3.0

Alternatives

3.0 Alternatives

This chapter describes the alternatives for waste processing and facility disposition analyzed in this environmental impact statement (EIS) as well as alternatives eliminated from detailed analysis. As required by the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA), a No Action alternative is also included. This chapter identifies the U.S. Department of Energy's (DOE's) Preferred Alternative as well as the State of Idaho's Preferred Alternative, which is different from that identified by DOE.

Some of the alternatives include one or more options. The options are described in the context of the alternative(s) they fall under, but could be used or combined in a variety of ways.

The waste processing alternatives and option(s) involved determine the number and types of facilities and residual contaminants that have to be addressed in a

facility disposition alternative. The facility disposition alternatives describe possible scenarios that could be used under each waste processing alternative and option. Appendix B describes the alternative selection process.

Legal Requirements Timeline and Milestones Under the Alternatives and Options

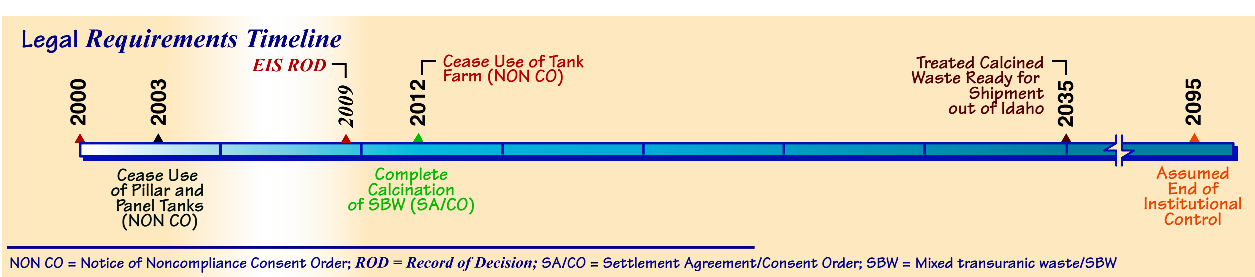
Each of the alternatives and options has an associated timeline that takes into consideration the time required for facility construction and waste treatment. The alternatives also identify, in the year 2005, DOE's intent to divert all newly generated liquid waste to tanks that are compliant with state and federal regulations. The legal requirements timeline shows dates committed to by DOE, and compliance dates contained in the Settlement Agreement/Consent Order and Notice of Noncompliance Consent Order. For comparison, these timelines are shown on Figure 3-13.

The timeframe for the waste processing alternatives analyzed in this EIS extends from the year 2000 through 2035. The year 2035 is when, in accordance with the Settlement Agreement/Consent Order, DOE must have all high-level waste (HLW) treated and ready to be shipped to a storage facility or repository outside of Idaho. Specifically, this agreement ***requires*** that all the liquid in the eleven 300,000-gallon, below-grade tanks would be treated and ready to be transported out of Idaho by a target date of December 31, 2035.

The ***legal requirements*** timeline ***is*** shown below. Interim milestones shown on this time***line*** represent key commitments DOE has made with respect to management of the ***waste*** in the eleven 300,000-gallon below grade tanks and calcine in the bin sets. ***First,*** the timeline reflects a commitment by DOE to cease use of the five pillar and panel tanks by ***June 30***, 2003. ***Second, the Settlement Agreement/Consent Order required an EIS to evaluate and analyze alternatives for treatment of calcined waste with a record of decision in the year 2009. Third,*** the Settlement Agreement/Consent Order specifies that calcination shall be complete by ***December 31,*** 2012. Treatment of ***HLW*** can continue until 2035, when it must all be ready to be moved out of Idaho. However, if a storage facility or repository is available before 2035, then DOE could begin shipping the treated waste out of Idaho at an earlier date.

Except for the No Action Alternative and a slightly modified version, the Continued Current Operations Alternative, timeframes for the remaining waste processing alternatives adhere to a completion date of 2035. However, ***the timeframes for mixed transuranic waste/sodium bearing waste (SBW) treatment under most of the EIS alternatives would not meet the interim date of December 31, 2012. These timeframes would be*** dictated by the amount of time ***required*** to design, construct, and ***operate treatment and storage facilities. In these cases, DOE could employ regulatory-compliant tanks in order to cease use of the existing Tank Farm by December 2012. DOE may be able to accelerate the schedule analyzed in this EIS to meet the 2012 milestone, if sufficient resources are made available.***

For environmental consequence calculations, waste processing alternatives analyzed in this EIS assume that treated waste destined for storage or disposal outside of Idaho will be ready for shipment by 2035. Impacts associated with storage of ***road ready*** HLW at the Idaho National Engineering and Environmental Laboratory (INEEL) are presented on an annual basis out to the year 2095. From 2035 to 2095, DOE would no longer be processing waste but would disposition facilities. For purposes of analysis, the



year 2095 was selected as the end of DOE's institutional control, which is in agreement with the *INEEL Comprehensive Facility and Land Use Plan* (DOE 1997) and the planning basis for Waste Area Group 3 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Loss of institutional control means DOE would no longer control the site and therefore ***could*** no longer ensure that impacts to the public are within established limits. However, DOE ***will continue to ensure that the future use and management of these lands are in accordance with the Land Withdrawal Public Land Orders and*** is ***statutorally*** required to maintain controls on radioactive waste or materials under its jurisdiction until such controls are no longer needed.

In addition to the timeframes previously discussed, the Settlement Agreement/Consent Order states: "In the event any required NEPA analysis results in the selection after October 16, 1995, of an action which conflicts with any action identified in this Agreement, DOE or the Navy may request a modification of this Agreement to conform the action in the Agreement to that selected action. Approval of such modification shall not be unreasonably withheld." ***This allows for negotiations of Settlement Agreement/Consent Order requirements based on actions selected under NEPA.***

3.1 Waste Processing Alternatives

DOE's ***six*** waste processing alternatives and their options for implementation are described in Sections 3.1.1 through 3.1.***6***. For purposes of analysis, DOE has broken down the actions to implement each alternative and option into discrete projects. There are multiple projects comprising an alternative or option. Some projects are used repeatedly for the various alternatives and options. Projects that are very similar between alternatives and options are generally represented by a single project. This modular approach allows DOE, in its Record of Decision, to select ***a waste processing method*** containing elements of more than one alternative described in this chapter, producing a hybrid alternative. ***In general, the waste processing alternatives apply the same pretreatment (e.g., separations) and treatment technologies to both the mixed transuranic waste/SBW and mixed HLW calcine. The products resulting from these different technologies would be managed as low-level, transuranic, or high-level wastes based on their characteristics.***

For any of the waste processing alternatives or options the schedule could be accelerated to meet the treatment of mixed transuranic waste/SBW by 2012. A number of processes would have to be accelerated, such as funding would have to be available, so that conceptual design could begin, followed by accelerated permitting, procurement, and construction.

The major Idaho Nuclear Technology and Engineering Center (INTEC) facilities that would be constructed under the ***six*** waste processing alternatives are presented in Table 3-1. INTEC was selected for analysis as the site for these waste processing facilities because of the proximity to the Tank Farm, bin sets, and other existing facilities required for the alternatives. Proximity is important because it shortens piping runs, increases efficiency of operations, and minimizes areas where radioactive materials are managed at the INEEL. For more detailed information, see Appendix C.6, Project Information, which describes the individual projects. Table 3-2 provides an overview of some of the key attributes of the alternatives and options. Section 5.2 describes the environmental impacts of these alternatives.

3.1.1 NO ACTION ALTERNATIVE

The No Action Alternative (Figure 3-1) would maintain the status quo ***as of*** the year 2000. It assumes the calciner at the New Waste Calcining Facility would ***remain*** in standby. The New Waste Calcining Facility would not undergo upgrades to make it compliant with the Maximum Achievable Control Technology rule for air emissions, and no ***additional*** mixed transuranic waste would be calcined. The ***Process Equipment Waste and*** High-Level Liquid Waste Evaporators would continue ***operations*** to reduce the volume of mixed transuranic waste and enable DOE to cease use of the five pillar and panel tanks in the Tank Farm in 2003. The mixed transuranic waste inventory at the

Table 3-1. Major INTEC facilities[a, b, c] or activities required for each waste processing alternative.

		DOE's Preferred Alternative									State of Idaho's Preferred Alternative	
			Separations Alternative			Non-Separations Alternative					Direct Vitrification Alternative	
	No Action	Continued Current Operations	Full Separations	Planning Basis	Transuranic Separations	Hot Isostatic Pressed Waste	Direct Cement Waste	Early Vitrification	Steam Reforming	Minimum INEEL Processing	Vitrification without Calcine Separations	Vitrification with Calcine Separations
Calcine SBW including New Waste Calcining Facility Upgrades	–	P1A	–	P1A	–	P1A	P1A	–	–	–	–	–
Newly Generated Liquid Waste and Tank Farm Heel Waste Management	–	P1B	–	P1B	–	P1B	P1B	–	P2001	–	–	–
Full Separations	–	–	P9A	P23A	–	–	–	–	–	–	–	P9A
Vitrification Plant	–	–	P9B	P23B	–	–	–	–	–	–	P88	P88
Class A Grout Plant	–	–	P9C	P23C	–	–	–	–	–	–	–	P9C
New Analytical Laboratory	–	–	P18	P18	P18	P18	P18	P18	–	P18	P18	P18
Interim Storage of Vitrified Waste	–	–	P24	P24	–	–	–	P61	–	P24	P61	P24
Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository	–	–	P25A	P25A	–	–	–	P62A	–	P25A	P62A	P25A
Class A Grout Disposal in new INEEL Low-Activity Waste Disposal Facility	–	–	P27	–	P27[d]	–	–	–	–	P27[e]	–	–
Class A Grout Packaging and Shipping to new INEEL Low-Activity Waste Disposal Facility	–	–	P35D	–	–	–	–	–	–	–	–	–
Class A Grout Packaging and Loading for Offsite Disposal	–	–	P35E	P35E	–	–	–	–	P35E[f]	P35E	–	P35E
Packaging and Loading Remote-Handled Transuranic Waste at INTEC for Shipment to WIPP	–	–	–	–	P39A	–	–	–	P117A	–	–	–
Transuranic Separations	–	–	–	–	P49A	–	–	–	–	–	–	–
Class C Grout Plant	–	–	–	–	P49C	–	–	–	–	–	–	–
Class C Grout Packaging and Shipping to New INEEL Low-Activity Waste Disposal Facility	–	–	–	–	P49D	–	–	–	–	–	–	–
Class C Grout Packaging and Loading for Offsite Disposal	–	–	–	–	P49E	–	–	–	–	–	–	–
Calcine Retrieval and Transport	P1E[g]	P1E[g]	P59A	P59A	P59A	P59A	P59A	P59A	P59A	P59A	P59A	P59A
Mixing and Hot Isostatic Pressing	–	–	–	–	–	P71	–	–	–	–	–	–
Hot Isostatic Pressed HLW Interim Storage	–	–	–	–	–	P72	–	–	–	–	–	–

- New Information -

Table 3-1. Major INTEC facilities[a, b, c] or activities required for each waste processing alternative (continued).

											State of Idaho's Preferred Alternative	
		DOE's Preferred Alternative										
			Separations Alternative			Non-Separations Alternative					Direct Vitrification Alternative	
	No Action	Continued Current Operations	Full Separations	Planning Basis	Transuranic Separations	Hot Isostatic Pressed Waste	Direct Cement Waste	Early Vitrification	Steam Reforming	Minimum INEEL Processing	Vitrification without Calcine Separations	Vitrification with Calcine Separations
Packaging & Loading Hot Isostatic Pressed Waste at INTEC for Shipment to a Geologic Repository	–	–	–	–	–	P73A	–	–	–	–	–	–
Direct Cement Process	–	–	–	–	–	–	P80	–	–	–	–	–
Unseparated Cementitious HLW Interim Storage	–	–	–	–	–	–	P81	–	–	–	–	–
Packaging and Loading Cementitious Waste at INTEC for Shipment to a Geologic Repository	–	–	–	–	–	–	P83A	–	–	–	–	–
Packaging and Loading Vitrified SBW at INTEC for Shipment to WIPP	–	–	–	–	–	–	–	P90A	–	–	P62A	P25A
Early Vitrification with Maximum Achievable Control Technology	–	–	–	–	–	–	–	P88	–	–	–	–
Steam Reforming	–	–	–	–	–	–	–	–	P2002A	–	–	–
SBW and Newly Generated Liquid Waste Treatment with Cesium Ion Exchange to Contact-Handled Transuranic Grout and Low-Level Waste Grout	–	–	–	–	–	–	–	–	–	P111	–	–
Packaging and Loading Contact-Handled Transuranic Waste for Shipment to WIPP	–	–	–	–	–	–	–	–	–	P112A	–	–
Calcine Packaging and Loading for Transport to Hanford or NGR	–	–	–	–	–	–	–	–	P117A	P117A	–	–
Separations Organic Incinerator	–	–	P118	P118	P118	–	–	–	–	–	–	–

Table 3-1. Major INTEC facilities[a,b,c] or activities required for each waste processing alternative (continued).

											State of Idaho's Preferred Alternative	
		DOE's Preferred Alternative										
			Separations Alternative			Non-Separations Alternative					Direct Vitrification Alternative	
	No Action	Continued Current Operations	Full Separations	Planning Basis	Transuranic Separations	Hot Isostatic Pressed Waste	Direct Cement Waste	Early Vitrification	Steam Reforming	Minimum INEEL Processing	Vitrification without Calcine Separations	Vitrification with Calcine Separations
Waste Treatment Pilot Plant	–	–	P133	P133	P133	P133	P133	P133	–	P133	P133	P133
New Storage Tanks	–	–	–	–	–	–	–	–	P13	–	P13	P13

a. Some of the facilities listed are not stand-alone facilities but projects that would be implemented in another facility. For example, packaging and loading activities (P39A) would occur in the Waste Separations Facility (P49A). PXXX numbers refer to projects and associated data presented in Appendix C.6.

b. The EIS analyzes treatment of post-2005 newly generated liquid waste as SBW for comparability of impacts between alternatives. DOE could treat the post-2005 newly generated liquid waste by grouting (see Project P2001 in Appendix C.6), which would result in 1,300 cubic meters of grouted waste and a small reduction in the treated SBW volume. The grout would be managed as transuranic or low-level waste depending on its characteristics.

c. If it appears that it will take longer than 2012 to complete treatment of SBW, untreated waste could be transferred to tanks permitted in accordance with hazardous waste regulations. Such tanks may be constructed (see Project P13 in Appendix C.6), or may be obtained by other means.

d. For disposal of low-level waste Class C type grout.

e. For vitrified low-level waste fraction returned from Hanford.

f. For disposal of grouted remote-handled transuranic waste.

g. Calcine retrieval for bin set 1 only.

NGR = national geologic repository ; WIPP = Waste Isolation Pilot Plant.

Table 3-2. Summary of key attributes of the waste processing alternatives.

Alternatives	Product waste volume[a,b]	Primary treatment technology	Product waste disposal	Transportation	Indefinite or road-ready storage[c]
No Action Alternative	None[d]	None	Untreated waste remains at INEEL	None	Untreated mixed transuranic waste/SBW and mixed HLW calcine stored indefinitely in Tank Farm and bin sets, respectively
Continued Current Operations Alternative[e]	110 m^3 RH TRU waste (from tank heels)	Calcine mixed transuranic waste/SBW Grout mixed transuranic waste/NGLW[f] and tank heel waste	RH TRU waste to WIPP	280 RH TRU containers[g] to WIPP ***140 truck shipments or 70 rail shipments***	Mixed HLW and mixed transuranic waste/SBW calcine stored indefinitely in bin sets
Separations Alternative[e]					
Full Separations Option	470 m^3 vitrified HLW 27,000 m^3 LLW Class A type grout	Vitrify separated HLW fraction Grout separated LLW fraction	Vitrified HLW to NGR LLW Class A type grout to: New onsite disposal facility or Tank Farm and bin sets or offsite disposal facility	780 HLW canisters[h] to NGR ***780 truck shipments or 160 rail shipments*** 25,000 LLW containers[i] to disposal facility ***4,200 truck shipments or 1,300 rail shipments***	Vitrified HLW storage pending disposal at NGR
Planning Basis Option	470 m^3 vitrified HLW 30,000 m^3 LLW Class A type grout 110 m^3 RH TRU waste (from tank heels)	Calcine mixed transuranic waste/SBW Vitrify separated HLW fraction Grout separated LLW fraction Grout mixed transuranic waste/NGLW[f] and tank heel waste	Vitrified HLW to NGR LLW Class A type grout to offsite disposal facility RH TRU waste to WIPP	780 HLW canisters to NGR ***780 truck shipments or 160 rail shipments*** 28,000 LLW containers to disposal facility ***4,700 truck shipments or 1,400 rail shipments*** 280 RH TRU containers to WIPP ***140 truck shipments or 70 rail shipments***	Vitrified HLW storage pending disposal at NGR

Table 3-2. Summary of key attributes of the waste processing alternatives (continued).

Alternatives	Product waste volume[a,b]	Primary treatment technology	Product waste disposal	Transportation	Indefinite or road-ready storage[c]
Separations Alternative[e] (continued)					
Transuranic Separations Option	220 m^3 RH TRU waste 23,000 m^3 LLW Class C type grout	Solidify separated TRU fraction Grout separated LLW fraction	RH TRU waste to WIPP LLW Class C type grout to: New onsite disposal facility or Tank Farm and bin sets or offsite disposal facility	560 RH TRU containers to WIPP ***280 truck shipments or 140 rail shipments*** 21,000 LLW containers to disposal facility ***7,000 truck shipments or 2,100 rail shipments***	None
Non-Separations Alternative[e]					
Hot Isostatic Pressed Waste Option	3,400 m^3 HIP HLW 110 m^3 RH TRU waste (from tank heels)	HIP calcined HLW and mixed transuranic waste/SBW Grout mixed transuranic waste/NGLW[f] and tank heel waste	HIP HLW to NGR RH TRU waste to WIPP	5,700 HLW canisters to NGR ***5,700 truck shipments or 1,100 rail shipments*** 280 RH TRU containers to WIPP ***140 truck shipments or 70 rail shipments***	HIP HLW storage pending disposal at NGR
Direct Cement Waste Option	13,000 m^3 cemented HLW 110 m^3 RH TRU waste (from tank heels)	Hydroceramic cement of calcined HLW and mixed transuranic waste/SBW Grout mixed transuranic waste/NGLW[f] and tank heel waste	Cemented HLW to NGR RH TRU waste to WIPP	18,000 HLW canisters to NGR ***18,000 truck shipments or 3,600 rail shipments*** 280 RH TRU containers to WIPP ***140 truck shipments or 70 rail shipments***	Cemented HLW storage pending disposal at NGR
Early Vitrification Option	8,500 m^3 vitrified HLW 360 m^3 RH TRU waste (from mixed transuranic waste)	Vitrify calcine Vitrify mixed transuranic waste	Vitrified HLW to NGR RH TRU waste to WIPP	12,000 HLW canisters to NGR ***12,000 truck shipments or 2,400 rail shipments*** 900 RH TRU containers to WIPP ***450 truck shipments or 230 rail shipments***	Vitrified HLW storage pending disposal at NGR

Table 3-2. Summary of key attributes of the waste processing alternatives (continued).

Alternatives	Product waste volume[a,b]	Primary treatment technology	Product waste disposal	Transportation	Indefinite or road-ready storage[c]
Non-Separations Alternative[e] (continued)					
Steam Reforming Option	***4,400 m^3 calcined HLW***		***Calcined HLW to NGR***	***6,100 HLW canisters to NGR*** ***6,100 truck shipments or*** ***1,200 rail shipments***	***Just-in-time retrieval of HLW calcine from storage in the bin sets***
	1,300 m^3 steam reformed SBW	***Steam reform SBW***	***Steam reformed SBW to WIPP***	***3,300 RH TRU containers (from SBW) to WIPP*** ***1,600 truck shipments or*** ***810 rail shipments***	
	1,300 m^3 grouted NGLW	***Grout NGLW***	***Grouted NGLW to WIPP***	***3,200 RH TRU containers (from NGLW) to WIPP*** ***1,600 truck shipments or*** ***800 rail shipments***	
Minimum INEEL Processing Alternative					
At INEEL[e]	7,500 m^3 CH TRU waste from mixed transuranic waste	CsIX and grout mixed transuranic waste	CH TRU waste to WIPP Vitrified LLW to new onsite disposal facility or an offsite commercial disposal facility Vitrified HLW to NGR	***36,000*** CH TRU containers[j] to WIPP ***1,300 truck shipments or*** ***670 rail shipments*** ***3,000*** HLW canisters[k] to NGR ***3,000 truck shipments or*** ***750 rail shipments*** 5,600 LLW containers[l] to disposal facility ***620 truck shipments or*** ***310 rail shipments*** 3,700 HLW canisters containing calcine to Hanford ***3,700 truck shipments or*** ***920 rail shipments***	Vitrified HLW storage pending disposal at NGR
At Hanford	14,000 m^3 vitrified LLW fraction from calcine ***3,500*** m^3 vitrified HLW fraction from calcine	Vitrify separated LLW fraction and HLW fraction	Vitrified LLW fraction returned to INEEL Vitrified HLW fraction returned to INEEL	5,600 LLW containers to INEEL ***620 truck shipments or*** ***310 rail shipments*** ***3,000*** HLW canisters to INEEL ***3,000 truck shipments or*** ***750 rail shipments***	None

Table 3-2. Summary of key attributes of the waste processing alternatives (continued).

Alternatives	Product waste volume[a,b]	Primary treatment technology	Product waste disposal	Transportation	Indefinite or road-ready storage[c]
Direct Vitrification Alternative - State of Idaho's Preferred Alternative [e]					
Vitrification without Calcine Separations Option	***8,500 m³ vitrified HLW (from calcine) 440 m³ vitrified SBW*** [m]	***Vitrify SBW and calcine***	***Vitrified HLW to NGR Vitrified SBW to NGR or WIPP***	***12,000 HLW canisters to NGR 12,000 truck shipments or 2,400 rail shipments 610 vitrified SBW canisters to NGR or WIPP 610 truck shipments or 120 rail shipments***	***Vitrified HLW storage pending disposal at NGR***
Vitrification with Calcine Separations Option	***470 m³ vitrified HLW (from calcine) 440 m³ vitrified SBW 24,000 m³ MLLW/LLW grout***	***Vitrify SBW and separated mixed HLW fraction from calcine*** [n] ***Grout separated MLLW fraction from calcine***	***Vitrified HLW to NGR Vitrified SBW to NGR or WIPP MLLW/LLW grout to offsite disposal facility***	***650 HLW canisters to NGR 650 truck shipments or 130 rail shipments 610 vitrified SBW canisters to NGR or WIPP 610 truck shipments or 120 rail shipments 22,000 MLLW/LLW containers to disposal facility 3,700 truck shipments or 1,100 rail shipments***	***Vitrified HLW storage pending disposal at NGR***

a. Product wastes are a direct result of the treatment of calcine, mixed transuranic waste/SBW, and newly generated liquid waste. These treated waste forms are further categorized as HLW, transuranic waste, and low-level waste.

b. The EIS analyzes treatment of post-2005 newly generated liquid waste as SBW for comparability of impacts between alternatives. DOE could treat the post-2005 newly generated liquid waste by grouting (see Project P2001 in Appendix C.6), which would result in 1,300 cubic meters of grouted waste and a small reduction in the treated SBW volume. The grout would be managed as transuranic or low-level waste depending on its characteristics.

c. The supporting engineering documents for this EIS refer to this facility as an "Interim Storage Facility." The use of the word "interim" means that the waste is stored road ready until shipment to a repository.

d. The No Action Alternative would not produce a waste form suitable for disposal. The ***approximately 1,000,000*** gallons of mixed transuranic waste/SBW, ***which includes newly generated liquid waste***, and ***4,400*** cubic meters of mixed HLW would remain untreated.

e. DOE's Preferred Alternative.

f. For purposes of analysis, mixed transuranic waste/NGLW grout was assumed to be managed as low-level (process) waste.

g. RH TRU waste containers are assumed to be WIPP half-containers with a capacity of 0.4 cubic meter. For purposes of analysis, all options were assumed to use the WIPP half-containers for packaging RH TRU waste.

h. INEEL HLW canisters are assumed to be similar to those used at the Savannah River Site Defense Waste Processing Facility (2 feet in diameter and 10 feet long).

i. INEEL LLW containers are assumed to be concrete cylinders with a capacity of approximately 1 cubic meter.

j. CH TRU waste containers are assumed to be 55-gallon drums (***0.208*** cubic meters).

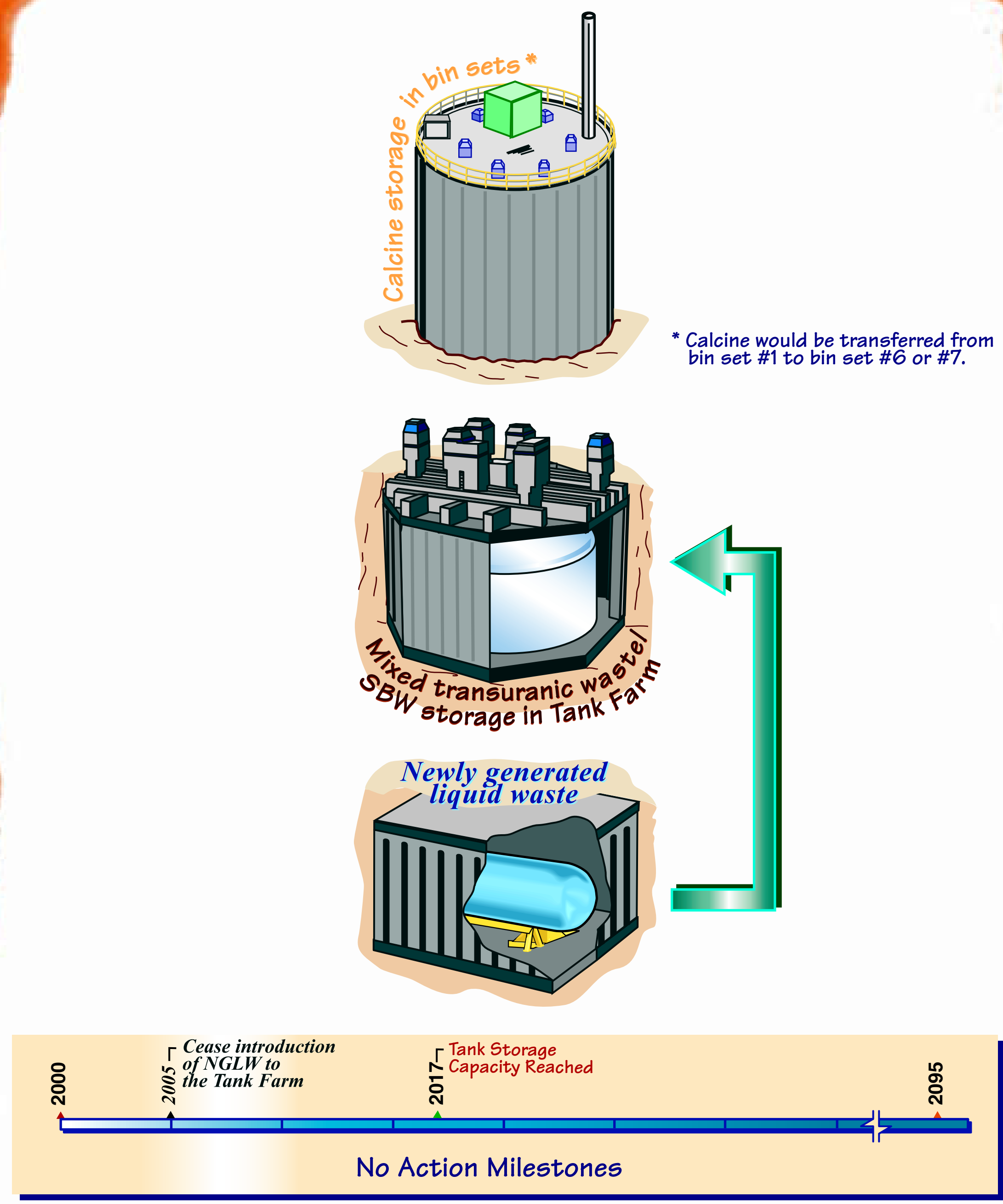
k. Hanford HLW canisters are assumed to be similar to those used for the Tank Waste Remediation System (2 feet in diameter and 15 feet long).

l. Hanford LLW containers are assumed to be 4 feet x 4 feet x 6 feet steel boxes with a usable capacity of 2.6 cubic meters.

m. This EIS analyzes impacts of SBW treatment, storage, and disposal as HLW at a NGR, but treatment and disposal of SBW at the WIPP as mixed transuranic waste is an option pending the outcome of the Waste Incidental to Reprocessing determination.

n. Vitrification of HLW fraction could occur at INEEL or Hanford.

CH = contact-handled; CsIX = cesium ion exchange; HIP = Hot Isostatic Pressed; LLW = low-level waste; NGLW = newly generated liquid waste; NGR = national geologic repository; RH = remote-handled; TRU = transuranic; WIPP = Waste Isolation Pilot Plant.



LEGEND
NGLW Newly generated liquid waste

FIGURE 3-1.
No Action Alternative.

New Waste Calcining Facility

The New Waste Calcining Facility (CPP-659) includes several treatment systems: Calciner, Debris Treatment and Containment Storage Building, and HEPA Filter Leach System.

The calciner provides treatment of mixed HLW and mixed transuranic waste/SBW by calcination, resulting in conversion of the liquid waste to a solid granular form. Before calcination, the liquid waste is processed through the ***Process Equipment Waste and*** *High-Level Liquid Waste Evaporators (also housed in Building CPP-659) for volume reduction and concentration, which makes the waste more amenable to calcination. Calcination of mixed transuranic waste/SBW may involve the addition of aluminum nitrate or other additives (approximately three volumes of aluminum nitrate per volume of SBW) to prevent the sodium and potassium nitrates in the waste from clogging the calcine bed at the current operating temperature. Operation of the calciner at elevated temperature (600°C versus 500°C) may reduce the need for these large amounts of inert additives, increasing the mixed transuranic waste/SBW processing rate and reducing the volume of calcine produced.*

The Notice of Noncompliance Consent Order required the calciner be placed in standby in June 2000, pending DOE's decision whether to seek a permit or close the facility. Upgrades to the offgas treatment system would be required to comply with the Maximum Achievable Control Technology standards. The alternatives in this EIS consider whether to continue operating the calciner ***with*** *the upgrades. Other operations at the New Waste Calcining Facility described below would continue independent of DOE's decision regarding future calciner operations.*

The HEPA Filter Leach System treats contaminated high-efficiency particulate air (HEPA) filters, using chemical extraction to remove radionuclides and hazardous constituents. The system can treat both transuranic and mixed low-level filters. After leaching, the filters are packaged for disposal. If the treated filters meet the applicable performance standards, they ***are*** *disposed of as low-level waste. The leachate generated by HEPA filter leaching is managed in the INTEC liquid radioactive waste treatment system (Process Equipment Waste Evaporator, Liquid Effluent Treatment and Disposal Facility, and Tank Farm). The bottoms from the Process Equipment Waste Evaporator system are sent to the Tank Farm. The bottoms from the Liquid Effluent Treatment and Disposal Facility are recycled to the New Waste Calcining Facility or sent to the Tank Farm pending final treatment (see Figure 2-**4**, Current INTEC high-level waste system simplified flow diagram) (DOE 1998a).*

The Debris Treatment and Containment Storage ***Unit*** *comprises decontamination cubicles, a spray booth, a decontamination cell, and low-level decontamination room. Several treatment technologies are currently used to treat debris in accordance with the RCRA debris treatment standards (40 CFR 268.45). These treatment technologies include water washing, chemical washing, high-pressure water and steam sprays, and ultrasonic cleaning. The Debris Treatment and Containment Storage* ***Unit*** *will also provide treatment by liquid abrasive and/or carbon dioxide blasting and bulk washing. Liquid wastes generated by the Debris Treatment and Containment Storage* ***Unit*** *(such as spent decontamination solution) are managed in the INTEC liquid radioactive waste treatment system.*

time the High-Level Liquid Waste Evaporator completes its operation in 2003 would remain in the Tank Farm. Maintenance necessary to protect workers and the environment would continue, but there would be no major upgrades. The mixed HLW calcine in bin set 1 would be transferred to bin set 6 or 7, as described in the *Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final EIS* (SNF & INEL EIS) Record of Decision (60 FR 28680; June 1, 1995) or modifications would be made to mitigate stress on bin set 1. All mixed HLW ***calcine*** would remain in the bin sets indefinitely. All tanks available in the Tank Farm (i.e., all tanks