Impacts from other existing facility disposition alternatives would be lower.

Because facility disposition impacts would be small in all cases, and there is no means for minority or low-income populations to be diproportionately affected, no disproportionately high and adverse impacts would be expected for minority or low-income populations.

As noted in Section 5.3.8, public health impacts from facility disposition activities are based on projected airborne releases of radioactive and nonradioactive contaminants. Because prevailing winds are out of the southwest and northeast (see Section 4.7.1), contaminants released to the atmosphere from INTEC tend to be carried to the northeast (into the interior of the INEEL) or southwest (into the sparsely-populated area south and west of the INEEL). Minority populations tend to be concentrated south and east of INTEC, in urban areas like Pocatello and Idaho Falls and along the Interstate 15 corridor (see Figure 4-2***0***). The Fort Hall Indian Reservation is also some 40 miles southeast of INTEC (see Figure 4-2***1***). This suggests that minority and low-income populations would not experience higher exposure rates than the general population and that disproportionately high and adverse human health effects for minority or low-income populations would not occur as a result of facility disposition activities at INTEC.

5.3.10 UTILITIES AND ENERGY

Upon completion of waste processing operations, DOE would disposition surplus facilities. Disposition activities would result in the consumption of electricity, water, and fossil fuels, and the generation of wastewater.

Table 5.3-1***8*** presents the utility and energy requirements for disposition of new facilities that would be built to support the waste processing alternatives. These facilities would be clean-closed in accordance with applicable permits or regulations.

Table 5.3-1***9*** presents impacts for disposition of the Tank Farm and bin sets by closure alternative. Disposition of the Tank Farm and bin sets would be a long-term activity because facility closure and operation as a disposal facility could last 20 to 35 years depending on the facility, closure method, and low-level waste fraction disposal option chosen. Closure of the remaining existing HLW generation, treatment, and storage facilities ***would*** not ***be*** long-term compared to the Tank Farm and bin sets.

Table 5.3-***20*** presents impacts for disposition of other existing facilities associated with HLW management.

5.3.11 WASTE AND MATERIALS

Waste would be produced as a result of disposition of new waste processing facilities. Table 5.3-2***1*** summarizes total volumes of industrial, low-level, mixed low-level, and hazardous waste that would be generated from disposition of new facilities under each of the waste processing alternatives. As noted in Section 5.2.13, waste volumes have been conservatively estimated. Future regulatory changes could affect predicted waste volumes and, in the worst case, some reanalysis could be required to show that predicted impacts are bounding.

Generation of transuranic waste is not expected under disposition of any of these facilities. These facilities would be closed in accordance with the applicable permits or regulations, and closure activities would be typically between 1 to 5 years in duration. Although the No Action Alternative includes some minor construction actions, the evaluation of impacts presented here assumes it would involve no facility disposition activities.

Table 5.3-2***2*** shows volumes of industrial, low-level, mixed low-level, and hazardous waste that would be generated by disposition of existing HLW management facilities. As with disposition of new facilities, generation of transuranic waste is not anticipated for any of the facilities. Waste generation estimates are presented by facility (or facility grouping) and disposition alternative. Disposition of the Tank Farm and bin sets represents the more complex activities and would be long-term actions, lasting upwards of 30 years, depending on the alternative. Because of these complexities, the Tank Farm and bin sets are being evaluated under each of

Table 5.3-18. Utility and energy requirements for disposition of new facilities.[a,b]

Project number	Description	Project duration (years)	Annual electricity use (megawatt-hours per year)	Annual fossil fuel use (million gallons per year)	Annual potable water use (million gallons per year)	Annual non-potable water use (million gallons per year)	Annual sanitary wastewater discharges (million gallons per year)
			Continued Current Operations Alternative				
P1A	Calcine SBW including NWCF Upgrades (MACT)	3	310	0.14	0.65	0.60	0.65
P1B	NGLW and Tank Farm Heel Waste	1	180	0.07	0.59	0.20	0.59
Total			490	0.21	1.2	0.80	1.2
			Full Separations Option				
P9A	Full Separations	3	160	0.23	1.3	0.60	1.3
P9B	Vitrification Plant	3	160	0.12	0.41	0.20	0.41
P9C	Class A Grout Plant	2.5	160	0.12	0.67	0.60	0.67
P18	New Analytical Lab	2	160	0.08	0.49	0.11	0.49
P24	Vitrified Product Interim Storage at INEEL	***2.8***	160	***0.032***	0.17	0	0.17
P25A	Packaging & Loading Vitrified HLW at INTEC for Shipment to NGR	***0.25***	39	0	3.0×10^{-3}	0	3.0×10^{-3}
P27	Class A Grout Disposal in New INEEL Disposal Facility	2	1	0.06	0.76	0	0.76
P35D or P35E	Class A Grout Packaging & Shipping to INEEL Disposal Facility or to Offsite Disposal	2	160	0.02	0.17	0.05	0.17
P59A	Calcine Retrieval and Transport	***1***	160	0.11	0.90	0.20	0.90
P118	Separations Organic Incinerator	2	8	0.01	0.10	0.03	0.01
P133	Waste Treatment Pilot Plant	2	160	0.06	0.26	0.05	0.26
Total			1.3×10^{3}	0.84	5.2	1.8	5.2

Table 5.3-*18*. Utility and energy requirements for disposition of new facilities [a,b] (continued).

Project number	Description	Project duration (years)	Annual electricity use (megawatt-hours per year)	Annual fossil fuel use (million gallons per year)	Annual potable water use (million gallons per year)	Annual non-potable water use (million gallons per year)	Annual sanitary wastewater discharges (million gallons per year)
			Planning Basis Option				
P1A	Calcine SBW including NWCF Upgrades (MACT)	3	310	0.19	0.65	0.60	0.65
P1B	NGLW and Tank Farm Heel Waste	1	180	0.07	0.59	0.20	0.59
P23A	Full Separations	***3***	160	0.23	1.3	0.60	1.3
P23B	Vitrification Plant	***2.8***	160	0.12	***0.43***	0.60	0.44
P23C	Class A Grout Plant	***2.8***	160	0.12	0.60	0.60	0.60
P18	New Analytical Lab	2	160	0.08	0.49	0.11	0.49
P24	Vitrified Product Interim Storage at INEEL	***2.8***	160	***0.032***	0.17	0	0.17
P25A	Packaging & Loading Vitrified HLW at INTEC for Shipment to NGR	***0.25***	***39***	0	3.0×10^{-3}	0	3.0×10^{-3}
P35E	Class A Grout Packaging & Shipping for Offsite Disposal	2	160	0.02	0.17	0.05	0.17
P59A	Calcine Retrieval and Transport	***1***	160	0.11	0.90	0.20	0.90
P118	Separations Organic Incinerator	2	8	0.01	0.10	0.03	0.10
P133	Waste Treatment Pilot Plant	2	160	0.06	0.26	0.05	0.26
Total			1.8×10^{3}	1.0	5.6	3.1	5.6

Table 5.3-18. Utility and energy requirements for disposition of new facilities [a,b] (continued).

Project number	Description	Project duration (years)	Annual electricity use (megawatt-hours per year)	Annual fossil fuel use (million gallons per year)	Annual potable water use (million gallons per year)	Annual non-potable water use (million gallons per year)	Annual sanitary wastewater discharges (million gallons per year)
			Transuranic Separations Option				
P18	New Analytical Lab	2	160	0.08	0.49	0.11	0.49
P27	Class A Grout Disposal in New INEEL Disposal Facility	2	1	0.060	0.76	0	0.76
P39A	Packaging and Loading TRU at INTEC for Shipment to the Waste Isolation Pilot Plant	1.5	140	0.05	0.04	0.04	0.04
P49A	TRU-C Separations	3	160	0.18	0.83	0.60	0.83
P49C	Class C Grout Plant	2	160	0.12	0.52	0.60	0.52
P49D	Class C Grout Packaging & Shipping to INEEL Disposal Facility	2	160	0.02	0.32	0.06	0.32
P59A	Calcine Retrieval and Transport	1	160	0.11	0.90	0.20	0.90
P118	Separations Organic Incinerator	2	8	0.01	0.10	0.03	0.10
P133	Waste Treatment Pilot Plant	2	160	0.06	0.26	0.05	0.26
Total			1.1×10^3	0.69	4.2	1.7	4.2
			Hot Isostatic Pressed Waste Option				
P1A	Calcine SBW including NWCF Upgrades (MACT)	3	310	0.19	0.65	0.60	0.65
P1B	NGLW and Tank Farm Heel Waste	1	180	0.07	0.59	0.20	0.59
P18	New Analytical Lab	2	160	0.08	0.49	0.11	0.49
P59A	Calcine Retrieval and Transport	1	160	0.11	0.90	0.20	0.90
P71	Mixing and HIPing	5	160	0.15	1.1	1.0	1.1
P72	HIP HLW Interim Storage	***3***	160	***0.071***	0.86	0	0.86
P73A	Packaging and Loading HIP Waste at INTEC for Shipment to NGR	***2.5***	140	***0.054***	***0.039***	0.080	***0.039***
P133	Waste Treatment Pilot Plant	2	160	0.06	0.26	0.05	0.26
Total			1.4×10^3	0.79	4.9	2.6	4.9

Table 5.3-18. Utility and energy requirements for disposition of new facilities [a,b] (continued).

Project number	Description	Project duration (years)	Annual electricity use (megawatt-hours per year)	Annual fossil fuel use (million gallons per year)	Annual potable water use (million gallons per year)	Annual non-potable water use (million gallons per year)	Annual sanitary wastewater discharges (million gallons per year)
			Direct Cement Waste Option				
P1A	Calcine SBW including NWCF Upgrades (MACT)	3	310	0.19	0.65	0.60	0.65
P1B	NGLW and Tank Farm Heel Waste	1	180	0.07	0.59	0.20	0.59
P18	New Analytical Lab	2	160	0.08	0.49	0.11	0.49
P59A	Calcine Retrieval and Transport	1	160	0.11	0.90	0.20	0.90
P80	Direct Cement Process	3	160	0.14	0.92	0.60	0.92
P81	Unseparated Cementitious HLW Interim Storage	***3***	160	0.12	1.6	0	1.6
P83A	Packaging & Loading Cementitious Waste at INTEC for Ship. to NGR	***3.5***	140	***0.054***	***0.039***	0.080	0.04
P133	Waste Treatment Pilot Plant	2	160	0.06	0.26	0.05	0.26
Total			1.4×10^3	0.82	5.5	1.8	5.5
			Early Vitrification Option				
P18	New Analytical Lab	2	160	0.08	0.49	0.11	0.49
P59A	Calcine Retrieval and Transport	1	160	0.11	0.90	0.20	0.90
P61	Unseparated Vitrified HLW Interim Storage	***3***	160	0.10	1.4	0	1.4
P62A	Packaging/Loading Vitrified HLW at INTEC for Shipment to NGR	***3***	140	0.05	0.05	0.08	0.05
P88	Early Vitrification with MACT Upgrades	5	180	0.20	0.66	0.70	0.66
P90A	Packaging & Loading Vitrified SBW at INTEC for Shipment to the Waste Isolation Pilot Plant	1.5	140	0.05	0.04	0.04	0.04
P133	Waste Treatment Pilot Plant	2	160	0.06	0.26	0.05	0.26
Total			1.1×10^3	0.65	3.8	1.2	3.8

Table 5.3-18. Utility and energy requirements for disposition of new facilities [a,b] (continued).

Project number	Description	Project duration (years)	Annual electricity use (megawatt-hours per year)	Annual fossil fuel use (million gallons per year)	Annual potable water use (million gallons per year)	Annual non-potable water use (million gallons per year)	Annual sanitary wastewater discharges (million gallons per year)
			Steam Reforming Option				
P13	***New Storage Tanks***	***2***	***140***	***7.6×10^{-3}***	***0.11***	***0.11***	***0.11***
P35E	***Grout Packaging and Loading for Offsite Disposal***	***2***	***160***	***0.021***	***0.17***	***0.050***	***0.17***
P59A	***Calcine Retrieval and Transport***	***1***	***160***	***0.11***	***0.90***	***0.20***	***0.90***
P117A	***Calcine Packaging and Loading to Hanford***	***3***	***160***	***9.3×10^{-3}***	***0.29***	***0.80***	***0.29***
P2001	***NGLW Grout Facility***	***1***	***180***	***0.036***	***0.090***	***0.23***	***0.090***
P2002A	***Steam Reforming***	***1***	***96***	***0.12***	***0.41***	***0.18***	***0.41***
Total			***890***	***0.30***	***2.0***	***1.6***	***2.0***
			Minimum INEEL Processing Alternative				
P18	New Analytical Lab	2	160	0.08	0.49	0.11	0.49
P24	Vitrified Product Interim Storage at INEEL	***2.8***	160	***0.032***	0.17	0	0.17
P25A	Packaging & Loading Vitrified HLW and INTEC for Shipment to NGR	***0.25***	39	0	3.0×10^{-3}	0	3.0×10^{-3}
P27	Class A Grout Disposal in New INEEL Disposal Facility	***2***	1	0.060	0.76	0	0.76
P59A	Calcine Retrieval and Transport	1	160	0.11	0.90	0.20	0.90
P111	SBW & NGLW Treatment with CsIX to CH TRU Grout and LLW Grout	1	180	0.07	0.59	0.20	0.59
P112A	Packaging and Loading CH TRU for Shipment to the Waste Isolation Pilot Plant	4.5	140	0.05	0.04	0.04	0.04
P117A	Packaging and Loading Calcine for Transport to Hanford Site	3	160	***9.3×10^{-3}***	0.29	0.80	0.29
P133	Waste Treatment Pilot Plant	2	160	0.06	0.26	0.05	0.26
Total			1.1×10^{3}	0.47	3.5	1.4	3.5

Table 5.3-18. Utility and energy requirements for disposition of new facilities [a,b] (continued).

Project number	Description	Project duration (years)	Annual electricity use (megawatt-hours per year)	Annual fossil fuel use (million gallons per year)	Annual potable water use (million gallons per year)	Annual non-potable water use (million gallons per year)	Annual sanitary wastewater discharges (million gallons per year)
	Vitrification without Calcine Separations Option						
P13	***New Storage Tanks***	***2***	***140***	***7.6×10^{-3}***	***0.11***	***0.11***	***0.11***
P18	***New Analytical Lab***	***2***	***160***	***0.16***	***0.99***	***0.23***	***0.99***
P59A	***Calcine Retrieval and Transport***	***1***	***160***	***0.11***	***0.90***	***0.20***	***0.90***
P61	***Vitrified HLW Interim Storage***	***3***	***160***	***0.10***	***1.4***	***0***	***1.4***
P62A	***Packaging/Loading Vitrified HLW at INTEC for Shipment to NGR***	***3***	***140***	***0.054***	***0.052***	***0.080***	***0.052***
P88	***Vitrification with MACT Upgrades***	***5***	***180***	***0.20***	***0.66***	***0.70***	***0.66***
P133	***Waste Treatment Pilot Plant***	***2***	***160***	***0.059***	***0.26***	***0.045***	***0.26***
Total			***1.1×10^{3}***	***0.69***	***4.4***	***1.4***	***4.4***
	Vitrification with Calcine Separations Option						
P9A	***Full Separations***	***3***	***160***	***0.23***	***1.3***	***0.60***	***1.3***
P9C	***Grout Plant***	***2.5***	***160***	***0.12***	***0.67***	***0.60***	***0.67***
P13	***New Storage Tanks***	***2***	***140***	***7.6×10^{-3}***	***0.11***	***0.11***	***0.11***
P18	***New Analytical Lab***	***2***	***160***	***0.16***	***0.99***	***0.23***	***0.99***
P24	***Vitrified Product Interim Storage***	***2.8***	***160***	***0.032***	***0.17***	***0***	***0.17***
P25A	***Packaging & Loading Vitrified HLW at INTEC for Shipment to NGR***	***0.25***	***39***	***0***	***3.0×10^{-3}***	***0***	***3.0×10^{-3}***
P35E	***Grout Packaging and Loading for Offsite Disposal***	***2***	***160***	***0.021***	***0.17***	***0.050***	***0.17***
P59A	***Calcine Retrieval and Transport***	***1***	***160***	***0.11***	***0.90***	***0.20***	***0.90***
P88	***Vitrification with MACT Upgrades***	***5***	***180***	***0.20***	***0.66***	***0.70***	***0.66***
P133	***Waste Treatment Pilot Plant***	***2***	***160***	***0.059***	***0.26***	***0.045***	***0.26***
Total			***1.5×10^{3}***	***0.93***	***5.2***	***2.5***	***5.2***

a. Source: Data from Project Data Sheets in Appendix C.6.

b. The EIS analyzes treatment of post-2005 newly generated liquid waste as mixed transuranic waste/SBW for comparability of impacts between alternatives. The newly generated liquid waste could be treated in the same facility as the mixed transuranic waste/SBW or DOE could construct a separate facility to grout the newly generated liquid waste.

CH TRU = contact-handled transuranic waste; CsIX = cesium ion exchange; HIP = hot isostatic press; MACT = maximum achievable control technology; NGLW = newly generated liquid waste; NGR = national geologic repository; NWCF = New Waste Calcining Facility; SBW = sodium-bearing waste; TRU = transuranic waste; TRU-C = transuranic/Class C.

Table 5.3-19. Summary of annual resource impacts from disposition of existing facilities with multiple disposition alternatives.

Facility	Units	Clean closure	Performance-based closure	Closure to landfill standards	Performance-based closure with Class A grout disposal	Performance-based closure with Class C grout disposal
Tank Farm	Years (duration)	26	17	17	22	22
Wastewater discharges	Million gallons per year	2.0	0.13	0.10	0.14	0.15
Annual potable water use	Million gallons per year	2.0	0.11	0.06	0.13	0.14
Annual process water use	Million gallons per year	0.05	0.06	0.09	0.05	0.05
Annual fossil fuel use	Million gallons per year	0.08	0.02	0.011	0.010	0.010
Annual electricity use	Megawatt-hours per year	7.3×10^{3}	4.4×10^{3}	1.2×10^{3}	4.6×10^{3}	4.6×10^{3}
Bin sets	Years (duration)	27	21	21	22	22
Wastewater discharges	Million gallons per year	0.32	0.32	0.16	0.52	0.56
Annual potable water use	Million gallons per year	0.32	0.31	0.15	0.52	0.55
Annual process water use	Million gallons per year	3.9×10^{-3}	0.01	0.011	0.03	0.03
Annual fossil fuel use	Million gallons per year	3.9×10^{-3}	6.6×10^{-3}	5.2×10^{-3}	5.2×10^{-3}	5.0×10^{-3}
Annual electricity use	Megawatt-hours per year	3.2×10^{3}	6.0×10^{3}	990	1.5×10^{3}	1.5×10^{3}
Fuel Processing Building and Related Facilities	Years (duration)	NA[a]	10	10	NA	NA
Wastewater discharges	Million gallons per year	NA	6.0×10^{-3}	4.8×10^{-3}	NA	NA
Annual potable water use	Million gallons per year	NA	6.0×10^{-3}	4.8×10^{-3}	NA	NA
Annual process water use	Million gallons per year	NA	0	0	NA	NA
Annual fossil fuel use	Million gallons per year	NA	0.26	0.26	NA	NA
Annual electricity use	Megawatt-hours per year	NA	0	0	NA	NA
New Waste Calcining Facility	Years (duration)	NA	5	5	NA	NA
Wastewater discharges	Million gallons per year	NA	0.01	0.01	NA	NA
Annual potable water use	Million gallons per year	NA	0.01	0.01	NA	NA
Annual process water use	Million gallons per year	NA	0	0	NA	NA
Annual fossil fuel use	Million gallons per year	NA	0.09	0.09	NA	NA
Annual electricity use	Megawatt-hours per year	NA	300	300	NA	NA

a. NA = not applicable.

Table 5.3-20. Summary of resource impacts from disposition of other existing facilities associated with HLW management.

Facility Group	Duration of dispositioning activity[a] (years)	Annual wastewater discharges (million gallons per year)	Annual potable water use (million gallons per year)	Annual process water use (million gallons per year)	Annual fossil fuel use (million gallons per year)	Annual electricity use (megawatt-hours per year)
Tank Farm-Related Facilities	6	7.4×10^{-4}	7.4×10^{-4}	0	0.16	0
Bin Set-Related Facilities	6	5.0×10^{-5}	5.0×10^{-5}	0	0.13	0
Process Equipment Waste Evaporator and Related Facilities	6	0.02	0.02	0	0.17	0
Fluorinel and Storage Facility and Related Facilities	6	0.01	0.01	0	0.09	0
Remote Analytical Laboratory	5	2.1×10^{-3}	2.1×10^{-3}	0	0.06	0
Transport Lines Group	1	3.6×10^{-3}	3.6×10^{-3}	0	0.06	0

a. Duration refers to total number of calendar years during which dispositioning of facilities within the listed groups would occur.

Table 5.3-21. Summary of waste generated from the disposition of new waste processing facilities. [a,b]

Project Number	Project description	Duration of activity (years)	Total waste generation per waste type (in cubic meters)			
			Industrial waste	Low-level waste	Mixed low-level waste	Hazardous waste
	Continued Current Operations Alternative					
P1A	Calcine SBW including New Waste Calcining Facility Upgrades	3	1.1×10^{3}	620	0	200
P1B	Newly Generated Liquid Waste Management and Tank Farm Heel Waste	1	3.7×10^{3}	5.0×10^{3}	11	60
Total			4.8×10^{3}	5.6×10^{3}	11	260
	Full Separations Option					
P9A	Full Separations	3	2.4×10^{4}	3.1×10^{4}	350	11
P9B	Vitrification Plant	3	1.4×10^{4}	1.8×10^{4}	42	6
P9C	Class A Grout Plant	2.5	6.0×10^{3}	7.9×10^{3}	18	3
P118	Separations Organic Incinerator	2	0	0	15	0
P18	New Analytical Laboratory	2	4.6×10^{3}	3.1×10^{3}	97	0
P24	Vitrified Product Interim Storage	***2.8***	9.4×10^{3}	0	0	2
P25A	Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository	***0.25***	10	0	0	3
P59A	Calcine Retrieval and Transport	1	3.6×10^{3}	0	0	0
P133	Waste Treatment Pilot Plant	2	5.4×10^{3}	6.7×10^{3}	22	3
	For onsite facility disposal of grout					
P27	Class A Grout Disposal in a new Low-Activity Waste Disposal Facility	2	130	0	0	0
P35D	Class A Grout Packaging and Shipping to a new Low-Activity Waste Disposal Facility	2	670	0	0	0
	For tank farm and bin set disposal of grout					
P26	Class A Grout Disposal in Tank Farm and Bin Sets	4	3.7×10^{3}	0	350	20
	For offsite disposal of grout					
P35E	Class A Grout Packaging and Loading for Offsite Disposal	2	670	0	0	0
Total	Base case – New INEEL disposal of Class A grout					
	Base case – New INEEL disposal of Class A grout		6.7×10^{4}	6.8×10^{4}	550	28
	Tank Farm and bin set disposal of Class A grout		7.0×10^{4}	6.8×10^{4}	900	48
	Offsite disposal of Class A grout		6.7×10^{4}	6.8×10^{4}	550	28

Table 5.3-21. Summary of waste generated from the disposition of new waste processing facilities [a,b] (continued).

Project Number	Project description	Duration of activity (years)	Total waste generation per waste type (in cubic meters)			
			Industrial waste	Low-level waste	Mixed low-level waste	Hazardous waste
	Planning Basis Option					
P1A	Calcine SBW including New Waste Calcining Facility Upgrades	3	1.1×10^3	630	0	200
P1B	Treatment of Newly Generated Liquid Waste and Tank Farm Waste Heel Waste	1	3.7×10^3	5.0×10^3	11	60
P18	New Analytical Laboratory	2	4.6×10^3	3.1×10^3	97	0
P23A	Full Separations	***3***	2.3×10^4	3.1×10^4	320	15
P23B	Vitrification Plant	***2.8***	1.4×10^4	1.8×10^4	8	6
P23C	Class A Grout Plant	***2.8***	6.0×10^3	7.9×10^3	12	3
P24	Vitrified Product Interim Storage	***2.8***	9.4×10^3	0	0	2
P25A	Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository	***0.25***	12	0	0	3
P59A	Calcine Retrieval and Transport	*1*	3.6×10^3	0	0	0
P118	Separations Organic Incinerator	2	0	1	15	0
P133	Waste Treatment Pilot Plant	2	5.4×10^3	6.7×10^3	22	3
P35E	Class A Grout Packaging and Loading for Offsite Disposal	2	670	0	0	0
Total			7.2×10^4	7.3×10^4	480	290
	Transuranic Separations Option					
P18	New Analytical Laboratory	2	4.6×10^3	3.1×10^3	97	0
P49A	Transuranic/Class C Separations	3	2.0×10^4	2.7×10^4	200	9
P49C	Class C Grout Plant	2	6.0×10^3	7.9×10^3	18	3
P118	Separations Organic Incinerator	2	0	0	15	0
P133	Waste Treatment Pilot Plant	2	5.4×10^3	6.7×10^3	22	3
P39A	Packaging and Loading Transuranic Waste at INTEC for Shipment to the Waste Isolation Pilot Plant	1.5	170	0	0	15
P59A	Calcine Retrieval and Transport	1	3.6×10^3	0	0	0
	For onsite facility disposal of grout					
P27	Class A Grout Disposal in a new Low-Activity Waste Disposal Facility	2	130	0	0	0
P49D	Class C Grout Packaging and Shipping to a new Low-Activity Waste Disposal Facility	2	700	0	0	0
	For tank farm and bin set disposal of grout					
P51	Class C Grout Placement in Tank Farm and Bin Sets	4	3.7×10^3	0	350	20
	For offsite disposal of grout					
P49E	Class C Grout Packaging and Loading for Offisite Disposal	2	1.1×10^3	0	0	0
Total	Base case – New INEEL disposal of Class C grout		4.1×10^4	4.4×10^4	350	30
	Tank Farm and bin set disposal of Class C grout		4.4×10^4	4.4×10^4	710	50
	Offsite disposal of Class C grout		4.1×10^4	4.4×10^4	350	30

Table 5.3-21. Summary of waste generated from the disposition of new waste processing facilities [a,b] (continued).

Project Number	Project description	Duration of activity (years)	Total waste generation per waste type (in cubic meters)			
			Industrial waste	Low-level waste	Mixed low-level waste	Hazardous waste
	Hot Isostatic Pressed Waste Option					
P1A	Calcine SBW including New Waste Calcining Facility Maximum Achievable Control Technologies Upgrades	3	1.1×10^3	630	0	200
P1B	Newly Generated Liquid Waste Management (low-level waste grout) and Tank Farm Heel Waste	1	3.7×10^3	5.0×10^3	11	60
P18	New Analytical Laboratory	2	4.6×10^3	3.1×10^3	97	0
P59A	Calcine Retrieval and Transport	1	3.6×10^3	0	0	0
P71	Mixing and Hot Isostatic Pressing	5	2.6×10^4	3.5×10^4	210	12
P72	Interim Storage of Hot Isostatic Pressed Waste	3	2.3×10^4	0	0	4
P73A	Packaging and Loading of Hot Isostatic Pressed Waste at INTEC for Shipment to a Geologic Repository	*1*	580	0	0	68
P133	Waste Treatment Pilot Plant	2	5.4×10^3	6.7×10^3	22	3
Total			6.8×10^4	5.0×10^4	340	340
	Direct Cement Waste Option					
P1A	Calcine SBW including New Waste Calcining Facility Upgrades	3	1.1×10^3	620	0	200
P1B	Newly Generated Liquid Waste Management and Tank Farm Heel Waste	1	3.7×10^3	5.0×10^3	11	60
P18	New Analytical Laboratory	2	4.6×10^3	3.1×10^3	97	0
P59A	Calcine Retrieval and Transport	1	3.6×10^3	0	0	0
P80	Direct Cement Process	3	2.5×10^4	3.4×10^4	220	11
P81	Unseparated Cementious HLW Interim Storage	*1*	5.1×10^4	0	0	24
P83	Packaging and Loading of Cementitious Waste at INTEC for Shipment to a Geologic Repository	*1*	860	0	0	110
P133	Waste Treatment Pilot Plant	2	5.4×10^3	6.7×10^3	22	3
Total			9.5×10^4	4.9×10^4	350	410
	Early Vitrification Option					
P18	New Analytical Laboratory	2	4.6×10^3	3.1×10^3	97	0
P59A	Calcine Retrieval and Transport	1	3.6×10^3	0	0	0
P88	Early Vitrification with Maximum Achievable Control Technology	5	2.3×10^4	3.0×10^4	360	11
P61	Vitrified HLW Interim Storage	3	4.3×10^4	0	0	22
P62A	Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository	3	430	0	0	110
P90A	Packaging and Loading SBW at INTEC for Shipment to the Waste Isolation Pilot Plant	1.5	170	0	0	15
P133	Waste Treatment Pilot Plant	2	5.4×10^3	6.7×10^3	22	3
Total			8.0×10^4	4.1×10^4	480	160

Table 5.3-21. Summary of waste generated from the disposition of new waste processing facilities [a,b] (continued).

Project Number	Project description	Duration of activity (years)	Total waste generation per waste type (in cubic meters)			
			Industrial waste	Low-level waste	Mixed low-level waste	Hazardous waste
	Steam Reforming Option					
P13	***New Storage Tanks***	***2***	***450***	***0.2***	***47***	***0***
P35E	***Grout Packaging and Loading for Offsite Disposal***	***2***	***670***	***0***	***0***	***1.3***
P59A	***Calcine Retrieval and Transport***	***1***	***3.6×10^{3}***	***0***	***0***	***0***
P117A	***Calcine Packaging and Loading***	***3***	***140***	***110***	***8***	***46***
P2001	***NGLW Grout Facility***	***1***	***1.9×10^{3}***	***0.2***	***14***	***2.5×10^{3}***
P2002A	***Steam Reforming***	***1***	***1.1×10^{4}***	***1.5×10^{4}***	***0***	***6.0***
Total			***1.8×10^{4}***	***1.5×10^{4}***	***69***	***2.5×10^{3}***
	Minimum INEEL Processing Alternative					
P111	SBW and Newly Generated Liquid Waste Treatment with Cesium Ion Exchange to Contact Handled Transuranic Grout and Low-Level Waste Grout	1	3.7×10^{3}	5.0×10^{3}	15	2
P18	New Analytical Laboratory	2	4.6×10^{3}	3.1×10^{3}	97	0
P59A	Calcine Retrieval and Transport	1	3.6×10^{3}	0	0	0
P27	Class A Grout Disposal in New INEEL Low-Activity Waste Disposal Facility (for vitrified low-level waste fraction)	2	130	0	0	0
P24	Interim Storage of Vitrified Waste at INEEL	***2.8***	9.4×10^{3}	0	0	2
P25A	Packaging and Loading of Vitrified HLW at INTEC for Shipment to a Geologic Repository	***0.25***	12	0	0	3
P112A	Packaging and Loading Contact Handled Transuranic Waste for Transport to the Waste Isolation Pilot Plant	4.5	880	0	0	0
P117A	Calcine Packaging and Loading	3	140	110	8	46
P133	Waste Treatment Pilot Plant	2	5.4×10^{3}	6.7×10^{3}	22	3
Total			2.8×10^{4}	1.5×10^{4}	140	56

Table 5.3-21. Summary of waste generated from the disposition of new waste processing facilities [a,b] (continued).

Project Number	Project description	Duration of activity (years)	Total waste generation per waste type (in cubic meters)			
			Industrial waste	Low-level waste	Mixed low-level waste	Hazardous waste
	Vitrification without Calcine Separations Option					
P13	*New Storage Tanks*	*2*	*450*	*0.20*	*47*	*0*
P18	*New Analytical Laboratory*	*2*	*4.6×10^{3}*	*3.1×10^{3}*	*97*	*4.9*
P59A	*Calcine Retrieval and Transport*	*1*	*3.6×10^{3}*	*0*	*0*	*0*
P61	*Vitrified HLW Interim Storage*	*3*	*4.3×10^{4}*	*0*	*0*	*32*
P62A	*Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository*	*3*	*430*	*0*	*0*	*110*
P88	*Vitrification with Maximum Achievable Control Technology*	*5*	*2.3×10^{4}*	*3.1×10^{4}*	*360*	*43*
P133	*Waste Treatment Pilot Plant*	*2*	*5.4×10^{3}*	*6.7×10^{3}*	*22*	*8.0*
Total			*8.1×10^{4}*	*4.1×10^{4}*	*530*	*200*
	Vitrification with Calcine Separations Option					
P9A	*Full Separations*	*3*	*2.4×10^{4}*	*3.1×10^{4}*	*350*	*32*
P9C	*Grout Plant*	*2.5*	*6.0×10^{3}*	*7.9×10^{3}*	*18*	*13*
P13	*New Storage Tanks*	*2*	*450*	*0.20*	*47*	*0*
P18	*New Analytical Laboratory*	*2*	*4.6×10^{3}*	*3.1×10^{3}*	*97*	*4.9*
P24	*Vitrified Product Interim Storage*	*2.8*	*9.4×10^{3}*	*0*	*0*	*4.9*
P25A	*Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository*	*0.25*	*12*	*0*	*0*	*3.4*
P35E	*Grout Packaging and Loading for Offsite Disposal*	*2*	*670*	*0*	*0*	*1.3*
P59A	*Calcine Retrieval and Transport*	*1*	*3.6×10^{3}*	*0*	*0*	*0*
P88	*Vitrification Facility with Maximum Achievable Control Technology*	*5*	*2.3×10^{4}*	*3.1×10^{4}*	*360*	*43*
P133	*Waste Treatment Pilot Plant*	*2*	*5.4×10^{3}*	*6.7×10^{3}*	*22*	*8.0*
Total			*7.7×10^{4}*	*8.0×10^{4}*	*900*	*110*

a. Source: Project Data Sheets in Appendix C.6.

b. The EIS analyzes treatment of post-2005 newly generated liquid waste as mixed transuranic waste/SBW for comparability of impacts between alternatives. The newly generated liquid waste could be treated in the same facility as the mixed transuranic waste/SBW or DOE could construct a separate facility to grout the newly generated liquid waste.

Table 5.3-22. Waste generated for existing HLW *management* facilities by facility and disposition alternative.[a]

	Total waste generation per waste type[b] (in cubic meters)			
	Industrial waste	Low-level waste	Mixed low-level waste	Hazardous waste
Tank Farm				
Clean Closure	1.6×10^5	1.1×10^3	1.1×10^4	0
Performance-Based Closure	1.9×10^3	0	120	79
Closure to Landfill Standards	1.7×10^3	0	480	0
Performance-Based Closure with Class A Grout Disposal	1.5×10^3	0	120	27
Performance-Based Closure with Class C Grout Disposal	1.5×10^3	0	120	27
Tank Farm Related Facilities	56	100	0	1
Bin Sets				
Clean Closure	2.4×10^4	4.6×10^3	180	130
Performance-Based Closure	3.6×10^3	150	85	100
Closure to Landfill Standards	3.6×10^3	150	33	100
Performance-Based Closure with Class A Grout Disposal	1.5×10^4	0	540	28
Performance-Based Closure with Class C Grout Disposal	1.5×10^4	0	540	28
Bin Set Related Facilities	0	10	0	0.2
Process Equipment Waste Evaporator and Related Facilities[c]	870	2.5×10^3	0	13
Fuel Processing Building and Related Facilities	0	920	0	18
FAST and Related Facilities	0	1.5×10^3	0	33
Remote Analytical Laboratory	0	100	0	2
New Waste Calcining Facility	0	2.4×10^3	460	250
Transport Line Group	0	9	43	0

a. Unless otherwise specified, the source of the data presented is the Project Data Sheets in Appendix C.6.

b. As presented here, the quantities of waste generated during dispositioning do not include building debris and other building material buried in place.

c. Source of data for Process Waste Equipment Evaporator, CPP-604, (combined with related facilities here): Haley (1998).

the five disposition alternatives. Other existing waste processing facilities are generally only being considered for a single disposition alternative as shown in Table 3-***3***. The ***exceptions*** to this ***are*** the facility groupings Fuel Processing Building and Related Facilities and the New Waste Calcining Facility. The Fuel Processing Building and Related Facilities were considered under two disposition alternatives: Performance-Based Closure and Closure to Landfill Standards. The group is shown with a single entry in Table 5.3-2***2*** because the quantities of waste generated would be identical under either disposition alternative. The New Waste Calcining Facility was also evaluated for the same two disposition alternatives and, again, the quantities of waste generated under either alternative were projected to be the same. Disposition of these other facilities would not be long-term actions compared to the Tank Farm and bin sets.

Disposition of new and existing waste processing facilities would produce large quantities of industrial waste. Depending on the waste processing alternative and the facility disposition alternative considered for the Tank Farm and bin sets, projected volumes of industrial waste could exceed 2.5×10^5 cubic meters. This is greater than the quantities projected for construction and operation of the waste processing alternatives as described in Section 5.2.13. However, much of these materials would be construction debris and, as discussed in Section 5.2.13, should not present a serious problem for disposal within the INEEL.

The highest combined projections of low-level waste generated from facility disposition actions would be about 8.5×10^4 cubic meters. This is a significant volume in comparison to the DOE-wide projection of 1.5 million cubic meters over a 20-year period that was described in Section 5.2.13. However, the 8.5×10^4 cubic meter quantity would be generated over even a longer period of time and, also as discussed in Section 5.2.13, DOE assumes that new facilities would be constructed if additional treatment and disposal capacity is needed.

The projected quantities of mixed low-level waste vary greatly under the various facility disposition alternatives. The largest volume shown for either new or existing facilities is for clean closure of the Tank Farm, which is estimated to produce about 1.1×10^4 cubic meters of mixed low-level waste. As discussed in Section 5.2.13, DOE assumes that new facilities would be constructed if additional mixed low-level waste treatment and disposal capacity is needed. Planning documents for clean closure of the Tank Farm identify almost 134,000 cubic meters of CERCLA waste soil that may be associated with this disposition alternative. This waste, which would likely be contaminated with both hazardous and radiological constituents, is not included in Table 5.3-2***2*** under the assumption that it would be addressed and, as appropriate, remediated under INEEL's CERCLA program.

Quantities of hazardous waste produced under any of the facility disposition alternatives would be relatively small, particularly when spread over the number of years that it would take to implement the actions. The annual volumes would be similar to those discussed in Section 5.2.13 for construction and operation activities. Similarly, it is unlikely these additional wastes would adversely impact the ability of commercial facilities to manage hazardous waste.

5.3.12 FACILITY DISPOSITION ACCIDENTS

5.3.12.1 Introduction

Purpose

The purpose of this section is to analyze alternatives for the disposition of INTEC facilities based on their potential for facility accidents during the disposition process. Each waste processing alternative and facility disposition option requires an analysis of potential facility accidents as one of the environmental impacts, particularly to human health and safety, associated with its implementation. An accident analysis is performed to identify environmental impacts associated with accidents that would not necessarily occur but which are reasonably foreseeable and could result in significant impacts. Since the potential for accidents and their consequences varies among different facility disposition options, facility disposition accidents may provide a key discriminator among the Idaho HLW & FD EIS alternatives. Accidents are defined per the National Environmental Policy Act as undesired events that can occur during or as a result of implementing an alternative and that have the potential to result in human health impacts or indirect environmental impacts.

Potential facility disposition accidents pose ***risk of*** health impacts to several groups of candidate receptors, including workers at nearby INEEL facilities (noninvolved workers) and the offsite public who could be exposed to hazardous materials released during some accident scenarios. Potential facility disposition impacts to human health arise from the presence of radiological, chemical, and industrial (physical) hazards such as trauma, fire, spills, and falls.

Each waste processing alternative affects or includes several major INTEC facilities, such as the New Waste Calcining Facility, Tank Farm, and bin sets. Clean Closure, Performance-Based Closure, and Closure to Landfill Standards are the three major alternatives that are being considered by DOE for ***disposition of*** each HLW ***management*** facility. The facility disposition alternatives are evaluated below in the respective facility accident analyses.

Approach

The approach adopted by DOE is illustrated in Figure 5.3-1***0***. As shown, potential facility disposition impacts for noninvolved workers and members of the offsite public are analyzed differently than for involved workers. Only involved workers are subject to hazards of an industrial nature, such as trauma, fire, spills, and falls. However, all three groups could be exposed to radioactivity and/or hazardous chemicals released by a severe accident. For assessing impacts to noninvolved workers and the offsite public, the maximum plausible accident identified for disposition of each facility is compared to the maximum postulated accident during normal operation of that facility. Data sources include documented safety analyses for HLW processes at INTEC or EIS estimates for bounding facility events that are included in waste processing alternatives. The comparisons