatment Project	2017	2017	a	a	a	a	a	a	a	a	a
Deactivation											
Sodium Reactor Facility	2019	2019	a	a	a	a	a	a	a	a	a
Remote Treatment Project	2018	2018	a	a	b	a	a	a	a	a	a
Closure											
Site regrading	2018	2018	a	a	1.77	a	a	a	a	a	a
Site revegetation	2018	2018	a	a	2.26×10^{-2}	a	a	a	a	a	a
Postclosure care	2022	2121	a	a	a	a	a	a	a	a	a
Total			5.58×10^{3}	7.77×10^{2}	2.04	1.36×10^{2}	1.98	5.04×10^{1}	1.68×10^{1}	2.75	3.99×10^{-2}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007b.

Table G–144. FFTF Decommissioning Alternative 3 Maximum Toxic Pollutant Concentrations of Peak Hanford Site Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2022–2121	2013–2014	2022–2121	c	2022–2121	2022–2121
Decommissioning									
Above-grade structure and equipment removal	2013	2020	2.63×10^{-2}	a	2.21×10^{-6}	a	a	a	a
Removal of Reactor Containment Building below-grade vessels, piping, and components	2013	2014	a	a	3.79×10^{-6}	a	a	a	a
Grout facility construction	2012	2012	a	a	a	a	a	a	a
Grout facility operations	2013	2014	a	a	1.10×10^{-4}	a	a	a	a
Grout facility deactivation	2015	2015	b	a	a	a	a	a	a
Nonhazardous waste transportation	2013	2020	4.87×10^{-5}	a	3.98×10^{-9}	a	a	a	a
Construction									
Sodium Reactor Facility	2015	2016	1.40×10^{1}	a	a	a	a	a	a
Remote Treatment Project	2015	2016	1.57×10^{-2}	a	a	a	a	a	a
Operations									
Sodium preparation	2017	2017	a	a	a	a	a	a	a
Sodium Reactor Facility	2017	2018	a	a	a	a	a	a	a
Remote Treatment Project	2017	2017	a	a	a	a	a	a	a
Deactivation									
Sodium Reactor Facility	2019	2019	a	a	a	a	a	a	a
Remote Treatment Project	2018	2018	a	a	a	a	a	a	a
Closure									
Site regrading	2018	2018	a	a	a	a	a	a	a
Site revegetation	2018	2018	a	a	a	a	a	a	a
Postclosure care	2022	2121	a	1.06×10^{-2}	a	3.58×10^{-3}	a	1.13×10^{1}	3.18
Total			1.40×10^{1}	1.06×10^{-2}	1.16×10^{-4}	3.58×10^{-3}	0	1.13×10^{1}	3.18

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–145. FFTF Decommissioning Alternative 2 Maximum Criteria Pollutant Concentrations of Peak Idaho National Laboratory Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2014	2014	2015–2016	2015–2016	2015–2016	2014	2014	2014	2014
Construction											
Sodium Processing Facility	2014	2014	66.6	46.6	a	a	a	8.96×10^{-2}	8.07×10^{-2}	3.58×10^{-3}	7.17×10^{-3}
Remote Treatment Project	2015	2016	a	a	4.00	8.63×10^{1}	1.73×10^{1}	a	a	a	a
Operations											
Sodium production	2015	2015	b	b	b	b	b	b	b	b	b
Sodium Processing Facility	2015	2016	b	b	b	b	b	b	b	b	b
Remote Treatment Project	2017	2017	b	b	b	b	b	b	b	b	b
Deactivation											
Sodium Processing Facility	2016	2016	b	b	b	b	b	b	b	b	b
Remote Treatment Project	2018	2018	b	b	b	b	b	b	b	b	b
Total			66.6	46.6	4.00	8.63×10^{1}	1.73×10^{1}	8.96×10^{-2}	8.07×10^{-2}	3.58×10^{-3}	7.17×10^{-3}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007b.

Table G–146. FFTF Decommissioning Alternative 2 Maximum Toxic Pollutant Concentrations of Peak Idaho National Laboratory Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2015–2016	2015–2016	2015–2016	2015–2016	c	2014	2014
Construction									
Sodium Processing Facility	2014	2014	a	a	a	a	b	5.17×10^{-2}	1.47×10^{-2}
Remote Treatment Project	2015	2016	3.15×10^{-2}	8.48×10^{-4}	3.53×10^{-5}	1.07×10^{-3}	b	a	a
Operations									
Sodium production	2015	2015	b	b	b	b	b	b	b
Sodium Processing Facility	2015	2016	b	b	b	b	b	b	b
Remote Treatment Project	2017	2017	b	b	b	b	b	b	b
Deactivation									
Sodium Processing Facility	2016	2016	b	b	b	b	b	b	b
Remote Treatment Project	2018	2018	b	b	b	b	b	b	b
Total			3.15×10^{-2}	8.48×10^{-4}	3.53×10^{-5}	1.07×10^{-3}	0	5.17×10^{-2}	1.47×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–147. FFTF Decommissioning Alternative 3 Maximum Criteria Pollutant Concentrations of Peak Idaho National Laboratory Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2014	2014	2015–2016	2015–2016	2015–2016	2014	2014	2014	2014
Construction											
Sodium Processing Facility	2014	2014	66.6	46.6	a	a	a	8.96×10^{-2}	8.07×10^{-2}	3.58×10^{-3}	7.17×10^{-3}
Remote Treatment Project	2015	2016	a	a	4.00	8.63×10^{1}	1.73×10^{1}	a	a	a	a
Operations											
Sodium production	2015	2015	b	b	b	b	b	b	b	b	b
Sodium Processing Facility	2015	2016	b	b	b	b	b	b	b	b	b
Remote Treatment Project	2017	2017	b	b	b	b	b	b	b	b	b
Deactivation											
Sodium Processing Facility	2016	2016	b	b	b	b	b	b	b	b	b
Remote Treatment Project	2018	2018	b	b	b	b	b	b	b	b	b
Total			66.6	46.6	4.00	8.63×10^{1}	1.73×10^{1}	8.96×10^{-2}	8.07×10^{-2}	3.58×10^{-3}	7.17×10^{-3}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

Key: FFTF=Fast Flux Test Facility; PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007b.

Table G–148. FFTF Decommissioning Alternative 3 Maximum Toxic Pollutant Concentrations of Peak Idaho National Laboratory Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2014	2014	2014	2014	c	2014	2014
Construction									
Sodium Processing Facility	2014	2014	a	a	a	a	b	5.17×10^{-2}	1.47×10^{-2}
Remote Treatment Project	2015	2016	3.15×10^{-2}	8.48×10^{-4}	3.53×10^{-5}	1.07×10^{-3}	b	a	a
Operations									
Sodium production	2015	2015	b	b	b	b	b	b	b
Sodium Processing Facility	2015	2016	b	b	b	b	b	b	b
Remote Treatment Project	2017	2017	b	b	b	b	b	b	b
Deactivation									
Sodium Processing Facility	2016	2016	b	b	b	b	b	b	b
Remote Treatment Project	2018	2018	b	b	b	b	b	b	b
Total			3.15×10^{-2}	8.48×10^{-4}	3.53×10^{-5}	1.07×10^{-3}	0	5.17×10^{-2}	1.47×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Key: FFTF=Fast Flux Test Facility.

Source: SAIC 2007b.

Table G–149. Waste Management Alternative 1 Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2009	2009	2009	2009	2009	2009	2009	2009	2009
Operations											
Low-level radioactive waste burial grounds	2007	2035	3.05×10^{1}	5.59	3.79×10^{-2}	7.67×10^{1}	4.91×10^{-1}	4.48×10^{-2}	1.73×10^{-2}	3.51×10^{-3}	2.24×10^{-5}
Deactivation											
Integrated Disposal Facility	2009	2009	4.20×10^{2}	6.50×10^{1}	1.20	4.30×10^{2}	4.05	6.60×10^{-1}	2.36×10^{-1}	4.45×10^{-2}	4.19×10^{-4}
Postclosure care	2036	2135	a	a	a	a	a	a	a	a	a
Total			4.51×10^{2}	7.06×10^{1}	1.24	$\mathbf{5.07\times10^{2}}$	4.54	7.05×10^{-1}	2.54×10^{-1}	4.80×10^{-2}	4.42×10^{-4}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–150. Waste Management Alternative 1 Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2009	2009	2009	2009	b	2036 - 2135	2009
Operations									
Low-level radioactive waste burial grounds	2007	2035	9.36×10^{-3}	8.90×10^{-6}	3.40×10^{-7}	1.04×10^{-5}	a	a	1.01×10^{-3}
Deactivation									
Integrated Disposal Facility	2009	2009	2.01×10^{-1}	2.55×10^{-4}	1.07×10^{-5}	3.22×10^{-4}	a	a	8.72×10^{-3}
Postclosure care	2036	2135	a	a	a	a	a	2.65×10^{-2}	a
Total			2.10×10^{-1}	2.64×10^{-4}	1.10×10^{-5}	3.32×10^{-4}	0	2.65×10^{-2}	9.73×10^{-3}

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b There is no peak year because no emissions were calculated.

Source: SAIC 2007c.

Table G–151. Waste Management Alternative 2 (Treatment and Storage) Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2011–2012	2011–2012	2013–2018	2019–2050	2019–2050	2011–2012	2011–2012	2011–2012	2011–2012
Construction											
T Plant complex expansion	2011	2012	7.55×10^{2}	1.38×10^{2}	a	a	a	1.02	3.92×10^{-1}	7.97×10^{-2}	5.10×10^{-4}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	8.61×10^{3}	1.58×10^{3}	a	a	a	1.16×10^{1}	4.47	9.09×10^{-1}	5.81×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	a	a	4.59×10^{-1}	a	a	a	a	a	a
Central Waste Complex expansion	2011	2012	2.87×10^{3}	5.26×10^{2}	a	a	a	3.87	1.49	3.03×10^{-1}	1.94×10^{-3}
Operations											
T Plant complex expansion	2013	2050	a	a	2.94	4.05×10^{1}	2.59×10^{-1}	a	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	a	a	7.91×10^{-3}	1.07×10^{2}	6.86×10^{-1}	a	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	a	a	a	1.07×10^{2}	2.96	a	a	a	a
Central Waste Complex expansion	2013	2050	a	a	6.93×10^{-2}	4.63×10^{2}	3.04×10^{-2}	a	a	a	a
Deactivation											
T Plant complex expansion	2051	2051	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a	a	a
Central Waste Complex expansion	2051	2051	a	a	a	a	a	a	a	a	a
Total			1.22×10^{4}	2.24×10^{3}	3.47	**7.17×10^{2}**	3.93	1.65×10^{1}	6.36	1.29	8.26×10^{-3}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–152. Waste Management Alternative 2 (Treatment and Storage) Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2013–2018	2013–2018	2013–2018	2013–2018	b	2011–2012	2011–2012
Construction									
T Plant complex expansion	2011	2012	a	a	a	a	a	1.14×10^{-1}	3.25×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	a	a	a	a	a	1.30	3.70×10^{-1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	1.31×10^{-1}	4.78×10^{-4}	3.36×10^{-5}	1.41×10^{-3}	a	a	a
Central Waste Complex expansion	2011	2012	a	a	a	a	a	4.33×10^{-1}	1.23×10^{-1}
Operations									
T Plant complex expansion	2013	2050	7.22×10^{-1}	6.22×10^{-4}	2.60×10^{-5}	7.86×10^{-4}	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	1.95×10^{-3}	1.67×10^{-6}	7.02×10^{-8}	2.12×10^{-6}	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	a	a	a	a	a	a	a
Central Waste Complex expansion	2013	2050	1.90×10^{-2}	5.80×10^{-5}	7.87×10^{-7}	3.13×10^{-5}	a	a	a
Deactivation									
T Plant complex expansion	2051	2051	a	a	a	a	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a
Central Waste Complex expansion	2051	2051	a	a	a	a	a	a	a
Total			8.74×10^{-1}	1.16×10^{-3}	6.05×10^{-5}	2.23×10^{-3}	0	1.84	5.26×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] There is no peak year because no emissions were calculated.

Key: TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–153. Waste Management Alternative 2, Disposal Group 1, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2051–2052	2051–2052	2051–2052	2019–2021	2019–2021	2051–2052	2051–2052	2051–2052	2051–2052
Construction											
Integrated Disposal Facility	2006	2008	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	2.16×10^{3}	1.60×10^{1}	a	a	a	a
Operations											
Low-level radioactive waste burial grounds	2007	2050	a	a	a	7.67×10^{1}	4.91×10^{-1}	a	a	a	a
Integrated Disposal Facility	2009	2050	a	a	a	1.12×10^{3}	1.06×10^{1}	a	a	a	a
River Protection Project Disposal Facility	2022	2050	a	a	a	a	a	a	a	a	a
Closure											
Integrated Disposal Facility	2051	2052	1.74×10^{4}	2.70×10^{3}	7.69	a	a	2.40×10^{1}	8.57	1.62	1.52×10^{-2}
Postclosure care, Integrated Disposal Facility	2053	2152	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2051	2052	3.24×10^{4}	5.19×10^{3}	1.15×10^{1}	a	a	4.45×10^{1}	1.51×10^{1}	3.08	2.28×10^{-2}
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	a	a	a	a	a	a	a
Total			**4.98×10^{4}**	7.88×10^{3}	1.92×10^{1}	**3.36×10^{3}**	2.71×10^{1}	6.84×10^{1}	2.37×10^{1}	4.70	3.80×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–154. Waste Management Alternative 2, Disposal Group 1, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2051–2052	2051–2052	2051–2052	2051–2052	c	2051–2052	2051–2052
Construction									
Integrated Disposal Facility	2006	2008	a	a	a	a	b	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2050	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility	2051	2052	1.32	2.79×10^{-3}	7.29×10^{-5}	2.40×10^{-3}	a	2.06	6.12×10^{-1}
Postclosure care, Integrated Disposal Facility	2053	2152	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2051	2052	2.52	4.19×10^{-3}	1.09×10^{-4}	3.60×10^{-3}	a	3.94	1.17
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	a	a	a	a	a
Total			3.84	6.98×10^{-3}	1.82×10^{-4}	6.00×10^{-3}	0	6.00	1.78

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Source: SAIC 2007c.

Table G–155. Waste Management Alternative 2, Disposal Group 2, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2101–2102	2101–2102	2101–2102	2019–2021	2019–2021	2101–2102	2101–2102	2101–2102	2101–2102
Construction											
Integrated Disposal Facility	2006	2008	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	1.68×10^{4}	1.24×10^{2}	a	a	a	a
Operations											
Low-level radioactive waste burial grounds	2007	2050	a	a	a	7.67×10^{1}	4.91×10^{-1}	a	a	a	a
Integrated Disposal Facility	2009	2100	a	a	a	3.97×10^{2}	3.74	a	a	a	a
River Protection Project Disposal Facility	2022	2100	a	a	a	a	a	a	a	a	a
Closure											
Integrated Disposal Facility	2101	2102	6.16×10^{3}	9.53×10^{2}	2.72	a	a	8.46	3.03	5.71×10^{-1}	5.38×10^{-3}
Postclosure care, Integrated Disposal Facility	2103	2202	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2101	2102	2.51×10^{5}	4.02×10^{4}	8.93×10^{1}	a	a	3.45×10^{2}	1.17×10^{2}	2.39×10^{1}	1.77×10^{-1}
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	a	a	a	a	a	a	a
Total			**2.57×10^{5}**	**4.12×10^{4}**	9.21×10^{1}	**1.72×10^{4}**	**1.28×10^{2}**	3.53×10^{2}	1.20×10^{2}	2.45×10^{1}	1.82×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–156. Waste Management Alternative 2, Disposal Group 2, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2101–2102	2101–2102	2101–2102	2101–2102	c	2101–2102	2101–2102
Construction									
Integrated Disposal Facility	2006	2008	a	a	a	a	b	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility	2009	2100	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2100	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility	2101	2102	4.67×10^{-1}	9.87×10^{-4}	2.57×10^{-5}	8.49×10^{-4}	a	7.28×10^{-1}	2.16×10^{-1}
Postclosure care, Integrated Disposal Facility	2103	2202	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2101	2102	1.95×10^{1}	3.25×10^{-2}	8.46×10^{-4}	2.79×10^{-2}	a	3.05×10^{1}	9.06
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	a	a	a	a	a
Total			2.00×10^{1}	3.34×10^{-2}	8.72×10^{-4}	2.88×10^{-2}	0	3.12×10^{1}	9.27

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Source: SAIC 2007c.

Table G–157. Waste Management Alternative 2, Disposal Group 3, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2166–2167	2166–2167	2166–2167	2019–2021	2019–2021	2166–2167	2166–2167	2166–2167	2166–2167
Construction											
Integrated Disposal Facility	2006	2008	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	1.68×10^{4}	1.24×10^{2}	a	a	a	a
Operations											
Low-level radioactive waste burial grounds	2007	2050	a	a	a	7.67×10^{1}	4.91×10^{-1}	a	a	a	a
Integrated Disposal Facility	2009	2165	a	a	a	3.97×10^{2}	3.74	a	a	a	a
River Protection Project Disposal Facility	2022	2165	a	a	a	a	a	a	a	a	a
Closure											
Integrated Disposal Facility	2166	2167	6.16×10^{3}	9.53×10^{2}	2.72	a	a	8.46	3.03	5.71×10^{-1}	5.38×10^{-3}
Postclosure care, Integrated Disposal Facility	2168	2267	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2166	2167	2.51×10^{5}	4.02×10^{4}	8.93×10^{1}	a	a	3.45×10^{2}	1.17×10^{2}	2.39×10^{1}	1.77×10^{-1}
Postclosure care, River Protection Project Disposal Facility	2168	2267	a	a	a	a	a	a	a	a	a
Total			**2.57×10^{5}**	**4.12×10^{4}**	9.21×10^{1}	**1.72×10^{4}**	**1.28×10^{2}**	3.53×10^{2}	1.20×10^{2}	2.45×10^{1}	1.82×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–158. Waste Management Alternative 2, Disposal Group 3, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2166–2167	2166–2167	2166–2167	2166–2167	c	2166–2167	2166–2167
Construction									
Integrated Disposal Facility	2006	2008	a	a	a	a	b	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility	2009	2165	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2165	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility	2166	2167	4.67×10^{-1}	9.87×10^{-4}	2.57×10^{-5}	8.49×10^{-4}	a	7.28×10^{-1}	2.16×10^{-1}
Postclosure care, Integrated Disposal Facility	2168	2267	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2166	2167	1.95×10^{1}	3.25×10^{-2}	8.46×10^{-4}	2.79×10^{-2}	a	3.05×10^{1}	9.06
Postclosure care, River Protection Project Disposal Facility	2168	2267	a	a	a	a	a	a	a
Total			2.00×10^{1}	3.34×10^{-2}	8.72×10^{-4}	2.88×10^{-2}	0	3.12×10^{1}	9.27

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Source: SAIC 2007c.

Table G–159. Waste Management Alternative 3 (Treatment and Storage) Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2011–2012	2011–2012	2013–2018	2019–2050	2019–2050	2011–2012	2011–2012	2011–2012	2011–2012
Construction											
T Plant complex expansion	2011	2012	7.55×10^{2}	1.38×10^{2}	a	a	a	1.02	3.92×10^{-1}	7.97×10^{-2}	5.10×10^{-4}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	8.61×10^{3}	1.58×10^{3}	a	a	a	1.16×10^{1}	4.47	9.09×10^{-1}	5.81×10^{-3}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	a	a	4.59×10^{-1}	a	a	a	a	a	a
Central Waste Complex expansion	2011	2012	2.87×10^{3}	5.26×10^{2}	a	a	a	3.87	1.49	3.03×10^{-1}	1.94×10^{-3}
Operations											
T Plant complex expansion	2013	2050	a	a	2.94	4.05×10^{1}	2.59×10^{-1}	a	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	a	a	7.91×10^{-3}	1.07×10^{2}	6.86×10^{-1}	a	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	a	a	a	1.07×10^{2}	6.85×10^{-1}	a	a	a	a
Central Waste Complex expansion	2013	2050	a	a	6.93×10^{-2}	4.63×10^{2}	2.96	a	a	a	a
Deactivation											
T Plant complex expansion	2051	2051	a	a	a	a	a	a	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a	a	a
Central Waste Complex expansion	2051	2051	a	a	a	a	a	a	a	a	a
Total			1.22×10^{4}	2.24×10^{3}	3.47	**7.17×10^{2}**	4.59	1.65×10^{1}	6.36	1.29	8.26×10^{-3}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers; TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–160. Waste Management Alternative 3 (Treatment and Storage) Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2013–2018	2013–2018	2013–2018	2013–2018	b	2011–2012	2011–2012
Construction									
T Plant complex expansion	2011	2012	a	a	a	a	a	1.14×10^{-1}	3.25×10^{-2}
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2011	2012	a	a	a	a	a	1.30	3.70×10^{-1}
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2018	1.31×10^{-1}	4.78×10^{-4}	3.36×10^{-5}	1.41×10^{-3}	a	a	a
Central Waste Complex expansion	2011	2012	a	a	a	a	a	4.33×10^{-1}	1.23×10^{-1}
Operations									
T Plant complex expansion	2013	2050	7.22×10^{-1}	6.22×10^{-4}	2.60×10^{-5}	7.86×10^{-4}	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2013	2050	1.95×10^{-3}	1.67×10^{-6}	7.02×10^{-8}	2.12×10^{-6}	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2019	2050	a	a	a	a	a	a	a
Central Waste Complex expansion	2013	2050	1.90×10^{-2}	5.80×10^{-5}	7.87×10^{-7}	3.13×10^{-5}	a	a	a
Closure									
T Plant complex expansion	2051	2051	a	a	a	a	a	a	a
Contact-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a
Remote-Handled Mixed TRU/TRU waste facility (WRAP expansion)	2051	2051	a	a	a	a	a	a	a
Central Waste Complex expansion	2051	2051	a	a	a	a	a	a	a
Total			8.74×10^{-1}	1.16×10^{-3}	6.05×10^{-5}	2.23×10^{-3}	0	1.84	5.26×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] There is no peak year because no emissions were calculated.

Key: TRU=transuranic; WRAP=Waste Receiving and Processing Facility.

Source: SAIC 2007c.

Table G–161. Waste Management Alternative 3, Disposal Group 1, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2051–2052	2051–2052	2051–2052	2019–2021	2019–2021	2051–2052	2051–2052	2051–2052	2051–2052
Construction											
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	2.16×10^{3}	1.60×10^{1}	a	a	a	a
Operations											
Low-level radioactive waste burial grounds	2007	2050	a	a	a	7.67×10^{1}	4.91×10^{-1}	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2050	a	a	a	1.03×10^{3}	9.70	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	1.52×10^{2}	9.70×10^{-1}	a	a	a	a
River Protection Project Disposal Facility	2022	2050	a	a	a	a	a	a	a	a	a
Closure											
Integrated Disposal Facility, 200-East Area	2051	2052	1.62×10^{4}	2.50×10^{3}	7.26	a	a	2.22×10^{1}	7.96	1.50	1.41×10^{-2}
Integrated Disposal Facility, 200-West Area	2051	2052	2.71×10^{3}	4.97×10^{2}	1.29	a	a	3.76	1.45	2.95×10^{-1}	1.88×10^{-3}
Postclosure care, Integrated Disposal Facility, 200-East Area	2053	2152	a	a	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2051	2052	3.24×10^{4}	5.19×10^{3}	1.15×10^{1}	a	a	4.45×10^{1}	1.51×10^{1}	3.08	2.28×10^{-2}
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	a	a	a	a	a	a	a
Total			**5.12×10^{4}**	8.19×10^{3}	2.01×10^{1}	**3.42×10^{3}**	2.72×10^{1}	7.05×10^{1}	2.45×10^{1}	4.88	3.88×10^{-2}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–162. Waste Management Alternative 3, Disposal Group 1, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2051–2052	2051–2052	2051–2052	2051–2052	c	2051–2052	2051–2052
Construction									
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	b	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	b	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2050	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility, 200-East Area	2051	2052	1.25	2.61×10^{-3}	6.87×10^{-5}	2.26×10^{-3}	a	1.91	5.68×10^{-1}
Integrated Disposal Facility, 200-West Area	2051	2052	3.23×10^{-1}	4.06×10^{-4}	1.20×10^{-5}	3.84×10^{-4}	a	3.54×10^{-1}	1.08×10^{-1}
Postclosure care, Integrated Disposal Facility, 200-East Area	2053	2152	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2051	2052	2.52	4.19×10^{-3}	1.09×10^{-4}	3.60×10^{-3}	a	3.94	1.17
Postclosure care, River Protection Project Disposal Facility	2053	2152	a	a	a	a	a	a	a
Total			4.09	7.21×10^{-3}	1.90×10^{-4}	6.25×10^{-3}	0	6.20	1.84

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Source: SAIC 2007c.

Table G–163. Waste Management Alternative 3, Disposal Group 2, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2101–2102	2101–2102	2101–2102	2019–2021	2019–2021	2101–2102	2101–2102	2101–2102	2101–2102
Construction											
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	1.68×10^{4}	1.24×10^{2}	a	a	a	a
Operations											
Low-level radioactive waste burial grounds	2007	2050	a	a	a	7.67×10^{1}	4.91×10^{-1}	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2100	a	a	a	3.21×10^{2}	3.02	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	1.52×10^{2}	9.70×10^{-1}	a	a	a	a
River Protection Project Disposal Facility	2022	2100	a	a	a	a	a	a	a	a	a
Closure											
Integrated Disposal Facility, 200-East Area	2101	2102	5.38×10^{3}	8.32×10^{2}	2.62	a	a	7.41	2.65	5.00×10^{-1}	4.71×10^{-3}
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2103	2202	a	a	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	1.85×10^{1}	3.38	3.57×10^{-3}	a	a	2.51×10^{-2}	9.67×10^{-3}	1.97×10^{-3}	1.26×10^{-5}
River Protection Project Disposal Facility	2101	2102	2.51×10^{5}	4.02×10^{4}	8.93×10^{1}	a	a	3.45×10^{2}	1.17×10^{2}	2.39×10^{1}	1.77×10^{-1}
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	a	a	a	a	a	a	a
Total			**2.56×10^{5}**	**4.10×10^{4}**	9.20×10^{1}	**1.73×10^{4}**	**1.28×10^{2}**	3.52×10^{2}	1.20×10^{2}	2.44×10^{1}	1.81×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–164. Waste Management Alternative 3, Disposal Group 2, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2101–2102	2101–2102	2101–2102	2101–2102	c	2101–2102	2101–2102
Construction									
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	b	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	b	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2100	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2100	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility, 200-East Area	2101	2102	4.48×10^{-1}	9.07×10^{-4}	2.46×10^{-5}	8.05×10^{-4}	a	6.27×10^{-1}	1.87×10^{-1}
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2103	2202	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	9.27×10^{-4}	1.81×10^{-6}	3.59×10^{-8}	1.27×10^{-6}	a	2.69×10^{-3}	7.79×10^{-4}
River Protection Project Disposal Facility	2101	2102	1.95×10^{1}	3.25×10^{-2}	8.46×10^{-4}	2.79×10^{-2}	a	3.05×10^{1}	9.06
Postclosure care, River Protection Project Disposal Facility	2103	2202	a	a	a	a	a	a	a
Total			2.00×10^{1}	3.34×10^{-2}	8.71×10^{-4}	2.87×10^{-2}	0	3.11×10^{1}	9.25

a This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

b Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

c There is no peak year because no emissions were calculated.

Source: SAIC 2007c.

Table G–165. Waste Management Alternative 3, Disposal Group 3, Maximum Criteria Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)								
			Carbon Monoxide		Nitrogen Dioxide	PM_{10}		Sulfur Dioxide			
			1-hour	8-hour	Annual	24-hour	Annual	1-hour	3-hour	24-hour	Annual
			2166–2167	2166–2167	2166–2167	2019–2021	2019–2021	2166–2167	2166–2167	2166–2167	2166–2167
Construction											
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	1.68×10^{4}	1.24×10^{2}	a	a	a	a
Operations											
Low-level radioactive waste burial grounds	2007	2050	a	a	a	7.67×10^{1}	4.91×10^{-1}	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2165	a	a	a	3.21×10^{2}	3.02	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	1.52×10^{2}	9.70×10^{-1}	a	a	a	a
River Protection Project Disposal Facility	2022	2165	a	a	a	a	a	a	a	a	a
Closure											
Integrated Disposal Facility, 200-East Area	2166	2167	5.38×10^{3}	8.32×10^{2}	2.62	a	a	7.41	2.65	5.00×10^{-1}	4.71×10^{-3}
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2168	2267	a	a	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2166	2167	2.51×10^{5}	4.02×10^{4}	8.93×10^{1}	a	a	3.45×10^{2}	1.17×10^{2}	2.39×10^{1}	1.77×10^{-1}
Postclosure care, River Protection Project Disposal Facility	2168	2267	a	a	a	a	a	a	a	a	a
Total			$\mathbf{2.56\times10^{5}}$	$\mathbf{4.10\times10^{4}}$	9.20×10^{1}	$\mathbf{1.73\times10^{4}}$	$\mathbf{1.28\times10^{2}}$	3.52×10^{2}	1.20×10^{2}	2.44×10^{1}	1.81×10^{-1}

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

Note: Total concentrations exceeding applicable standards are presented in **bold**.

Key: PM_{10}=particulate matter with an aerodynamic diameter less than or equal to 10 micrometers.

Source: SAIC 2007c.

Table G–166. Waste Management Alternative 3, Disposal Group 3, Maximum Toxic Pollutant Concentrations of Peak Activity Periods

Facility/System	Start Year	End Year	Concentration (micrograms per cubic meter)						
			Ammonia	Benzene	1,3-Butadiene	Formaldehyde	Mercury	Toluene	Xylene
			24-hour	Annual	Annual	Annual	24-hour	24-hour	24-hour
			2166–2167	2166–2167	2166–2167	2166–2167	c	2166–2167	2166–2167
Construction									
Integrated Disposal Facility, 200-East Area	2006	2008	a	a	a	a	b	a	a
Integrated Disposal Facility, 200-West Area	2006	2008	a	a	a	a	b	a	a
River Protection Project Disposal Facility	2019	2021	a	a	a	a	a	a	a
Operations									
Low-level radioactive waste burial grounds	2007	2050	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-East Area	2009	2165	a	a	a	a	a	a	a
Integrated Disposal Facility, 200-West Area	2009	2050	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2022	2165	a	a	a	a	a	a	a
Closure									
Integrated Disposal Facility, 200-East Area	2166	2167	4.48×10^{-1}	9.07×10^{-4}	2.46×10^{-5}	8.05×10^{-4}	a	6.27×10^{-1}	1.87×10^{-1}
Integrated Disposal Facility, 200-West Area	2051	2052	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-East Area	2168	2267	a	a	a	a	a	a	a
Postclosure care, Integrated Disposal Facility, 200-West Area	2053	2152	a	a	a	a	a	a	a
River Protection Project Disposal Facility	2166	2167	1.95×10^{1}	3.25×10^{-2}	8.46×10^{-4}	2.79×10^{-2}	a	3.05×10^{1}	9.06
Postclosure care, River Protection Project Disposal Facility	2168	2267	a	a	a	a	a	a	a
Total			2.00×10^{1}	3.34×10^{-2}	8.71×10^{-4}	2.87×10^{-2}	0	3.11×10^{1}	9.25

[a] This activity would not contribute to the concentration during the peak year(s) for this pollutant and averaging period.

[b] Emissions for this activity and pollutant were not calculated because they would be small compared with those for other activities under this alternative, as explained in Section G.2.

[c] There is no peak year because no emissions were calculated.

Source: SAIC 2007c.

G.4 GENERAL CONFORMITY REVIEW

The Clean Air Act, as amended, requires that Federal actions conform to the host state's "state implementation plan." A state implementation plan provides for the implementation, maintenance, and enforcement of NAAQS for the six criteria pollutants: sulfur dioxide, PM_{10}, carbon monoxide, ozone, nitrogen dioxide, and lead. Its purpose is to eliminate or reduce the severity and number of NAAQS violations and to expedite the attainment of these standards. "No department, agency, or instrumentality of the Federal Government shall engage in or support in any way or provide financial assistance for, license or permit, or approve any activity that does not conform to an applicable implementation plan." The final rule for "Determining Conformity of General Federal Actions to State or Federal Implementation Plans" (40 CFR 51.850–51.860) took effect on January 31, 1994. Hanford and INL are within areas currently designated as attainment for criteria air pollutants (40 CFR 81.348 and 81.313, respectively). Therefore, the alternatives being considered in this *TC & WM EIS* do not require a conformity determination under the provisions of this rule.

G.5 GREENHOUSE GASES

The "natural greenhouse effect" is the process by which part of the terrestrial radiation is absorbed by gases in the atmosphere, thereby warming the Earth's surface and atmosphere. This greenhouse effect and the Earth's radiation balance are affected largely by water vapor, carbon dioxide, and trace gases, all absorbers of infrared radiation and commonly referred to as "greenhouse gases." Other trace gases include nitrous oxide, chlorofluorocarbons, and methane.

Judging from fiscal year 2006 fuel use (see Chapter 3, Section 3.2), Hanford emissions of carbon dioxide are estimated to be 1.42×10^4 metric tons per year, which is less than 0.0002 percent of the total U.S. emissions of 6.09 billion metric tons per year (EPA 2007b). Carbon dioxide equivalents of other greenhouse gases that may be emitted from activities at Hanford are not included in this estimate. Based on the fuel consumption averages for INL (see Chapter 3, Section 3.3), INL emissions of carbon dioxide are estimated to be 3.52×10^4 metric tons per year, which is less than 0.0006 percent of the total U.S. emissions per year.

Emissions of carbon dioxide by alternative are provided in Table G–167. Additional discussion of greenhouse gases is provided in Chapter 6, Section 6.5.

Table G–167. Estimated Annual Average Carbon Dioxide Emissions by Alternative

Alternative	Emissions (metric tons per year)
Tank Closure (TC)	
TC Alternative 1	1.07×10^4
TC Alternative 2A	7.03×10^4
TC Alternative 2B	7.59×10^4
TC Alternative 3A	3.53×10^4
TC Alternative 3B	3.6×10^4
TC Alternative 3C	5.39×10^4
TC Alternative 4	3.92×10^4
TC Alternative 5	8.29×10^4
TC Alternative 6A, Base Case	2.39×10^5
TC Alternative 6A, Option Case	2.46×10^5
TC Alternative 6B, Base Case	5.81×10^4

Table G–167. Estimated Annual Average Carbon Dioxide Emissions by Alternative *(continued)*

Alternative	Emissions (metric tons per year)
Tank Closure (TC) *(continued)*	
TC Alternative 6B, Option Case	6.85×10^4
TC Alternative 6C	7.61×10^4
FFTF Decommissioning	
FFTF Decommissioning Alternative 1	2.75
FFTF Decommissioning Alternative 2[a]	1.98×10^3
FFTF Decommissioning Alternative 3[a]	1.54×10^2
Waste Management (WM)	
WM Alternative 1	1.23×10^3
WM Alternative 2	4.1×10^4
WM Alternative 2, Disposal Group 1	4.11×10^3
WM Alternative 2, Disposal Group 2	2.02×10^4
WM Alternative 2, Disposal Group 3	2.33×10^4
WM Alternative 3	4.1×10^4
WM Alternative 3, Disposal Group 1	5.03×10^3
WM Alternative 3, Disposal Group 2	2.11×10^4
WM Alternative 3, Disposal Group 3	2.38×10^4

[a] Including emissions for options at Idaho National Laboratory.

Key: FFTF=Fast Flux Test Facility.

G.6 REFERENCES

Burk, K.W., 2007, Battelle, Pacific Northwest National Laboratory, Richland, Washington, personal communication (email) to K.W. Owens, Science Applications International Corporation, Germantown, Maryland, "JFDs," May 15.

CEES (Columbia Energy & Environmental Services, Inc.), 2006a, *Steam Reforming Air Emissions Calculations*, WT-ST-048, Rev. 2, Richland, Washington, October 16.

CEES (Columbia Energy & Environmental Services, Inc.), 2006b, *Air Emissions for Deploying 3 LAW Melters in the WTP*, WT-ST-031, Rev. 6, Richland, Washington, October 18.

CEES (Columbia Energy & Environmental Services, Inc.), 2006c, *Air Emission Calculations for WTP 2×6 Melter Configuration*, WT-ST-060, Rev. 1, Richland, Washington, October 18.

CEES (Columbia Energy & Environmental Services, Inc.), 2007, *Revision to Air Emissions for WTP 2×2 Melter Configuration*, WT-ST-033, Rev. 4, Richland, Washington, January 18.

DOE (U.S. Department of Energy), 2003, *Environmental Impact Statement for Retrieval, Treatment, and Disposal of Tank Wastes and Closure of Single-Shell Tanks at the Hanford Site, Richland, WA: Inventory and Source Term Data Package*, DOE/ORP-2003-02, Rev. 0, Office of River Protection, Richland, Washington, April 17.

EPA (U.S. Environmental Protection Agency), 1992, *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised*, EPA-454/R-92-019, Office of Air and Radiation, Research Triangle Park, North Carolina, October.

EPA (U.S. Environmental Protection Agency), 1996, *Compilation of Air Pollutant Emission Factors*, Vol. 1, *Stationary Point and Area Sources*, 5th ed., AP-42, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, January.

EPA (U.S. Environmental Protection Agency), 2003a, *Factors Information Retrieval System*, Version 6.23, accessed through http://www.epa.gov/ttn/chief/software/fire.index.html.

EPA (U.S. Environmental Protection Agency), 2003b, *User's Guide to MOBILE6.1 and MOBILE6.2*: *Mobile Source Emission Factor Model*, EPA420-R-03-010, Office of Transportation and Air Quality, Assessment and Standards Division, August.

EPA (U.S. Environmental Protection Agency), 2004, *User's Guide for the AMS/EPA Regulatory Model – AERMOD*, EPA-454/B-03-001, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division, Research Triangle Park, North Carolina, September.

EPA (U.S. Environmental Protection Agency), 2007a, *2002 National Emissions Inventory Database: On-road Vehicle Data for Adams, Benton, Franklin, and Grant Counties*, Onroad_CAP2002v3_071010), accessed through http//www.epa.gov/ttn/chief/net/2002inventory.html, October 15.

EPA (U.S. Environmental Protection Agency), 2007b, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2005*, EPA 430-R-07-002, Washington, D.C., April 15.

Fluor Hanford (Fluor Hanford, Inc.), 2002, *Environmental Releases for Calendar Year 2001*, HNF-EP-0527, Rev. 11, Richland, Washington, August.

Fluor Hanford (Fluor Hanford, Inc.), 2003, *Environmental Releases for Calendar Year 2002*, HNF-EP-0527, Rev. 12, Richland, Washington, August.

Sagendorf, J.F., J.T. Goll, and W.F. Sandusky, 1982, *XOQDOQ: Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations*, NUREG/CR-2919, U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Systems Integration, September.

SAIC (Science Applications International Corporation), 2007a, *Tank Closure Alternatives*, *Scaled Data Sets to Support the "Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington,"* Germantown, Maryland, July 12.

SAIC (Science Applications International Corporation), 2007b, *Fast Flux Test Facility Alternatives, Scaled Data Sets to Support the "Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington,"* Germantown, Maryland, July 12.

SAIC (Science Applications International Corporation), 2007c, *Waste Management Alternatives, Scaled Data Sets to Support the "Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington,"* Germantown, Maryland, July 12.

SAIC (Science Applications International Corporation), 2008, *Revised Scaled Data Sets to Support the "Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington,"* Germantown, Maryland, October 9.

Slaathaug, E.J., 1995, *Tri-Party Agreement Alternative Engineering Data Package for the "Tank Waste Remediation System Environmental Impact Statement,"* WHC-SD-WM-EV-104, Rev. 0, Westinghouse Hanford Company, Richland, Washington, July.

Code of Federal Regulations

40 CFR 50, U.S. Environmental Protection Agency, "National Primary and Secondary Ambient Air Quality Standards."

40 CFR 51.850–51.860, U.S. Environmental Protection Agency, "Requirements for Preparation, Adoption, and Submittal of Implementation Plans," Subpart W, "Determining Conformity of General Federal Actions to State or Federal Implementation Plans."

40 CFR 81.313, U.S. Environmental Protection Agency, "Designation of Areas for Air Quality Planning Purposes," Subpart C, Section 107, "Attainment Status Designations: Idaho."

40 CFR 81.348, U.S. Environmental Protection Agency, "Designation of Areas for Air Quality Planning Purposes," Subpart C, Section 107, "Attainment Status Designations: Washington."

Washington Administrative Code

WAC 173-460, Washington State Department of Ecology, "Control of New Sources of Toxic Air Pollutants," Olympia, Washington, July 1998.

WAC 173-470, Washington State Department of Ecology, "Ambient Air Quality Standards for Particulate Matter," Olympia, Washington, January 1989.

WAC 173-474, Washington State Department of Ecology, "Ambient Air Quality Standards for Sulfur Oxides," Olympia, Washington, September 1987.

WAC 173-475, Washington State Department of Ecology, "Ambient Air Quality Standards for Carbon Monoxide, Ozone, and Nitrogen Dioxide," Olympia, Washington, February 1980.

WAC 173-481, Washington State Department of Ecology, "Ambient Air Quality and Environmental Standards for Fluorides," Olympia, Washington, August 2005.

WAC 173-490, Washington State Department of Ecology, "Emissions Standards and Controls for Sources Emitting Volatile Organic Compounds (VOC)," Olympia, Washington, February 1998.