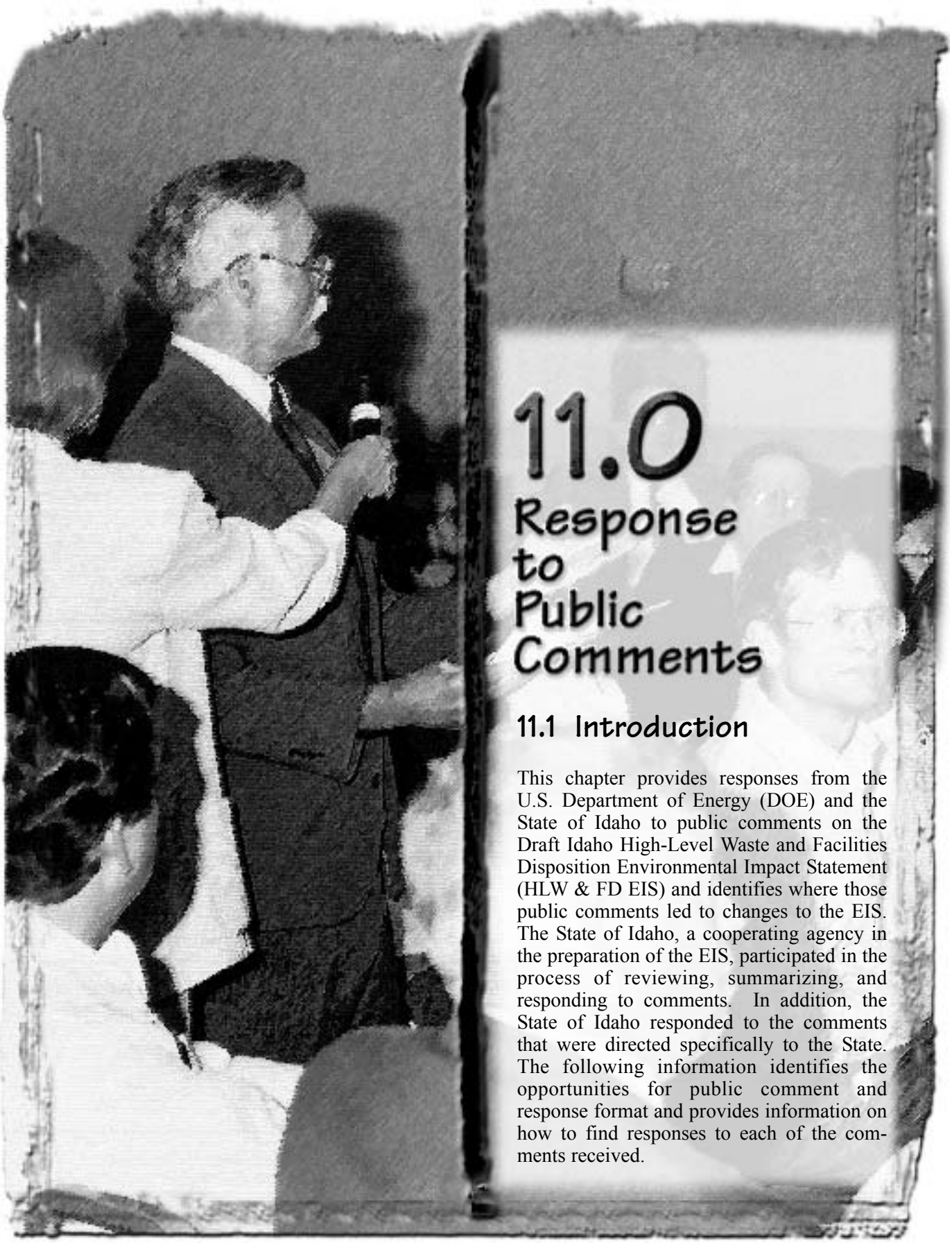
11.0

Response to Public Comment



11.0 Response to Public Comments

11.1 Introduction

This chapter provides responses from the U.S. Department of Energy (DOE) and the State of Idaho to public comments on the Draft Idaho High-Level Waste and Facilities Disposition Environmental Impact Statement (HLW & FD EIS) and identifies where those public comments led to changes to the EIS. The State of Idaho, a cooperating agency in the preparation of the EIS, participated in the process of reviewing, summarizing, and responding to comments. In addition, the State of Idaho responded to the comments that were directed specifically to the State. The following information identifies the opportunities for public comment and response format and provides information on how to find responses to each of the comments received.

11.2 Opportunities for Public Comment and Response Format

DOE published the Notice of Availability of the Draft EIS in the Federal Register on January 21, 2000, (65 FR 3432) and subsequently extended the public comment period from 60 to 90 days in response to public requests (65 FR 9257, February 24, 2000). The Notice of Availability provided information on how the public could obtain copies of the Draft EIS and the locations, dates, and times of the public hearings. Individuals submitted comments in writing by mail, fax, electronic mail, and by written or oral comments at public hearings in Idaho Falls, Pocatello, Twin Falls, Boise, and Fort Hall, Idaho; Jackson, Wyoming; Portland, Oregon; and Pasco, Washington.

In addition to Notice of Availability information on public hearings, DOE publicized the availability of and provided information about the Draft EIS through radio announcements in four Western states and newspaper advertisements in nine states as well as distribution of the Draft EIS to more than 1,400 individuals and organizations in 27 states and the District of Columbia. DOE held briefings with government and tribal officials, public interest groups, Idaho National Engineering and Environmental Laboratory (INEEL) employees, DOE citizens advisory boards in Idaho and Washington, state and Federal agencies, and other interested stakeholders.

DOE received comments from private citizens; businesses; local, state, and Federal officials; Native American Tribes; and public interest groups in Idaho, Wyoming, Washington, Oregon, Georgia, Nevada, Maryland, South Carolina, Wisconsin, and the District of Columbia.

In compliance with the provisions of the National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations, DOE assessed and considered public comments both individually and collectively. Although many comments did not result in an EIS change, responses are provided to clarify information, to explain or communicate government policy or the relationship of this EIS to other related NEPA documents, to direct commentors to information in the EIS, or to answer technical questions.

11.2.1 CHANGES TO THE EIS RESULTING FROM PUBLIC COMMENTS AND AGENCY REVIEW

Consideration of public comments on the Draft EIS helped ensure the adequacy of this EIS as a decision-making tool; accordingly, this EIS incorporates enhancements, as appropriate, in response to public comments and DOE and State of Idaho internal review. These enhancements include, but are not limited to, the following:

- Identified the DOE and State of Idaho Preferred Alternatives in Chapter 3.
- Added "Other Information and Technologies Reviewed" (Chapter 2, Section 2.3.5). This new section summarizes DOE's review of information received from the National Academy of Sciences National Research Council, commentors, and others.
- Updated "Alternatives Eliminated from Detailed Analysis" (Chapter 3, Section 3.3) to clarify why some alternatives and technologies submitted in response to the Draft EIS discussion on purpose and need were not considered further by DOE.
- Modified data on transportation impacts for the Minimum INEEL Processing Alternative. Higher volumes of waste would be produced from vitrification of calcine at the Hanford Site than those analyzed for this alternative in the Draft EIS. (Chapter 5, Section 5.2.9)
- Updated waste inventory information in Appendix C.7 and made corresponding changes in long-term facility disposition modeling (Appendix C.9), facility accident analysis (Appendix C.4) and related sections.

- Updated the EIS to reflect the DOE Waste Management Programmatic EIS Record of Decision for disposal of low-level and mixed-low-level waste.

- Expanded the discussion of the waste incidental to reprocessing procedure under DOE Order 435.1 and the possible designation and disposal destination of wastes.

- Updated Chapter 4, "Affected Environment," so that the information it provides is current.

- Added a Steam Reforming Option under the Non-Separations Alternative that includes containerizing the calcine for shipment to the geologic repository.

11.2.2 HOW TO LOCATE RESPONSES TO COMMENTS

- Frequently, commentors submitted comments that addressed similar or identical topics. In such cases, DOE and the State of Idaho grouped and summarized the comments referred to as comment summaries and prepared a single response for each summary.

- Table 11-1 lists the topics with which similar comments and responses are associated (e.g. Alternatives, Section II, provides responses to comments related to the EIS alternatives such as II.B No Action). The Roman Numerals in the Chapter 11 index (Table 11-2) correspond with those in Table 11-1, which lists the page numbers of the topics identified by the Roman Numerals.

- Table 11-2 lists comment summary numbers by commentor alphabetically in four categories: Individuals, Government Agencies/Tribes, Organizations, and Public Hearings. Those interested in finding responses to comments made by specific individuals, on behalf of specific groups, or at particular public meetings may turn to the index, and find the corresponding category and comment summary number. The comment summaries and corresponding responses are in numerical order under the topics identified by the Roman Numerals. Those interested in finding comments and responses on a particular topic may find the topic and the corresponding page number in Table 11-1.

- The document number that appears opposite each name in the index corresponds to a scanned copy of the associated comment document. These Comment Documents are in Appendix D of this EIS.

11.2.3 HOW TO FIND REFERENCE DOCUMENTS

Technical references and other supporting documentation cited in this document are available from the DOE-Idaho Operations Office [(208) 526-0833]. Readers can find the document of interest on the alphabetical list provided in the DOE Reading Rooms and other information locations.

Table 11-1. Summary Comments and DOE Responses.

Table 11-1. Summary Comments and DOE Responses (continued).

Table 11-2. Index - Alphabetical List of Commentors by Name.

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
	Individuals	
Allister, Pamela – Snake River Alliance	II.A (5); III.D.1 (4); III.D.1 (6); III.E (1); VI (1); VII.A (6); VII.B (3); IX.C (3); IX.C (4);	50
Anonymous	III.E (3); IX.B (3); IX.C (3); X (9)	21
Ballenger, Rebecca	III.D.2.c (1)	73
Batezel, Joyce	III.D.2.b (1); IV.C (1); IX.C (4)	30
Bennett, Dan	XI (10)	36
Bires, Bill	VI (1); VIII.A (5); IX.D (2); X (10); X (13)	38
Blazek, Mary Lou – Oregon Office of Energy	II.A (3); II.E (2); II.E (3); III.D.2.c (5); VII.A (2); VIII.C (2); VIII.C (3); VIII.C (9); VIII.D (1); IX.A (8); IX.C (3); IX.C (5)	51
Brailsford, Beatrice – Snake River Alliance	II.A (1); II.A (3); III.D.1 (4); III.D.3 (1); V (9); VII.D (1); VIII.A (8); VIII.C (5); IX.A (4); IX.C (7); IX.D (1)	42
Broncho, Claudeo – Vice Chairman, Fort Hall Indian Reservation	II.B (1); II.C (1); II.E (6); III.A (2); III.C (4); III.D.2.b (6); III.D.2.c (4); III.D.3 (1); III.E (1); III.F.2 (1); III.F.2 (2); III.F.3 (1); III.F.4 (2); IV.A (1); V (1); V (2); V (9); VII.A (2); VII.A (5); VII.D (4); VII.D (6); VII.E (1); VII.E (2); VII.E (3); VIII.C (6); VIII.C (7); VIII.H (2); IX.A (8); IX.C (4)	62
Broscious, Chuck – Environmental Defense Institute	II.A (3); II.E (1); III.A (1); III.C (3); III.C (5); III.C (7); III.D.1 (1); III.D.2.b (5); III.D.2.c (1); III.D.2.c (2); III.D.3 (1); III.E (1); III.F.2 (2); III.F.2 (5); III.F.3 (1); IV.C (2); V (10); V (11); V (12); V (4); V (7); V (9); VII.A (8); VII.B (2); VII.C (1); VII.C (3); VII.C (4); VII.D (6); VIII.A (3); VIII.B (3); VIII.B (6); VIII.C (1); VIII.C (8); VIII.G (6); IX.D (1); IX.D (6); XI (5); XI (7); XI (9)	68
Cady, Ken	II.A (3); VIII.B (2); VIII.B (5)	36
Challistrom, Charles – U.S. Department of Commerce	VIII.F (1)	32
Clark Rhodes, Melissa	IX.D (3)	14
	II.E (2); II.E (8); III.C (5); III.D.2.b (1); III.D.2.c (1); III.D.3 (1); IV.A (1); IV.A (2); VIII.C (4); VIII.C (5); VIII.G (4); IX.A (2)	80
	VII.D (6); IX.D (3)	36
Clayton, Whit	IX.D (7); IX (1); IX (6)	36
Craig, Larry – U.S. Senate	IX.A (2)	6
(Georgia Dixon presenter)	IX.A (2)	35
Crapo, Michael – U.S. Senate	VII.D (6)	4
(Suzanne Hobbs presenter)	VII.D (6)	35
Creed, Bob	VIII.C (5)	59
Currier, Avril	II.A (2); VIII.B (4) ; IX.D (2)	11
	II.A (2); III.D.1 (1); VII.D (1)	36
Debow, W. Brad	III.A (1); III.C (10); III.C (10); III.C (5); III.C (8); III.D.1 (6); VII.D (2); VII.D (6); X (5)	33

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
Donnelly, Dennis	III.F.2 (2); III.F.2 (5); V (11); VIII.C (1); VIII.C (1); VIII.H (2)	28
	III.B (3); IV.A (1); VIII.C (1); IX.C (2); IX.D (1); X (10)	42
	II.A (2); III.D.2.c (4); III.D.2.c (5); III.D.4 (2); XI (7)	81
Dubman, Matt; Storms, Andrew; and Lyons, Zack	III.A (1); III.D.2.c (1)	72
Edmo, Blaine – Shoshone-Bannock Tribal Council	VII.D (5); VII.E (1); VII.E (3); IX.D (1)	42
	IX.A (2)	42
Elliott, Heather – Nevada Department of Administration	III.E (1); VIII.H (1)	40
Foldyna, Erika and Lloyd, Kaitlin	III.D.2.c (1); III.D.3 (1); IX.C (1)	69
Fulton, Dan	IX.D (1); XI (6)	36
Gebhardt, Christian F. – U.S. EPA, Region 10	IX.A (2); IX.B (2)	66
Giese, Mark	III.C (3)	46
Gillespie, Christy	X (12); XI (5)	36
Glaccum, Ellen	III.A (1); III.C (3); III.D.3 (1); III.D.3 (1); III.F.2 (2); III.F.4 (1); IV.A (1); V (9); VII.D (1); VIII.B (2); VIII.E (1); IX.D (1); IX.D (2); XI (7)	85
Goicoechea, Jake; Baehr, Jeffrey; and Madsen, Logan	III.D.2.c (1)	78
Goodenough, Ashten	II.A (2) III.A (1)	74
Heacock, Harold – Tri-Cities Industrial Development Council	II.E (2); II.E (3); II.E (4); II.E (5); II.E (6); VII.A (2); VIII.H (3); VIII.I (2)	31
	II.E (2); II.E (3); II.E (4); II.E (5); II.E (6); VII.A (2); VIII.H (3); VIII.I (2)	53
Henneberry, David	II.A (2); VIII.G (2); XI (5)	36
Henry, Tom	XI (5)	15
Hensel, Dave – Snake River Alliance	III.D.2.c (1); III.D.3 (1); III.E (3); IV.C (1); VII.B (1); VII.D (3); VIII.H (4)	36
Herschfield, Berte – Keep Yellowstone Nuclear Free	III.A (1); III.C (4); III.D.1 (1); III.F.2 (5); IX.B (1); IX.C (2); IX.D (1); V (9); VI (1); VII.A (6); VIII.G (7)	36
Hobson, Stanley – INEEL Citizens Advisory Board, Interim Chair	II.A (1); II.E (3); II.E (6); III.A (1); III.B (2); III.C (4); III.D.1 (4); III.D.2.c (5); III.D.4 (5); III.F.2 (1); III.F.2 (2); III.F.2 (4); IV.C (1); IX.A (2); IX.A (3); IX.C (2); V (5); VI (1); VII.A (6); VII.C (2); VII.D (3); VII.D (6); VIII.A (2); X (11); X (12); X (2); X (5); XI (3)	54
	II.A (1); II.E (3); II.E (6); III.A (1); III.B (2); III.C (4); III.D.1 (4); III.D.2.c (5); III.D.4 (5); III.F.2 (1); III.F.2 (2); III.F.2 (4); IV.C (1); V (5); VI (1); VII.A (6); VII.C (2); VII.D (3); VII.D (6); VIII.A (2); IX.A (2); IX.A (3); IX.C (2); X (11); X (12); X (2); X (5); XI (3)	55
Hoke, Vickie	XI (5)	79
Holt, Kenneth W. – U.S. Department of Health and Human Services	VIII.B (1); IX.B (2)	23

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
Hopkins, Steve – Snake River Alliance	II.A (5); II.D (1); II.E (2); III.D.1 (8); III.D.3 (1); III.D.3 (3); III.E (1); IX.C (2); IX.C (4); XI (7)	45
	I (1); II.A (3); III.D.1 (1); III.D.1 (8); III.D.3 (1); III.D.3 (3); III.E (1); VII.D (6); IX.A (1); IX.A (6); X (2); X (4); XI (3)	50
	III.D.1 (1); III.D.3 (1); III.D.3 (3); III.E (1); III.F.1 (2); V (9); VII.A (4); VII.A (6); VIII.C (5); IX.C (2)	67
Hormel, Jay – Snake River Alliance	II.A (5); III.D.2.c (1)	24
Jobe, Lowell – Coalition 21	III.F.2 (1); III.F.2 (2); VI (1); VII.A (1); X (2); XI (3)	2
	III.F.2 (1); III.F.2 (2); VII.A (1); VII.D (1); X (2); XI (3)	35
Joel, Jeffrey	II.A (3); III.C (6); X (2)	10
	II.A (3); II.E (7); III.C (6); X (2)	36
Kaiyou, Shirley – Shoshone-Bannock Tribes	IX.C (3); IX.C (6); IX.D (1); X (13)	42
Kenney, Richard – Coalition 21	III.C (2); III.D.3 (1); III.D.4 (3); III.D.4 (6); III.D.4 (6); III.D.4 (8); III.F.1 (3); III.F.2 (1); III.F.2 (2); III.F.2 (6); VII.D (2); VII.D (6); VIII.A (2); VIII.G (7); VIII.G (8); IX.A (4); IX.C (1); X (14); XI (1); XI (7)	83
Knight, Page	II.E (4); II.E (5); II.E (8); III.D.1 (4); III.E (1); VI (1); XI (7); IX.D (1)	38
Kruse, Stephen D.	II.B (1); VI (1); VIII.A (2); VIII.H (5); IX.A (2); IX.D (6); X (6)	84
Laybaum, Jim	II.E (8); III.C (4); III.D.2.b (6); III.D.2.c (1); III.D.3 (1); III.E (3); VIII.G (2); IX.C (2); IX.C (4); X (11); X (9); X (9)	36
Lindsay, Richard	III.B (1); VIII.G (8)	8
Linn, Benn	III.D.1 (5); VI (1); IX.C (4); IX.D (2)	36
Martin, Todd – Snake River Alliance	II.E (5); III.A (1); III.D.3 (1); III.E (1); VII.A (4)	45
	III.D.3 (1); III.E (1); VII.A (4); VII.D (6); X (13); X (6); X (9); XI (7)	50
Martiszus, Ed	III.A (1); VII.A (6); IX.C (8)	38
Maxwell, Tatiana	III.D.1 (4); III.D.2.b (5); III.D.2.c (1); IX.D (1); IX.D (2)	36
Mincher, Bruce	III.C (1); III.C (2); III.D.1 (3); III.D.4 (8); VII.D (2); VIII.I (1); IX.D (1); XI (7)	43
MsMere, Reverend	III.D.1 (6); VIII.B (2)	50
Newcomb, Anne	IV.C (1); VIII.A (10); VIII.C (4); IX.D (3); X (9); XI (7)	44
Niles, Ken – Oregon Office of Energy	II.E (1); II.E (4); II.E (5); II.E (6); II.E (8); VII.A (2); VIII.H (5); IX.C (5)	27
	II.E (1); II.E (4); II.E (5); II.E (8); IX.C (3)	38
Nissl, Jan	II.A (1); II.A (5); III.D.3 (1); VII.B (1)	19
Oldani, Cisco	XI (5)	12
Oliver, Thomas – Studsvik, Inc.	III.D.4 (4); XI (5)	57
	III.D.4 (4)	60
Ossi Jr., Anthony – U.S. Department of Transportation	IX.B (2)	29

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
Parkin, Richard B. – U.S. EPA, Region 10	II.E (1); II.E (2); II.E (5); III.F.2 (1); III.F.4 (2); IV.C (1); IV.C (3); IV.D (1); V (12); V (8); VII.B (1); VIII.C (4); X (11); X (15); X (6)	56
Plansky, Lee	IX.A (8); V (2)	7
	IX.A (8); V (2)	17
Porter, Chelsea and Spear, Edie	III.D.1 (1)	77
Reeves, Merilyn – Hanford Advisory Board, Chair	II.E (2); II.E (3); II.E (5); II.E (6); II.E (9); VII.A (6)	39
	II.E (2); II.E (3); II.E (5); II.E (6); II.E (9); VII.A (6)	52
Rhodes, Donald	III.D.2.c (3); III.D.3 (1); III.D.4 (1)	20
Ross, Wayne	II.E (4); III.C (1); VII.D (6)	26
Roth, Char	II.A (2); VIII.B (4); XI (5)	22
Ruttle, Dr. & Mrs. Paul	IX.D (1); XI (5); XI (6)	13
Saphier, Ruthann	II.A (1); II.A (5); III.D.3 (1); VII.B (1); XI (5)	25
Schueren, Briana and Reardon, Katherine	III.A (1); III.E (3); VIII.G (1); IX.C (1)	70
Shuptrine, Sandy – Teton County Commissioners	II.A (5); VII.A (7); VII.D (3); VIII.A (9); IX.C (4); X (1); X (3); X (9)	36
Siemer, Darryl	III.C (1); III.C (2); III.C (9); III.D.1 (4); III.D.1 (6); III.D.2.a (1); III.D.2.b (1); III.D.2.b (4); III.D.2.b (6); III.D.3 (4); III.D.4 (4); III.D.4 (6); III.D.4 (7); III.E (2); III.F.2 (1); III.F.2 (6); III.F.3 (1); V (6); V (9); VII.D (2); VII.D (3); VII.D (6); IX.A (2); IX.A (3); X (3); XI (3)	1
	I (3); III.C (1); III.C (2); III.C (9); III.D.1 (2); III.D.1 (4); III.D.1 (6); III.D.2.a (1); III.D.2.b (1); III.D.2.b (2); III.D.2.b (3); III.D.2.b (4); III.D.2.b (6); III.D.3 (2); III.D.3 (4); III.D.4 (4); III.D.4 (6); III.D.4 (7); III.E (1); III.E (2); III.F.2 (1); III.F.2 (3); III.F.2 (6); III.F.3 (1); V (3); V (6); V (9); VII.D (2); VII.D (3); VII.D (6); IX.A (2); IX.A (3); IX.A (8); X (3); XI (3); XI (4)	9
	I (2); III.D.1 (4); III.D.2.c (4); III.E (2); III.F.2 (1); III.F.2 (5); VII.A (3); VII.D (6)	35
	III.C (1); III.D.2.b (1); III.E (1); VII.D (6); X (8)	36
Simpson, Mike – U.S. House of Representatives (Laurel Hall presenter)	IX.A (2)	5
	IX.A (2)	35
Sims, Lynn	II.B (1); II.E (1); III.A (1); III.D.1 (5); III.F.1 (1); VIII.A (10); IX.C (6); X (10); XI (8)	49
Sipiora, Ashina and Asbury, Alexandra	II.A (2); VII.A (6); IX.C (1)	71
Sleeger, Preston A. – U.S. Department of Interior	None	48
	VIII.B (2)	82
Sluszka, Janet	VI (1)	18
Smith, Rhonnie – Cogema, Inc.	III.D.4 (4)	58
Spitzer, Horton	VII.A (6); IX.C (3); IX.D (2); XI (5)	36
Stephens, Tom	IX.A (3); IX.A (5)	36
Stewart, Margaret M.	II.A (1); II.A (4); II.A (5); III.D.2.c (1); III.D.3 (1); III.E (1); VII.B (1); VII.D (1); VIII.G (7); IX.D (4); IX.D (6); XI (7)	64

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
Stoner, Tom	III.D.1 (7); III.E (1); III.F.2 (5); VII.B (3); VIII.A (4); IX.D (1)	16
	III.A (1); III.C (3); VI (1)	41
Stout, Kemble and Mildred	III.C (3)	47
Tanner, John	III.C (2); III.D.3 (1); III.F.2 (1); IX.C (2)	63
	III.D.1 (1); III.F.2 (1); X (7)	35
Taylor, Dean	III.F.2 (1); VIII.A (6); X (12); X (4)	76
Volpentest, Sam – Tri-Cities Industrial Development Council	II.E (2); II.E (3); II.E (4); II.E (5); II.E (6); VII.A (2); VIII.H (3); VIII.I (2)	34
Wakefield, Sophia	VII.D (1); VIII.B (2); IX.A (7); IX.D (5)	36
Ward, Kevin	III.A (1); III.D.2.c (1); IX.C (1); VIII.G (1)	75
Weaver, Roxanne	II.A (3); IX.C (2); XI (2)	36
Willison, Jim	VIII.A (11); VIII.A (6); VIII.G (3); VIII.G (5); IX.A (1); IX.A (2);	61
Wood, George – Coalition 21	VIII.A (1); VIII.A (7); VIII.B (4); VIII.C (1); VIII.G (8)	37
	Government Agencies/Tribes	
Nevada Department of Administration (Heather Elliott)	III.E (1); VIII.H (1)	40
Oregon Office of Energy (Mary Lou Blazek)	II.A (3); II.E (2); II.E (3); III.D.2.c (5); VII.A (2); VIII.C (2); VIII.C (3); VIII.C (9); VIII.D (1); IX.A (8); IX.C (3); IX.C (5)	51
Oregon Office of Energy (Ken Niles)	II.E (1); II.E (4); II.E (5); II.E (6); II.E (8); VII.A (2); VIII.H (5); IX.C (5)	27
	II.E (1); II.E (4); II.E (5); II.E (8); IX.C (3)	38
Shoshone-Bannock Tribes (Claudeo Broncho)	II.B (1); II.C (1); II.E (6); III.A (2); III.C (4); III.D.2.b (6); III.D.2.c (4); III.D.3 (1); III.E (1); III.F.2 (1); III.F.2 (2); III.F.3 (1); III.F.4 (2); IV.A (1); V (1); V (2); V (9); VII.A (2); VII.A (5); VII.D (4); VII.D (6); VII.E (1); VII.E (2); VII.E (3); VIII.C (6); VIII.C (7); VIII.H (2); IX.A (8); IX.C (4)	62
Shoshone-Bannock Tribes (Blaine Edmo)	VII.D (5); VII.E (1); VII.E (3); IX.A (2); IX.D (1)	42
Shoshone-Bannock Tribes (Shirley Kaiyou)	IX.C (3); IX.C (6); IX.D (1); X (13)	42
Teton County (WY) Commissioners Sandy Shuptrine	II.A (5); VII.A (7); VII.D (3); VIII.A (9); IX.C (4); X (1); X (3); X (9)	36
U.S. Department of Commerce (Charles Challistrom)	VIII.F (1)	32
U.S. Department of Health and Human Services (Kenneth W. Holt)	VIII.B (1); IX.B (2)	23
U.S. Department of Interior (Preston A. Sleeger)	None	48
	VIII.B (2)	82
U.S. Department of Transportation (Anthony Ossi Jr.)	IX.B (2)	29
U.S. Environmental Protection Agency – Region 10 (Christian F. Gebhardt)	IX.A (2); IX.B (2)	66

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
U.S. Environmental Protection Agency – Region 10 (Richard B. Parkin)	II.E (1); II.E (2); II.E (5); III.F.2 (1); III.F.4 (2); IV.C (1); IV.C (3); IV.D (1); V (12); V (8); VII.B (1); VIII.C (4); X (11); X (15); X (6)	56
U.S. House of Representatives (Mike Simpson) (Laurel Hall presenter)	IX.A (2)	5
	IX.A (2)	35
United States Senate (Larry Craig) (Georgia Dixon presenter)	IX.A (2)	6
	IX.A (2)	35
United States Senate (Michael Crapo) (Suzanne Hobbs presenter)	VII.D (6)	4
	VII.D (6)	35
	Organizations	
Coalition 21 (Lowell Jobe)	III.F.2 (1); III.F.2 (2); VI (1); VII.A (1); X (2); XI (3)	2
	III.F.2 (1); III.F.2 (2); VII.A (1); VII.D (1); X (2); XI (3)	35
Coalition 21 (Richard Kenney)	III.C (2); III.D.3 (1); III.D.4 (3); III.D.4 (6); III.D.4 (8); III.F.1 (3); III.F.2 (1); III.F.2 (2); III.F.2 (6); VII.D (2); VII.D (6); VIII.A (2); VIII.G (7); VIII.G (8); IX.A (4); IX.C (1); X (14); XI (1); XI (7)	83
Coalition 21 (George Wood)	VIII.A (1); VIII.A (7); VIII.B (4); VIII.C (1); VIII.G (8)	37
Cogema, Inc. (Rhonnie Smith)	III.D.4 (4)	58
Environmental Defense Institute (Chuck Broscious)	II.A (3); II.E (1); III.A (1); III.C (3); III.C (5); III.C (7); III.D.1 (1); III.D.2.b (5); III.D.2.c (1); III.D.2.c (2); III.D.3 (1); III.E (1); III.F.2 (2); III.F.2 (5); III.F.3 (1); IV.C (2); V (10); V (11); V (12); V (4); V (7); V (9); VII.A (8); VII.B (2); VII.C (1); VII.C (3); VII.C (4); VII.D (6); VIII.A (3); VIII.B (3); VIII.B (6); VIII.C (1); VIII.C (8); VIII.G (6); IX.D (1); IX.D (6); XI (5); XI (7); XI (9)	68
Foothills School of Arts and Sciences (Rebecca Ballenger)	III.D.2.c (1)	73
Foothills School of Arts and Sciences (Matt Dubman)	III.A (1); III.D.2.c (1)	72
Foothills School of Arts and Sciences (Foldyna, Erika and Lloyd, Kaitlin)	III.D.2.c (1); III.D.3 (1); IX.C (1)	69
Foothills School of Arts and Sciences (Goicoechea, Jake; Baehr, Jeffrey; and Madsen, Logan)	III.D.2.c (1)	78
Foothills School of Arts and Sciences (Goodenough, Ashten)	II.A (2); III.A (1)	74
Foothills School of Arts and Sciences (Porter, Chelsea and Spear, Edie)	III.D.1 (1)	77
Foothills School of Arts and Sciences (Schueren, Briana and Reardon, Katherine)	III.A (1); III.E (3); VIII.G (1); IX.C (1)	70
Foothills School of Arts and Sciences (Sipiora, Ashina and Asbury, Alexandra)	II.A (2); VII.A (6); IX.C (1)	71
Foothills School of Arts and Sciences (Kevin Ward)	III.A (1); III.D.2.c (1); VIII.G (1); IX.C (1)	75

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
Hanford Advisory Board (Merilyn Reeves)	II.E (2); II.E (3); II.E (5); II.E (6); II.E (9); VII.A (6)	39
	II.E (2); II.E (3); II.E (5); II.E (6); II.E (9); VII.A (6)	52
	II.A (1); II.E (3); II.E (6); III.A (1); III.B (2); III.C (4); III.D.1 (4); III.D.2.c (5); III.D.4 (5); III.F.2 (1); III.F.2 (2); III.F.2 (4); IV.C (1); IV (5); VI (1); VII.A (6); VII.C (2); VII.D (3); VII.D (6); VIII.A (2); IX.A (2); IX.A (3); IX.C (2); X (11); X (12); X (2); X (5); XI (3)	55
Keep Yellowstone Nuclear Free (Berte Herschfield)	III.A (1); III.C (4); III.D.1 (1); III.F.2 (5); V (9); VI (1); VII.A (6); VIII.G (7); IX.B (1); IX.C (2); IX.D (1)	36
Mere Peace Church (Reverend MsMere)	III.D.1 (6); VIII.B (2)	50
Snake River Alliance	III.D.1 (1); III.D.3 (1); III.D.3 (3); III.E (1); III.F.1 (2); V (9); VII.A (4); VII.A (6); VIII.C (5); IX.C (2)	65
Snake River Alliance (Pam Allister)	II.A (5); III.D.1 (4); III.D.1 (6); III.E (1); VI (1); VII.A (6); VII.B (3); IX.C (3); IX.C (4)	50
Snake River Alliance (Beatrice Brailsford)	II.A (1); II.A (3); III.D.1 (4); III.D.3 (1); V (9); VII.D (1); VIII.A (8); VIII.C (5); IX.A (4); IX.C (7); IX.D (1)	42
Snake River Alliance (Dave Hensel)	III.D.2.c (1); III.D.3 (1); III.E (3); IV.C (1); VII.B (1); VII.D (3); VIII.H (4)	36
Snake River Alliance (Steve Hopkins)	II.A (5); II.D (1); II.E (2); III.D.1 (8); III.D.3 (1); III.D.3 (3); III.E (1); XI (7); IX.C (2); IX.C (4)	45
	I (1); II.A (3); III.D.1 (1); III.D.1 (8); III.D.3 (1); III.D.3 (3); III.E (1); VII.D (6); IX.A (1); IX.A (6); X (2); X (4); XI (3)	50
	III.D.1 (1); III.D.3 (1); III.D.3 (3); III.E (1); III.F.1 (2); V (9); VII.A (4); VII.A (6); VIII.C (5); IX.C (2)	67
Snake River Alliance (Jay Hormel)	II.A (5); III.D.2.c (1)	24
Snake River Alliance (Todd Martin)	II.E (5); III.A (1); III.D.3 (1); III.E (1); VII.A (4)	45
	III.D.3 (1); III.E (1); VII.A (4); VII.D (6); X (13); X (6); X (9); XI (7)	50
Studsvik, Inc. (Thomas Oliver)	III.D.4 (4); XI (5)	57
	III.D.4 (4)	60
Tri-Cities Industrial Development Council (Harold Heacock)	II.E (2); II.E (3); II.E (4); II.E (5); II.E (6); VII.A (2); VIII.H (3); VIII.I (2)	31
	II.E (2); II.E (3); II.E (4); II.E (5); II.E (6); VII.A (2); VIII.H (3); VIII.I (2)	53
Tri-Cities Industrial Development Council (Sam Volpentest)	II.E (2); II.E (3); II.E (4); II.E (5); II.E (6); VII.A (2); VIII.H (3); VIII.I (2)	34

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
	Public Hearings	
Boise Public Hearing, Pamela Allister	II.A (5); III.D.1 (4); III.D.1 (6); III.E (1); VI (1); VII.A (6); VII.B (3); IX.C (3); IX.C (4)	50
Boise Public Hearing, Steve Hopkins	I (1); II.A (3); III.D.1 (1); III.D.1 (8); III.D.3 (1); III.D.3 (3); III.E (1); VII.D (6); IX.A (1); IX.A (6); X (2); X (4); XI (3)	50
Boise Public Hearing, Todd Martin	III.D.3 (1); III.E (1); VII.A (4); VII.D (6); X (13); X (6); X (9); XI (7)	50
Boise Public Hearing, Reverend MsMere	III.D.1 (6); VIII.B (2)	50
Fort Hall Public Hearing, Beatrice Brailsford	II.A (1); II.A (3); III.D.1 (4); III.D.3 (1); V (9); VII.D (1); VIII.A (8); VIII.C (5); IX.A (4); IX.C (7); IX.D (1)	42
Fort Hall Public Hearing, Dennis Donnelly	III.B (3); IV.A (1); VIII.C (1); IX.C (2); IX.D (1); X (10)	42
Fort Hall Public Hearing, Blaine Edmo	VII.D (5); VII.E (1); IX.D (1)	42
	IX.A (2)	42
Fort Hall Public Hearing, Shirley Kaiyou	IX.C (3); IX.C (6); IX.D (1); X (13)	42
Idaho Falls Public Hearing, U.S. Senator Larry Craig (Comments read by Georgia Dixon)	IX.A (2)	35
Idaho Falls Public Hearing, U.S. Senator Michael Crapo (Comments read by Suzanne Hobbs)	VII.D (6)	35
Idaho Falls Public Hearing, Lowell Jobe	III.F.2 (1); III.F.2 (2); VII.A (1); VII.D (1); X (2); XI (3)	35
Idaho Falls Public Hearing, Darryl Siemer	I (2); III.D.1 (4); III.D.2.c (4); III.E (2); III.F.2 (1)	35
Idaho Falls Public Hearing, U.S. Representative Mike Simpson (Comments read by Laurel Hall)	IX.A (2)	35
Idaho Falls Public Hearing, John Tanner	III.D.1 (1); III.F.2 (1); X (7)	35
Jackson Public Hearing, Dan Bennett	XI (10)	36
Jackson Public Hearing, Ken Cady	II.A (3); VIII.B (2); VIII.B (5)	36
Jackson Public Hearing, Whit Clayton	IX.D (7); XI (1); XI (6)	36
Jackson Public Hearing, Avril Currier	II.A (2); III.D.1 (1); VII.D (1)	36
Jackson Public Hearing, Dan Fulton	IX.D (1); XI (6)	36
Jackson Public Hearing, Christy Gillespie	X (12); XI (5)	36
Jackson Public Hearing, David Henneberry	II.A (2); VIII.G (2); XI (5)	36
Jackson Public Hearing, Dave Hensel	III.D.2.c (1); III.D.3 (1); III.E (3); IV.C (1); VII.B (1); VII.D (3); VIII.H (4)	36
Jackson Public Hearing, Berte Herschfield	III.A (1); III.C (4); III.D.1 (1); III.F.2 (5); V (9); VI (1); VI (1); VII.A (6); VIII.G (7); IX.B (1); IX.C (2); IX.D (1)	36
Jackson Public Hearing, Jeffrey Joel	II.A (3); II.E (7); III.C (6); X (2)	36

Table 11-2. Index - Alphabetical List of Commentors by Name (continued).

Commentor	Comment Summary Number(s)	Appendix D Comment Document Number
Jackson Public Hearing, Jim Laybaum	II.E (8); III.C (4); III.D.2.b (6); III.D.2.c (1); III.D.3 (1); III.E (3); VIII.G (2); IX.C (2); IX.C (4); X (11); X (9)	36
Jackson Public Hearing, Benn Linn	III.D.1 (5); VI (1); IX.C (4); IX.D (2)	36
Jackson Public Hearing, Tatiana Maxwell	III.D.1 (4); III.D.2.b (5); III.D.2.c (1); IX.D (1); IX.D (2)	36
Jackson Public Hearing, Melissa Clark Rhodes	VII.D (6); IX.D (3)	36
Jackson Public Hearing, Sandy Shuptrine	II.A (5); VII.A (7); VII.D (3); VIII.A (9); IX.C (4); X (1); X (3); X (9)	36
Jackson Public Hearing, Darryl Siemer	III.C (1); III.D.2.b (1); III.E (1); VII.D (6); X (8)	36
Jackson Public Hearing, Horton Spitzer	VII.A (6); IX.C (3); IX.D (2); XI (5)	36
Jackson Public Hearing, Tom Stephens	IX.A (3); IX.A (5)	36
Jackson Public Hearing, Sophia Wakefield	VII.D (1); VIII.B (2); IX.A (7); IX.D (5)	36
Jackson Public Hearing, Roxanne Weaver	II.A (3); IX.C (2); XI (2)	36
Pasco Public Hearing, Harold Heacock	II.E (2); II.E (3); II.E (4); II.E (5); II.E (6); VII.A (2); VIII.H (3); VIII.I (2)	53
Pocatello Public Hearing, George Wood	VIII.A (1); VIII.A (7); VIII.B (4); VIII.C (1); VIII.G (8)	37
Portland Public Hearing, Bill Bires	VI (1); VIII.A (5); IX.D (2); X (10); X (13)	38
Portland Public Hearing, Page Knight	II.E (4); II.E (5); II.E (8); III.D.1 (4); III.E (1); VI (1); IX.D (1); XI (7)	38
Portland Public Hearing, Ed Martiszus	III.A (1); VII.A (6) ; IX.C (8)	38
Portland Public Hearing, Ken Niles	II.E (1); II.E (4); II.E (5); II.E (5); II.E (8); IX.C (3)	38
Twin Falls Public Meeting, Steve Hopkins	II.A (5); II.D (1); II.E (2); III.D.1 (8); III.D.3 (1); III.D.3 (3); III.E (1); IX.C (2); IX.C (4); XI (7)	45
Twin Falls Public Meeting, Todd Martin	II.E (5); III.A (1); III.D.3 (1); III.E (1); VII.A (4)	45

ACRONYMS

CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy
DOE-EM	U.S. Department of Energy - Environmental Management
DOE-ID	U.S. Department of Energy - Idaho Operations Office
EBR-II	Experimental Breeder Reactor II
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
FR	Federal Register
FUETAP	formed under elevated temperature and pressure
HEPA	high efficiency particulate air
HIP	Hot Isostatic Pressed
HLW	high-level waste
ICPP	Idaho Chemical Processing Plant (now INTEC)
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center (formerly ICPP)
MACT	Maximum Achievable Control Technology
MTHM	metric tons of heavy metal
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NRC	U.S. Nuclear Regulatory Commission
PUREX	plutonium uranium extraction
RCRA	Resource Conservation and Recovery Act
SBW	sodium-bearing waste
SNF & INEL EIS	*U.S. Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs EIS*
TRUEX	transuranic extraction
WIPP	Waste Isolation Pilot Plant

11.3 Summary Comments and DOE Responses

I PURPOSE AND NEED

I (1)

Comment - A commentor supports the need for the waste addressed in the Draft EIS to be treated, stabilized, and isolated from the environment.

Response - Comment is noted.

I (2)

Comment - A commentor states that the nuclear fuel cycle should be closed.

Response - This EIS evaluates alternative ways to prepare mixed HLW for disposal and, thus, to close out the nuclear fuel cycle with respect to mixed HLW at the Idaho Nuclear Technology and Engineering Center (INTEC).

I (3)

Comment - A commentor asserts that INEEL's mission is to make waste forms, not dispose of them.

Response - A primary focus of the INEEL's mission is to manage, treat, and dispose of its inventory of new and legacy wastes. Producing acceptable waste forms that can be properly disposed of is important in protecting human health and the environment.

II ALTERNATIVES

II.A General: Alternatives

II.A (1)

Comment - Commentors express concern about mixing liquid sodium-bearing waste (SBW) and calcined waste at any stage during the waste management process. One commentor states that the calcine and liquid wastes should be treated independently due to their different properties, as recommended by the National Academy of Sciences. Another commentor suggests storing solidified SBW on-site in casks, but does not advocate limiting disposal options by mixing SBW and HLW in the casks.

Response - DOE agrees with these commentors' concern that calcine and liquid wastes be treated separately. Reasons for separate treatment include DOE's position that the SBW may be managed as mixed transuranic waste and, therefore, should not be combined and treated with the mixed HLW calcine. In other words, if a waste incidental to reprocessing determination concludes the SBW is transuranic waste, then it can be treated and disposed of at the Waste Isolation Pilot Plant and not stored at the INEEL until a national HLW geologic repository becomes available. Another reason for treating mixed transuranic waste/SBW liquid waste separately from calcine is the need to cease use of the underground 300,000-gallon tanks by December 31, 2012. By treating this liquid waste first, DOE would be in a better position to meet this milestone.

Analyses in this EIS provide for treating calcine and liquid wastes separately, which is consistent with the National Academy of Sciences' recommendations.

II.A (2)

Comment - A commentor asks various questions relating to the location of waste management facilities: Why ship it all the way over here (taken by DOE to mean the INEEL and surrounding region), do one thing, then ship it somewhere else? Why build a plant here? Why in our area? Why not where the problem is located?

Another commentor is opposed to treating waste at sites located in the West. Commentors suggest that DOE treat and/or dispose of HLW in other locations such as the Great Salt Lake Desert, the Sahara Desert, Mexico, or outer space.

Response - An EIS must evaluate a range of reasonable alternatives, which, in this case, includes treating and disposing of wastes onsite at INEEL and at other locations. In general, it is DOE's policy to treat waste at the DOE site where it was generated (FR Vol. 65, No. 38, 2000; FR Vol. 65, No. 251, 2000). Treating INEEL mixed HLW and mixed transuranic waste/SBW waste at sites other than the West, where it is currently stored, presents no clear advantage over the reasonable alternatives analyzed in this EIS. See the discussion in Appendix B and Section 3.3 of this EIS regarding Alternatives Eliminated from Detailed Analysis.

Regarding the suggestion that DOE consider disposing of HLW in other locations, the Yucca Mountain site in Nevada is the only candidate site for geologic disposal of HLW that Congress (in the Nuclear Waste Policy Act, as amended) directed the Secretary of Energy to consider with respect to its suitability as the potential geologic repository.

References:

Federal Register Vol. 65, No. 38, Page 10061, "Record of Decision for the DOE Waste Management Program: Treatment and Disposal of Low-Level Waste and Mixed Low-Level Waste; Amendment of the Record of Decision for the Nevada Test Site," February 25, 2000.

Federal Register Vol. 65, No. 251, Page 82985, "Revision to the Record of Decision for the Department of Energy's Waste Management Program: Treatment and Storage of Transuranic Waste," December 29, 2000.

II.A (3)

Comment - Commentors express opinions on "hybrid" or mixed alternatives, including the following:

- Why can't DOE use a mixture of alternatives such as No Action for calcine treatment?
- Hybrids were not integrated into the analysis in the Draft EIS, and the public had no opportunity to review and consider them.
- It may be possible to combine processes or otherwise try to develop alternatives that would have insignificant environmental impacts.
- The range of alternatives analyzed in the EIS, along with the possible combination of projects, appear complicated and, at the same time, represent only a limited range of real options, and that there might be simpler waste treatment alternatives.

Response - DOE developed the hybrid, or modular approach to its analyses of alternatives in order to provide flexibility in the selection of various combinations of options that could complete mixed transuranic waste/SBW and mixed HLW management activities at INTEC.

Section 3.1 of this EIS and the text boxes in Section 3.2 of the Summary describe how the alternative options may be combined. In addition, Table S-1 in the Summary identifies the modular units, which can be used to construct hybrid alternatives. These modular units are grouped by phases in the waste management process: pretreatment storage, calcination, treatment, interim storage, and disposal. Constructing a hybrid alternative involves deciding whether to calcine the waste and then selecting a treatment and disposal option. Whether an interim storage facility would be needed depends on whether a disposal destination is available. As stated in this EIS, the Waste Isolation Pilot Plant will be available for transuranic waste and near-surface landfills will be available for low-level waste. However, the availability of a final disposal facility for INEEL's HLW remains uncertain. The environmental impacts identified for each of these waste management modular units stand alone, and combining them does not create additional environmental impacts that were not evaluated separately in this EIS. That is, the EIS was structured to ensure consideration of the potential environmental impacts of each module individually and collectively, in any reasonable combination.

II.A (4)

Comment - A commentor asserts that the Draft EIS presents a complicated set of options, but there is no currently available option to correct past or future damage from the waste.

Response - The EIS summarizes ongoing cleanup activities that are being conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to remediate contamination from past operations at INTEC. These activities are factored into the cumulative impact analyses for each facility disposition alternative evaluated in Chapter 5 of this EIS. See also responses to comment summaries in VII.B concerning CERCLA activities.

As for future damage from the waste, this EIS specifically assesses potential environmental impacts for each waste processing and facility disposition alternative, including No Action and, where appropriate, discusses possible mitigation DOE could implement to correct, eliminate, or reduce identified environmental impacts.

II.A (5)

Comment - Commentors support selection of the alternative that provides the maximum amount of protection to the environment. Some commentors add that the selected alternative should be the one that also best protects human health and safety, and has protection of the environment as its primary focus.

Response - DOE is obligated to manage waste in a manner that protects human health and the environment including complying with all applicable Federal, state, and local regulations, as well as DOE orders.

With the exception of the No Action and Continued Current Operations alternatives, all other alternatives evaluated in this EIS would provide long-term protection of the environment. Chapter 5 of this EIS, Table 3-4, and Table S-2 in the Summary, summarize the environmental impacts of all the alternatives considered, including safety and human health considerations. DOE will consider these environmental impacts prior to making a decision.

II.B No Action Alternative

II.B (1)

Comment - Commentors object to the No Action Alternative for one or more of the following reasons:

- It is one of several alternatives that pose adverse risks to tribal populations and natural resources.
- Indefinite storage of liquid waste poses a threat to the Snake River Plain Aquifer and is subject to natural phenomena.
- No treatment would occur to enable HLW shipment out of Idaho, which must occur.

Another commentor supports the No Action Alternative and expresses the opinion that liquid and calcined wastes should remain in storage as they are now, as long as they can be safely contained.

Response - CEQ regulations require that an EIS analyze the range of reasonable alternatives, as well as a No Action Alternative. Accordingly, DOE analyzed the No Action Alternative, which serves as a baseline against which to compare the environmental impacts of the action alternatives.

In general, the No Action Alternative poses the greatest anticipated, long-term risk to human health and the environment because significant amounts of mixed transuranic waste/SBW would be left in 300,000-gallon underground tanks at INTEC, as would the calcine in the bin sets. Although DOE is confident that these liquid and calcined wastes currently stored at INTEC can be safely managed pending treatment and disposal, the No Action Alternative would present potential adverse environmental impacts over time and it would not satisfy the requirements of the Settlement Agreement/Consent Order. There is the possibility that over an extended period of time, especially after the loss of institutional control (assumed to occur in 2095 for purposes of analysis in this EIS), structural degradation of storage facilities could occur with eventual releases to the environment. Analyses in

Chapter 5 of this EIS show that under the No Action Alternative, groundwater concentrations could exceed U.S. Environmental Protection Agency (EPA) drinking water standards.

II.C Continued Current Operations Alternative

II.C (1)

Comment - A commentor objects to the Continued Current Operations Alternative for one or more of the following reasons:

- It relies on continued calcining, which is burdened with permitting and emission compliance uncertainties.
- It would not prepare INEEL HLW for shipment out of Idaho by 2035.

Response - In general, the Continued Current Operations Alternative poses greater anticipated risk to human health and the environment than other action alternatives because significant amounts of calcined mixed HLW would be left at INTEC indefinitely. Although DOE is confident that these wastes currently stored at INTEC can be safely managed in the interim before treatment and disposal, the Continued Current Operations Alternative would have potential long-term, adverse environmental impacts and would not satisfy the Settlement Agreement/Consent Order. See responses to comment summaries in III.C regarding continued calciner operations and in VII.D regarding compliance with the Settlement Agreement/Consent Order milestones.

II.D Planning Basis Option

II.D (1)

Comment - A commentor objects to selection of the Planning Basis Option because it is unrealistic and would not likely meet the Settlement Agreement/Consent Order anyway, although it was developed to comply with it. The commentor also says that the State of Idaho should work with DOE to determine the best method to treat the waste and isolate it from the environment rather than push for the Planning Basis Option.

Response - The Planning Basis Option represents the actions and milestones DOE agreed to take to cease use of the eleven 300,000-gallon tanks in the Tank Farm by December 2012 and, by a target date of December 31, 2035, prepare the mixed HLW for transport out of Idaho for disposal. Although DOE agrees that it would be difficult to make the 2012 date because of the time needed to permit and upgrade the calciner, DOE believes that, under an accelerated schedule, this commitment could be met. Therefore, the Planning Basis Option remains a reasonable alternative.

As a cooperating agency in the preparation of this EIS, the State of Idaho did not push for the Planning Basis Option, but worked closely with DOE to identify the best method for management of the INEEL's mixed HLW which includes mixed transuranic waste/SBW.

II.E Minimum INEEL Processing Alternative

II.E (1)

Comment - Commentors express concern about relying on Hanford to solve the INEEL's HLW problems:

- DOE has not made a convincing argument for this alternative, particularly since Hanford has been unable to deal effectively with its own wastes and does not have storage facilities for INEEL waste at present. Building such facilities and transporting calcine from safe storage facilities in Idaho is irresponsible.
- An agency (the EPA) cannot support the Hanford alternative because DOE will not commit to treating the existing HLW at Hanford.

Response - DOE is committed to treating Hanford's HLW at Hanford as indicated by the Record of Decision for the *Tank Waste Remediation System, Hanford Site, Richland, Washington, Final Environmental Impact*

Statement; the hiring of a contractor to construct tank waste treatment facilities at Hanford; and the fact that DOE is in the process of acquiring facilities to treat and immobilize HLW at the Hanford Site.

In preparing this EIS, DOE reviewed the activities at Hanford and determined that it would be a reasonable alternative to send INEEL mixed HLW calcine or the HLW fraction from separations to Hanford for treatment and immobilization, then return the immobilized waste to the INEEL for storage or send the treated waste directly to the geologic repository, if available. This alternative would substantially reduce the amount of onsite construction and operations to support the treatment of mixed HLW at the INEEL and would require one location for treatment of HLW rather than two. Although treatment facilities for mixed transuranic waste/SBW would be required at INEEL, this alternative could potentially reduce the overall demand on DOE resources (e.g., funding and labor). DOE continues to consider this alternative to be reasonable, even though updated information received from the Hanford Site indicates that there would be an increase in the previously assumed volume of final waste form and an associated longer treatment period for INEEL mixed HLW calcine.

II.E (2)

Comment - Commentors express concern about uncertainties associated with the Minimum INEEL Processing Alternative:

- Consideration of this alternative is premature as the Hanford Site has no vitrification facility (which must be fully funded and operational and be proven to be compatible with INEEL HLW) and construction of one is uncertain.
- Included in the uncertainties is the fact that waste pre-treatment (such as the need for separations) may also be necessary and the existence of a licensed HLW repository to receive the end product is uncertain.
- A commentor recommended that this alternative be removed from consideration in the EIS due to such uncertainties and another noted there are too many uncertainties.

Commentors state that the Minimum INEEL Processing Alternative is unrealistic because treatment of INEEL waste at Hanford would require construction of separations facilities not planned for the Hanford Site and there are differing HLW characteristics between Hanford and INEEL waste.

Response - The Hanford Site is planning to include a separations unit (a pretreatment facility to separate HLW into waste fractions) with its vitrification facility, but it would have to be modified to treat INEEL waste. Other modifications would be required to this facility; specifically, the calcined mixed HLW from the INEEL could require dissolution, a process capability that would have to be added to the Hanford facilities. Further, since the Hanford treatment process would be designed for caustic (basic) HLW, it would be necessary to include a unit for altering the pH of the highly acidic dissolved calcine from INEEL, so that compatibility can be assured.

DOE believes it would be feasible to adapt the planned Hanford facilities to treat INEEL mixed HLW during the design stages of the Hanford facilities. INEEL engineers and scientists would work with their Hanford counterparts during these stages to ensure such capatability. For this reason, DOE continues to consider this course of action a reasonable alternative.

If DOE could also determine that conducting the separations process at the INEEL is technically and economically advantageous and proceed to separate calcine into a mixed HLW fraction and a mixed transuranic- or mixed low-level-waste fraction at the INEEL. Under these circumstances, DOE could send the mixed HLW fraction to the Hanford facilities for vitrification. This is described in the Full Separations Option in Section 3.1.3.1. Any necessary modifications to the Hanford facilities would have to be determined when the composition and characteristics of the mixed HLW fraction from INEEL were known.

II.E (3)

Comment - Commentors state that treating Idaho's calcine at Hanford makes no financial sense. In addition, funding should cover all additional cost burdens by state and local governments. Funding for the shipment of wastes from sites such as the INEEL to Hanford for treatment must cover all associated costs because the Hanford budget is already inadequate to meet site cleanup needs and Tri-Party Agreement commitments.

Response - Other than evaluating the costs of the various alternatives in a separate document, the Cost Report (*Cost Analysis of Alternatives for the Idaho High-Level Waste and Facilities Disposition EIS* [DOE/ID 10702, January 2000]), DOE did not attempt to address, in this EIS, the funding sources and allocation of cost burdens between the INEEL and Hanford sites. DOE does recognize that there may be additional cost burdens to affected state and local agencies and tribal governments, such as the need for additional emergency response training and consultations, and toward these ends may provide assistance in expertise, equipment, and/or funding. DOE believes, however, that if the Minimum INEEL Processing Alternative would substantially reduce the combined life-cycle costs at INEEL and Hanford, then issues regarding funding and allocation of cost burdens among DOE sites could be correspondingly reduced.

II.E (4)

Comment - Commentors maintain that there are advantages to treatment of INEEL HLW at the Hanford Site:

- Blending feedstreams would reduce the total volume of waste and would be more cost-effective than other alternatives.
- Some constituents of INEEL HLW would increase the chemical durability of Hanford glass.
- The large volume of Hanford waste would dilute the low solubility in glass components in the INEEL calcine.
- Environmental impacts of the Hanford Alternative appear to be equivalent or less than the other alternatives presented in the Draft EIS.
- There are benefits to not building additional facilities in Idaho under this alternative.

Some commentors add that DOE should seriously consider the Minimum INEEL Processing Alternative because:

- It would result in cooperation instead of competition between sites for limited funds.
- Hanford is a logical choice because it is the most contaminated Western site.

Response - As indicated by the commentors, there are some advantages to this alternative, which is why DOE considers it reasonable and thus included it in this EIS. However, as discussed in the response to comment summaries II.E (2) and II.E (3), there are also some disadvantages associated with this alternative that must be taken into consideration. With regard to advantages, cost and programmatic benefits in using planned facilities at the Hanford Site make the alternative reasonable for consideration. Programmatic benefits include minimizing the need to construct, permit, and operate similar processing capability at the INEEL and the associated economies of scale and reduced support infrastructure in conducting larger processing campaigns.

However, since this alternative was discussed in the Draft EIS, both Hanford and INEEL engineers have reanalyzed waste volumes and have determined that the treated calcine would result in larger volumes of treated waste (Section 5.2.13). This would increase the costs and risks associated with production, transportation, storage, and disposal. Thus, although there are obvious advantages to consider for this alternative, the latest information available indicates there are also some offsetting disadvantages that DOE must consider in making a decision.

II.E (5)

Comment - Commentors state that the HLW in the tanks at Hanford poses serious problems, which include threats to the Columbia River. Commentors express the opinion that, as a result, Hanford's HLW should be treated before INEEL's waste is shipped to Hanford for treatment and that it may take until 2047 to treat all of Hanford's tank waste.

Response - Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act require an assessment of the range of reasonable alternatives. Therefore, DOE evaluated the Minimum INEEL Processing Alternative to ensure that the range of reasonable alternatives is considered. Current plans at Hanford call for starting treatment of HLW by December 2007. During this time DOE would be conducting further technology development. After the Hanford HLW processing facility gained initial operating experience DOE could decide to send the INEEL calcine, or a HLW fraction, if the calcine has been separated, to Hanford for treatment. Before making such a decision, DOE would determine whether additional National Environmental Policy Act documentation is needed. As part of this process, DOE would consider Hanford treatment priorities as well as potential environmental impacts to human health and the environment, including the Columbia River. See response to comment summary VIII.C (2) for further discussion on environmental impacts at Hanford.

II.E (6)

Comment - Commentors state that any wastes processed or vitrified at Hanford must be returned to Idaho or to a national repository, and not be stored or disposed of at Hanford. The commentors cite a lack of appropriate facilities and additional burdens on the Hanford Site as reasons.

Commentors also state that:

- If INEEL waste is treated at other DOE sites, such as Hanford, and cannot be returned to the generator, then the waste must be sent to a repository.
- The timing and scheduling of the waste shipments are also concerns.
- DOE should not ship INEEL HLW to Hanford for treatment prior to actual treatment to minimize the need for storage at Hanford. One commentor expresses the opinion that the treated INEEL HLW should be stored at Hanford rather than sent back to INEEL.

Response - Section 3.1.5 of this EIS states that under the Minimum INEEL Processing Alternative, mixed HLW sent to Hanford for treatment would be returned to INEEL or shipped directly to a geologic repository if one is available. If returned to INEEL, HLW would be stored onsite until an interim storage site or geologic repository outside Idaho becomes available to accept this waste. If separations technologies were employed at Hanford and a mixed low-level waste fraction created, then this would be disposed of at a suitable DOE or commercial facility in accordance with the Record of Decision on the Waste Management Programmatic EIS. See also responses to comment summaries in III.F.4.

Just-in-time shipping of mixed HLW from INEEL to Hanford in order to minimize pretreatment storage is an approach that would be considered if the Minimum INEEL Processing Alternative were selected for implementation. Considerations regarding the timing of shipments would include storage capacity, treatment facility burden and production schedule forecasts, budget allocations, legal and/or regulatory requirements, and obligations/agreements such as the Hanford Tri-Party Agreement and Idaho Settlement Agreement/Consent Order (which requires DOE to treat all mixed HLW currently stored at INEEL so that it is ready by a target date of December 2035 to be moved out of Idaho for disposal). See also response to comment summary II.E (5) regarding treatment priorities.

II.E (7)

Comment - A commentor expresses concern that the amount of handling involved with the Minimum INEEL Processing Alternative increases the chances of an accident.

Response - The Minimum INEEL Processing Alternative does involve additional handling steps over some other alternatives, with an associated increase in the risk of an accident as discussed in Appendix C.8 of this EIS.

II.E (8)

Comment - Commentors cite concerns over increased transportation of radioactive waste associated with this alternative:

- The alternative involves too much intersite transportation
- Transportation safety protocols would need to be enhanced such as those developed by the Western states for transportation of transuranic waste.

Response - Risks associated with the transportation of mixed HLW calcine to Hanford and the return of treated waste to INEEL are documented in Section 5.2.9 of this EIS. In the unlikely event of a severe transportation accident, the consequences would be higher for a calcine shipment in comparison with a shipment of vitrified HLW. However, because of the increased number of waste shipments necessary to implement this alternative, there is an increased probability of accidents. For non-accident shipment scenarios, the EIS analysis shows that environmental impacts to the maximally exposed individual would be small. If DOE were to decide to ship mixed HLW to Hanford, the agency would work with regulators, local responders, affected states, and tribes as necessary to establish transportation and emergency response protocols designed to ensure public safety and environmental protection as was done for the transuranic waste shipment program. Transportation burdens would be factored into decisions as to shipment of end-product waste either to the INEEL for interim storage or directly to a licensed HLW repository based on factors such as cost and minimization of risk. See response to comment summaries in VII.A.

II.E (9)

Comment - A commentor states that the EIS should address the impacts of this alternative on Hanford-specific cleanup programs.

Response - DOE believes that this alternative could be implemented without disruption to Hanford-specific cleanup programs. Nevertheless, before deciding whether to ship Idaho mixed HLW to Hanford, DOE would review the need for any appropriate further National Environmental Policy Act documentation at the Hanford Site to address site specific impacts.

III WASTE MANAGEMENT ELEMENTS

III.A Storage: Liquid Sodium-bearing Waste

III.A (1)

Comment - Commentors express concerns and opinions about the potential impacts of continued storage of SBW in the INTEC tank farm including:

- The possibility or existence of tank leakage or failures and the resulting impacts on the human health environment, from the Snake River Plain Aquifer, to the Snake and Columbia rivers, and eventually all of Idaho.
- Nuclear waste is already being transported to Hanford via contamination of the river system.
- Liquid wastes have been in storage for more than 50 years, 20 years beyond the tank design life.
- Despite DOE claims that the tanks have not leaked, they could in the 15 to 20 years it would take to implement a treatment alternative.

- The tanks and their concrete vaults do not meet seismic standards and could fail under a relatively minor seismic-induced stress.

- Leaks in the tanks or pipes should be repaired or new tanks should be built.

- Recommend quickly selecting and implementing an option to solidify liquid SBW due to the increased risks it poses in liquid form.

A commentor recommends that DOE postpone any further treatment of SBW beyond solidification until the ultimate disposal location has been identified.

Response - DOE recognizes there are risks associated with liquid waste storage, and, over the years, converted thousands of gallons of mixed HLW (completed February 1998) and some mixed transuranic waste/SBW from the INTEC tank farm into a more stable solid granular form called "calcine." This calcine is stored in bin sets estimated to provide safe containment for 500 years, pending final treatment and disposal decisions. Calcine processing at INTEC was suspended on May 31, 2000, in accordance with the Notice of Noncompliance Consent Order, leaving approximately one million gallons of mixed transuranic waste/SBW in the tanks. In the Record of Decision for this EIS, DOE will decide how to treat the liquids to expeditiously complete their removal from the 300,000-gallon tanks in the Tank Farm.

No liquid waste is known to have leaked from the 300,000-gallon underground storage tanks at the INTEC facility. However, despite the integrity of the tanks themselves, piping systems that connect the tanks and associated facility equipment, such as valves, have leaked. These problems have been corrected as they have been identified and the inter-tank transfer piping is now monitored by leak detection equipment. Presently, no lines are leaking. Primary contaminants of concern from past pipe system leakage include iodine-129, strontium-90, and tritium. Decisions related to remediation of Tank Farm soils will involve the EPA and the State of Idaho under the CERCLA process and will be part of the Record of Decision for the Operable Unit 3-14 portion of Waste Area Group 3 at INTEC. See also responses to comment summaries in VII.C.

Recognizing the risks that tank leakage could present to the environment, DOE maintains a leak detection system at the INTEC tank farm, and the ability to transfer waste from any leaking tank to unused, reserve tanks. Although such a transfer has never been necessary, DOE maintains this mitigative capability. DOE also maintains a Tank Integrity Program that requires periodic corrosion testing and inspection of the tanks. Based on the corrosion and inspection data to date, the eleven 300,000-gallon storage tanks in the Tank Farm containing the remaining mixed transuranic waste/SBW have sufficient useable remaining service life to allow DOE to safely implement any of the waste processing alternatives.

To date, no observable or measurable environmental impacts to the Snake River or Columbia River have resulted from INEEL activities. Since unevaporated surface water eventually migrates to the aquifer, the quality of water resources is verified by groundwater monitoring programs conducted by independent agencies such as U.S. Geological Survey and the State of Idaho INEEL Oversight Program. With improved management practices and remediation efforts planned or underway at INEEL, water quality in the Snake River Plain Aquifer is expected to improve. Therefore, no adverse environmental impacts to the Snake or Columbia Rivers resulting from past, present, or future INEEL operations are likely to occur.

Regarding structural integrity, it is true that the five pillar and panel tanks are located within concrete vaults that do not meet current seismic and structural standards, and that failure of these vaults could occur during a seismic event. DOE is evaporating the liquid in the remaining five tanks to reduce the volume and will transfer the liquid out of the pillar and panel tanks to one or more of the five remaining tanks (eleventh tank is a spare) to meet the June 2003 deadline established in the Notice of Noncompliance Consent Order signed by DOE, EPA, and the State of Idaho. See Section 5.2.14 of the EIS and Section 6.2.5 of the EIS Summary for potential environmental impacts of tank failure during a seismic event.

In 2005 or earlier, DOE intends to redirect all newly generated liquid waste to tanks that meet state and federal Resource Conservation and Recovery Act (RCRA) regulations, and no new liquid waste would be added to the tanks in the Tank Farm. DOE is also committed to cease use of the remaining RCRA non-compliant underground tanks by December 31, 2012 by either treating the liquid waste separately to render it to a solid form or transferring the waste to RCRA-compliant tanks.

III.A (2)

Comment - A commentor cites the Draft EIS Summary, Section 7.4, discussion of cumulative impacts to water, and asks if the term "design life" in reference to the underground HLW storage tanks is 500 years or estimated to be well in excess of 500 years.

Response - The storage tanks did not have an initial engineering requirement for a 500-year design life. However, recent in-tank inspections and measurement of corrosion test plates retrieved from the tanks show very little corrosion. The low corrosion rate is partially due to the acidic nature of the waste in the tanks and their stainless steel construction. The INEEL has a continuing tank inspection program. Data are obtained from the inspections and evaluations are performed to determine if the tanks' design service life estimates need to be revised. Based on these evaluations, DOE estimates the tanks to have "service lives" well in excess of 500 years.

III.B Storage: Calcine in Bin Sets

III.B (1)

Comment - A commentor believes the Draft EIS lacks vital information DOE needs to make informed decisions, specifically the decay of calcine radiation levels over time compared with the naturally occurring radioactive isotopes in Idaho soil.

Response - The information referred to by the commentor is included in this EIS. The effects of radiological decay on the calcine and mixed transuranic waste/SBW are provided in Appendix C.7 of this EIS. In addition, Appendix C.9 of this EIS models the environmental impacts from the few long-lived, persistent radionuclides that would pose a risk to public health and the environment should this waste be disposed of at the INEEL. Table 5.2-12 of this EIS provides natural background information for levels of radionuclides in soils and a comparison by alternative of expected maximum concentrations resulting from the implementation of each alternative.

III.B (2)

Comment - A commentor states that DOE should not treat calcine at this time because the risks to the environment from storing calcined waste do not justify the cost of treating it.

Response - The EIS estimates the long-term risks of not treating mixed HLW calcine and concludes that leaving calcine in the bin sets indefinitely (beyond the design life, estimated to be 500 years) could eventually lead to the degradation and release of bin set contents. Depending upon meteorological conditions and other influencing factors at that time, harmful effects to human health and the environment could occur, though there is considerable uncertainty involved with estimating the potential risks over long periods of time. In the near term, the costs of treating the calcine under either separations or non-separations alternatives are similar. Also, there is a disadvantage from a human health and environmental risk perspective of leaving this mixed HLW calcine in the bin sets over the long-term.

III.B (3)

Comment - A commentor states that the assumption that it is technically possible to retrieve calcine from the bin sets is questionable, and options based on this assumption may not be viable.

Response - DOE retrieved actual mixed HLW calcine from a bin set in 1978. The results indicate that calcine appears to be free flowing material which will make it easier to remove than if it were compacted or agglomerated. Although

preparations for removal would necessitate considerable effort to ensure the health and safety of workers, current evaluations on calcine retrieval with a half-size bin and a third-size bin show that, even if the calcine is compacted, it could be retrieved. As described in the discussion of the projects identified for the alternatives in this EIS, methods would be developed and the necessary equipment would be constructed and installed to retrieve calcine. Any calcine residue that remains would be managed in accordance with facilities disposition decisions.

III.C Calcination

III.C (1)

Comment - A commentor states that liquid wastes should be calcined immediately, rendered ready for disposal by a FUETAP-like process (formed under elevated temperature and pressure), and shipped for disposal. Another commentor supports alternatives that utilize the calciner to finish processing liquid wastes into a more stable low-dispersible form, referring to learning from a "costly" decision at Hanford to discontinue PUREX (plutonium uranium extraction) operations before it processed all spent nuclear fuel. Commentors also state that calcination has the following advantages:

- It is a proven technology.
- It would convert the liquid to a good-quality waste form.
- It can be done on time (by 2012).
- Costs would be reasonable.

Response - DOE recognizes there are advantages to using the calciner and considered these when evaluating mixed transuranic waste/SBW treatment options. Although the EIS assumes that treatment of the liquid mixed transuranic waste/SBW under the EIS alternatives generally would not be completed until 2014-2016, it may be possible either to complete treatment or transfer any remaining liquid to RCRA-compliant tanks by December 2012 in order to meet the Notice of Noncompliance Consent Order requirement to cease-use of the mixed HLW tanks by that date.

Concerns associated with restarting the calciner include uncertainties associated with obtaining permit approvals for this aging facility and the potential for costly upgrades necessary to meet the EPA requirements for Maximum Achievable Control Technology. It is also estimated that calcining the remaining mixed transuranic waste/SBW may necessitate the use of bin set 7. Because bin set 7 has never been used, this action would incur the costs of decontamination, which can be considerable, and additional worker exposure. Finally, if the permits were delayed or calciner upgrades and restart took longer than anticipated, DOE would need to employ RCRA-compliant tanks to meet the Notice of Noncompliance Consent Order milestone to cease-use of the tanks by December 2012 (discussed above). If tank upgrades or construction were required, this would reduce the advantages of calcination.

A variation of the FUETAP process, which the commentor suggests as a viable technology for putting calcine into a "road ready" form, was analyzed in this EIS under the Non-Separations Alternative as the Hot Isostatic Pressed Waste Option. The primary disadvantages of these types of treatment processes are lack of technical maturity, which would necessitate a significant investment in research and development, and the fact that unlike vitrified waste, the FUETAP product may not be an acceptable waste form at the proposed geologic repository. See also response to comment summary III.D.4 (8).

III.C (2)

Comment - Commentors state that there are various modifications, demonstrated and/or successfully employed elsewhere, that DOE has not taken advantage of, and that could improve the efficiency of the calcining process, reduce emissions, and make it a more attractive alternative for SBW treatment. For example, the site's decision-makers have refused to consider and fund modifications to the New Waste Calcining Facility that would deal with the mercury and nitrogen oxide issues. Some commentors point out that adding sugar to the SBW produces bet-

ter results than using higher temperatures and aluminum nitrate, because it increases calcination efficiency and lowers emissions of nitrogen oxides. Some commentors question why this proven method is not being considered.

Response - DOE has considered potential modifications to the calciner. For example, DOE evaluated various calcining technologies in the *Process for Identifying Potential Alternatives for the Idaho High-level Waste and Facilities Disposition Draft EIS* (DOE-ID 10627, March 1999) including the addition of sugar, which denitrates mixed transuranic waste/SBW and can prevent sodium agglomeration and improve process efficiencies. More recently, the calciner was operated at 600 degrees Celsius, which proved to be effective in controlling agglomeration without the addition of sugar. Both methods of calcination are technically viable and available, if DOE were to select an alternative that requires calcination.

III.C (3)

Comment - Commentors make various observations regarding past operations of the New Waste Calcining Facility and express concerns about consequent risks to public health and the environment. Because these comments were received before June 2000, when DOE put the calciner on standby, some of the issues raised address actual calciner operations at that time.

- The calciner has a history of environmental contamination and worker exposure.
- For 40 years in the past, DOE ran the calciner under a "hands-off" regulatory regime and ad hoc regulatory requirements not tied to quantifiable performance standards required for hazardous waste incinerators. DOE also failed to complete necessary upgrades or obtain a RCRA Part B permit, thereby creating an unacceptable risk to workers and the public.
- DOE has never wanted to spend the money required upgrading the calciner so it could meet full RCRA permit requirements.
- Risks of restarting the calciner to determine a technological proof of concept for HLW alternatives is unacceptably high for residents, workers, and the environment.
- Object to the restart of the calciner due to risks involved and concerns over past performance, stating that the Defense Nuclear Facilities Safety Board has challenged DOE restart operations.
- DOE restarted and ran the calciner to perform risky experiments under a regulatory loophole that ended in June 2000.
- The calciner must be immediately shut down as it meets neither RCRA, Clean Air Act, nor EPA Maximum Achievable Control Technology standards.
- Operation of the more dangerous calciner without necessary permits does not bode well for likely operation of the plutonium incinerator.
- If DOE is not measuring contaminants leaving the calciner stack or performing adequate measurements of the preponderance of contaminants by volume and toxicity, then it is not complying with the current Clean Air Act standards, as promulgated before 1995.

Response - Until June 2000 the calciner operated as an interim status, thermal treatment unit under RCRA. The standards for these units are found at 40 CFR Part 265, Subpart P. There is no evidence that the calciner created unacceptable risks to workers and the public from past operations. The analysis in this EIS reports that emissions from INEEL operations, including those from the calciner, have been well within standards and, therefore, have not posed unacceptable risks to workers or the public. See Sections 4.7.3 and 4.7.4 of this EIS.

DOE met its Notice of Noncompliance Consent Order requirement to cease operation of the calciner by June 1, 2000, until a permit is obtained. The final campaign of the calciner was designed to use special equipment to collect offgas samples for analysis to determine both the contaminants and concentrations in the offgas during the operation of the calciner at the elevated temperature of 600 degrees Celsius. These results show that operation of the calciner would require

upgrades to meet Clean Air Act requirements for Maximum Achievable Control Technology requirements.

Every alternative in this EIS that includes future calciner operations would require the facility to meet applicable regulatory requirements, including applicable permitting requirements, as appropriate. Any restart of the calciner would also be subject to operational readiness, safety, and environmental reviews, which have been updated based on Defense Nuclear Facilities Safety Board comments. There is no "plutonium" incinerator in this EIS.

III.C (4)

Comment - Commentors object to alternatives that involve calcining for the following reasons:

- Calciner-based alternatives may not be permittable.
- Calcining emissions are not understood, and decommissioning of the calciner should start immediately.
- Calciner-based alternatives would require further treatment of RCRA wastes to meet repository disposal requirements.
- The calciner is an antiquated system.
- DOE should find an alternative that is safer and that poses the least threat to the public, workers, and the environment.
- Restart would be difficult; reliability is a problem.

Response - The commentors correctly note that there are uncertainties associated with the reliability of restarting the calciner and permitting, as discussed in response to comment summary III.C (1). See also responses to comment summaries III.C (6) and III.C (9).

The mixed transuranic waste/SBW currently stored in the underground tanks is considered mixed waste because it contains hazardous as well as radioactive constituents. If this liquid were calcined, it would have to undergo further evaluation and/or treatment to meet acceptance criteria or other regulatory requirements, depending on whether the waste is managed as transuranic waste, low-level waste, or HLW. However, this would be true for any waste form derived from the mixed transuranic waste/SBW. As discussed in this EIS, even if properly treated, HLW with listed hazardous waste codes may not be accepted at the proposed HLW geologic repository. Alternatively, if a waste incidental to reprocessing determination concludes that the liquid in the tank farm at INTEC is transuranic waste, then it could be sent to the Waste Isolation Pilot Plant for disposal, after proper treatment to meet transportation and waste acceptance requirements.

III.C (5)

Comment - A commentor states that the New Waste Calcining Facility is not an incinerator because it does not meet the EPA or any other definition of a hazardous waste combustor. The commentor cites National Emission Standards for Hazardous Air Pollutants, EPA document EPA530-R-97-057 (November 1997), and the Final Technical Support Document for Hazardous Waste Combustor Maximum Achievable Control Technology Standards (July 1999) as giving compelling evidence that the calciner technology and function is not that of a hazardous waste combustor used by the commercial sector, and that, therefore, Maximum Achievable Control Technology requirements do not apply.

Another commentor states that the calciner is defined as an incinerator because it burns off liquid and mixes residual ash with granular material for easy pneumatic handling. A commentor states that for four decades DOE and its predecessor agencies operated two high-level liquid radioactive waste incineration plants at the INEEL. [DOE assumes the commentor is referring to the two calciners.] Other commentors object to calcination as applied in the Hot Isostatic Pressed Waste or Direct Cement Waste options for one or more of the following reasons:

- They would require use of the calciner, which requires Maximum Achievable Control Technology upgrades.

- Calciner upgrades would be costly, time-consuming, and might encounter stakeholder opposition because the calciner is a form of incinerator.

Response - DOE does not consider the thermal treatment process known as calcination to be incineration. Incinerators are thermal treatment processes that function to reduce the volume of waste through combustion. The two calciners at INEEL were used successively from 1963 to 2000 to convert liquid mixed HLW (completed February 1998) and mixed transuranic waste/SBW to a more stable and manageable solid form without combustion.

Regardless of whether or not the calciner is classified as an incinerator, the Maximum Achievable Control Technology standards for hazardous waste combustors or emission limits would be imposed, as appropriate, through the permitting process for the calciner. The standards for hazardous waste permits are different depending upon the type of treatment unit involved. In a Federal Register notice (65 FR 42937, July 12, 2000), EPA addressed application of the hazardous waste combustion standards to other types of thermal treatment units, including miscellaneous units permitted under Subpart X of 40 CFR Part 264. Regarding the cost to complete the upgrade to these standards, see response to comment summary X (5).

III.C (6)

Comment - A commentor asks if a method exists to precipitate out salts from acidic offgases.

Response - Methods do exist for precipitating metals out of acidic offgas streams as metallic salts. For example, mercury, which is a metal, can be removed from offgas by precipitating it out as mercuric chloride, which is a metallic salt. This method works on metals that are in the offgas stream as volatile components such as mercury and antimony. Other metals such as plutonium or uranium in the offgas as particulate matter must be removed via a physical process such as filtration, impaction, deposition, agglomeration, or other particulate collection technology.

III.C (7)

Comment - A commentor states that there are uncertainties about offgas emissions from the New Waste Calcining Facility for one or more of the following reasons:

- Technical constraints have hindered DOE's efforts to sample offgas emissions.

- The State of Idaho has never had emissions information from independent monitoring.

Response - DOE resolved technical constraints and, in 2000, completed calciner offgas emissions sampling for hazardous waste regulated by RCRA. The State of Idaho was kept informed during this process and observed the sampling program. The baseline source term was compiled from INEEL emissions inventory reports issued in 1996 and 1997 and from National Emission Standards for Hazardous Air Pollutants reports issued in the same years. These reports show that operations emissions met radiological requirements, however DOE had technical constraints in obtaining RCRA offgas samples. This is discussed in Appendix C.2 of this EIS. In the event DOE decides to restart the calciner, emissions abatement and monitoring requirements would be negotiated with the State of Idaho, as part of the air permitting process.

III.C (8)

Comment - A commentor states DOE must consider an option of operating the New Waste Calcining Facility beyond June 1, 2000, without a permit or Maximum Achievable Control Technology upgrades, in order to comply with the Settlement Agreement/Consent Order requirement to eliminate liquid SBW by 2012. The commentor also states that DOE must work with the State of Idaho to obtain concurrence to continue operating the New Waste Calcining Facility beyond June 1, 2000.

Response - DOE considered the commentor's suggestion of including an alternative in this EIS that would continue operation of the calciner without a permit or upgrades to meet Maximum Achievable Control Technology standards. (See

Section 3.3 of this EIS.) Future operation of the calciner would require negotiations with the State of Idaho.

III.C (9)

Comment - A commentor asks why DOE does not consider calcining or incinerating various liquid wastes before they are grouted to reduce volume, destroy listed organics, and create a more durable grout. Another commentor asks why descriptions in the EIS of process options for newly generated liquid waste omit a calcining or incineration step before solidification. The commentor also asks if DOE hopes to have this waste reclassified so this step will not be necessary. The commentor also states that a description of one alternative suggested that low-level waste would be "denitrated" before grouting, yet no methodology was given.

Response - The EIS considers calcination of the mixed transuranic waste/SBW both as a final waste form and as an interim waste form that would be further treated for disposal. In these alternatives, liquid waste would first be reduced in volume by evaporation. In addition, the liquid would be denitrated through calcination prior to disposal. However, calciner operations would generate additional liquid wastes, and neither calcination nor incineration would constitute final treatment for some of the hazardous constituents in the waste. None of these treatment methods would remove the listed organic waste codes from the dried product. See Section 6.3.2.1 of this EIS as well as response to comment summary III.C (2).

Newly generated liquid waste would not continue to be co-mingled with mixed transuranic waste/SBW after 2005. At that time, newly generated liquid waste could be solidified, directly treated, or placed in RCRA-compliant tanks and managed as mixed low-level waste or mixed transuranic waste according to its characteristics. So long as the newly generated liquid waste is no longer commingled with liquid mixed transuranic waste/SBW or has not come into contact with HLW, then it can be classified without a waste incidental to reprocessing determination. How the newly generated liquid waste is treated for disposal would depend on its classification, RCRA requirements, and disposal destination.

III.C (10)

Comment - A commentor expresses concern that the State of Idaho's seemingly contradictory behavior in requiring the liquid SBW to be solidified by 2012, while at the same time requiring the New Waste Calcining Facility to be shut down by June 2000, is an attempt to abrogate the Settlement Agreement/Consent Order. The commentor says that operating the calciner (without the Maximum Achievable Control Technology upgrade) is the only method capable of safely solidifying the liquid waste by the 2012 milestone.

Response - DOE has an obligation to comply with all applicable federal statutes, regulations, and orders, as reaffirmed in the Settlement Agreement/Consent Order. Neither the State of Idaho nor EPA can abrogate its responsibilities to enforce legal and regulatory requirements. Thus, the commentor's suggestion that the State of Idaho allow DOE to operate the calciner without a hazardous waste treatment permit and Maximum Achievable Control Technology upgrades is not likely under the current legal and regulatory framework.

The State of Idaho agrees that running the calciner under an accelerated schedule as described in the Planning Basis Option (Section 3.1.3.2) could enable DOE to cease use of the tanks by December 31, 2012. However, the EIS shows that the Minimum INEEL Processing Alternative, which does not include calcination, could also enable DOE to cease use of the tanks by that date. The estimates for the other alternatives that show completion dates for treating mixed transuranic waste/SBW between 2013 and 2016 reflect conservative time allotments for funding cycles, permitting, and issue resolution. However, the commentor is correct in noting that implementing these other technologies could cause DOE to miss a key milestone in the Settlement Agreement/Consent Order.

If DOE selects a technology that would not complete treatment of the liquid waste by December 2012, then it is the State of Idaho's position that

DOE must cease use of the underground HLW tanks as required by the Notice of Noncompliance Consent Order and transfer any remaining liquid to permitted tanks in accordance with the State's hazardous waste management regulations.

Even if liquid is stored in compliant tanks, the fact that it would not be solidified for a period of time after December 2012 is a departure from specific actions agreed to in the 1995 Settlement Agreement/Consent Order. These actions include the commitment to calcine all of the liquid currently stored in the tank farm. The mixed HLW calcine would be stored in bin sets pending treatment to make the mixed HLW ready for disposal outside of Idaho by a target date of December 2035. If, in the Record of Decision, DOE decides to implement a treatment technology other than calcining, and if there is a possibility that liquid would remain untreated after 2012, then DOE would have in place an agreed-upon plan and schedule that specifies when the treatment would be completed. In all cases, treatment must be completed in a timely manner so as not to compromise a key 1995 Settlement Agreement/Consent Order HLW milestone, which states that DOE have all the liquid in the tanks and calcine in the bin sets treated and ready to leave Idaho by the target date of December 31, 2035.

III.D TREATMENT TECHNOLOGIES

III.D.1 General: Treatment Technologies

III.D.1 (1)

Comment - Commentors express concerns that treatment options could fail, thus exposing workers, the public, or the Snake River Plain Aquifer, air, or land to undue risk. Commentors cite past problems with calciner operations and a mining industry operation as examples of the types of events that can occur, no matter how unlikely, and can spread contaminants.

Response - DOE has a commitment to the State of Idaho to treat mixed transuranic waste/SBW and mixed HLW currently stored at the INEEL with an emphasis on meeting a target date of December 2035 for making these wastes transportable out of the State of Idaho for disposal. DOE recognizes there are risks associated with operating treatment facilities, as indicated by the impact analyses presented in this EIS. However, for routine operations, all treatment alternatives evaluated in this EIS present small risks to the public, as any exposures would be below health-based standards. Furthermore, leaving waste untreated in underground tanks or as calcine in the bin sets as contemplated by the No Action and Continued Current Operations alternatives poses considerably more risk to the public and the environment over the long-term.

Section 5.2.14 of this EIS analyzes a range of reasonably foreseeable accidents that have the potential to harm workers, the public, or the environment. Although the occurrence of any of these accidents would be cause for serious concern, the risk of an accident would exist only during operations, which for the waste treatment options would occur over a span of about 25 years. For any treatment option, DOE would identify and implement appropriate physical and administrative controls designed to reduce the risk of an accident and to mitigate the extent and effects of an accident should one occur. During project implementation and as required by 10 CFR 830, Subpart B (January 10, 2001), a safety analysis report covering nuclear operations is prepared before operations begin (and is adhered to throughout operations), for all facilities that could result in a hazard to workers or the public. The safety analysis report defines the parameters within which safe operations and storage are assured.

Regarding the calciner, during almost 40 years of operation there have been two minor process cell fires resulting from leakage of kerosene from remotely assembled fittings with no release of radioactive materials to the environment. DOE thoroughly investigates, critiques, and implements necessary improvements for all such unusual events before resuming operations. See also response to comment summary III.C (8) which addresses commentor's concerns regarding past operations of the calciner.

III.D.1 (2)

Comment - A commentor discusses the approach used and success achieved by other entities such as British Nuclear Fuels, Limited, in managing HLW, nuclear fuel, or other waste streams, and/or makes comments regarding these approaches/programs.

Response - DOE is aware of approaches and technologies being used by others in managing various radiological and hazardous waste forms and other nuclear materials. The relative success of these programs and lessons learned were factored into assessments of technology maturity and used in identifying candidate alternatives for analysis in this EIS.

III.D.1 (3)

Comment - A commentor expresses the opinion that existing waste treatment solutions are safe and effective.

Response - Comment noted.

III.D.1 (4)

Comment - Commentors state that decisions based on the alternatives in the EIS will be flawed or premature because the technologies studied are immature. Some commentors add that:

- The EIS is premature and that DOE should do things a step at a time.
- INEEL does not yet know enough about how to apply alternative treatments/solidification technologies to its waste.
- None of the technologies evaluated in the Draft EIS is sufficiently mature to support selection at this time.
- Another commentor asks why so many options were being considered when turning sand to rock is simple.
- Commentors state that in several places in the EIS, unproven technology and unsound scientific methods, if used, could create more risk than already exists with existing wastes; therefore, DOE should use proven technologies.

Response - Timing and regulatory considerations related to this EIS are discussed in Section 1.2 of this EIS. DOE has determined that it is appropriate to move forward with this EIS due to new regulatory developments affecting operation of existing facilities, commitments to the State of Idaho under the Settlement Agreement/Consent Order, a need to integrate environmental impacts of ongoing remediation actions at INTEC with anticipated environmental impacts of waste processing and facilities disposition, and a need to schedule appropriate time for facility development and to obtain funding of alternative technologies.

DOE has disclosed the maturity and uncertainties associated with all treatment technologies described in this EIS. Most of the technologies are supported by extensive documentation and include testing on surrogate or actual waste materials to be processed. In addition, technology development is continuing on the most promising waste treatment options. This work is described in Section 2.2.3 of this EIS. Nevertheless, the proposed treatment options have a range of technological maturity and are under continuing development. Such projects are not new at INTEC, which has been using technology development programs for the past 40 years.

III.D.1 (5)

Comment - Commentors suggest that treatment of HLW should not result in releases to the atmosphere or environment. Commentors state that careful monitoring should drive selection of waste treatment alternatives.

Response - Treating mixed HLW by any method would produce some level of emissions. However, any treatment option selected would be designed and operated to comply with air emission requirements and any other applicable regulations intended to protect human health and the environment. Such regulations would require appropriate monitoring to ensure regulatory compliance, which would be established during permit development.

III.D.1 (6)

Comment - Commentors make statements about good waste management practices:

- Liquid wastes are the most hazardous and expensive to clean up, and waste minimization is important to protect our children.
- Integrate waste treatment solutions across the INEEL to prevent duplication and save money, instead of establishing projects within organizational structures (stove piping).

Response - DOE recognizes and implements the tenets of waste minimization in its operations and would minimize the amount of waste generated during implementation of the selected alternatives. In addition, DOE has a goal of maximizing efficiency of waste management operations by various processes, including integration of similar activities as appropriate.

It is for this reason CERCLA remedial actions and proposed facility disposition alternatives at INTEC are being coordinated in this EIS analysis. Also, this EIS reviewed the potential for treating Idaho mixed HLW at the West Valley Demonstration Project, Savannah River Site, Hanford Site, and at the Advanced Mixed Waste Treatment Project on the INEEL.

III.D.1 (7)

Comment - A commentor expresses the opinion that waste generated elsewhere should not come to the INEEL for management, but rather should go directly to a disposal site, such as Yucca Mountain.

Response - This EIS addresses only those wastes that are currently stored at the INTEC or that would be generated onsite, either by ongoing existing processes or as a byproduct, under alternatives being considered in this EIS. Analyisis of the management of waste generated at other sites for storage or treatment at the INEEL is beyond the scope of this EIS.

III.D.1 (8)

Comment - A commentor says that, contrary to statements in the Draft EIS, treatment recommendations in the National Academy of Sciences report do conflict with some analyses in the Draft EIS.

Response - The Draft EIS drew no conclusion about the National Academy of Sciences' report because it had not been issued when the Draft EIS was approved. The Draft EIS did address the involvement of the National Academy of Sciences in reviewing alternative technologies and noted that their report would be issued. DOE reviewed the report and does not believe the alternatives analyzed in the EIS conflict with the National Academy of Sciences recommendations.

III.D.2 NON-SEPARATIONS TECHNOLOGIES

III.D.2.a Hot Isostatic Pressed Waste Technology

III.D.2.a (1)

Comment - A commentor states that the Hot Isostatic Pressed Waste Option needs to be modified because gas-forming materials cannot be processed in "HIP" cans without pre-treatment.

Response - If the Hot Isostatic Pressed Waste Option were selected, the design and engineering process would address any pre-treatment required.

III.D.2.b Direct Cement Technology

III.D.2.b (1)

Comment - Commentors express a preference for the Direct Cement Waste Option for one or more of the following reasons:

- It would have low environmental impact if properly implemented.

- It provides a simple, one-process/one-waste form/one repository scenario.

- It would be safer, cheaper, simpler, and more efficient to implement than other alternatives, and has been successfully implemented in Great Britain.

- DOE could complete treatment by the Direct Cement Waste Option quickly and meet the milestones in the Settlement Agreement/Consent Order.

- A hydroceramic variation of Direct Cement Waste Option could be used to produce an even more superior waste form.

- INEEL has not yet committed to any particular way of treatment and has no Preferred Alternative.

- It would not leave a large low-level waste stream that could end up staying in Idaho.

- Concrete making is intrinsically safer than glass-making or treatment with the Hot Isostatic Pressed Waste Option.

- Hydroceramic concrete monoliths could be hot isostatically pressed into "vitrified" monoliths within their canisters if vitrification is decided later to be necessary, leaving options open.

- If properly implemented, the waste streams could be small.

- INEEL wastes do not contain excessive amounts of soluble salts, so the "sodalite formulation" rule of thumb could be satisfied.

- No separations processes would be required.

- The feedstream could be a calcine/liquid reprocessing waste slurry, which would consolidate all INEEL reprocessing wastes.

- Other radioactive wastes could be treated by the same process: for example, about 1,000 metric tons of radioactive sodium hydroxide at INEEL which could be co-processed with calcine.

Response - Chapter 5 of this EIS presents the environmental impacts of all the alternatives considered in this EIS. The analyses show that, with the exception of potential long-term environmental impacts associated with the No Action and Continued Current Operations alternatives, the environmental impacts of all alternatives, including the Direct Cement Waste Option would be small.

DOE is aware that the direct cement process has been used elsewhere and is familiar with this technology, as well as the hydroceramic variation. While it does have some advantages over other alternatives, the Direct Cement/Hydroceramic Waste Option also has some disadvantages, including the final waste form which does not meet the current Waste Acceptance System Requirements Document for disposal in a geologic repository. See also response to comment summary III.D.2.b (6). DOE has documented the results of its evaluation of the relative merits of the direct cement technology in Appendix B. This appendix addresses factors such as safety, ability to meet existing Settlement Agreement/Consent Order milestones, flow sheet flexibility, technological maturity, permitability (such as calciner operations), resultant product volume as it relates to transportation and anticipated capacity in the proposed HLW geologic repository, and associated waste streams. If DOE should decide to restart the calciner, co-processing may be reevaluated.

However, the sodium hydroxide waste stream referred to by a commentor is assumed to be the quantity at the Argonne National Laboratory-West facility. This waste stream has been treated and disposed of. This was addressed in the SNF & INEL EIS Record of Decision. In addition, processing of sodium hydroxide from spent nuclear fuel processing at Argonne National Laboratory-West is discussed in the *Final EIS for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel* (DOE/EIS-0306), issued in July 2000. The Record of Decision for DOE/EIS-0306 has been issued (Federal Register, Vol. 65, No. 182, Page 56565, September 19, 2000).

The Cost Report (DOE/ID 10702, January 2000) estimates costs related to the Direct Cement Waste Option and other alternatives evaluated. It is available from DOE-ID on request. See also response to comment summary X (8).

III.D.2.b (2)

Comment - A commentor contends that, in light of the "command influence" dictating the production of DOE-EM technical reports and the resulting deliberate omission of data and literature citations inconsistent with foregone conclusions, it was no surprise that the EIS characterized the Direct Cement Waste Option as unattractive.

Response - All alternatives presented in this EIS, including the Direct Cement Waste Option, were subjected to the same degree of detailed analysis which are publicly available. DOE considers this EIS to present a fair and unbiased analysis of the environmental impacts of each alternative as well as full consideration of all public comments on the Draft EIS. Data and literature analyzed in this EIS are part of the Administrative Record.

III.D.2.b (3)

Comment - A commentor states that the Draft EIS overestimates the volume of grouted HLW that would result from the Direct Cement Waste Option.

Response - The waste volume numbers provided in this EIS are conservative engineering estimates and would be subject to change under detailed design. The type of concrete being produced and the assumed canister waste loading primarily controls the grout volume estimate. However, the waste volumes presented in Appendix C.7 and Chapter 3 of the EIS are considered to be sufficient for comparison with other waste treatment options, which is the intent of this EIS.

III.D.2.b (4)

Comment - A commentor expresses disappointment that the Direct Cement Waste Option was considered more dangerous than separations approaches by the Draft EIS preparers; the commentor claims that the opposite is true because of the complexity of operations, chemicals, temperatures, and an extra incineration step associated with separations.

Response - As discussed in Section 5.2.9 of this EIS, the environmental impacts of the Direct Cement Waste Option, though small, would result in the highest impact to the public because of the number of latent cancer fatalities that would be incurred during incident-free transport and the impacts to workers and the public from vehicle-related emissions during transportation. The higher transportation impacts associated with the Direct Cement Waste Option are directly related to the large volume of waste produced by the treatment option, which requires a correspondingly high number of truck shipments to transport the waste for disposal. In all other categories evaluated in this EIS, the Direct Cement Waste Option is equal to or less hazardous than any of the separations options.

III.D.2.b (5)

Comment - Commentors state that DOE, Idaho Department of Environmental Quality, and INEEL should learn from grouting failures at Hanford and focus on vitrification of existing liquid waste without separation since a permanent repository is decades away.

Response - Experience at other DOE sites was factored into the evaluation of alternatives that include grouting as a waste treatment option. Vitrification is one of the technologies analyzed in this EIS.

III.D.2.b (6)

Comment - One commentor states that the grouted waste forms produced might not meet repository acceptance criteria or retain physical integrity. However, another commentor asserts that calcine treated to a cement-like waste form would meet the "letter of the law" for repository disposal requirements cited in federal regulations.

Response - Although there could be various waste forms for mixed HLW, DOE has developed a Waste Acceptance System Requirements Document that specifies HLW must be in a borosilicate glass form contained in a stainless steel container that is seal welded. Also, vitrification was adopted by the EPA as the best demonstrated available technology for treatment of RCRA characteristics of corrosivity and toxicity for HLW (55 FR 22520; June 1, 1990), as referenced in Section 2.2.5 of this EIS. At present, there are no other final HLW forms (such as cement-like) or technologies approved by the EPA or DOE for disposal in the proposed geologic repository. As discussed in Section 2.2.5, if DOE were to select a waste processing alternative that results in a grout (cement-like forms) or ceramic (hot-isostatic-pressed waste) or direct calcine disposal, DOE would have to receive a determination of equivalency from the EPA.

III.D.2.c Vitrification Technology

III.D.2.c (1)

Comment - Commentors express a preference for the Early Vitrification Option for one or more of the following reasons:

- It employs a proven technology with fewer risks, and disposal is consistent with the current repository approach and the only alternative that meets Settlement Agreement/Consent Order requirements.
- Impacts to health, safety, and the environment would be smaller than for other options.
- Other technologies cost too much money, though some note that this option also would be very costly.
- It would be less harmful than injecting it into the ground, although air emissions would be a concern.
- It is the least offensive and most "do-able" without harm to people and the land.
- It would eliminate use of the calciner, thus lowering air emissions.
- It offers the most stable waste form for all the HLW.

Response - For many of the reasons cited by the commentors DOE analyzed early vitrification as an option for processing calcine and mixed transuranic waste/SBW. The rationale for the selection of this technology is contained in Appendix B.

Chapter 5 summarizes the environmental impacts of the alternatives analyzed in this EIS. The analyses show that, with the exception of potential long-term environmental impacts associated with the No Action and Continued Current Operations alternatives, the environmental impacts of all alternatives would be small. While there are differences in the environmental impacts among the action alternatives, these differences are not sufficient to clearly identify one alternative as environmentally preferable.

DOE continues to work with the State of Idaho and federal agencies to ensure that emissions and effluents (air and water) from treatment alternatives are properly modeled and that results fall within regulatory limits, or that pollution abatement controls would adequately mitigate potential exceedences. Analyses in this EIS were based on the assumption that any thermal treatment technology, such as vitrification, would require emissions controls that comply with the Clean Air Act.

As noted by the commentors, vitrification has advantages such as employing a proven technology that would produce a stable waste form consistent with the current geologic repository approach. Also, vitrification was adopted by the EPA as the best demonstrated available technology for treatment of RCRA characteristics of corrosivity and toxicity for HLW (55 FR 22520; June 1, 1990), as referenced in Section 2.2 of this EIS. Because vitrification is a proven technology, if selected, DOE would anticipate relatively fewer problems in implementation. In addition, creating a waste form consistent with EPA's regulations would eliminate potential delays associated with getting alternative waste forms

approved. Thus, vitrification is considered an alternative that most closely aligns with the Settlement Agreement/Consent Order target date of December 2035 for mixed HLW to be ready for transport out of Idaho.

However, DOE also noted disadvantages of vitrification, such as a relatively high costs and schedule concerns. Regarding the costs of vitrification, recent DOE evaluations determined that this technology may be more expensive to deploy than others evaluated in this EIS.

III.D.2.c (2)

Comment - A commentor states that DOE must get on with cleanup and apply research and development to technologies that will put all radioactive waste into a stable, vitrified form so that it will meet repository acceptance criteria. In addition, vitrification should be the selected treatment technology, since there is no guarantee of any repository coming on line soon and a glass form would be suitable for near-term storage. The commentor further states that vitrification processing cannot be avoided in stabilizing and preparing the HLW to meet future repository acceptance criteria.

Response - DOE considers vitrification to be a mature technology that would not require significant additional investment in technology development. Vitrification of both the liquid mixed transuranic waste/SBW and the mixed HLW calcine or HLW fraction by 2035 are evaluated in this EIS. If the Record of Decision specifies vitrification as the treatment for mixed HLW, DOE would need to conduct additional waste form specific technology development work before constructing a full-scale facility, although DOE has already completed some technology development to see how Idaho waste would perform in a glass medium. See also response to comment summary III.D.2.C (4).

Vitrification puts the waste into a form consistent with that used for analysis purposes in the *Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (DOE/EIS-0250).

III.D.2.c (3)

Comment - A commentor states that vitrification of calcine would be difficult for one or more of the following reasons:

- INTEC stores different types of calcine, each of which would be hard to separate and would require a different solidification process.
- Cesium-137 would have to be collected to prevent migration.
- The process would have high energy requirements and equipment costs.

Response - Calcine in the bin sets is layered due to the calcination of different types of liquid mixed HLW during different campaigns. However, past pilot studies using different types of calcine blended together have produced a vitrified product that may meet requirements for disposal at a geologic repository. Feasibility studies on vitrification have demonstrated that the calcine would have to be blended before vitrification, then sampled so the chemistry requirements of the melter could be properly adjusted to ensure a robust vitrified product. The technology would be demonstrated on a pilot scale before it was deployed in a production facility. Additional work would be needed to characterize the calcine and conduct some technology development on vitrification of this particular waste stream.

If the calcine were vitrified directly, the cesium-137 emissions would be controlled by the offgas system. If the calcine were chemically separated, cesium-137 would be contained in resins, which would be dried and vitrified. Either way, the glass form would be packaged and made ready for disposal in a national geologic repository. Chapter 5 of this EIS shows that utility demand for the Early Vitrification Option represents approximately 40 percent of the site's current electrical consumption, but less than 10 percent of the INEEL's total power capacity.

III.D.2.c (4)

Comment - Commentors express the following opinions about HLW treatment:

- Vitrification is not the only way that HLW can be treated.
- Volume is not the most difficult issue to deal with.
- Neither glass nor concrete waste forms can meet the demanding criteria for HLW disposal because glass will become friable and break down into a fine, dispersible powder over time in a radiation field, and concrete will do the same, even without radiation.

Response - As evaluated in this EIS, there are alternatives to vitrification including grout (cement-like) and ceramic forms (hot-isostatic-pressed waste), as well as shipping the calcine to the repository without further treatment. However, in order to dispose of these alternative waste forms, DOE would have to obtain a determination of equivalency from the EPA.

Although there could be various waste forms for HLW, DOE has developed a Waste Acceptance System Requirements Document (Revision 4) that contains requirements that HLW destined for disposal must be in a borosilicate glass or other qualified waste form and contained in stainless steel. Also, vitrification was adopted by the EPA as the best demonstrated available technology for treatment of RCRA characteristics of corrosivity and toxicity for HLW (55 FR 22520; June 1, 1990), as referenced in Section 2.2 of this EIS.

This glass has been shown to chemically bond the components of the waste in the glass, and does not readily leach these chemicals once bonded. Borosilicate glass is estimated to be as durable as obsidian glass, which remains intact in nature for thousands of years. However, as recommended by the National Academy of Sciences, if vitrification were selected, DOE will continue to study and refine glass-formulation chemistry specific to Idaho's mixed HLW to ensure compatibility with waste acceptance criteria for the proposed geologic repository. See Section 6.3.2 of this EIS as well as the Final EIS Summary, Section 4.1, and responses to comment summaries III.F.2 (5) and (6).

At the present time, there are no other final HLW forms, such as grout or ceramic, that have been approved for disposal in the proposed geologic repository.

III.D.2.c (5)

Comment - A commentor suggests moving an existing vitrification plant to the INEEL to eliminate transportation to an offsite vitrification plant, or vitrifying INEEL HLW at West Valley or Savannah River Site facilities. Another commentor suggests that a mobile furnace could service several sites and that the dome at Experimental Breeder Reactor II could serve as a containment structure for processing offgases from such usage at the INEEL.

Response - As discussed in Section 3.3.5 of this EIS, existing vitrification units at the Savannah River Site and at the West Valley Demonstration Project were evaluated for treatment of INEEL mixed HLW. Savannah River Site vitrification facility components would not be suitable for processing highly acidic INEEL mixed HLW because of fluorides in the calcine or phosphates in the separated mixed HLW fraction. The vitrification facility at West Valley will be shut down in 2002, and will not be able to treat INEEL waste. Moving the West Valley vitrification facility components to the INEEL was judged to be impractical because of health and safety concerns and technical uncertainties related to the long down time that would occur before reassembly and restart. However, DOE would determine the availability of any appropriate equipment, including mobile treatment facilities, that may be suitable for processing INEEL mixed HLW and the potential cost benefit from attempting to use such equipment. Also, lessons learned would be applied to implementation at Idaho if vitrification were selected as the technology to be implemented.

Use of INEEL facilities other than INTEC for various aspects of waste management has been considered, but only where there is some advantage in doing so. The Experimental Breeder Reactor II containment dome is not suitable for processing offgasses.

III.D.3 Separations Technologies

III.D.3 (1)

Comment - Commentors raised issues regarding separations technologies for one or more of the following reasons:

a. Waste Quantities

- Separations technologies generate more waste streams and volumes, compared to non-separations alternatives. They result in greater volumes of waste that have to be managed compared to non-separations options.

b. Redissolving calcine

- Re-dissolving calcine in order to separate it would be wasteful and a step backward in dealing with liquid waste. Calcine is a safe, stable waste form and should not be reconverted to a dangerous liquid. Also, redissolving calcine might not be easy or possible.

c. Low-level Waste Fraction

- The low-level waste stream that would result from separations treatment would leave behind the hottest fraction and greatest near-term threat. The Transuranic Separations Option would involve storage of low-level Class C-type waste at the INEEL. Even after separations, waste will still be radioactive.

d. Criticality

- Separations poses a greater criticality risk than other alternatives, as stated in the Draft EIS.

e. Incinerator

- They all employ an incinerator, which would be unacceptable to stakeholders.

f. Transuranic Extraction

- Hanford could not make the TRUEX (transuranic extraction) process work even though 60 percent of the nation's HLW is stored there (and INEEL has only 3 percent).

- DOE separated transuranics from non-transuranics at Hanford. But there is not regulatory distinction between the two fractions in terms of how they are managed, and some resultant wastes would have to be stored indefinitely at Hanford.

g. Technical Maturity

- A commentor indicates that the maturity level of alternative treatment technologies must be addressed in the Final EIS, and technologies with no apparent technical basis such as separations either need to be dropped or technically justified.

- Separations technologies have no technical basis; they may or may not be efficient or economical; they are uncertain and unproven; they have not been demonstrated to work on an industrial scale; and if they fail, environmental protection is failed.

- The National Academy of Sciences report concludes that separations processes are not realistic and processing existing calcine should have low priority.

- Separations options require proof of their technical viability, chemistry processes, effectiveness, and safety.

- The technologies are infeasible and unprovable, unless the Final EIS offers technical support for this option.

- The chemistry involved in separating HLW into high- and low-level fractions is not well understood.

- TRUEX would not be cost effective, and, as the National Academy of Sciences report says, it is highly unlikely that it would work.

Response -

a. Waste Quantity

- When compared to the non-separations treatment options, separations is projected to result in higher volumes of low-level and/or transuranic waste. However, these options have the advantage of producing a corresponding decrease in the amount of HLW. For example, it is estimated that 800 canisters of HLW would be produced if all the mixed transuranic waste/SBW and calcine are treated using the separations technologies evaluated in this EIS. In contrast, depending upon the method of immobilization, the non-separations technologies would produce between 5,700 and 18,000 HLW canisters (See Chapter 3, Table 3-2). Reducing the volume of the final HLW form is considered an advantage given the uncertainties and costs associated with disposal in the proposed HLW geologic repository. See response to comment summaries in III.F for more detailed discussions regarding disposal options for waste streams produced under different technologies evaluated in this EIS.

b. Redissolving Calcine

- If a separations process were implemented, calcine would have to be placed back into a liquid form because radionuclides would be extracted by chemical and physical processes that work efficiently in solutions. However, this would be accomplished by dissolving only enough calcine needed at any one time during treatment.

c. Mixed Low-level Waste Fraction

- DOE acknowledges that mixed low-level waste fractions evaluated in this EIS may be highly radioactive. However, any generated mixed low-level waste fractions would be managed and disposed of per DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual) in order to ensure protection of human health and the environment. Alternatives analyzed in this EIS include offsite as well as onsite disposal of the treated mixed low-level waste fraction. For example, the Transuranic Separations Option analyzes the disposal of Class C-type grout at locations both on and off the INEEL. INEEL locations analyzed are the empty vessels of the closed Tank Farm and bin sets or a hypothetical new INEEL Low-Activity Waste Disposal Facility located approximately 2,000 feet east of the INTEC Coal-Fired Steam Generating Facility. The off-INEEL location analyzed is the Chem-Nuclear Systems commercial radioactive waste disposal site located in Barnwell, South Carolina. Disposal of low-level waste/mixed low-level waste will be determined consistent with the appropriate Record of Decision for the Waste Management Programmatic EIS.

d. Criticality

- The EIS does report an increased risk of criticality associated with the TRUEX separations process. There are accident scenarios identified for some alternatives that have an increased chance of occurring and could result in higher exposures to workers and the public. The criticality accident scenario could occur due to mishandling of transuranic waste fractions stored in containers and would result in a large dose to a noninvolved worker (218 millirem), but a relatively small dose to the maximally exposed individual living at the site boundary (3 mrem). The probability of such an event happening is conservatively estimated to be between one chance in one thousand and one chance in a million per year of facility operation.

e. Incinerator

- As described in Section 3.1.3 of this EIS, DOE analyzed the incineration of spent organics resulting from chemical separations. DOE determined that such an incin-

erator may not be required for the treatment of the organic waste stream because several treatment alternatives exist. However, the analysis in this EIS provides the impacts should DOE decide to incinerate the spent organics to reduce volume, treat hazardous constituents, and produce a disposable waste form. The resulting waste form would be mixed low-level waste and managed in accordance with the appropriate Record of Decision for the Waste Management Programmatic EIS.

f. Transuranic Extraction

- Separations, including the TRUEX (transuranic extraction) process, is technically feasible and is a reasonable alternative treatment technology. If this or any of the other separations alternatives were selected under a Record of Decision based on this EIS, extensive bench-scale and pilot-scale testing of processing methods with surrogate wastes would have to be conducted before implementation.

g. Technical Maturity

- DOE acknowledges the need for further design, technology development, and testing work to ensure the success of any separations option that it may select for processing the INEEL calcine or mixed transuranic waste/SBW. However, there are factors that could make the separations options attractive enough to warrant somewhat greater technical risk. As with any technology deployment, separations would be validated on a pilot-scale basis as necessary to ensure that the process can be performed within the necessary regulatory and safety parameters prior to full, production-scale deployment. In addition, separations processes would be on a batch-scale (or continuous dissolution) basis that would not result in accumulation and storage of large quantities of liquid at any one time. The National Academy of Sciences identified the need for design and development work (including work with actual aged calcine, rather than surrogates) to ensure that the desired process operability and decontamination factors can be achieved. DOE recognizes the concerns of the National Academy of Sciences and acknowledges the need for technology development as noted above.

III.D.3 (2)

Comment - A commentor states that one of the primary goals of separations is financial: to reclassify waste so that a higher fraction of the waste can be grouted instead of vitrified, because grouting is cheaper. The commentor adds that cost is one of the main reasons why the UK chose to grout reprocessing waste.

Response - As shown in the Cost Report (Section 6.0), treatment costs for the Direct Cement Waste Option and the Separations Alternative are comparable. However, options under the Separations Alternative produce a lower volume of final HLW product than the Direct Cement Waste Option. Because of this, the separations options have lower associated disposal costs, and, therefore, lower total costs. Classification and management of the waste streams would be in accordance with DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual).

III.D.3 (3)

Comment - A commentor states that options under the Separations Alternative in the Draft EIS focus on repository issues and regulatory requirements and are not in the best interest of environmental protection. Separations was added as an alternative to engineer around problems at Yucca Mountain and dispose of the waste at the Waste Isolation Pilot Plant instead.

Response - Although Separations was not added to engineer around problems at the Yucca Mountain repository, it does provide for reduction in the amount of final waste form product for disposal at the repository and for transuranic waste the added benefit of disposal at a facility that is currently open.

III.D.3 (4)

Comment - A commentor questions whether a process designed to dissolve/extract calcines would work with ion exchange resins. The commentor also suggests that it would be better to incinerate the resins and treat the ash, and requests that figures in the EIS be modified to incorporate an incinerator.

Response - DOE recognizes that if separations is selected as part of the treatment process for calcine, then additional technology development would be conducted to determine if dissolved calcine is compatible with the separations method (such as ion exchange) at a production scale. At this time, DOE sees no advantages to incineration of cesium ion exchange resins. The total volume of resins would be small (about 40 cubic meters) and would not warrant further reduction through incineration.

III.D.4 Treatment Technologies Considered but Eliminated from Further Consideration

III.D.4 (1)

Comment - A commentor suggests that DOE consider immobilization in an aluminum matrix within stainless steel containers as a treatment for calcine that has been demonstrated on a laboratory scale, describing the process and citing numerous advantages over vitrification options discussed in the Draft EIS.

Response - As part of the process of identifying the waste treatment options analyzed in this EIS, DOE considered immobilization of calcine in an aluminum matrix. The immobilization of HLW calcine in an aluminum matrix was not carried forward in this EIS because of the lack of technical maturity and because it offered no advantage over direct disposal of calcine in a national geologic repository.

III.D.4 (2)

Comment - A commentor asks if DOE has considered treating HLW by immobilizing it in silicon ingots, citing a number of advantages to this approach.

Response - As part of the process of identifying treatment options analyzed in this EIS (see Appendix B), DOE considered silicon encapsulation of HLW and concluded this technology is similar enough in operation and application to vitrification that the potential environmental impacts would be substantially the same. Therefore DOE decided not to analyze silicon encapsulation as a separate option or alternative in this EIS.

III.D.4 (3)

Comment - A commentor suggests that DOE consider a dry-pack process for treatment of HLW because this approach would have cost advantages over the Full Separations Option.

Response - As part of the process of identifying the treatment options analyzed in this EIS, DOE considered two-stage evaporation (sometimes called Dry Pack) for the treatment of mixed transuranic waste/SBW. This technology was not brought forward for detailed analysis in this EIS because it did not present significant advantages over other treatment options that offered additional benefits. However, due to the National Academy of Sciences recommendation, this technology was reconsidered during the process of identifying a Preferred Alternative. However, it was subsequently eliminated from further consideration because of concerns about applicability of this process to treatment of mixed transuranic waste/SBW and operational concerns.

III.D.4 (4)

Comment - Commentors suggest that DOE consider the following proposed commercial treatment options for treating SBW:

- A new pyrolysis/steam reforming fluid bed technology developed by Studsvik, Inc.
- A cost-effective, mature, industrial technology developed by COGEMA, Inc.

Response - As a result of public comment and agency review, the steam reforming process was analyzed for mixed transuranic waste/SBW treatment. The cold-crucible vitrification (COGEMA) process was considered and could be used in vitrification treatment for mixed transuranic waste/SBW.

III.D.4 (5)

Comment - Commentors request that several additional alternatives be evaluated/considered in the EIS, including the following:

- Entomb the calcine *in situ* in the bin sets (because of the difficulty of retrieving it) or using direct cementation.

- Solidify and entomb the SBW in the tanks.

Commentors add that they realize that entombment of waste in place would not meet Settlement Agreement/Consent Order commitments to move the HLW out of state.

Response - The potential long-term impact of entombment of the calcine within the bin sets is similar to the evaluation of the No Action Alternative. The results for the No Action Alternative are provided in Chapter 5 of this EIS. DOE has assumed in this EIS that any structure is vulnerable to degradation failure after 500 years in accordance with the Nuclear Regulatory Commission position for long-term storage facilities (NRC, 1994, Branch Technical Position on Performance Assessment for Low-level Disposal Facilities, Washington, D.C.). Therefore, since it is difficult to quantitatively estimate the long-term mitigative effect, if any, of concrete surrounding the bin sets, DOE has conservatively assumed failure and leakage of calcine into the environment after 500 years. Environmental impacts of such an event are discussed in Appendix C.4 of this EIS. For direct cementation of the calcine in the bin sets, there is not enough capacity to direct cement the calcine in place.

The potential long-term impact of grouting the liquid mixed transuranic waste/SBW within the tanks lies between that of No Action (leaving liquid in the tanks) and that of disposal of grouted low-level waste in the tanks. Long-term environmental impacts of both of these alternatives have been evaluated in this EIS. However, the operational logistics of transforming the mixed transuranic waste/SBW into a stable solid form may require removal of the mixed transuranic waste/SBW from the tanks and the addition of neutralizing and stabilizing materials that would result in a substantial waste volume increase. Assuming a 30 percent waste loading of the grout, there may be marginally enough capacity to grout the existing volume of mixed transuranic waste/SBW in the tanks. DOE does not regard disposal of the mixed transuranic waste/SBW in the tanks and entombment of the calcine in the bin sets to be a reasonable alternative not only because it would violate the Settlement Agreement/Consent Order, but also because of physical uncertainties and because it would be highly unlikely to meet RCRA regulatory requirements for a disposal facility for mixed waste. For these reasons, DOE does not view this as a reasonable alternative, and it was eliminated from detailed analysis.

III.D.4 (6)

Comment - Commentors express opinions about the way in which DOE included or dismissed technology options for evaluation in the EIS:

- Instead of dismissing technologies because DOE has not yet completed research on them (such as Direct Cement/Hydroceramics), DOE should point the Draft EIS reader to information from other sources.

- DOE should insist that preparers of the EIS contact "champions" of other technologies, and the Final EIS should present this information.

- DOE has failed to consider all reasonable alternatives, has created unnecessary barriers to consideration of certain options, or has abnormally inflated their costs.

- DOE should describe the rationale used to dismiss alternatives from evaluation.

Response - In developing the waste processing alternatives analyzed in this EIS, DOE researched and considered literature available on potential treatment technologies and consulted the advocates ("champions"). Through a structured process extending over several months, DOE evaluated and screened the treatment alternatives to arrive at the range of reasonable alternatives that appeared to be technically feasible, required limited technology development, and meet various other criteria imposed by DOE or the State of Idaho. As part of this process, many of the treatment technologies or locations suggested by the commentors were considered. Appendix B, Waste Processing Alternative Selection Process, summarizes the alternative identification process by briefly describing those that were eliminated from detailed analysis and the reasons why they were eliminated.

Some of the commentors suggested alternatives that do not represent unique waste processing alternatives, but rather implementation options that could be representative of alternatives already considered in this EIS. For example, this EIS analyzes alternatives that would involve continuing calcination of mixed transuranic waste/SBW using the New Waste Calcining Facility. Similarly, this EIS considers several alternatives involving cementation. If DOE were to decide on a waste processing alternative that includes cementation, the specific additives, processing conditions such as cementitious waste, and final waste form would be determined through future technology development activities. Such implementation options would not result in substantially different environmental impacts and do not represent unique waste processing alternatives that require additional detailed evaluation in this EIS.

III.D.4 (7)

Comment - Commentors ask DOE to consider the following alternatives or explain why they were excluded from consideration:

- Options described in various non-DOE scientific and engineering journals, conference proceedings, and reports.
- Calcine/SBW slurry treatment, which, a commentor says, the National Academy of Sciences report supports.

Response - As part of the process of identifying the treatment options analyzed in this EIS, DOE considered treatment of the calcine and mixed transuranic waste/SBW slurry treatment. These technology options were not selected specifically for analysis in this EIS but are encompassed by alternatives already considered in this EIS. For example, this EIS analyzes non-separations alternatives that would involve cementing mixed transuranic waste/SBW and calcine, to make it ready for shipment out of Idaho by a target date of December 31, 2035. If DOE determines that SBW would be managed as a transuranic waste then it would be kept separate from the mixed HLW calcine and made ready for shipment to the Waste Isolation Pilot Plant. If DOE determines that SBW would be managed as HLW, then creating a slurry with calcine and adding this to the cementation mixture would be considered during the design and engineering stages for this alternative. Because this EIS analyzes the environmental impacts of managing the calcine and mixed transuranic waste/SBW as HLW, it can be concluded that the slurry suggestion is encompassed within the range of reasonable technological options evaluated in this EIS.

The commentors' suggestion that calcine should be blended with mixed transuranic waste/SBW is not consistent with the recommendations of the report from the National Academy of Sciences addressing HLW. The report recommended blending calcines of different compositions to achieve a uniform waste feed to the treatment process, but criticized DOE's current practice of blending mixed HLW and mixed transuranic waste/SBW calcines. The rationale against blending is that it would be counterproductive because it would convert the mixed transuranic waste/SBW to mixed HLW and eliminate management and disposal options that would otherwise be available to the mixed transuranic waste/SBW if it is determined not to be HLW.

III.D.4 (8)

Comment - Commentors ask DOE to consider the Oak Ridge National Laboratory FUETAP (formed under elevated temperature and pressure) cementation process.

Response - The FUETAP technology is similar to the Hot Isostatic Pressed Waste and Direct Cement Waste options evaluated in this EIS and has many of the same advantages and disadvantages. Primary disadvantages are lack of technical maturity, which would necessitate a significant investment in research and development, and the fact that unlike vitrified HLW, the FUETAP product is currently not considered an acceptable waste form at the proposed geologic repository. However, if this option were to be selected DOE could perform a determination of equivalent waste form for disposal of the FUETAP product. Because the FUETAP process does not offer any significant advantages over the Hot Isostatic Pressed Waste or the Direct Cement Waste Options evaluated in the EIS, it was not included as an alternative treatment process.

III.E Storage of Treated Waste

III.E (1)

Comment - Commentors agree with DOE's intent to solidify the remaining liquid waste and place the HLW calcine in a less dispersible form, but recommend that DOE drop assumptions about a repository opening. Commentors also suggest that DOE should:

- Learn by examples from Hanford and focus on solidifying the liquid waste for onsite storage without regard to speculative repository availability.
- Look at long-term onsite storage, because of uncertainties with availability of repositories for INEEL transuranic waste and HLW and conflicting demands for repository space for commercial spent nuclear fuel.
- Not move the waste to another location and, thus, minimize transportation risks.
- Consider only treatment alternatives that prepare the waste for safe, long-term onsite storage due to uncertainties as to whether it can ever be shipped, building new containers as necessary to safely store the waste for as long as it takes before it can be safely moved.

Commentors state that there are uncertainties with using Yucca Mountain in Nevada as a disposal site such as lack of water rights, indefinite opening date and schedule delays, political considerations, cost overruns, inadequate capacity, potential licensing problems, and questionable scientific basis. Commentors also note that DOE faces obstacles in the acceptance of INEEL waste at both the Waste Isolation Pilot Plant and Yucca Mountain repositories, such as capacity and waste acceptance criteria uncertainties, and these should be detailed in the EIS.

Response - Section 5.2 of the EIS addresses the potential environmental impacts of interim storage of treated HLW at the INEEL through 2095. Interim storage may be necessary if a geologic repository is not available. Potential environmental impacts of storage (10,000 years) of treated HLW at DOE sites, including INEEL, which do not include transportation risks, are addressed in Chapter 7 of the Yucca Mountain EIS. DOE acknowledges that there are a number of uncertainties associated with whether and when the proposed Yucca Mountain geologic repository will be available for disposal of INEEL HLW. Capacity availability and the evolving waste acceptance criteria at Yucca Mountain are discussed in detail in Section 2.2.4 in this EIS. With the exception of the No Action and Continued Current Operations alternatives, all alternatives under consideration in this EIS will render the remaining mixed transuranic waste/SBW in the tanks into a solid form which, along with the treated calcine, can be safely stored on-site pending disposal.

Currently, the Waste Isolation Pilot Plant is the designated disposal facility for defense-related transuranic waste. If SBW is classified as transuranic waste after a waste incidental to reprocessing determination, then the Waste Isolation Pilot Plant is the appropriate disposal destination. Waste Isolation Pilot Plant officials have confirmed that capacity availability at the Waste Isolation Pilot Plant for remote-handled

and contact-handled transuranic waste would be available for INEEL waste classified as transuranic waste as a result of a waste incidental to reprocessing determination. Similarly, any transuranic waste fraction created through a separations process would also be sent there. Waste acceptance criteria for the Waste Isolation Pilot Plant are well defined, and INEEL transuranic waste would be treated and packaged accordingly. See also responses to comment summaries in III.F.3 regarding transuranic waste disposal at the Waste Isolation Pilot Plant.

III.E (2)

Comment - A commentor expresses the opinion that the U.S. should take advantage of experience gained by Great Britain and confirmed by technical reports and should emulate successful practices used in the United Kingdom for managing HLW. The commentor cites, as an example, storing HLW on an interim basis in cement-like waste forms suitable for either long-term storage or disposal at any viable location until a suitable repository becomes available.

Response - Great Britain's experience with managing HLW may not be applicable to mixed HLW stored at INTEC because of differing HLW regulatory approaches. However, DOE does share technical experience and lessons learned within the international industry. See responses to comment summaries III.D.1 and III.D.2.b regarding the direct cement approach.

III.E (3)

Comment - Commentors support stabilizing and storing wastes safely and securely to protect the environment. A commentor expresses a preference for safe storage of waste or moving the waste to another location if safe storage is not possible. Other commentors state that they want to store the waste in the safest possible way at the INEEL or move it elsewhere.

Response - This EIS addresses the range of reasonable alternatives that, with the exception of the No Action and Continued Current Operations alternatives, would prepare mixed HLW and its associated waste streams for safe onsite interim storage at the INEEL and/or transport out of Idaho for storage for disposal elsewhere.

Section 5.2 of the EIS addresses the potential environmental impacts of interim storage of treated HLW at the INEEL through 2095. Interim storage may be necessary if a geologic repository is not available. Potential environmental impacts of long-term storage (10,000 years) of treated HLW at DOE sites, including INEEL, are addressed in Chapter 7 of the Yucca Mountain EIS.

III.F Disposal of Treated Waste

III.F.1 General: Disposal

III.F.1 (1)

Comment - A commentor states DOE needs a responsible vision for the future and, to avoid more complications, should make disposal plans before generating any additional high-level and related wastes.

Response - DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual) requires waste management plans, which must include identified disposition paths for all waste generated. Currently, the Waste Isolation Pilot Plant is open for disposal of transuranic waste, and there are a number of existing low-level and mixed low-level waste disposal facilities. HLW resulting from decisions based on this EIS would be placed in a form suitable for disposal at the proposed geologic repository.

III.F.1 (2)

Comment - A commentor states that the Draft EIS focuses too much on preparing waste for disposal in the near term in a HLW geologic repository and on meeting the Settlement Agreement/Consent Order and not enough on isolating waste from the environment.

Response - One of the fundamental purposes of this EIS is to provide a basis for making decisions as to how best to treat the mixed HLW and mixed transuranic waste/SBW so it can be properly disposed of and thereby permanently isolated from the environment. The Nuclear Waste Policy Act makes the Federal Government responsible for providing permanent disposal of spent nuclear fuel and HLW, and the Settlement Agreement/Consent Order is consistent with this. Specifically, the EIS analyzes options for producing several different final waste forms, including glass, glass-ceramic, or cementitious material, that impede the migration of contaminants to the environment during both short term interim storage and long term final disposal.

Some alternatives and options analyzed in this EIS do not meet Settlement Agreement/Consent Order milestones and some are not dependent upon the availability of a national HLW geologic repository. CEQ regulations do not require that all reasonable alternatives meet requirements of existing regulations or legal requirements such as the Settlement Agreement/Consent Order.

III.F.1 (3)

Comment - A commentor questions how DOE used information from specific Sandia National Laboratories reports regarding performance assessments of INEEL HLW, which the commentor states conclude that a competently sited repository would adequately retain radionuclides regardless of waste form characteristics. The commentor, therefore, suggests that calcine could be directly disposed of without additional treatment, thus dramatically reducing cost.

Response - The commentor provided DOE with the reports from Sandia National Laboratories, upon which the commentor based his conclusions. The reports (published in February 1995) present an analysis of the viability (from a waste isolation perspective) of direct disposal of HLW in unsaturated tuff, a geologic unit that DOE is studying at Yucca Mountain. As part of the alternative review process, the option of direct disposal of the HLW calcine without additional treatment has been added to this EIS. If this option is selected, DOE could pursue a determination of equivalent waste form for the disposal of calcine in a national geologic repository.

III.F.2 HLW Geologic Repository

III.F.2 (1)

Comment - Commentors state opinions and concerns regarding the method used to calculate inventory for the geologic repository, including:

- Equivalent metric tons of heavy metal (MTHM) should be based on relative radioactive and radiotoxic hazard.
- Using the historical projection method would significantly reduce the volume of HLW that could be disposed of in the repository to much less than equivalent commercial spent nuclear fuel loadings, thus handicapping DOE.
- Arbitrary definitions indexed to volume instead of heat load would bias against alternatives with higher product volume.
- The figure of 170,000 MTHM existing in the DOE complex (presented by DOE at an EIS public meeting) does not agree with a Sandia report that cites only 12,060 MTHM, of which only 320 MTHM is at the INEEL. This would represent only 7.3% of repository capacity of 4,400 MTHM.
- Support the State of Idaho's position that DOE must recalculate the MTHM derivation of HLW inventory so that all of DOE's HLW can go to the first repository.
- Internal DOE technical reports support the commentor's conclusion that DOE's HLW would fit into the allocation for the first repository if the inventory is derived from the parent fissile mass of the waste form.
- The policy of using 0.5 MTHM per canister for HLW is inconsistent with both the intent and letter of the law (see 40 CFR 191), and this is contributing to DOE's inability to deal with HLW. A stronger adjective than "controversial," as stated in the Draft EIS, should be used when discussing this issue.

- Decisions surrounding this issue appear to be made based on DOE policy, irrespective of the law, which should be followed.

Response - The State of Idaho's Foreword to this EIS, Section 6.3.2.4 of the EIS and Section 5.2 of the Summary, identify calculation of MTHM as an area of controversy. The DOE figure of 170,000 MTHM is based on the historical method of calculation without considering the reduction in volume that could be achieved through separations technologies and classification of the waste stream using DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual). The Sandia calculation of MTHM was based on a different method of calculation than the historical method of 0.5 MTHM per canister. DOE recognizes that the State of Idaho would like to use a different method to calculate the MTHM values in order to solve the geologic repository volume issue. Calculating MTHM for the purposes of disposal in the proposed geologic repository is however more appropriately within the scope of the Yucca Mountain EIS and is discussed in Appendix A, Section A.2.3.1 of that document.

III.F.2 (2)

Comment - Commentors state that Waste Acceptance Criteria for the repository have not yet been finalized and express varying opinions regarding this issue:

- Establish finalized Waste Acceptance Criteria as soon as possible or before a final waste form is developed.

- DOE should move forward with plans to develop a final waste form even without final Waste Acceptance Criteria.

- DOE should identify the alternatives that have the best chance of yielding an acceptable final waste form that is acceptable under RCRA for disposal in a repository.

- The calcine product would not meet the requirements of the Waste Acceptance Criteria for the repository. Another commentor requests that the EIS be withdrawn until HLW disposal criteria have been established.

Response - DOE recognizes the need to produce a final HLW form that would meet requirements for disposal in the potential Yucca Mountain geologic repository and considered options in this EIS to address the RCRA characteristic and listed waste components to accommodate disposal.

DOE believes there is sufficient guidance on the disposal of HLW to proceed with this EIS. DOE has developed a Waste Acceptance System Requirements Document that contains performance requirements for disposal of HLW in the potential Yucca Mountain geologic repository. The EPA has established radiation protection standards for this repository pursuant to the Energy Policy Act of 1992. The Nuclear Regulatory Commission has published a rule (10 CFR 63, November 2001) that identifies criteria for licensing the repository. Based on this information, DOE can move forward to identify, select, and implement decisions regarding management of HLW. See also responses to comment summaries III.D.2.b (6) and III.D.2.c (4).

III.F.2 (3)

Comment - A commentor states that the cost of actually using Yucca Mountain for its intended purpose will add only a relatively small incremental cost and that Yucca Mountain is going to cost U.S. taxpayers billions of dollars whether or not any real waste is ever buried there.

Response - It is true that DOE has invested a significant amount of money in research and development to determine if the potential geologic repository at Yucca Mountain is suitable for disposal of spent nuclear fuel and HLW, of both commercial and DOE origin, and that these costs have been incurred whether or not such material is disposed of at the Yucca Mountain site. Nevertheless, as explained in Appendix F of the Cost Report (DOE/ID 10702, January 2000, a unit cost (cost per canister) of HLW was determined using a technique common to other DOE projects. The unit cost is a function of the expected inventory of HLW and other defense waste and the life cycle cost, including actual cost already incurred and estimated future costs. A calculation based on the *Analysis of the Total System Life Cycle Cost Report of the Civilian Radioactive Waste Management Program*

(DOE/RW-0533) assumes that 25 percent of the total life cycle cost of the potential Yucca Mountain geologic repository is for DOE defense waste. The 25 percent share ($10.8 billion) was divided by the number of canisters in the inventory of DOE waste. The remaining 75 percent of the repository cost would be secured through the Nuclear Waste Fund. This results in a unit cost value of $540,000 that was used to evaluate alternatives in the 2000 Cost Report. An update of the life cycle cost report was published in 2001 that presented a higher estimated cost of the potential repository. Using the updated numbers, the estimated cost per canister of HLW would be $740,000.

The costs associated with disposal are presented in the Cost Report to provide the estimated life cycle costs for full implementation of the alternatives analyzed in the draft EIS. Such information maybe useful to the DOE in making decisions regarding such alternatives.

III.F.2 (4)

Comment - A commentor states that schedules must be adjusted to ensure that all INEEL HLW can be treated and prepared for shipment and disposal before the proposed geologic repository closes.

Response - The availability of the potential Yucca Mountain geologic repository for treated HLW from INTEC is uncertain. Therefore, it would be premature to align repository and INEEL waste treatment activities with those regarding the potential Yucca Mountain repository until the schedule for its development and operation is final.

III.F.2 (5)

Comment - Commentors state that Idaho is not a suitable disposal site for HLW and that DOE should be looking for another repository site even if Yucca Mountain opens. Commentors express the opinion that it is difficult to favor any one method of disposal because of the technical uncertainties associated with these methods.

Response - DOE has completed an EIS (DOE/EIS-0250) to evaluate a potential geologic repository site at Yucca Mountain for disposal of DOE HLW.

Chapter 5 of this EIS evaluates environmental impacts associated with long-term onsite storage of mixed HLW. As discussed in Section 2.2.4 of this EIS and Section 1.3 of the Yucca Mountain EIS, the Nuclear Waste Policy Act, as amended, established a process leading to a decision by the Secretary of Energy on whether to recommend that the President approve Yucca Mountain for development as a potential geologic repository. The Secretary recommended the Yucca Mountain site to the President and he has authorized the repository. To date, DOE has not found any information or factors that would preclude the Yucca Mountain site from development as the potential geologic repository. The Nuclear Waste Policy Act does not currently authorize DOE to consider another site.

Section 2.2.4 of this EIS discusses the total quantity of waste that could be accepted at Yucca Mountain. Appendix C.7, Table C.7-6, provides a description of the final waste streams and the volumes of HLW that would be shipped to the repository from the INEEL for each alternative.

The potential environmental impacts of interim storage of treated HLW forms from INTEC at the INEEL through 2095 are addressed in Section 5.2 of this EIS. The potential environmental impacts of long-term storage of HLW at DOE sites are also addressed in Chapter 7 of the Yucca Mountain EIS.

III.F.2 (6)

Comment - Commentors assert that the Nevada Test Site is suitable for HLW and that volume reduction is not a criterion for disposal of defense-type wastes. Commentors also state that the Department of Defense and commercial spent nuclear fuel claims for repository space continue to interfere with the U.S. Government's promise to dispose of INEEL HLW. Commentors add that the Nevada Test Site is a reasonable disposal site because it:

- Is federal land that has already been withdrawn from the public domain.
- Is arid.
- Has a low water table.
- Is already contaminated from weapons testing and cannot reasonably be cleaned up.

One commentor advocates "Greater Confinement Disposal" and states that the site mineralogy would be compatible with a concrete waste form.

Response - DOE notes the commentor's suggestion that a greater confinement disposal facility may have advantages for HLW disposal for various treatment forms; however, Yucca Mountain is the only site authorized by the Nuclear Waste Policy Act, as amended, to be characterized for suitability as the HLW geologic repository. See also response to comment summary III.F.2 (5).

In addition, DOE issued the *Final Environmental Impact Statement, Management of Commercially Generated Radioactive Waste* (DOE/EIS-0046) in 1980. That EIS analyzed the environmental impacts that could occur if DOE developed and implemented various alternatives for the management and disposal of HLW. The 1981 Record of Decision for that EIS announced the DOE decision to pursue the mined geologic disposal alternative (46 FR 26677, May 14, 1981). Given this decision and the requirements of the Nuclear Waste Policy Act, as amended, DOE has selected Yucca Mountain in Nevada as the potential location for a geologic HLW repository and the President has authorized its development.

III.F.3 Waste Isolation Pilot Plant

III.F.3 (1)

Comment - Commentors state that the Transuranic Separations Option would convert all HLW into two waste forms that could be disposed of at either the Waste Isolation Pilot Plant or a landfill. Commentors also express a number of concerns and opinions about disposal of INEEL waste at the Waste Isolation Pilot Plant, including:

- The Early Vitrification Option would result in unacceptable and illegal disposal of SBW at the Waste Isolation Pilot Plant.
- Remote-handled transuranic waste can only be placed in limited locations at the Waste Isolation Pilot Plant, and there are wastes from other sites vying for these limited waste allocation slots. There is, thus, a risk that the Waste Isolation Pilot Plant cannot receive all the transuranic waste.
- Separation of waste into non-contact handled transuranic waste and "Class C" low-level grouted waste forms for shipment to the Waste Isolation Pilot Plant is a waste of money due to lack of disposal capacity at that facility.

Response - DOE has determined that there is adequate capacity at the Waste Isolation Pilot Plant to dispose of INEEL transuranic waste, including remote-handled transuranic waste, that could be generated under the alternatives analyzed in this EIS. This waste would not preclude the disposal at the Waste Isolation Pilot Plant of other INEEL transuranic wastes or transuranic waste from other DOE sites destined for disposal there. DOE would follow the waste incidental to reprocessing process as defined in DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual) to determine whether any waste covered by the alternatives analyzed in this EIS would be managed as transuranic waste. Any transuranic waste thus classified would be managed and processed to meet waste acceptance criteria for the Waste Isolation Pilot Plant.

III.F.4 Low-level Waste Near-surface Landfill

III.F.4 (1)

Comment - A commentor asks why one EIS alternative would dispose of Class A-type grout waste on-site, while another alternative would ship it off-site for disposal.

Response - Both onsite and offsite disposal of low-level waste are reasonable disposal options for analysis in this EIS. It is for this reason that waste treatment scenarios that result in a low-level-waste stream or low-level waste fraction include onsite and offsite options for disposal. The exception is the Planning Basis Option, which includes only offsite disposal since this alternative reflects the State of Idaho position that the Settlement Agreement/Consent Order requirement is to have all calcine and mixed transuranic waste/SBW treated and ready to leave Idaho by a target date of December 31, 2035. Further, any mixed low-level waste streams resulting from the waste treatment alternatives would be candidates only for offsite disposal per the Record of Decision for the Waste Management Programmatic EIS.

III.F.4 (2)

Comment - A commentor states that the EIS should identify potential offsite low-level waste disposal facilities that would be available as well as the difficulties in using these potential disposal facilities. The commentor also asks for contingency plans for low-level waste disposal. A commentor states that the Draft EIS does not adequately describe the storage plans (onsite and offsite) for various subclassifications of low-level waste.

Another commentor (EPA Region X) rates the Draft EIS as EC-2 (Environmental Concerns -- Insufficient Information), citing uncertainties (due to a lack of analysis and documentation in the EIS) that facilities exist for handling and storing low-level waste.

Response - Section 5.2.13 of this EIS analyzes environmental impacts to facilities that would receive low-level waste from the treatment alternatives. This section states that annual production of low-level waste at the INEEL is currently about 2,900 cubic meters and although the peak annual quantity generated under the proposed action could be as high as 1,400 cubic meters, the highest annual average would be about 400 cubic meters. These quantities of low-level waste should not overload the INEEL's capacity and capability to accumulate, manage, and transport this type of waste.

In addition, this EIS analyzes three disposal options for low-level waste generated at the INEEL: (1) construction of a near-surface disposal facility, (2) use of existing INTEC facilities such as the Tank Farm and bin sets, and (3) transportation to an offsite disposal location. Offsite disposal facilities could accommodate the projected volumes of low-level waste that would be generated under the alternatives analyzed in this EIS. Those disposal facilities included in this EIS for analysis purposes are Envirocare of Utah for Class A-type low-level waste grout, and the Chem-Nuclear Systems disposal site in Barnwell, South Carolina for the Class C-type low-level waste grout. On February 25, 2000, DOE issued a Record of Decision for low-level waste and mixed low-level waste based on the Final Waste Management Programmatic EIS. In this Record of Decision, DOE decided to perform minimum low-level waste treatment at all sites and continue, to the extent practicable, onsite disposal of low-level waste at the INEEL and other DOE sites. In addition, this Record of Decision states that the Hanford Site in the State of Washington and the Nevada Test Site will be available to all DOE sites for disposal of low-level amd mixed low-level waste.

IV FACILITY DISPOSITION

IV.A Clean Closure

IV.A (1)

Comment - A commentor expresses doubt that the Clean Closure Alternative is worth the increased site worker mortality rate. Another commentor is of the opinion that 2,400 recordable injuries and 290 lost workdays (on page S-55, left column of the Draft EIS) associated with clean closure of the INTEC Tank Farm seems excessively high and asks how these figures were derived.

Response - DOE shares the commentor's concern about the increased site-worker mortality rate under clean closure of the Tank Farm. DOE based the worker injury projection on a five-year average of lost workdays and total recordable ill-

ness/injury rates from INEEL construction workforce data from 1992 to 1997. In the case of clean closure of the INTEC Tank Farm, DOE assumed that 280 workers, each working 2,000 hours per year, would be required for 27 years to clean close the Tank Farm. DOE calculated that for 280 workers, with a lost workday rate of 31.6 percent and a total recordable cases rate of 3.8 percent, there would be 2,388 total lost workdays and 287 total injuries/illnesses. DOE has updated the worker injury rates used in the Final EIS. Based on the updated information, DOE calculated that for 280 workers, with a lost workday rate of 28.4 percent and a total recordable cases rate of 3.7 percent, there would be 2,100 total lost workdays and 280 total injuries/illnesses. See Section 5.3.8 of this EIS.

IV.A (2)

Comment - A commentor supports the Clean Closure Alternative and states that contaminated underground structures such as tanks, vaults, and piping must be removed. Other commentors support the Clean Closure Alternative stating that DOE should remove wastes and keep background radiation at levels acceptable for general land use.

Response - Clean closure could make HLW facilities at INTEC available for general land use; however, there may be technological, economic, and worker health risks involved that would make it impractical to remove all residual material or decontaminate and remove all equipment from the INTEC facilities. RCRA hazardous waste regulation 40 CFR 264.197 states that if all contaminated system components, structures, and equipment cannot be adequately decontaminated, then the facilities must be closed in accordance with the closure and post-closure requirements that apply to landfills. These requirements would use performance-based standards. As indicated in Section 3.4 of this EIS, which describes the preferred facility disposition alternative, performance-based standards would be applied to existing facilities based on risk calculations. New facilities, built at INTEC, would be designed consistent with clean-closure methods as required by current DOE orders. For all RCRA closures, detailed closure plans would first have to be developed by DOE and approved by the State of Idaho in accordance with hazardous waste management standards.

IV.B Performance Based Closure

No specific comments.

IV.C Closure to Landfill Standards

IV.C (1)

Comment - Commentors express varying preferences about selection of the tank closure alternatives including:

- The alternative for facility disposition should be closure to landfill standards because INEEL will continue to operate for many years.
- The complexity of disposing of contaminated 300,000-gallon waste tanks means that the "simple" solution of capping the tanks and "walking away" is unacceptable.
- Tank heels should be removed using demonstrated technologies, and then the tanks should be filled with grout.

A commentor states that closure of the tanks and soils as a landfill assumes that a cap would be placed over the waste to serve as a barrier against future leachate generation, which assumes that the associated CERCLA soils would also be capped. The commentor also says that the Summary does not make clear what steps would be undertaken to meet the landfill closure goals.

A commentor expresses the opinion that unavoidable contaminated residues should be stored in well-defined, isolated, impervious spots.

Response - Tank closure to landfill standards would be performance-based, taking into consideration any contaminant levels that may be existing and determining what if any amount of contaminant, including tank residuals, could be left without exceeding regulatory standards. Under the Preferred Facility Disposition

Alternative, closure decisions would be made in the context of the impact of other facility closures in the area and CERCLA remediation efforts associated with the Tank Farm. Thus, the total residual burden to the environment from all remediation and closure activities in any area would be limited to a target value. Contaminants that exceed the limit would need to be reduced accordingly. Thus, although some contaminants could be left on site, including tank residuals, proper closure techniques to control or prevent dispersion to the environment would be implemented as required by closure permits.

As noted by the commentor, many release sites are being managed by CERCLA and the facilities being dispositioned under this EIS are co-located. Thus, it is important to coordinate facilities disposition with the decisions being made for release sites managed under CERCLA. These decisions on the final end-state for INTEC would consider the cumulative impacts of soils and groundwater contamination from release sites as well as facilities disposition activities. In this case, using an engineered cap over this area may be the final decision.

DOE is committed to long-term stewardship of sites and facilities where closure decisions involve leaving contaminants in place. In such instances, DOE would institute protective measures including institutional controls that provide long-term barriers to inadvertent intrusion and monitoring efforts that determine the effectiveness of contaminant controls. See Section 6.3 of the Summary as well as Section 5.3 of this EIS for Closure to Landfill Standards infomation.

IV.C (2)

Comment - A commentor states that the Idaho Chemical Processing Plant (ICPP, now INTEC) would not qualify as a Subtitle-D dump because it lies in a flood plain.

Response - Based on the U.S. Geological Survey preliminary 100-year flood plain map, parts of INTEC are within the flood plain. However, the flood plain analysis conducted by the Bureau of Reclamation indicates that none of INTEC is within the 100-year flood plain. This information is presented in Section 4.8.1.3 of this EIS. DOE is currently conducting additional flood plain analysis to resolve the differences in the flood plain boundaries calculated by the U.S. Geological Survey and Bureau of Reclamation methods. Under RCRA regulations, closure of the INTEC Tank Farm and surrounding facilities could occur even within a flood plain because it would not be considered a new landfill facility. The cap for final closure of the INTEC Tank Farm would be designed to prevent significant erosion of the cap during a flooding event, which is one of the major concerns of closing landfills within a flood plain. For these reasons, DOE believes the issue of the flood plain can be adequately resolved during closure. See also response to comment summary VIII.C (5).

IV.C (3)

Comment - A commentor states that void spaces in empty tanks and containers represent a concern for landfill subsidence and require stabilization. The commentor proposes filling the voids with soil rather than Class A grout.

Response - The need to stabilize void spaces in tanks and containers to avoid subsidence is accounted for in all facility disposition alternatives involving the in-place disposal of facility structures and equipment. However, the use of soils rather than a grout mixture would not be practical due the technical difficulties that would be encountered trying to transport a soil mixture into the tanks and containers as well as into voids within and around equipment and structures left in place. An additional concern is the inability to achieve a compaction density of the soil equivalent to the compression strength achieved by a solidified grout.

IV.D Performance Based Closure with Low-level Waste Class A or Class C Grout

IV.D (1)

Comment - The commentor (EPA Region X) rates the Draft EIS as EC-2 (Environmental Concerns -- Insufficient Information), citing uncertainties (due to a lack of analysis and documentation in the EIS) that: Grout containing

the low-level waste would prevent contamination of the aquifer for 500 years.

Response - Appendix C.9 of this EIS contains the reasoning for assuming that grouted low-level waste would remain intact for 500 years, after which it is assumed to fail. In stating this, DOE cites the Nuclear Regulatory Commission Branch Technical Position on Performance Assessment for Low-level Disposal Facilities (1994), which does not endorse the integrity of any manmade structure after 500 years. However, as evidenced by some studies, under certain conditions cementitious materials (such as grout or concrete) can be expected to last for extended periods of time, approaching 1000 years or more (Poe, W. L., Jr., "Long-term Degradation of Concrete Facilities Presently Used for Storage of Spent Nuclear Fuel and High-Level Waste," Rev. 1, Report Prepared for Use in Preparation of the Yucca Mountain EIS, Tetra Tech NUS, Aiken, South Carolina, October 1998). To address the commentors concern the analysis in Appendix C.9 was expanded to include a modeling scenario where low-level waste grout fails in 100 years. The potential environmental impacts to the aquifer are described in Appendix C.9 of this EIS.

V WASTE DEFINITIONS, CHARACTERISTICS, AND QUANTITIES

V (1)

Comment - A commentor cites the Draft EIS Summary, Section 7.4, discussion of cumulative impacts and waste and materials, and states that the INEEL waste inventory as presented does not include HLW.

Response - As stated in Section 6.4 of the Summary of this Final EIS, the waste inventory referred to by the commentor is that INEEL waste in addition to the inventory of mixed HLW calcine and mixed transuranic waste/SBW targeted for treatment as part of the actions evaluated in this EIS. DOE proposes to prepare the inventory of calcine and mixed transuranic waste/SBW so that it is ready for removal from the State of Idaho. The EIS considers the environmental impacts of waste generated during the treatment of calcine and mixed transuranic waste/SBW (referred to in the EIS as process wastes) or shipping the calcine directly to the repository. These process wastes must be treated, stored, and disposed of in addition to other INEEL legacy wastes and newly generated wastes and are evaluated as cumulative environmental impacts in the EIS.

V (2)

Comment - A commentor questions statements in the Draft EIS regarding waste streams that would result from implementation of waste treatment options:

- The Draft EIS Summary states that construction activities would generate little radioactive and hazardous waste, but the volume reported for Full Separations construction impacts (over 2,000 cubic meters) does seem significant.

- The Draft EIS Summary identifies radioactive waste as part of construction wastes. How is radioactive waste generated during the construction process?

Commentors request that DOE add a clear definition of newly generated liquid waste in one or more places in the EIS, including the glossary.

Response - It is DOE's policy to minimize the generation of waste. Therefore, it may be possible for DOE to reduce the generation of waste under the Full Separations Option to something less than 2000 cubic meters. However, for comparative purposes, conservative estimates of generated waste were used and these relative quantities were factored into the analysis of the alternatives presented in this EIS.

Sections 6.2.4 and 6.3.4 of the Summary and Section 5.2.13 of this EIS discuss waste produced under the waste processing and facility disposition alternatives. Table S-2, pages 3 and 4 of 12, (Final EIS Summary) summarizes these environmental impacts from waste and materials. Section 6.2.4 of the Summary shows that construction activities produce relatively little radioactive or hazardous wastes and that this EIS examines environmental impacts associated with generation of both radioactive and non-radioactive wastes resulting from construction and

waste processing operations. Construction activities generate some radioactive waste because new or modified facilities are tied in to existing contaminated structures - for example, via piping and ventilation connections.

Newly generated liquid waste was defined in the text box on page xi of the Draft EIS Summary, and its characteristics were given in the text box on page 3-11 in the Draft EIS. However, its definition was inadvertently omitted from the glossary, located in Appendix D of the Draft EIS, and the acronym was omitted from the Document-Wide Acronyms and Abbreviations list. In response to this comment, the definition of newly generated liquid waste was added to the revised glossary (Chapter 7 of the Final EIS), and the acronym was added to the revised list of acronyms in this EIS.

V (3)

Comment - A commentor states that much of the characterization now being performed in the DOE complex is unnecessary. The nominal purpose of these characterization activities is to assign codes to the waste, but the actual analyte concentrations do not determine how the barrel is shipped or what will be done with it at the repository. This allows decision makers to put off politically tough decisions and/or substantive actions while continuing to spend "programmatic" money.

Response - Characterization activities are a necessary component of regulatory compliance to determine if the waste meets the acceptance criteria for onsite or offsite treatment and disposal facilities. For example, characterization activities yield data on constituent concentrations that are used for hazardous wastes if the waste is regulated under RCRA and, if so, the kind of permitted treatment required for proper disposal. If the waste is going to a non-RCRA facility, characterization data are necessary to determine that the waste is below the concentrations required to demonstrate protection of human health and the environment. Characterization is also required for INTEC's mixed HLW for delisting purposes and for acceptance into the proposed geologic repository. See also response to comment summary VII.D (2).

V (4)

Comment - A commentor states that the volume of liquid SBW in the INTEC Tank Farm varies between 1.4 and 1.9 million gallons.

Response - The inventory of liquids in the INTEC Tank Farm does vary depending on operations and use of the High-Level Liquid Waste and Process Equipment Waste Evaporators. The current volume of mixed transuranic waste/SBW in the INTEC Tank Farm is approximately one million gallons.

V (5)

Comment - A commentor recommends that DOE undertake additional characterization of SBW and calcine in the bin sets to support decision making. The commentor requests that additional information on characterization data be published in an appendix to the Final EIS to allow for comparison with the detailed data on HLW provided in the Draft Geologic Repository EIS.

Response - DOE used the characterization data from the mixed transuranic waste/SBW, Tank Farm heel samples, and calcine samples taken in the last year. The updated INTEC data were checked against the data on INEEL mixed HLW used in the Final Yucca Mountain EIS. Data on INTEC mixed HLW is equivalent to that provided in the Yucca Mountain EIS and can be found in Appendix C.7 of this EIS. However, DOE agrees that, before any alterantive or option is implemented, additional characterization would be necessary.

V (6)

Comment - A commentor states that the National Academy of Sciences report on HLW treatment alternatives may be in error because it used as a reference an INEEL technical publication that over-estimates the radioactivity in HLW calcine by a factor of ten times. The commentor also states that the calcine will be below the Nuclear Regulatory Commission "Class C" disposal limits by the time DOE promised to have it ready for shipment off-site.

Response - For the reasons cited by the commentor, the technical report referenced in the comment was updated and sent back to the National Academy of Sciences before the academy submitted its recommendations.

The commentor's statement that the calcine will be below Nuclear Regulatory Commission "Class C" disposal limits by 2035 when DOE has agreed to have it ready to be shipped offsite is not supported by DOE's calculations of radioactive decay. Regardless of its radionuclide content, the current classification of calcine as HLW is based on the definition of HLW, which, in part, relates to the process under which the waste was generated. Any other classification of the calcine or any waste forms resulting from treatment would have to be conducted in accordance with the waste incidental to reprocessing determination process. See Section 6.3.2.2 of the EIS.

V (7)

Comment - A commentor indicates that review of quarterly reports issued by a former operator of the ICPP (Phillips Petroleum) shows that sodium nitrate and sodium hydroxide were used to dissolve reactor rods, which means that the resulting Tank Farm wastes clearly meet the HLW definition.

Response - In the 1950s, a small amount of dissolver product containing sodium was sent to the first cycle feed makeup tanks. Here the dissolver product was adjusted with nitric acid and aluminum nitrate to allow the solution to be chemically compatible for the first cycle extraction process to recover the radioactive lanthanum. The resulting first cycle waste containing the sodium was then sent to the first cycle waste HLW tank farm tanks. The HLW containing sodium from the radioactive lanthanum dissolution and recovery process was calcined and stored in the bin sets.

Also small amounts of Experimental Breeder Reactor-II (EBR-II) fuel was dissolved in acid and the resulting dissolver product was processed through the first cycle extraction process.

The small amount of sodium in the EBR-II fuel is the residual sodium from the heat transfer medium which is sodium potassium liquid (NAK). The resulting first cycle waste was also transferred to the HLW tank farm tanks and then calcined and stored in the bin sets. DOE currently considers the SBW stored in the eleven tanks in the Tank Farm to be mixed transuranic waste. However, determination of its classification will be made in accordance with DOE Order 435.1 and Manual 435.1-1, Radioactive Waste Management Order and Manual.

V (8)

Comment - The commentor (EPA Region X) rates the Draft EIS as EC-2 (Environmental Concerns -- Insufficient Information), citing uncertainties (due to a lack of analysis and documentation in the EIS) that waste stream products could be reclassified as low-level waste, thus allowing DOE to pursue separations alternatives.

Response - Alternatives that evaluate separations processes and classification of the separated fractions are reasonable despite the technical and administrative uncertainties involved. Additionally, DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual) provide the process for classifying the waste. From a technical perspective, specific radionuclides can be separated from radioactive waste streams, resulting in two fractions having different radiotoxicity characteristics. From a practical standpoint, the two waste fractions could have correspondingly different handling and disposal requirements. Information associated with the technical aspects of waste treatment and administrative aspects of waste classification are addressed in Section 6.3.2 of this EIS and Sections 4.1 and 4.2 of the Summary.

V (9)

Comment - Commentors state that DOE must not be allowed to reclassify waste forms to avoid meeting legal regulatory requirements. Commentors further state that both "high" and "low" activity wastes are HLW by definition and must be managed accordingly, and that the attempt to reclassify SBW is a technical way of avoiding the Settlement Agreement/Consent

Order requirements to calcine all the Tank Farm waste. Commentors further assert that the attempt to reclassify SBW to a less stringent category of mixed transuranic waste is unilateral and is unsupported by any other state or federal agency.

Response - How waste streams associated with HLW in DOE's inventory should be classified and managed is determined through the waste incidental to reprocessing process prescribed by DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual). The alternatives analyzed in this EIS identify how DOE would manage these waste streams depending on the outcome of the waste incidental to reprocessing determination. See Section 4.2 of the Summary. A more detailed discussion is included in Section 6.3.2.2 of this EIS.

It should be emphasized that classification of SBW is not for the purpose of avoiding Settlement Agreement/Consent Order requirements pertaining to HLW. The purpose of this classification is to determine if the waste will be mixed transuranic waste and disposed of at the Waste Isolation Pilot Plant.

The State of Idaho does not oppose DOE's plan to classify SBW through the process delineated in DOE Order 435.1 and Manual 435.1-1, provided that all constituent parts of the SBW are disposed of out of the State of Idaho, in accordance with the requirements of the Settlement Agreement/Consent Order, and managed in compliance with regulatory requirements.

V (10)

Comment - A commentor states DOE has authority to license disposal of low-level waste, not HLW, which must be permitted under the Nuclear Regulatory Commission by definition. The commentor further notes that HLW regulations extend to vitrified low-activity waste, salt grout, and related processing facilities when used in support of geologic disposal under Nuclear Regulatory Commission regulations.

Response - The Nuclear Regulatory Commission has authority to license a proposed geologic repository for disposal of HLW under 10 CFR Part 60. DOE and the Nuclear Regulatory Commission can authorize low-level waste disposal facilities. However, DOE's authority extends only to disposal of DOE low-level waste at a DOE site. The Nuclear Regulatory Commission can license commercial low-level waste disposal facilities, which DOE may opt to use. However, the Nuclear Regulatory Commission can also delegate its authority for licensing commercial low-level waste disposal facilities to states that have radiation programs meeting Nuclear Regulatory Commission standards.

It is within DOE's authority to manage its HLW during treatment and storage as well as after disposal in a national geological repository, which would be licensed by the Nuclear Regulatory Commission. Management of DOE's HLW, prior to disposal, is covered by DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual). See also Section 6.3.2 of this EIS. The term low-activity waste is used to describe the separated fraction from which key radionuclides have been removed, thereby considerably reducing the amount of radioactivity and/or types of radioactive constituents. Although the term "low-activity waste" may be used descriptively, it does not denote the appropriate waste classification or, by inference, the proper disposal option. It is for this reason this EIS does not use the terms "low-activity" or "high-activity" waste.

V (11)

Comment - Commentors state that HLW is HLW regardless of its location - whether leaked, in processing equipment, or unintentionally disposed of. One commentor asks if defunct reactor cores at INEEL are not also HLW.

Response - DOE is addressing radioactively contaminated media from previous releases at INTEC under the CERCLA process (see Section 6.3.2.7 of the EIS), which includes coordination with EPA and the State of Idaho and public involvement. The management and disposal of radioactively contaminated media will meet applicable or relevant and appropriate requirements. Contaminated media will be analyzed for their radioactive and hazardous characteristics

and managed accordingly. The defunct reactor cores by DOE definition are not HLW.

As for equipment or other materials contaminated with HLW, DOE would follow the waste incidental to reprocessing process (DOE Order 435.1 and Manual 435.1-1, Radioactive Waste Management Order and Manual) to determine whether to manage it as HLW or alternatively as transuranic or low-level waste. See responses to comment summaries V (10) and V (12).

V (12)

Comment - A commentor asserts that DOE is attempting to reclassify SBW, Tank Farm residuals, HLW in ancillary piping, waste residues in ventilation ducts, and waste leaked from piping as waste forms other than HLW to avoid regulatory or disposal requirements. The commentor also states that SBW is specifically either first-cycle raffinate or has been diluted to avoid classification as HLW. The commentor says that DOE is attempting to reclassify Tank Farm heels and other HLW to other ancillary waste streams and fails to recognize that "incidental waste" still falls under the classification of HLW.

Commentors also state that DOE must describe the processes used for reclassification of HLW fractions resulting from separations to other waste forms such as transuranic waste, and must also describe associated uncertainties. A commentor asserts that DOE processes used to reclassify waste at the Savannah River and Idaho sites are against the law, are rightfully opposed by the states of Washington, Idaho, and Oregon, and violate the Settlement Agreement/Consent Order

Response - In developing the waste processing alternatives analyzed in this EIS, DOE made certain assumptions about how the radioactive waste streams that would go into and come out of the selected treatment processes would be classified. DOE would classify all radioactive wastes in accordance with the processes described in DOE Order 435.1 and Manual 435.1-1 (Radioactive Waste Management Order and Manual). The term "waste incidental to reprocessing" is used when referring to a process for determining whether wastes that might be considered HLW due to their origin could be managed as low-level or transuranic waste. This process, which is included in DOE Order 435.1 and Manual 435.1-1, ensures that radioactive wastes are managed appropriately based on the risk they pose to the public and the environment. It is DOE's position that the waste incidental to reprocessing process, described in a Chapter 2 text box (page 2-9) and Section 6.3.2.2 of this EIS, is consistent with law and current policies of the Nuclear Regulatory Commission with respect to incidental wastes.

The State of Idaho does not oppose DOE's plan to classify SBW through the process delineated in DOE Order 435.1 and Manual 435.1-1, provided that all constituent parts of the waste are disposed out of the State of Idaho, in accordance with the terms of the Settlement Agreement/Consent Order, and managed in compliance with regulatory requirements. The State expects residual wastes to be managed and monitored in accordance with the applicable requirements of RCRA, the Idaho Hazardous Waste Management Act (HWMA), and the CERCLA Record of Decision for Waste Area Group 3 for the INEEL.

Waste incidental to reprocessing determinations are being developed for waste streams at INTEC, as described below. These waste streams include the existing mixed transuranic waste/SBW in the Tank Farm, the residual waste material remaining in the Tank Farm tanks after cleaning and closure, contaminated job wastes, and contaminated equipment (pumps, valves, etc.) used in HLW process systems.

Mixed transuranic waste/SBW - The existing inventory of mixed transuranic waste/SBW in the Tank Farm tanks at INTEC includes waste streams associated with spent fuel reprocessing. However, most of the liquid wastes sent to the Tank Farm during past reprocessing operations have been removed from the tanks and solidified by the calcination process. The bulk of the remaining inventory is comprised of waste solutions from plant decontamination activities and processes ancillary to reprocessing, although a small fraction of the Tank Farm Inventory is attributed directly to reprocessing extraction wastes. When compared to first cycle extraction wastes, the current inventory of mixed transuranic waste/SBW is generally much lower in radioactivity, and therefore poses significantly

less risk. Of the approximately 44 million curies that resulted from spent nuclear fuel reprocessing at INTEC, about 43.5 million curies have been calcined or have decayed. Of this amount about 480,000 curies remains in the mixed transuranic waste/SBW. A waste incidental to reprocessing determination (by the evaluation method) draft has been prepared to evaluate whether the remaining mixed transuranic waste/SBW should be managed and disposed of as transuranic waste. The Nuclear Regulatory Commission is performing a technical review of the draft waste incidental to reprocessing determination prior to its finalization by DOE, which is anticipated in 2002.

Tank Farm Residuals - Closure of the HLW tanks is planned at INTEC. As treatment of the mixed transuranic waste/SBW is completed and the Tank Farm tanks are emptied, the tanks would be flushed to maximize waste removal. Flushing activities would remove waste to the maximum extent that is technically and economically feasible, and to a level that meets regulatory requirements for long term protection of the environment. However, some amount of residual waste will likely be unable to be retrieved from the tanks. A waste incidental to reprocessing determination (by the evaluation method) has been prepared for these Tank Farm residuals, which evaluates whether the waste remaining in the tanks after closure should be managed as low-level waste. The Nuclear Regulatory Commission will perform a technical review of the draft waste incidental to reprocessing determination prior to its finalization by DOE, which is anticipated in 2003.

There are two other waste streams eligible for waste incidental to reprocessing determinations. These determinations can be by either a citation of evaluation method as determined by applying DOE Order 435.1 and Manual 435.1-1 requirements to the waste. Waste incidental to reprocessing determinations are being developed to determine if contaminated job wastes and contaminated equipment and material meet the requirements to be managed and disposed of as low level or transuranic waste.

Contaminated Job Wastes - Wastes generated during HLW transfer, pretreatment, treatment, storage, and disposal maintenance, operating, sampling and analysis, closure, and decontamination activities and equivalent items are eligible for the waste incidental to reprocessing citation determination process. Contaminated job wastes contain small amounts of radioactivity on the materials in low concentrations or are limited to low levels on the components' surfaces. DOE Order 435.1 cites items eligible for the waste incidental to reprocessing citation determination process.

Contaminated Equipment and Materials - This waste incidental to reprocessing determination will cover contaminated equipment and materials removed from INTEC HLW facilities for disposal. The evaluation waste incidental to reprocessing determination will be prepared for the miscellaneous equipment and other related materials potentially contaminated by HLW reprocessing streams that have been or will be removed from service.

VI TIMING OF THE EIS

VI (1)

Comment - Commentors express concern about the timing of decisions made to treat waste (including HLW) at the INEEL, including:

- Do not rush a decision, especially if safe technology, procedures, and/or adequate funding are not available.
- Take time to consider the safest method of treatment for people and the environment, rather than repeating mistakes of the past.
- Avoid short-term solutions like DOE's predecessors of the 1950s, and find the best long-term solution.
- Recognize that the HLW stream needs attention; employ technology where containment and long-term stewardship are emphasized instead of expediency and profit of contractors.
- Be aware that the technology that seems right at the moment may not be right later.

Commentors also state the opinion that decisions based on the EIS can be made separately and/or in a phased manner and should be because:

- It is premature to make all decisions within the scope of the EIS due to lack of information.
- DOE should proceed when actions are planned and feasible and not wait until all plans can be formulated.
- It is premature to consider vitrification at Hanford until the facility is approved to be built and the best way to retrieve calcine from the bin sets has been determined.

Response - Chapter 1 of this EIS explains why DOE must make decisions in the near-term about how to manage the mixed HLW and mixed transuranic waste/SBW. These decisions need to be made in the near term so there is time to obtain the necessary funding, conduct the necessary technology development, engineering design, and facility construction that would enable DOE to meet its Settlement Agreement/Consent Order commitments. DOE believes that waste treatment technologies under evaluation in this EIS can be implemented safely and responsibly, as indicated by the minimal environmental impacts. Further, once DOE has selected a waste treatment alternative and obtained necessary funding, DOE would, as soon as practicable, complete technical development, design, construction, and commence treatment operations in accordance with approved safety analysis reports. DOE believes that this would be necessary in order to meet its regulatory requirements and agreements with the State of Idaho. However, because some of this information remains uncertain (e.g., progress of HLW treatment at Hanford), and since DOE's agreements contain phased treatment milestones, DOE anticipates that this EIS may result in a phased decision that would be implemented in steps, or in a series of decisions over time. It is also anticipated that the decision(s) would include milestones, so that actions would be neither premature nor postponed, but planned and implemented as a matter of public record in accordance with the decision(s). Refer to comment summary VII.D (2) for discussion on how phased decisions may impact the Settlement Agreement/Consent Order milestones.

It is the State of Idaho's position that if DOE decides on a phased approach, the decision will include a schedule to ensure DOE meets the Settlement Agreement/Consent Order milestones.

This EIS is part of a process to disclose and evaluate short- and long-term impacts to the human environment from alternatives to treat, store, and dispose of INEEL mixed HLW. In this EIS, DOE has attempted to report the risks to workers, public, and the environment clearly and concisely so that the relative merits of different ways to achieve the stated objectives can be evaluated and weighed.

In developing this EIS, DOE evaluated the best available demonstrated technologies along with technologies that are in development. DOE recognizes that new technologies would continue to be developed and considered in the future as appropriate.

VII LEGAL REQUIREMENTS AND GOVERNMENT-TO-GOVERNMENT RELATIONSHIPS

VII.A NEPA

VII.A (1)

Comment - A commentor states that DOE should place greater emphasis on the recommendations and comments of Citizens Advisory Boards because they represent a cross section of the public and have intensively studied the issues.

Response - In the process of identifying and evaluating alternatives, DOE considered all public comments including comments and recommendations from Citizens Advisory Boards, received on the Draft EIS, and they were all given equal consideration.

As the commentor states, the Citizens Advisory Boards at the various DOE sites are intended to represent a cross section of the community and assist DOE in making decisions and addressing issues. For example, DOE provided a presentation concerning the Draft EIS to the INEEL

Citizens Advisory Board at its January 2000 meeting, during the public comment period. The purpose of this presentation requested by the board was to assist members with their review of and comment on the document. The boards meet on a routine basis and work closely with DOE to accomplish its goal of efficient and responsible operations, in this case at the INEEL. In addition to this close association, boards also comment on National Environmental Policy Act documents, as do members of the general public and other interested parties. In this regard, DOE does not assign greater or lesser emphasis on comments received. See response to comment summary VII.A (6).

VII.A (2)

Comment - A commentor states that the EIS should evaluate the impacts at Hanford of the Full Separations and Early Vitrification options. Commentors stress that before selecting an alternative that involves the Hanford Site for treating INEEL waste, DOE must conduct a site-specific National Environmental Policy Act evaluation that expressly concentrates on involving Hanford stakeholders. A commentor asks what, if any, follow-on National Environmental Policy Act analysis would be necessary to implement a selected alternative.

Response - Section 3.1.5 of this EIS states that if DOE decides to pursue the Minimum INEEL Processing Alternative, DOE would review the need for additional National Environmental Policy Act documentation. The timing of this review would occur when the potential of the Hanford Tank Waste Remediation System for treating INEEL mixed HLW calcine could be evaluated with a degree of certainty sufficient to support DOE in making informed decisions. If it is determined that additional documentation is needed to select the Hanford Site for treatment of INEEL mixed HLW calcine, it would tier from the *Tank Waste Remediation System, Hanford Site, Richland, Washington, Final Environmental Impact Statement*. In this regard, the analysis would be site specific and the public involvement process would focus on local stakeholders and issues.

VII.A (3)

Comment - A commentor advises DOE that an EIS should explain the alternatives and be used to guide an agency in its decision making.

Response - DOE agrees that an EIS must explain the alternatives and act as a guide for DOE when making decisions within its scope. An EIS must also identify potential environmental impacts to the affected environment and be made available to inform the public about prospective agency actions.

VII.A (4)

Comment - Commentors state that the EIS is inadequate to support a Record of Decision because information about the most important variables - such as technical risk, repository acceptance, and costs of alternatives - is outside the scope of the document. Another commentor states that the scope of the EIS is too narrow considering the range of issues that have to be addressed.

Response - There are variables and uncertainties concerning DOE HLW management and treatment, some of which are within and some of which are outside the scope of this EIS. These are identified in the Summary and are discussed in relevant sections of this EIS. Technical risk, for example, is within the scope of this EIS and is discussed in the Summary, Section 4.3, and in Sections 6.3.2 and 6.3.3 of this EIS. However, repository acceptance is not within the scope of the EIS. The scope of this EIS adequately supports management of mixed HLW, mixed transuranic waste/SBW treatment and facility disposition decisions for the INEEL, and accommodates a range of technical, legal, and administrative uncertainties confronting DOE regardless of how they are resolved. As for the costs of alternatives, DOE issued a Cost Report for the Draft EIS alternatives to show estimated costs. Stakeholders can request the Cost Report (DOE/ID 10702, January 2000), though it is not part of this EIS itself.

VII.A (5)

Comment - A commentor states that it is hard to identify the alternatives that DOE is seriously considering because the Draft EIS has no Preferred Alternative.

Response - DOE considers the alternatives analyzed in this EIS to be representative of the range of available options that could be implemented. DOE had no Preferred Alternative when the Draft EIS was issued and was not required to have one. After receipt of public and agency comment on the draft EIS and updated information provided by DOE management, DOE and the State of Idaho have selected different preferred alternatives in this EIS. The two Preferred Alternatives are described in Section 3.4.

VII.A (6)

Comment - Commentors state that in its analysis, decision making, and project implementation processes, DOE must invite and maintain a process of full public participation and involvement for one or more of the following reasons:

- Public involvement is a constitutional right.
- Citizens should be involved whenever there is a potential threat to human health or the environment.
- DOE needs opinions from individuals other than government officials and those who stand to profit in some way from the decision.

Other commentors ask DOE to keep them apprised of new developments in the EIS, and to keep stakeholders involved throughout the process, including informing the public and the decision maker of the tradeoffs between costs and environmental impacts, particularly for projects of this cost magnitude. One commentor asks DOE to inform the public as soon as a decision is made on whether to upgrade the New Waste Calcining Facility to meet the new Maximum Achievable Control Technology rules.

Response - DOE agrees that public involvement is necessary and important to decisions that could potentially impact human health and the environment. DOE follows Council on Environmental Quality and DOE National Environmental Policy Act requirements for public involvement and disclosure. In this regard, DOE follows formal procedures for informing and updating the public at key points in the National Environmental Policy Act process. In addition, DOE works closely with stakeholders and media to inform the public of key decisions, initiatives, program developments, decisions based on this and other EISs, and other activities. This would include any decision to continue to run the calciner, should that decision be made. DOE Records of Decision, such as decisions on the continued operation of the calciner, are made publicly available.

In addition, DOE maintains other avenues of communication with the public. For example, DOE established the multidisciplinary INEEL Citizens Advisory Board in 1994 to review and make consensus-based recommendations to DOE on its activities and plans at the INEEL. Board meetings are open to the public; in fact, the public is encouraged to attend. DOE also maintains active communication with the media and special interest groups in order to keep the public informed of new initiatives, significant issues, and decisions of public interest. DOE public information offices will provide information upon request.

VII.A (7)

Comment - A commentor commends the State of Idaho INEEL Oversight Program for acting as a cooperating agency on this EIS and expresses hope that the state representatives will be extremely careful about making the transition from cooperator to regulator.

Response - The State of Idaho shares the commentor's concern regarding its dual role as a regulator and a cooperating agency with respect to this EIS. In both cases, state representatives must remain independent, represent the state's interests, and within their authority, act to protect

human health and the environment. However, by cooperating with DOE toward the mutual goal of producing an adequate EIS, the state must also work diligently to maintain objectivity so as not to compromise the subsequent review of permit applications for facilities selected by DOE through this EIS process. Regulators must conduct permitting and enforcement activities related to the decisions DOE makes as a result of this EIS in accordance with applicable laws and regulations.

One of the ways the state worked to preserve objectivity was by assigning the project lead to the INEEL Oversight Program, which is not a regulatory program. INEEL Oversight Program scientists and engineers served as the state's primary technical reviewers of this EIS, and worked on this EIS, reviewing data and participating in verification and validation efforts. Representatives from the regulatory agencies were recruited to review portions of this EIS that describe state law and implementing regulations (Chapter 6). In this capacity, they made sure that applicable law and related state policy were accurately characterized.

Further, it was necessary to involve state regulators in discussions and reviews of EIS facility disposition alternatives. Except for clean closure, which would remove all hazardous and radioactive contaminants to levels that are indistinguishable from background, these alternatives involve leaving residues and/or wastes in an area that was contaminated by past practices at INTEC. This area is also undergoing a remedial investigation and remediation pursuant to CERCLA. Therefore, in presenting the facility disposition alternatives and evaluating potential environmental consequences it was important to coordinate EIS and CERCLA perspectives, evaluate cumulative environmental impacts, and address related stakeholder concerns. In all cases where state regulators were involved, their contributions were confined to duties that did not compromise their responsibilities.

VII.A (8)

Comment - A commentor remarks that whenever there is a state equivalent to the National Environmental Policy Act, as is the case in the State of Washington, DOE must also comply with the state law.

Response - State environmental policy acts, such as the one adopted in Washington State, apply to actions that involve decisions made on the part of that state and local jurisdictions within that state. Although these acts differ among states that have them, they are all based on the federal National Environmental Policy Act model and are very similar in requirements and processes. The State of Idaho does not have such a law.

When a federal agency like DOE applies to the State of Washington for a permit, the state determines whether issuing the permit could result in significant adverse environmental impacts. A finding in the affirmative would require DOE to prepare an environmental impact statement to address those concerns before the state would make a decision on the permit. In instances in which a federal agency is already preparing an environmental impact statement, it is not uncommon for the state and the federal agency to cooperate in its preparation, making sure that the document meets the requirements of both. Or, as an alternative, one agency prepares the environmental impact statement and the other adopts it, along with preparation of any amendments or supplements that might be necessary for its purposes. Under these circumstances, DOE could use an EIS to make its decision to take an action. And, the same EIS could be used by the state in its review of permit applications that DOE must submit for approval before implementing the proposed action.

VII.B CERCLA

VII.B (1)

Comment - Several commentors state that DOE should coordinate treatment to address all forms of contamination including groundwater, soil, facilities, and HLW. One commentor states that the consequences of cleanup should be examined so that the problem of dealing with contaminated soils in the future is not compounded. Another commentor states that soil contamination from previous INTEC Tank Farm piping system

releases is being evaluated by the CERCLA program, but that this issue is not being considered in the EIS.

Response - DOE is aware of the benefits of coordinating waste treatment activities and has addressed this issue in this EIS with respect to INTEC. As explained in Section 6.3.2 of this EIS, the waste treatment and facility disposition activities selected by DOE would be closely coordinated with ongoing CERCLA and other waste management and environmental restoration actions at INTEC. The releases from the INTEC Tank Farm piping system are being considered in this EIS from a cumulative environmental impacts standpoint. See responses to comment summaries IV.A (2), IV.C (2), IV.C (3).

VII.B (2)

Comment - A commentor states that remediation of the INTEC Tank Farm soils must be conducted in accordance with the Nuclear Regulatory Commission HLW disposal requirements as well as Applicable or Relevant and Appropriate Requirements under the CERCLA program.

Response - DOE, not the Nuclear Regulatory Commission, is responsible for managing contaminated soils at INTEC. The soils will be managed in accordance with DOE orders and other applicable or relevant and appropriate requirements agreed to by EPA and the State of Idaho and specified in the CERCLA Record of Decision.

VII.B (3)

Comment - Several commentors recommend that the cleanup be conducted on a prioritized schedule and that the highest risk waste at the INEEL be dealt with first. One commentor adds that the liquid waste at INTEC should be a high priority.

Response - Remediation of contaminated sites at the INEEL is proceeding on a schedule under CERCLA. The radioactive liquid waste in the INTEC Tank Farm represents a higher near-term risk than the calcine in the bin sets under non-accident conditions. Except for the No Action Alternative, all of the waste processing alternatives evaluated in this EIS would treat the liquid waste in the INTEC Tank Farm first. The State of Idaho believes the liquid mixed transuranic waste/SBW in the tanks could present the highest long-term risk and agrees it should be dealt with first. The National Academy of Sciences also recommends treating the liquid mixed transuranic waste/SBW first.

VII.C RCRA

VII.C (1)

Comment - A commentor states that the DOE document, "Regulatory Analysis and Proposed Path Forward for INEEL High-Level Waste Program," is a shocking rerun of the terminated Hanford tank waste grouting program. The commentor also refers to DOE's actions at the Savannah River Site and the INEEL's intent to illegally delist HLW at the Tank Farm.

Response - The regulatory analysis document that the commentor refers to was developed to determine the appropriate list of hazardous waste codes for the INTEC Tank Farm waste. The analysis resulted in four listed waste codes comprising nine listed waste constituents. As a result of the document, the revised list of RCRA listed waste constituents has been identified and presented to the State of Idaho for review and concurrence. Once concurrence is reached, a plan for future management of this waste can be determined. With regard to delisting of waste codes, this EIS discusses in detail the EPA-approved process DOE would follow if the INEEL mixed HLW is to be delisted before disposal. See Sections 6.3.2.1 and 6.3.2.3 of this EIS.

Activities at the Savannah River Site and the Hanford grouting program are outside of the scope of this EIS.

VII.C (2)

Comment - A commentor recommends devising a strategy that will allow acceptance of hazardous materials in a final repository.

Response - DOE's strategy for managing hazardous waste disposal in the proposed geologic repository is addressed in Section 6.3.2.1 of this EIS. At this time, the strategy involves obtaining concurrence from the State of Idaho on hazardous waste codes and pursuing a delisting effort for listed codes associated with the mixed HLW destined for the proposed HLW geologic repository.

VII.C (3)

Comment - A commentor states that the characteristics of the remaining liquid SBW are sufficiently different from waste calcined in the past that previous emission data would not be applicable to a RCRA permitting process.

Response - DOE recognizes that mixed transuranic waste/SBW is different from the mixed HLW that was previously calcined at INTEC. One of the reasons for operating the calciner up to June 1, 2000, was to obtain and characterize offgas samples from mixed transuranic waste/SBW processing campaigns. The data collected would be used in the authorization process if DOE were to decide to calcine the remaining mixed transuranic waste/SBW at INTEC. See also response to comment summaries in III.A.

VII.C (4)

Comment - A commentor states that the high-level liquid waste in the Tank Farm is considered "mixed hazardous waste," yet DOE is not complying with legal requirements, nor is the state or the EPA adequately exercising their regulatory authority.

Response - As discussed in Chapter 1 of this EIS, DOE must decide how to treat the liquids so DOE can cease use of the tanks by December 2012 in accordance with the Notice of Noncompliance Consent Order. Ceasing use of the tanks, which do not have compliant secondary containment and, therefore, do not comply with hazardous waste regulation, is a priority for DOE and the State of Idaho. DOE could also meet its commitment to cease use of the underground tanks by employing compliant tanks to store any liquid remaining after 2012. The EPA and the State of Idaho have adequately exercised their regulatory authority.

VII.D Settlement Agreement Consent Order

VII.D (1)

Comment - Commentors caution against adherence to Settlement Agreement/Consent Order provisions at the expense of public health and the environment. Specifically, commentors stress the need to establish a more realistic schedule that gives DOE time to plan and implement a HLW treatment program that protects Idaho and its environment.

Response - DOE's plan and schedule with the State of Idaho under the Settlement Agreement/Consent Order for waste treatment at INEEL is contemplated to be completed by a target date of December 31, 2035. DOE intends to aggressively pursue the means to implement the Settlement Agreement/Consent Order because it is in the best interest of public health and the environment. Protection of human health and the environment is the primary impetus behind the Settlement Agreement/Consent Order. By its implementation, radioactive liquid would be removed from tanks that do not meet regulations, thus reducing the risk of contamination to the Snake River Plain Aquifer. Further, DOE agrees to place the mixed transuranic waste/SBW and mixed HLW calcine in a form suitable for transport to a disposal or storage facility outside Idaho. DOE successfully calcined all of the liquid mixed HLW in the tanks and commenced calcination of the mixed transuranic waste/SBW, in accordance with the Settlement Agreement/Consent Order milestones, prior to placing the calciner in standby.

All treatment alternatives evaluated in this EIS would pose a small risk to public health and the environment during the years of operation, eliminate risks to the groundwater, put wastes into a

solid form suitable for disposal, and meet the Settlement Agreement/Consent Order road-ready target date of December 31, 2035. Only the No Action and Continued Current Operations alternatives, which would leave waste in storage after 2035, could result in long-term risks to public health and the environment.

VII.D (2)

Comment - Commentors ask whether the state's concurrence on the Draft EIS is an indication of the state's willingness to change the Settlement Agreement/Consent Order. Further, if changes are not made to this agreement, how would DOE solve the HLW issues? A commentor states that, in any event, the public must be kept informed of DOE plans.

Response - One of the primary reasons the State of Idaho agreed to be a cooperating agency is Section E6 of the Settlement Agreement/Consent Order, which directs both DOE and the State to begin negotiation on a plan and schedule for the treatment of calcined waste by December 31, 1999. Both parties agree that this milestone was met by working together on this EIS, which evaluates alternative ways to prepare the calcine so that it will be suitable for disposal.

The State of Idaho was aware that DOE was also preparing the EIS to take a comprehensive look at the entire HLW program at INTEC and that this evaluation could form the basis for proposals to modify the Settlement Agreement/Consent Order, as provided by Section J4 of the agreement, which reads:

"In the event any required National Environmental Policy Act 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. If the State refuses to accept the requested modification, DOE or the Navy may seek relief from the Court. On motion of any party, the Court may extend the time for DOE or the Navy to perform until the Court has decided whether to grant relief. If the Court determines that the State has unreasonably withheld approval, the Agreement shall be conformed to the selected action. If the Court determines that the State has reasonably withheld approval, the time for DOE or the Navy to perform the action at issue shall be as set forth in this Agreement and subject to enforcement as set forth section in Section K.1."

The State of Idaho concurred on the EIS as a cooperating agency. Concurrence means that state representatives have participated in the development, review, and preparation of the document and found it to adequately analyze the environmental issues it addresses as required by Council on Environmental Quality guidance. However, the EIS itself does not make decisions, and the State's concurrence on the EIS does not predetermine its reaction to any agreement modifications DOE may propose. The State of Idaho is willing to consider proposed changes to the Settlement Agreement/Consent Order that would provide more environmental benefits within the same timeframe. The Planning Basis Option in the EIS describes how DOE proposes to manage its HLW issues without modifying the Settlement Agreement/Consent Order.

DOE will announce its plans for managing HLW at INTEC in a Record of Decision published in the Federal Register. If these plans are inconsistent with the Settlement Agreement/Consent Order, they may require negotiations with the State of Idaho. Notification of the availability of the decision will be sent to recipients of the Final EIS and to anyone who expresses an interest in receiving this information. The public is always encouraged to contact DOE or the State of Idaho regarding DOE's plans and status of implementation.

VII.D (3)

Comment - A commentor suggests that the EIS analyze all reasonable and technically viable alternatives, not just those considered politically feasible or those meeting Settlement Agreement/Consent Order milestones.

One commentor states the opinion that the term "road ready" defines a political goal that is driven by a political agenda. Another commentor asks if Idaho Department of Environmental Quality and EPA regulatory standards are based

on scientific and health considerations or on political considerations. A commentor states that DOE's mission is to get reprocessing waste "road ready" and not "make work" for thousands of employees or justify dumb decisions made elsewhere with respect to implementing/siting repositories and categorizing radioactive wastes.

Response - DOE believes that this EIS presents the range of reasonable alternatives, the selection of which was not constrained by political considerations or limited by the requirements of the Settlement Agreement/Consent Order. Among the alternatives analyzed in this EIS, only the Planning Basis Option of the Separations Alternative reflects verbatim agreement commitments, as well as other legal requirements and associated DOE decisions. One of the primary purposes for preparing this EIS is to address alternative methods of treating the remaining liquid mixed transuranic waste/SBW in the underground tanks and preparing the mixed HLW calcine so that it will be suitable for disposal. It was recognized that alternative waste treatment methods may necessitate changes in the Settlement Agreement/Consent Order, and this EIS identifies in each case how compliance would be affected. Further, additional alternatives proposed through the public comment process were evaluated after release of the Draft EIS to determine if any provided an advantage over those already analyzed. In response to public comment, a new option was added to this EIS. This option under the Non-Separations Alternative is called Steam Reforming and includes direct disposal of the mixed HLW calcine in the geologic repository. DOE continues to stay informed about potential new waste management technologies and, when appropriate, conducts evaluations to determine if such technologies could optimize waste management operations.

The term "road ready" describes the condition in which HLW may be safely transported and accepted by a designated storage or disposal facility. It is a term that DOE and the State of Idaho use to describe the INEEL treated mixed HLW by the target date of December 2035. This date was agreed upon because this is when DOE believes it can reasonably accomplish the task. This date was negotiated by political entities. The overriding concern was human health and protection of the environment, not to make work for employees. In performing its activities, DOE complies with applicable regulatory standards established to protect human health and the environment. Some relevant agencies responsible for ensuring compliance include the EPA, the U.S. Department of Transportation, and the State of Idaho. Environmental regulatory standards are based on scientific and health considerations promulgated through processes which include public input. See response to comment summary VII.D (1).

VII.D (4)

Comment - A commentor states that items in the Draft EIS Summary relating to the Settlement Agreement/Consent Order require status updates and/or clarification.

Response - The EIS Summary listing elements of the Settlement Agreement/Consent Order pertaining to HLW management has been updated.

VII.D (5)

Comment - A commentor expresses disbelief that the State of Idaho has the ability to make the DOE live up to the legacy of promises it has made.

Response - The Settlement Agreement/Consent Order, which is under the continuing jurisdiction of the U.S. District Court in Idaho, contains enforcement provisions if DOE does not comply with its obligations. These provisions include the stoppage of DOE spent nuclear fuel shipments into Idaho if DOE does not meet agreement requirements. The court may also use all of its powers to enforce certain obligations, including DOE's obligation, by a target date of December 2035 to have all of the INEEL's mixed HLW ready to leave Idaho.

V II.D (6)

Comment - Commentors state that DOE should select an alternative that meets the requirements of the Settlement Agreement/Consent Order and that DOE should:

- Treat all liquid and calcined wastes and remove them (including tank heels) from the INEEL.

- Close the INTEC Tank Farm as they are emptied (focusing first on the pillar and panel tanks).

- Make treated waste ready for shipment out of Idaho by 2035.

- Retrieve, solidify, and store remaining liquid waste to reduce threats to the groundwater.

- Immobilize all wastes as soon as possible to reduce cost and make treatment easier.

- Adhere to the provisions of this agreement, including getting the waste out of Idaho.

- Maintain deadlines.

- Calcine all the liquid waste as promised; this technology is the only one that will enable DOE to meet its obligation of removing the SBW from the tanks by 2012.

- Combine liquid waste and HLW calcine in bin sets where it can be retrieved, treated, and made ready to leave Idaho by 2035.

- Get the waste out of Idaho somehow.

Commentors also say that any alternative that leaves this waste permanently in Idaho, such as grouting waste in storage tanks, would be inconsistent with the provisions of the Settlement Agreement/Consent Order.

Response - In accordance with the Settlement Agreement/Consent Order, DOE has already completed the following milestones relating to management of HLW:

- Complete calcination of liquid mixed HLW by June 30, 1998 (completed February 22, 1998).

- Begin calcination of liquid mixed transuranic waste/SBW by June 2001 (completed February 1998).

- Start negotiations with the State of Idaho regarding a plan and schedule for treating calcined waste by December 31, 1999 (actual, September 1999). The plan and schedule for treating INEEL HLW would be established by the Record of Decision for this EIS and would be the basis for consideration of associated Settlement Agreement/Consent Order matters.

DOE is committed to complying with the Settlement Agreement/Consent Order, and the State of Idaho agrees with commentors that deadlines are important to ensuring continued progress in treating and removing waste from Idaho. As noted in this EIS, Section J4 of the Settlement Agreement/Consent Order provides a process whereby DOE can propose changes to the agreement based on a required National Environmental Policy Act analysis. See response to comment summary VII.D (2). Based on this EIS, DOE could request a modification to the Settlement Agreement/Consent Order, such as using a technology other than calcination to solidify mixed transuranic waste/SBW. While this EIS indicates that most alternatives with or without the calciner could fail to meet the December 2012 date for removal of the liquid mixed transuranic/SBW from the RCRA noncompliant tanks, there were many assumptions built into those schedules, which may or may not materialize. Nevertheless, any liquid remaining above heel level could be transferred to newly constructed or upgraded compliant tanks which would enable DOE to cease use of noncompliant underground tanks on schedule. Thus, based on this EIS, DOE could propose a modification to the Settlement Agreement/Consent Order that would be consistent with DOE's decision regarding treatment of mixed transuranic waste/SBW as documented in the Record of Decision resulting from this EIS. The State of Idaho will carefully evaluate any proposed modification to determine whether it is reasonable.

Combining mixed transuranic waste/SBW and mixed HLW calcine is an alternative evaluated in this EIS. However, it is not the only alternative that would enable DOE to treat the waste by the target date of December 2035 to have it ready to leave Idaho. With the exception of the No Action and Continued Current Operations alternatives, all the other waste processing alterna-

tives would meet the 2035 target date, whether involving separations or non-separations.

The State of Idaho's postion is that alternatives that involve disposal of grouted waste in below grade tanks in the Tank Farm at INTEC would be a violation of the Settlement Agreement/Consent Order. Any residual hazardous waste contamination associated with facilities would be addressed through state approved facility RCRA closure plans following public review.

VII.E Tribal Issues

VII.E (1)

Comment - Commentors, representing the Shoshone-Bannock Tribes, state that DOE and the federal government must honor trust and treaty agreements with the Tribes, and the Tribes have a right to say what is done on their ancestral lands. The commentors also suggest that a memorandum of understanding would ensure protection of the Fort Hall Indian Reservation and its people.

Response - Both Executive and DOE orders recognize the trust responsibilities and tribal sovereignty related to the lands, and the necessity for consultation and communication. DOE works with the tribes on a government-to-government basis. DOE has entered into an Agreement in Principle with the Shoshone-Bannock Tribes that provides a process for coordination and consultation in accordance with trust responsibilities. As stewards of federal lands, DOE endeavors, in collaboration with the tribes, to manage the natural and cultural resources at INEEL consistent with the principles of ecosystem management and resource protection in accordance with applicable federal laws, regulations, policies, and executive orders.

VII.E (2)

Comment - Commentors, representing the Shoshone-Bannock Tribes, request that DOE:

- Hold an official consultation with the tribes to discuss technical questions and comments as well as to directly communicate concerns and special needs of the tribes with regard to trust resources.
- Provide funds so the tribes can hire expertise and properly participate in the EIS process and implementation.
- Ensure that other federal agencies (such as the Department of Interior) with trust responsibilities to the tribes will be involved in the EIS process, since DOE chose not to include the tribes as a cooperating agency.

Response - DOE recognizes the concerns of the Shoshone-Bannock Tribes and involved them early and frequently during preparation of this EIS to ensure that tribal concerns and issues were documented. This involvement included hearings before and during this EIS scoping period, subsequent briefings and open discussions at tribal facilities, and a public hearing on the Fort Hall Reservation. DOE entered into an Agreement in Principle with the tribes that provides a process for consultation under the National Environmental Policy Act, and DOE conducted consultation in accordance with this agreement. The agreement also includes the process for the tribes to obtain the needed resources and expertise for reviews or involvement in DOE activities. Other federal agencies such as the Department of Interior are provided the opportunity to comment on DOE EISs. DOE believes that a memorandum of understanding between DOE and the Department of Interior is not necessary at this time, because DOE has already recognized its trust responsibilities and signed the Agreement in Principle with the tribes.

VII.E (3)

Comment - Commentors state regional Native American concerns, including the following:

- HLW management could result in long-term impacts to the reservation because it is located near the INEEL.
- The tribes do not have the ability to readily move from the reservation.

- DOE will leave the land contaminated and, thus, interfere with their aboriginal uses of the land.

- DOE should comply with scheduled commitments, including removing HLW from Idaho by 2035.

Response - Section 4.7.3 of this EIS shows that current offsite doses from INEEL operations are below EPA dose limits established for the protection of the public and the environment. This has been substantiated by independent Environmental Surveillance Reports produced by the State of Idaho INEEL Oversight Program, which has included air monitoring results sampled by the Shoshone-Bannock Tribes at the Fort Hall Reservation.

This EIS estimates the potential cumulative increase to baseline offsite doses (discussed above) from activities associated with the alternatives evaluated. Sections 5.2.6, 5.2.8, and 5.2.10 of this EIS discuss potential environmental impacts of operational releases on human health of offsite populations and the environment. As shown in these environmental consequence evaluations, none of the alternatives would result in significant adverse environmental impacts to offsite populations such as those residing at the Fort Hall Reservation.

Environmental impacts from high-consequence, low-probability accident scenarios (Section 5.2.14) would be significant should they occur, but the probability of one of these accidents occurring is extremely low (Table C.4-2). The potential impact to specific populations such as the Fort Hall Reservation would be subject to the meteorological conditions at the time of the accident. In the unlikely event of a transportation accident, the random nature of transportation accidents with respect to timing and location makes it impossible to predict what populations would be affected. Based on the analysis in this EIS, the environmental impacts of transportation are expected to be low on the population as a whole.

Due to past operations, some contamination would remain at the INEEL Site for the foreseeable future. The *INEEL Comprehensive Facility and Land Use Plan* (DOE-ID 10514), which was developed with public and tribal participation, notes that the INEEL would remain under government management and control at least until 2095. Further, the federal government would have to maintain control of areas that pose a significant risk to the public as noted on Table 4 of the Land Use Plan. Although the INEEL site is included in the traditional and aboriginal areas frequented by the Shoshone-Bannock people, the INEEL does not lie within any of the land boundaries established by the Fort Bridger Treaty of 1868. As discussed in Section 4.2.1 of this EIS, the INEEL has been set aside as occupied land; hence, it is not open to unrestricted gathering and recreational activities.

DOE is committed to meeting the 2035 milestone for having the HLW ready for disposal.

VIII ENVIRONMENTAL IMPACTS

VIII.A General: Environmental Consequences

VIII.A (1)

Comment - A commentor expresses the opinion that the EIS should address questions such as how much radiation or hazardous material would result from activities proposed therein, what damage it would do, and how many people would be injured or affected.

Response - Section 5.2 and 5.3 of this EIS addresses the environmental impacts of hazardous releases including radiation. Radiation exposures from waste processing and facilities disposition alternatives are in addition to exposures that occur from natural background sources such as cosmic rays, radioactive potassium-40 within the body (involuntary exposures), and man-made sources such as chest or dental x-rays (voluntary exposures). In Idaho, radiation that includes voluntary and involuntary exposures is about 360 millirem per year. Over a 72-year lifetime, an Idahoan thus receives an exposure of about 26 rem (26,000 millirem) from natural and voluntary background radiation exposures. By way of comparison, the dose to the maximally exposed offsite individual from implementation of the evaluated waste treatment alternatives would be a very small fraction of

that received from voluntary and involuntary exposures of radiation. This EIS indicates that the maximum annual offsite dose would result from implementing either the Planning Basis or Hot Isostatic Pressed Waste options and is calculated to be 0.0018 millirem. This dose is well below the EPA standard of a total of 10 millirem per year from all airborne sources at the INEEL. In recent years, the total annual airborne emission level of radionuclides from the INEEL was about 0.031 millirem in 1996. This dose would result in a cumulative lifetime dose (72 years) of about 2 millirem. Table 5.2-20 in this EIS summarizes the doses from air emissions and the associated health effects.

VIII.A (2)

Comment - Commentors express concern that focusing on worst-case bounding scenarios without including best-engineering estimates for radiological doses represents a barrier to making rational assessments of the HLW treatment alternatives, and provides a distorted and unrealistic perception to the public, impairing the public's ability to intelligently evaluate alternatives and their attendant risks. Commentors request that an objective rating scale be used in looking at accident consequences, contamination scenarios, environmental impacts, and health risks to workers and the public.

A commentor considers worst-case or bounding-case analysis of environmental impacts to be too conservative and likely to overstate or exaggerate environmental impacts. The commentor advises that in addition to a worst-case analysis, a best-engineering judgment approach should be used that more closely estimates projected actual environmental impacts.

Response - DOE acknowledges that the EIS focuses on worst case or bounding accidents. This is appropriate so DOE and the public can look at the various alternatives and their associated risks on an equivalent basis. However, when evaluating potential environmental impacts from alternatives, DOE uses neither worst-case analyses nor best-engineering estimates. Rather, DOE evaluates reasonably foreseeable bounding accidents, as well as unmitigated normal and abnormal operations, in order to allow an unbiased and meaningful comparison of alternatives. The resulting environmental impacts, presented in this EIS, are greater than the actual environmental impacts that would occur when engineered safeguards and mitigative systems are factored into facility designs.

Environmental impacts projected in this EIS from accident scenarios are based on models, or other methods of analyses and use assumptions considered to be conservative. Further, it would be misleading to presume that a future environmental impact can be calculated exactly. It is reasonable, however, to characterize future possible environmental impacts conservatively when, as in this EIS, it is stated up-front that the analysis is conservative and the parameters and method(s) of analysis used, along with the uncertainties and limitations, are identified. Whereas DOE is aware that, by and large, the environmental impacts estimated in this EIS are overstated, DOE believes it is important to maintain this conservatism to reduce the potential to understate an impact of potential significance. Refer to Section 5.2.14 and 5.3.12 in this EIS.

VIII.A (3)

Comment - A commentor maintains that there is a need for pilot demonstrations of technologies and emission controls prior to operations.

Response - DOE conducts pilot demonstrations when appropriate prior to placing technologies and processes in full operation. Processes that treat hazardous materials require an appropriate permit from the State of Idaho and undergo test runs in order to prove that emission requirements would be met prior to full operation.

VIII.A (4)

Comment - A commentor states that the cardinal rule is "Don't spread nuclear waste."

Response - Comment noted.

VIII.A (5)

Comment - A commentor states that the priorities of the government must be changed. The public should be made or must be made aware of the threat posed by installations like Hanford and INEEL.

Response - DOE's process for implementing the National Environmental Policy Act, under which this EIS is prepared, is designed to inform the public of proposed federal actions and to solicit public comments and concerns. The EIS also supports DOE in making informed decisions by evaluating the environmental impacts of reasonable alternatives for addressing proposed actions, with the benefit of public review and comment. Thus, informed decisions help federal agencies such as DOE to assign priorities and accomplish their missions in a safe and environmentally responsible manner. DOE's goal is to maintain open communication and to present information in an understandable format.

VIII.A (6)

Comment - Commentors express concerns about the validity of data and/or methods used in the EIS, stating opinions that:

- The EIS perpetuates inaccuracies because invalid methods gain credibility by appearing in a government document.
- Incorrect and inappropriate data in the Draft EIS compromise the credibility of other analyses in the EIS that have been performed properly.

Response - All analytical models and methods of analysis used in this EIS are referenced and documented, and there are no conclusions in this EIS that are not supported by appropriate references or identified as being based on judgment. The standards used in preparing this EIS are the same as those used in scientific and academic peer review. There are issues dealt with in this EIS that contain unknowns or various degrees of uncertainty, and these are fully disclosed.

The data in this EIS were prepared, assembled, and analyzed using appropriate quality assurance and quality control standards, and references used in this EIS are part of the administrative record file and are available for public review. Where there are assumptions, or if uncertainty exists with regard to the reliability of data, it is so stated in this EIS. There are a number of refinements in presentation and in the data included in this EIS resulting from public comment; these changes are identified in the responses. DOE has made additional changes as new or additional data was developed following publication of the Draft EIS. In no case has any data been intentionally included in this EIS that is incorrect or inappropriate.

VIII.A (7)

Comment - A commentor requests that the EIS address the actual effects on the people, land, and crops of the State of Idaho.

Response - Past effects of INEEL operations based on sampling, measurements, operating records, and projected effects based on analyses of data, are addressed in the SNF & INEL EIS, and in Chapter 4 (Affected Environment) of this EIS. Chapter 5 of this EIS (Environmental Consequences) analyzes the anticipated effects that implementation of the alternatives would have on the people, land, and crops of the affected region in conjunction with cumulative environmental impacts of any ongoing or reasonably foreseeable activities. The effects on people in the region are given in terms of economic impacts in Section 5.2.2, and in terms of health expressed as latent cancer fatalities or fatalities resulting from accidents in Sections 5.2.9, 5.2.10, and 5.2.14. Effects on soils and vegetation are presented in Section 5.2.6.6 of this EIS (Other Air-Quality-Related Values) under the "Impacts to Soils and Vegetation" heading, and in Section 5.2.8 (Ecological Resources). See also Section 5.2.11 (Environmental Justice), which evaluates whether there could be disproportionately high and adverse impacts to human health and the environment for minority or low-income populations within a 50-mile radius of INTEC. These analyses use conservative assumptions, and the potential effects on people, land, and crops are based on probabilities. The level of analysis used to arrive at a comparative evaluation of environmental impacts among alternatives is appropriate for an EIS.

VIII.A (8)

Comment - A commentor expresses opinions on the quality of the EIS and concerns that the study does not address the problem adequately.

Response - DOE and the State of Idaho, as a cooperating agency, consider the analyses presented in both the Draft and Final EIS to be adequate. Additional analyses and refinements were incorporated after publication of the Draft EIS in response to public comment and determinations that additional information would be needed. Examples include further clarification of source terms in mixed HLW and mixed transuranic waste/SBW, subsequent changes to accident analyses, and long-term environmental impacts of facility disposition alternatives. These additional analyses are incorporated into this EIS as summarized text and updated appendices.

VIII.A (9)

Comment - A commentor raises a concern about burial of any waste over the Idaho aquifer and any atmospheric emissions resulting from the proposed action.

Response - This EIS addresses the range of reasonable alternatives that, with the exception of the No Action and Continued Current Operations alternatives, are designed to both prepare mixed HLW for safe onsite storage (as appropriate) and for transport out of Idaho for storage or disposal elsewhere. Though wastes in liquid form are not necessarily the most hazardous waste, they tend to be more difficult to contain and, given their relative mobility, represent the greatest potential threat to migrate to the aquifer. Alternatives analyzed in this EIS focus on preparing mixed transuranic waste/SBW and mixed HLW calcine so that they are in a form suitable for transport out of state for disposal, and onsite storage on an interim basis.

Implementing treatment alternatives in this EIS would result in air emissions; however, such emissions would be within regulatory standards designed to ensure protection of human health and the environment. In addition, a range of reasonably foreseeable facility accidents have been postulated and evaluated.; In the opinion of DOE and the State of Idaho, these near-term risks during the relatively short timeframe of treatment operations are more than offset by the reduction of long-term risk presented by onsite storage of mixed HLW calcine and mixed transuranic waste/SBW.

In this EIS, the potential environmental impacts of leaving waste over the aquifer are addressed in Section 5.3.5 for normal operations and in Section 5.2.14 for accidents. See also response to comment summaries in VIII.C regarding the aquifer. The potential environmental impacts of air emissions on air quality are presented in Section 5.2.6 for implementing the waste processing alternatives, and Section 5.3.4 for facility disposition alternatives. See also response to comment summaries in VIII.B regarding air quality.

VIII.A (10)

Comment - Commentors state that there is a need to assume short-term risk if necessary to ensure long-term safety, with one commentor recommending facility closure based on usage and risks to the environment on a case by case basis.

Response - The EIS discloses in Appendix C.4 that, during implementation of a waste processing alternative, there could be a temporary increase in risk to human health and the environment. However, avoiding these short-term risks by leaving mixed HLW calcine and mixed transuranic waste/SBW untreated and stored indefinitely at the INEEL poses long-term risks to human health and the environment. As part of the decision making process DOE will compare the risks and determine how best to balance short- and long-term risk while achieving DOE's objectives.

VIII.A (11)

Comment - A commentor states that the EIS makes reference to risk factors from both the International Commission on Radiological Protection and the National Council on Radiation Protection and Measurements, yet reference should only be made to the National Council on Radiation Protection and Measurements which reviews and decides upon

International Commission on Radiological Protection recommendations for adoption in the United States. In addition, the commentor states that:

- The National Council on Radiation Protection and Measurements risk factors are for populations, not individuals as presented in the EIS. Thus, the calculation of latent cancer fatalities to the maximally exposed individual and noninvolved worker should be removed from the EIS.

- National Council on Radiation Protection and Measurements risk factors are only valid within a stochastic range where cancers dominate, not at levels where non-cancerous deterministic effects dominate (where death from acute radiation effects preclude the survival time necessary to even develop a cancer).

- Discussion of collective dose and its effects on populations is oversimplified and should be revised to include information regarding uncertainties of radiation risk factors, to correct the dose rate limitation, and to include baseline cancer risk data.

- This information should be referred to by cross-reference throughout the document. The commentor cites an example of oversimplification where risk factors for dose rates of less than 10 rem/hr for a standard accident analysis default time of 2 hours are simply referred to as "doses of less than 20 rem" in the explanatory EIS text box.

The commentor also states the opinion that:

- Calculation of latent cancer fatalities well above routine radiation protection levels in this EIS is a clear example of the use of scientific values outside their valid range.

- Latent cancer fatalities from low radiation exposures should be compared to statistical background cancer data in addition to the radiation level being compared to average local human exposure from voluntary and natural sources, in order to provide a useful basis of comparison.

Response - DOE uses National Council on Radiation Protection and Measurements, 1993 "Limitations of Exposure to Ionizing Radiation" Report 116 as a basis for estimating effects of low-level radiation exposures, which Section 5.2.10 and Appendix C.3 of this EIS address. In addition, this report states that the uncertainty in risk factors estimated from exposure at high dose and high dose rate is about a factor of two. Uncertainty extrapolation of risks from exposures at high dose to exposure at low dose and low dose rate is estimated to be an additional factor of two or more since, at very low doses, the possibility that there is no risk cannot be excluded. Most of the risk estimates adopted by this report are the same as those recommended by the International Commission on Radiological Protection. As indicated in Section 5.2.10 of this EIS, the National Council on Radiation Protection and Measurements risk factors are used for doses less than 20 rem, where cancer is the dominant health effect. This is an adequate level of analysis for informing the public and enabling DOE to make informed decisions as to individual risks associated with alternatives evaluated in this EIS. DOE takes a population-based risk and applies it to an individual to conservatively bias the health effects and provide perspective on potential health effects. However, both DOE and the Nuclear Regulatory Commission limit radiation exposures to workers to 5 rem per year, which is many times the exposures predicted to result from any of the alternatives analyzed in this EIS. Even this level of exposure causes no known acute effects and, for that reason, DOE uses population doses to estimate latent cancer fatalities from low-level radiation exposures.

The EIS does discuss background regional cancer statistics in Section 5.4.3. This section explains that the maximally exposed individual received a radiation dose of 0.031 millirem in 1996 from INEEL operations. This compares to a radiation dose of 360 millirem per year from naturally occurring background radiation for individuals residing near the INEEL. Using standard risk factors for estimating fatal cancers from a given calculated exposure, a value of 0.0005 fatal cancers would be obtained as a result of cumulative radiation dose received by the population within 50 miles of INTEC from existing HLW operations, treatment of mixed HLW, and other reasonably foreseeable actions

at the INEEL. This compares to the natural lifetime incidence of cancer in the same population from all other causes of about 24,000 fatal cancers. DOE believes that adding cross references in the document would not add to the understanding of this topic.

VIII.B Air Quality

VIII.B (1)

Comment - A commentor states that the Defense Nuclear Facilities Safety Board conducted an audit of the Department's high efficiency particulate air (HEPA) filter program and that DOE has shut down its facility for testing of new filters and has no funding to correct material deficiencies with the filter test system and place it back in operation. The commentor asks how the Department will resolve the issues identified by the Defense Nuclear Facilities Safety Board in its report and be able to test the HEPA filters necessary for implementing the Draft EIS alternatives.

Response - The Oak Ridge HEPA filter pre-test facility certifies all INEEL filters prior to use. The Oak Ridge facility is funded on a yearly basis; DOE has contingency plans to test filters at the INEEL if this facility is not funded.

DOE recently developed a plan to address HEPA filter issues, and it was included as an enclosure to a December 6, 1999, letter from the Secretary of Energy to the Chairman of the Defense Nuclear Facilities Safety Board (Board) (available at http://www.deprep.org). Subsequently, the Board issued a formal recommendation to DOE regarding HEPA filters and other issues. This Recommendation, 2000-2, was accepted by DOE, and the remaining open items from the 1999 HEPA filter action plan were incorporated into DOE's Implementation Plan for Recommendation 2000-2, dated October 31, 2000, and also available at the above web site. Although DOE is committed to taking appropriate action to maintain the HEPA filters employed in its facilities, it is important to note that calculations conducted to determine the environmental impacts of the facility accident scenarios in the EIS do not take credit for the existence of HEPA filters as emission control devices.

VIII.B (2)

Comment - Commentors state that air pollution is unsafe and that the public doesn't approve of new releases to the air. Other commentors express opinions, including the following, about the models used to calculate air impacts:

- Air models used in the Draft EIS are incorrect. One commentor states that DOE should use the EPA CALPUFF modeling system to analyze impacts to the National Ambient Air Quality Standards, Class I increments, and acid deposition to receptors beyond 50 km, in particular the Yellowstone and Grand Teton National Parks.

- Craters of the Moon National Monument and Yellowstone and Grand Teton National Parks are reserved for the cleanest air, but nothing has been said about their air sheds.

- The EIS should address the air-quality-related values of far-field visible haze and acid deposition at the following Class I areas: Yellowstone and Grand Teton National Parks and the portion of Craters of the Moon National Monument that is greater than 50 km from the INEEL.

- Acid deposition analysis should address the impacts of total nitrogen and total sulfur.

- Far-field haze and acid deposition analyses should follow the guidelines in the Interagency Workgroup on Air Quality Modeling Phase 2 report.

- Human health and the health of all life forms are not the foremost consideration with the air dispersion models used in the Draft EIS.

- EIS air models should use on-site meteorological data with concurrent National Weather Service upper air or mixing height data. The commentor points out the upper air data is available from the National Climatic Data Center and recommends using the Salt Lake City mixing height data.

Some commentors also request information about how models are used to ensure air quality and want to know if data for Craters of the Moon National Monument are extrapolated to Yellowstone and Grand Teton National Parks.

Response - The purpose of the air dispersion models is to provide an indication, using methods based on sound technical principles, of the level of impact with respect to health-based standards promulgated under the Clean Air Act and its amendments. Thus, if the environmental impacts are within limits specified by standards, human health is considered to be adequately protected. Also, the Clean Air Act is designed to protect flora, fauna, and air-quality-related values, such as visibility. The air dispersion models and the health-based standards are both designed to be conservative and protective of human health and the environment.

For the actions evaluated in this EIS, appropriate measures would be incorporated into each project design to ensure that emissions would not exceed applicable standards. Also, DOE emphasizes that emissions resulting from the alternatives are a direct result of actions aimed at ensuring the isolation of radioactive wastes from the environment. In the broader context, the net benefit of these actions is protection of the environment.

The Industrial Source Complex model, which was used for this EIS, remains the most widely recommended and used model for complex air dispersion applications, and DOE considers this model well-suited for assessing comparative environmental impacts of alternative courses of action. In addition, DOE decided to use the CALPUFF model to assess air impacts of a bounding waste processing alternative (the Planning Basis Option) at National Park Service lands that are beyond 50 km (the maximum range for which the Industrial Source Complex model is valid) from the INTEC. The CALPUFF analyses would consider Prevention of Significant Deterioration increment consumption, regional haze, and far-field sulfur and nitrogen deposition.

Onsite surface meteorological data are used in the application of the air dispersion models. For CALPUFF modeling, upper air data using Salt Lake City mixing heights were used, and the results are reported in Section 5.2.6 and Appendix C.2 of the EIS. In addition, the CALPUFF modeling protocol was taken directly from the *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Sumary Report and Recomendations for Modeling Long Range Transport Impacts* with additional guidance provided by the National Park Service, Denver, Colorado. CALPUFF was used to assess air quality impacts in Class I Areas that include Craters of the Moon, Yellowstone National Park, and Grand Teton National Park.

Air quality impacts at Craters of the Moon Wilderness Area were quantitatively evaluated in the Draft EIS, while only qualitative assessments were performed for the more distant Class I areas (Yellowstone and Grand Teton National Parks). As noted above, the level of analysis (in Section 5.2.6 of this EIS) has been increased by using the recently developed CALPUFF model to quantitatively assess environmental impacts at each of these areas. The assessed environmental impacts are those specified in state and federal regulations that apply to these areas, including Prevention of Significant Deterioration regulations, which are intended to ensure that air in these areas remain pristine. These assessments have been performed in consultation with air quality specialists from the National Park Service.

Air quality dispersion models are used here as tools to estimate potential downwind environmental impacts from alternative courses of action. The application of the models is site-specific using local meteorological, regional solar radiation, terrain data, estimates of emission rates, and source configuration. The models are designed to be conservative, i.e., to not underestimate air quality impacts. Prior to any construction activity, any major project or major modification would undergo additional review by the State of Idaho Department of Environmental Quality, which would issue a permit to construct or operate only after completion of the review and a determination that the operation would comply with all standards. Continuing compliance would be subject to regulatory oversight, which includes review of records, monitoring, and inspections.

VIII.B (3)

Comment - A commentor states that DOE lacks accurate data about emissions from the New Waste Calcining Facility.

Response - Air emission analysis in this EIS includes New Waste Calcining Facility emission data available at the time. Subsequent to the preparation of the Draft EIS, DOE was able to collect representative calciner off-gasses for a period of about a month at elevated operation temperatures of 500 and 600 degrees Celsius. However, current emissions data do not reflect the emissions that would be seen from the New Waste Calcining Facility after Maximum Achievable Control Technology upgrades which is how the facility would operate in those waste processing options analyzed in this EIS that involve calcining.

VIII.B (4)

Comment - Commentors express opinions about various risks ranging from mechanical failures to global harm, and state that Yellowstone National Park and Grand Teton National Park are national treasures and should be protected.

Response - DOE is concerned about the health of local and global ecosystems, including national parks, and realizes that all operations analyzed in this EIS present some element of risk to the environment.

Mechanical and process failures could occur and could have an impact on the environment. The EIS addresses the potential impacts to the environment under both normal operations and postulated abnormal events. Section 5.2.14 analyzes a range of reasonably foreseeable accidents that have the potential to harm workers, the public, or the environment. However, potential environmental impacts from normal and abnormal events are conservatively calculated in the EIS using minimal mitigative design measures, which in operational reality would be included with consequent reductions in environmental impacts.

To reduce risks associated with implementing activities such as those evaluated in this EIS, DOE Orders require a safety analysis report covering nuclear and non-nuclear operations, which governs operations conducted in facilities that could result in a hazard to workers or the public. The safety analysis report defines a safety envelope within which operations must occur.

VIII.B (5)

Comment - A commentor states that the idea that there is a standard that allows emissions (pollution) from facilities is unacceptable. The commentor also states that DOE should have a requirement of no releases.

Response - Air quality standards have been established to protect the public health and welfare. In addition, Clean Air Act stipulations pertaining to prevention of significant deterioration requires use of best available control technology to further reduce emissions. Council on Environmental Quality regulations require federal agencies to consider air emissions and other environmental impacts in National Environmental Policy Act documents supporting decisions regarding design and operation of facilities. The EIS identifies air emissions that could occur under the alternatives, including any alternative that involves new construction. As discussed in Section 6.2 of this EIS, DOE complies with the same laws and regulations as non-federal agencies. Projects associated with the waste processing alternatives can not go forward unless compliance with these laws and regulations can be demonstrated. Though DOE strives for minimal releases, a "no-release" policy is unachievable.

VIII.B (6)

Comment - A commentor expresses concern that monitoring of the New Waste Calcining Facility stack emissions has not been adequate, that the State of Idaho has never independently monitored the facility's stack emissions, and that, if the calciner is restarted, the EPA should review the adequacy of the monitoring required by the State of Idaho's Consent Order.

Response - When the calciner was operating, DOE sampled stack emissions for particulate matter in accordance with regulatory require-

ments. These samples were analyzed daily by gamma spectroscopy for specific radionuclides, composited, and analyzed for strontium-90 and total plutonium (see DOE Environmental Monitoring Plan). In addition to collecting and analyzing particulate matter, DOE also monitored continuously for nitrogen oxides and gross gamma-emitting radioactive species. Results of these measurements were reported routinely to the State of Idaho and to the EPA (air emissions inventory, National Emission Standards for Hazardous Air Pollutants (NESHAP) report). If the calciner were restarted and operated under a hazardous waste treatment permit (Hazardous Waste Management Act/RCRA) and under the Maximum Achievable Control Technology provisions of the Clean Air Act amendments, additional monitoring would be required as a condition of permits to operate. Both the state and the EPA would be involved in the review of these permit applications to ensure the adequacy of the monitoring and reporting requirements.

The State of Idaho does not have separate equipment to monitor calciner stack emissions. However, DOE's monitoring of the calciner is subject to state and EPA review and inspection under environmental laws and regulations. The State of Idaho INEEL Oversight Program also operates a surveillance network of 14 ambient air and radiation monitoring stations on and in the vicinity of the INEEL. These stations continuously measure gamma radiation and collect samples that are routinely analyzed for alpha, beta, and gamma-emitting radioactive species. This surveillance network is complemented by almost 100 radiation measuring devices strategically placed around the site. In six years of operating the surveillance network, the state has never detected radioactive species or ambient radiation at levels that pose risk to the public or the environment that varies significantly from data reported by DOE. Furthermore, the state's data have corroborated DOE's NESHAP report conclusions, which are based on actual stack samples and calculated emissions from INEEL facilities.

VIII.C Water Resources

VIII.C (1)

Comment - Several commentors state that both the chemical and radiological toxicity of waste must be considered. Also, the commentors state that several comparisons should be made between the amount of liquid waste in the INTEC Tank Farm and the amount of water in the Snake River Plain Aquifer, including the amount of water necessary to dilute the waste to the drinking water standards. A commentor expresses concern that a leak in the waste tanks could jeopardize Idaho's primary water source.

Response - The EIS addresses the potential environmental impacts to the Snake River Plain Aquifer from the range of reasonable alternatives, as well as contaminants known to be present in the aquifer based on past practices at the INEEL and water sampling data. These potential environmental impacts and existing pollutants in the aquifer include both radioactive and nonradioactive contaminants. Extensive groundwater monitoring programs conducted by the U.S. Geological Survey, the State of Idaho, and DOE indicate that no contaminants attributable to INEEL activities currently exceed EPA drinking water standards at the site boundary.

The volume of water present in the Snake River Plain Aquifer would dilute the maximum potential burden from existing and potential contaminants to far below EPA drinking water standards. However, evaluating the quantity of contaminants in the waste and comparing that to the total volume of water in the aquifer greatly over-simplifies contaminant transport through the vadose zone and the aquifer.

For example, the total curies of iodine-129 in the Tank Farm under the No Action Alternative is 0.73 curies, and the total volume of the aquifer is estimated to be 2 billion acre-ft, or approximately 650 trillion gallons

(2,500,000,000,000,000 liters). If the total curies of I-129 were mixed directly into the aquifer and spread evenly throughout the total volume of the water in the aquifer, the concentration would be approximately 0.0003 picocuries per liter, compared to the drinking water maximum contaminant level of 1 picocurie per liter. However, this illustrative scenario could not occur because there are interactions between the soil and waste in the vadose zone and the aquifer that retard the movement of the contaminants (both radionuclides and nonradionuclide contaminants), such as adsorption and impermeable rock that result in zones of perched water.

Additionally, waste would not be dispersed through the whole aquifer, but would be concentrated in plumes down-gradient from the source of contamination. Figures 4-13, -14 and -15 in Chapter 4 are examples of plumes from contaminant sources at INTEC. The groundwater velocity in the aquifer under INTEC has been estimated between 10 to 25 feet per day. In a river, velocity is usually measured in feet per second. This comparison between the velocity in a river and in an aquifer is indicative of the difference in dispersion between the two. Contaminants placed directly in a river would disperse relatively quickly downstream. In an aquifer, dispersion is a very slow process, slowed even more by adsorption of contaminants into the soil.

Because of these differences, modeling of the various processes affecting groundwater transport is performed rather than reporting the total amount of contaminants mixed throughout the whole aquifer. Appendix C.9 describes the modeling of both the radioactive and nonradioactive contaminants performed for this EIS. In addition, Section 5.2.14, Facility Accidents, modeled events and the associated potential environmental impacts to the aquifer. To minimize potential for a tank leak, DOE is committed to cease use of the eleven tanks in the Tank Farm by December 31, 2012.

VIII.C (2)

Comment - A commentor states that the information contained in Appendix C.8 should be expanded to include a discussion of the uses of the Columbia River along with the impacts of the alternatives on these uses of the river.

Response - Environmental impacts to the Columbia River from processing at Hanford are covered in more detail in the Tank Waste Remediation System EIS, DOE/EIS-0189, August 1996. For the Minimum INEEL Processing Alternative, DOE summarized the potential environmental impacts to the Hanford area from processing INEEL waste and the environmental impacts to the INEEL to provide a basis for comparison between alternatives. If the Minimum INEEL Processing Alternative or a hybrid Hanford option were selected for implementation in the Record of Decision, DOE would review the need for additional site-specific National Environmental Policy Act documentation, as necessary, including analysis of environmental impacts at the Hanford Site and the Columbia River. See response to comment summary VII.A (2).

VIII.C (3)

Comment - A commentor states that the groundwater modeling was overly simplified and failed to consider uncertainties and preferential pathways for migration. In addition, the commentor recommends that these uncertainties be discussed in the EIS.

Response - While the models used to predict waste migration through the vadose zone do not examine in detail the preferential pathways through the vadose zone and aquifer, DOE believes the models are sufficiently conservative to bound the environmental impacts. A sensitivity analysis including a discussion of the uncertainties has been incorporated into Appendix C.9.

VIII.C (4)

Comment - Commentors question the use of a 500-year design life for grout and state that the groundwater impacts should be evaluated for failure of the grout at shorter time frames. One commentor expresses particular concern over I-129 leaching from the grout and impacting groundwater coincident with peak concentrations from the former INTEC injection well.

Response - As documented in Appendix C.9, DOE performed a quantitative sensitivity analysis of the effect of changes in assumed time of grout failure (as well as infiltration rate and distribution coefficient) on the resulting groundwater concentrations. DOE used the Tank Farm - Performance-Based Closure or Closure to Landfill Standards as the basis for this sensitivity analysis. The time of grout failure sensitivity analysis was performed for 100- and 1,000-year grout failure times in addition to the 500 years analyzed in this EIS.

The commentors concerns about I-129 leaching and cumulative environmental impacts to the aquifer are addressed in this EIS. If the grout fails at 100 years, the cumulative impact would include both the contaminants from the grout failure and the prior contamination from the injection well (reduced to a concentration below drinking water standards). Cumulative environmental impacts of grout failure combined with contamination remaining from the injection well are covered in Section 5.4 of this EIS.

VIII.C (5)

Comment - Commentors state that DOE should use the U.S. Geological Survey flood plain estimate because it is more conservative than the U.S. Bureau of Reclamation estimate. Commentors also express further concern with waste remaining within either the 100-year (U.S. Geological Survey) or 500-year (Bureau of Reclamation) flood plains and state that the structures should be designed to withstand either flood event.

Another commentor is concerned that contamination remaining in the INEEL soils may eventually be in the pathway of any flood or alteration of the flow pattern of the Big Lost River, whose meander patterns are susceptible to large variations due to the Arco Desert Plain's low gradient. A commentor states that DOE should not base programmatically critical decisions on the U.S. Geological Survey report because it is excessively conservative and/or incorrect.

Another commentor notes the following specific concerns:

(1) The report does not accurately represent Big Lost River/Birch Creek 100-year flows because the combined probability of all the assumptions used to estimate the flow frequency results in a frequency that is much less than 1 in 100.

(2) Procedures used to determine 100-year flow below the Mackay Dam are inappropriately applied in order to produce the largest possible flow.

(3) Information about inflow into Mackay Reservoir is incomplete because it does not account for the fact that most surface water flows from snow melt, nor does it include data about the design discharge of the dam or historical releases relating to past floods cited.

(4) Estimates of flood frequency may be inaccurate because they are based on old data, or data developed with older estimating techniques.

Response - Commentors concerns regarding data quality, assumptions, probabilities and flood frequency are being addressed as part of ongoing studies being conducted by the Bureau of Reclamation and the U.S. Geological Survey. It is expected these studies will be completed in 2002. Following review and evaluation by the INEEL Natural Phenomena Hazards Committee, the DOE Idaho Operations Office will issue a formal Floodplain Determination in accordance with 10 CFR 1022. The Floodplain Determination will be based on a map identifying the 100- and 500-year flood elevations.

As discussed in Section 4.8.1.3 of the EIS, estimates for the 100-year flood were most recently published by the U.S. Geological Survey (Berenbrock and Kjelstrom 1996) and by the Bureau of Reclamation (Ostenaa et al. 1999). These studies differ markedly in their estimation of the 100-year return period flood. The U.S. Geological Survey used conventional flood-frequency and regional regression analysis to determine a 100-year flow rate of 6,220 cubic feet per second (cfs) for the Big Lost River downstream of the INEEL Diversion Dam. For the purposes of this study, the INEEL Diversion Dam was assumed not to exist. The Bureau of

Reclamation utilized a probabilistic approach based on paleoflood, soils, stream gauge, and geomorphic analyses. These analyses were conducted along two different two-mile study areas on the lower reaches of the Big Lost River on the INEEL to estimate a 100-year flow of 3,270 cfs. The Bureau of Reclamation approach meets requirements delineated in DOE standards for the determination of flood hazards.

Faced with this considerable difference in estimates of the 100-year flood, DOE established a Flood Subcommittee of the INEEL Natural Phenomena Hazards Committee. The subcommittee consists of DOE personnel as well as experts from the U.S. Geological Survey and management and operating contractors working at the INEEL. The subcommittee met several times in 2000, after the comment response period on the Draft EIS was concluded, to evaluate and critique the U.S. Geological Survey and Bureau of Reclamation reports as well as other applicable reports. The subcommittee also conducted a field trip to the lower reaches of the Big Lost River accompanied by U.S. Geological Survey and Bureau of Reclamation.

Based upon this review, the subcommittee recommended that additional field studies and analyses be performed by both the U.S. Geological Survey and Bureau of Reclamation to more fully address specific questions regarding assumptions and analyses used by each agency. The additional field work started in August 2000.

A U.S. Army Corps of Engineers analysis of existing data (Bhamidipaty 1997) and INEEL geotechnical analysis (INEEL/INT-98-0090) concluded that the INEEL Diversion Dam structures could withstand flood flows up to 6,000 cfs. Culverts running through the diversion structure could convey a maximum of 900 cfs downstream but their condition and capacity as a function of water elevation is unknown (Bhamidipaty 1997). This preliminary analysis indicates that the diversion dike would tend to reduce the impact of the 100-year flood on INEEL facilities. The flood-hazard mitigation potential of the INEEL Diversion Dam will be further evaluated as the flood hazard studies are completed.

In this EIS, DOE analyzed the environmental impacts that would result from the more conservative 100-year flood identified by the U.S. Geological Survey, (Berenbrock and Kjelstrom 1998) (Figure 4-9 of the EIS), which could result in a maximum flood depth of 1-foot in the northern half of INTEC. Within this flood contour at INTEC, there are radioactively and chemically (mixed-waste) contaminated soils. There are also contaminated soil piles protected by tarps from wind and precipitation, and contaminated soils exposed to erosion and water infiltration. Without mitigation, such as constructing berms to divert flooding, this area would be inundated. Though the area would be inundated, it is expected there would be no erosion and little transport of contaminates because of very low flow velocity. Infiltration would occur but would not be significantly greater than infiltration resulting from average annual precipitation over several years.

On January 18, 2001, DOE issued a floodplain determination, an estimate of the 100-year flood elevation, for RCRA permitting purposes at INTEC (Guyman 2001). The determination is based on the Flood Routing Analysis for a Failure of Mackay Dam (Koslow and Van Haaften 1986), as is the probable maximum probable flood described above. The RCRA determination, however, is based on a 100-year flow scenario, which involves the overtopping of Mackay Dam resulting in a flood elevation of 4,916 ft, whereas the maximum probable flow estimate results in a flood elevation of 4,917 ft at INTEC. The 4,916 ft elevation is consistent with the safety authorization basis for facilities at INTEC. See Section 4.8.1.3 of this EIS and response to comment summary IV.C (2).

References:

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Berenbrock, C. and L. C. Kjelstrom, 1998, *Preliminary Water-Surface Elevations and Boundary of the 100-Year Peak Flow in the Big Lost River at the Idaho National Engineering and Environmental Laboratory*, Idaho, DOE/ID-22148, U.S. Geological Survey Water Resources

Investigations Report 98-4065, Idaho Operations Office, Idaho Falls, Idaho.

Bhamidipaty, S., 1997, *Plan of Study Big Lost River Diversion System*, Department of the Army, Walla Walla District, Corps of Engineers, Walla Walla, Washington, June 17.

Guyman, R. H., 2001, Bechtel BWXT Idaho, LLC, Idaho Falls, Idaho, letter to K. B. Kelly, State of Idaho, Department of Environmental Quality, Boise, Idaho, "Response to Department of Environmental Quality Request for Additional Floodplain Information for the Idaho National Engineering and Environmental Laboratory," January 18.

Koslow, K. N. and D. H. Van Haaften, 1986, Flood Routing Analysis for a Failure of Mackay Dam, EGG-EP-7184, EG&G Idaho, Inc., Idaho Falls, Idaho, June.

LMITCO (Lockheed Martin Idaho Technologies Company), 1998, *LMITCO Internal Report, Big Lost River Diversion Dike Foundation Investigation*, INEEL/INT-98-0090, Idaho Falls, Idaho, February.

Ostenaa, D. A., D. R. Levish, R. E. Klinger, and D. R. H. O'Connell, 1999, *Phase 2 Paleohydrolgic and Geomorphic Studies for the Assessment of Flood Risk for the Idaho National Engineering and Environmental Laboratory, Idaho*, Report 99-7, Geophysics, Paleohydrology, and Seismotechonics Group, Technical Service Center, Bureau of Reclamation, Denver, Colorado, September 16.

VIII.C (6)

Comment - A commentor cites the Draft EIS Summary, Section 7.4, discussion of cumulative impacts to water, and asks that the projected increase in plutonium concentrations be explained.

Response - Section 5.2.14 of this EIS discusses groundwater impacts for accident conditions for the various waste processing alternatives. The accident analysis considers the increase in groundwater contaminant concentrations due to the initiating event (e.g., material released from a full mixed transuranic waste/SBW tank at failure) plus the historical concentrations due to past contamination of the vadose zone and aquifer. Key radionuclides, metals, and organic contaminants are considered in the analysis including total plutonium. By including historical concentrations of contaminants in the analysis, the groundwater impacts from past waste practices such as the use of injection wells and leaks from valves and piping associated with the underground Tank Farm are considered. The apparent increase in plutonium concentrations in the aquifer is a projected value based on modeling of the plume that considers injection well contaminants in the aquifer and the contribution from contaminated soils. However, the modeling predicted concentrations are directly beneath the spills and/or release, so bounding environmental impacts can be presented. Modeling in the Remedial Investigation/Baseline Risk Assessment for CERCLA Waste Area Group 3 shows that plutonium could result in concentrations that would exceed EPA drinking water standards, if no remediation of the INTEC Tank Farm soils takes place.

VIII.C (7)

Comment - A commentor requests the location of the hypothetical well used in calculating the maximally exposed individual dose, shown on page S-55 (left column) in the Draft EIS, in relation to the INTEC Tank Farm.

Response - The maximally exposed individual is assumed to be a farmer who takes up residency within the existing INTEC facility fence line, about 100 meters from the Tank Farm. This would occur after 2095, when it is assumed for modeling purposes that DOE would lose institutional control of INTEC and the farmer has no knowledge of groundwater contamination in this area. Since the farmer would require a source of water for domestic and agricultural needs, it is assumed he would drill a well into the aquifer directly below the existing INTEC Tank Farm. Under this scenario, this farmer would proceed to drink 2 liters of contaminated water per day for 30 years. This analysis appears in Appendix C.9 of this EIS.

VIII.C (8)

Comment - A commentor supports the State of Idaho's concern for prevention of further contamination of the aquifer and supports appropriate treatment of all HLW requiring disposal in a geologic repository outside of Idaho.

Response - The Snake River Plain Aquifer is a resource that must be protected. That is among the reasons why the State of Idaho scrutinizes DOE activities at the INEEL and has actively overseen waste treatment and disposal activities. In the case of HLW, the Settlement Agreement/Consent Order and subsequent regulatory Consent Orders are the vehicles for ensuring that the liquid stored in non-compliant underground tanks no longer poses a threat to the aquifer. Further, the Settlement Agreement/Consent Order was crafted so that all of the liquid in the underground tanks and calcine in the bin sets would be prepared for disposal so these wastes pose less risk to the environment and can be transported to an interim storage or disposal facility outside of Idaho. The State of Idaho agrees with the commentor's contention that INEEL, positioned over the Snake River Plain Aquifer, is not an appropriate location for long-term storage or disposal of this waste.

VIII.C (9)

Comment - A commentor recommends that the effects of organic decay and colloid formation on the mobilization of plutonium and other actinides be addressed in the EIS.

Response - The effects of facilitated transport mechanisms such as organic complexing agents and colloid formation are difficult to predict. Although not directly evaluated in this EIS, these mechanisms are indirectly addressed by evaluating smaller distribution coefficients (K_ds) in the sensitivity analyses described in Appendix C.9 of this EIS. A smaller distribution coefficient has the same effect on the modeling results as facilitated transport mechanisms, namely increased contaminant solubility and mobility.

VIII.D Biological Resources

VIII.D (1)

Comment - A commentor is concerned about the impact on 52 acres of sage shrub-steppe at Hanford described in the Draft EIS in the discussion of the Minimum INEEL Processing Alternative. The commentor further indicates that the State of Washington has identified sage shrub-steppe as an ecosystem of special concern, because it is home to 17 species that may be listed as rare, threatened, or endangered. The commentor asserts that DOE has failed to evaluate/consider the cumulative environmental impacts of all activities at Hanford on sage shrub-steppe habitat in the EIS or to consult with either the State of Washington or area Native American tribes about this issue.

Response - Prime shrub-steppe is considered by the State of Washington to be of special concern and has been designated a "priority habitat" by the Washington State Department of Fish and Wildlife. The DOE-Richland Operations Office recognizes and shares this concern. Areas of the site are designated as preservation or industrialization under the *Final Hanford Comprehensive Land-Use Plan EIS* (DOE/EIS-0222). No new facility would be placed in the preservation-designated area if DOE were to decide to implement this alternative, and appropriate mitigation would be considered.

Should DOE decide to implement the Minimum INEEL Processing Alternative, the environmental impacts identified in this EIS would be added to cumulative environmental impacts from all other activities at Hanford as analyzed and set forth in Hanford site-specific EISs via additional National Environmental Policy Act documentation as necessary.

VIII.E Geology Seismic Risk

VIII.E (1)

Comment - A commentor states that all waste should be removed from INEEL because the site

is located in a seismically active area on top of a large aquifer.

Response - As stated in Section 4.6.3 of this EIS, the Eastern Snake River Plain has a relatively low rate seismic activity, compared to the surrounding basin and range. Potential seismic hazards from earthquakes at the INEEL consist of ground shaking and surface deformation, but avalanches, mudslides, landslides, and soil liquefaction are not likely to occur because the onsite geologic conditions would not likely support these events. Based on seismic history of the Eastern Snake River Plain, earthquakes greater than a moment magnitude of 5.5 are not likely to occur, but the environmental impacts from a strong earthquake have nevertheless been evaluated and are presented in Section 5.2.14 of this EIS. The EIS discloses environmental impacts to the aquifer from treatment alternatives considered, including No Action.

VIII.F Land Use

VIII.F (1)

Comment - A commentor states that for any of the projects in the EIS that would disturb or destroy any geodetic control monuments, the Department of Commerce requires 90 days notice before DOE proceeds. The commentor requests that DOE cover any costs associated with moving any geodetic control monuments.

Response - DOE would coordinate any impacts to geodetic control monuments with the Department of Commerce as required, including any associated costs of replacement of such monuments.

VIII.G Health and Safety

VIII.G (1)

Comment - Commentors express concern that waste and other by-products are finding their way into food and water supplies and may result in cancer and other sickness to people in Idaho, and threaten their longevity and future generations.

Response - Models used to determine the environmental impacts to public health due to INEEL operations, such as the alternatives analyzed in this EIS, include the effects of consumption of food and water. Prior to 2095, when it is assumed for modeling purposes that DOE retains institutional control of the site, consumption by an individual living at the site boundary is assumed to occur. After 2095, consumption would occur within the INTEC fence line, including food grown in the area and water taken from a well drilled there. The results of these analyses through 2095 indicate that under normal operating conditions, none of the alternatives would result in health and safety impacts that would exceed regulatory limits designed to ensure public safety. Furthermore, except for the No Action and Continued Current Operations alternatives, long-term environmental impacts (up to 10,000 years) from residual radiological contamination would not exceed regulatory limits to the environment or members of the public. The No Action Alternative and disposal of Class A or C-type grout in a new Low Activity Waste Disposal Facility would exceed regulatory limits for nonradiological contamination (cadmium).

DOE has also evaluated potential accidents associated with the alternatives that could, if they were to occur, result in significant environmental impacts to the public. The probability of such an occurrence makes it unlikely, and when the risk is calculated (consequence multiplied by chance of occurrence), the environmental impacts are considered small. Because mixed transuranic waste/SBW and mixed HLW calcine would remain on site at the INTEC facility under the No Action and Continued Current Operations alternatives, these alternatives present the highest long-term risk to the public and the environment, particularly in the areas of facility degradation over time and potential for accidents, particularly those induced by natural phenomena.

Partly in response to concerns such as those expressed by the commentor, DOE has in place a routine environmental surveillance program that regularly monitors air emissions and actual environmental impacts to the aquifer, wildlife, and local vegetation. Results are reported annually in a publicly available INEEL Annual Environmental Report. The State of Idaho also performs monitoring to independently verify the

environmental surveillance data reported by DOE and in some cases collects supplemental samples to attain a higher level of assurance. This information is made publicly available on a quarterly basis and a report comparing State of Idaho and DOE data is issued annually. The commentors can expect that such programs would be in place during the period of time covered by the waste processing alternatives evaluated in this EIS. Further, facility disposition alternatives would be implemented based on established levels of acceptable risk to public health and the environment. See responses to comment summaries in VIII.B and VIII.C for additional responses to concerns regarding air emissions and environmental impacts to the aquifer respectively, as well as Chapter 4 and Chapter 5 of this EIS.

VIII.G (2)

Comment - Commentors express the opinion that safety is more of an issue than cost, and also express concern that ultimate safety is hard to define, quantify, and understand.

Response - Safety is always of paramount concern to DOE and an extensive set of rules and regulations are applied to ensure the protection of workers and the public at DOE facilities. However, undertaking waste management activities, such as those contemplated in this EIS, necessarily involves the assumption of some risk. Thus, when making a decision on how to proceed, DOE strives to achieve a reasonable balance between the total reduction of risk desired and the available funding needed to do so. Thus, while cost is not an over-riding factor, as a matter of practicality it is a real issue that DOE must consider as part of the process of making reasonable and informed decisions.

The commentor correctly notes that ultimate safety is hard to define, quantify, and understand. For these reasons, DOE and the State of Idaho expended considerable effort in analysis and assessment so that accurate, reliable information regarding safety could be presented in this EIS. Further, a concerted emphasis was placed on conveying this information as clearly as possible in text, figures, and tables. Where appropriate, quantitative analysis is provided, as in the case of assessing risk.

VIII.G (3)

Comment - A commentor states that discussions of the health effects of ionizing radiation should be revised to add information, indicate uncertainties/limitations, correct errors, eliminate repetition, and address baseline cancer risk data in the Draft EIS. Commentor also expresses concern about inconsistent and inappropriate discussions of radiation risk factors and associated health effect calculations in the Draft EIS.

Response - Section 5.2.10 of this EIS presents radiation risks. Uncertainties and limitations of the analysis are identified in Appendix C.3.2 and are discussed in the National Council of Radiation Protection and Measurements, 1993 "Limitations of Exposure to Ionizing Radiation" Report Number 116, Washington, D.C. This report has been used as a basis for INEEL estimates of radiation impacts in recent DOE EISs and is considered a consistent and an appropriate approach for National Environmental Policy Act evaluations and decisions. Baseline cancer risk data are presented in this EIS and are compared to the exposure risks from waste processing and facility disposition alternatives in this EIS.

VIII.G (4)

Comment - A commentor states that remote handling techniques should be enhanced to protect the workers involved in treating the waste discussed in this EIS.

Response - DOE, through its Office of Environmental Management, has as a primary mission to reduce threats to health and safety posed by contamination and waste at DOE sites and to keep exposure to workers as low as reasonably achievable. If remote handling is warranted, DOE would include such technologies in the design of waste management facilities. In addition, the DOE Office of Science and Technology Development undertakes crosscutting technology development in various areas, including remote handling techniques for waste treatment, facility transitioning, decommissioning, and final disposition, using robotics and other innovative technologies. After the Office of Science and Technology Development identifies and evaluates innovative remote-handling

technologies, these technologies become available for deployment in the field. DOE would only deploy technologies that have been proven to be truly protective of the health and safety of the workers, the public, and the environment.

VIII.G (5)

Comment - A commentor states that the discussion and calculation of Integrated Involved Worker Risk should be removed from the document. The commentor further says that the Facility Accident Appendix (Appendix C.4) introduces the concept of Integrated Involved Worker Risk (page C.4-32), combining the risk from nonradiological occupational accidents, the risk associated with occupational radiation exposure, and the normalized risk from accidental exposure to much higher levels of radiation. The commentor expresses the opinion that the combination of three extremely different types of risk is both novel and inappropriate.

Response - Workers involved in projects associated with alternatives evaluated in this EIS could be exposed simultaneously to the risk from nonradiological occupational accidents, occupational radiation exposure, and accidental exposure to much higher levels of radiation. Accidents in these three risk categories could occur from unrelated phenomena during the construction and operation of treatment facilities, and facility disposition activities. Therefore, from a total worker-risk perspective, it is appropriate to integrate these risks and consider them cumulatively. However, this EIS also discusses each of the risk categories separately. DOE recognizes that numerical values of its risk estimates are not necessarily additive. See Section 5.2.14 of the EIS.

VIII.G (6)

Comment - A commentor states that INTEC has experienced numerous releases of contamination to the environment and exposures to workers in the past:

- In 1991, negligence by the contractor and the DOE resulted in an explosion that caused worker exposures and significant damage to the facility.
- There were six fires between 1991 and 1999, and inspectors found several instances where fire and radiation alarms were shut off.
- There were at least 18 incidents where workers were overexposed to radiation.

Response - Although past operations are beyond the scope of this EIS, it is worthwhile to address the commentors concerns as they relate to past conduct of operations in related facilities. At INTEC, there have been minor equipment failures, power outages, and filter failures (filters are changed when they do not pass in-place testing). However, no occurrence has exceeded release limits for radioactive materials. For nonradiological materials release limits have been exceeded for emissions at the New Waste Calcining Facility. In one case, nitrogen oxide limits were exceeded due to a software failure. This was quickly corrected. A second case, perhaps the "explosion" referred to by the commentor, involved a release of ammonium nitrate flakes from the main stack. These flakes did settle beyond INTEC boundaries but were cleaned up. There have been two minor fires in nearly 40 years of calciner operating history. Both were caused by leakage of kerosene from remote fittings at a fuel nozzle. One occurred in 1992, and one occurred in 1999.

Routine exposures do occur during operations, but there have been no incidents where any workers have been overexposed. There was a case in 1992 where an audible alarm bell was taped over to reduce its volume, but the bell was still audible. This problem was corrected upon discovery. In 1998, electronics technicians found two failed communications cards in the INTEC fire alarm system during routine maintenance. The New Waste Calcining Facility building was one of four buildings affected by the loss of fire alarms. The cards were replaced. There have been no other known instances where alarms were not operational.

VIII.G (7)

Comment - A commentor is concerned that INEEL activities, particularly radioactive waste treatment and storage, rarely have protection of human health and the environment as the primary concern. Another commentor states that the level of public concern should compel DOE to place increased emphasis on assured safety, viability, and practicality of HLW management options.

Response - For activities at the INEEL, DOE places top priority on public and worker safety and environmental protection.

DOE's primary missions at the INEEL are environmental restoration and waste management, which are accomplished within a regulatory framework designed to focus on and protect human health and the environment. DOE works closely with its regulators, including the State of Idaho, to ensure that the operations and program initiatives involved in meeting mission requirements do not significantly compromise human health and the environment. Further, the health and safety impacts as well as the practicality and viability for each alternative in this EIS, along with public comment, will be factored into any waste processing and facilities disposition decision made by DOE.

VIII.G (8)

Comment - Commentors ask that the EIS compare radiation risk resulting from INEEL operations to natural Idaho background radiation risk in order to properly identify environmental impacts. Another commentor asks that natural background radiation, by isotope and concentration, be compared with values for radiological impacts that would result from alternatives analyzed in EISs. One commentor asserts that if the risk is small, then the EIS process may not be necessary.

Response - Table 5.2-12 of this EIS provides natural background concentrations in soil by nuclides (where known) and a comparison of the environmental impacts to soil concentrations by alternative. Radiation risks are presented in Section 5.2.10 of this EIS. The maximally exposed individual received a radiation dose of 0.031 millirem per year during 1996 from INEEL operations (which is well below the EPA standard of 10 millirem per year for air exposures). For individuals residing near the INEEL, 0.031 millirem per year is also about 10,000 times smaller than the average radiation dose of 360 millirem per year from naturally occurring background radiation and voluntary (man-made) exposures such as medical sources.

Using standard risk factors for estimating fatal cancers from a given calculated exposure to the population within 50 miles of INEEL, a value of 0.0005 fatal cancers would result from the cumulative radiation dose of existing HLW operations at INTEC, mixed HLW treatment alternatives under normal operating conditions, and other reasonably foreseeable actions at the site. This compares to the natural lifetime incidence of cancer in the same population from all other causes of about 24,000 fatal cancers in the region during the same timeframe as this EIS. The EIS presents this and other information, such as economic impacts and the effects of potential accidents, which must also be analyzed and made available to the public and to allow DOE to make informed decisions.

VIII.H Transportation

VIII.H (1)

Comment - A commentor states that DOE's proposed action does not conflict with any State of Nevada, Department of Transportation plans.

Response - DOE would continue to follow all applicable requirements governing the management of radioactive or hazardous material, including coordination with state agencies as appropriate.

VIII.H (2)

Comment - A commentor requests information on the planned configuration of HLW shipping containers and in what form the calcine would be packaged for shipment to Hanford under the Minimum INEEL Processing Alternative.

Response - DOE would pursue a final container design as part of implementation planning for transportation of the calcine. In Section 5.2.9 and Appendix C.5 of this EIS, DOE analyzed the potential environmental impacts of a release from a Type B package with a stainless steel inner canister containing calcine or ion exchange resins. The release fractions used are similar to those used in NUREG-0170 *Final Environmental Statement on the Transportation of Radioactive Material by Air and Other Modes*.

The final packaging for the mixed HLW calcine has not been determined, although various methods have been considered. As noted in Section 6.2.5 of this EIS, the U.S. Department of Transportation, Nuclear Regulatory Commission, and the EPA would regulate the transport of calcine. If DOE were to decide to transport calcine, the packaging would undergo appropriate testing and Nuclear Regulatory Commission certification.

VIII.H (3)

Comment - Commentors emphasize that the EIS should identify environmental impacts and risks to human health and safety resulting from radioactive waste transportation operations, and that such transportation must be coordinated with local and tribal governments.

Response - The environmental risks and consequences for transportation of wastes are covered in Section 5.2.9 and in Appendix C.5 of this EIS. DOE determined radiological impacts to both workers and the general public during normal, incident-free transportation and accident conditions. For accident conditions, the Nuclear Regulatory Commission developed the methods for impact analysis. When shipping radioactive material, DOE involves potentially affected tribes and state agencies in transportation planning, provides advance notification as appropriate, and offers assistance in developing emergency preparedness plans.

VIII.H (4)

Comment - A commentor states that HLW is shipped into the state periodically and is, therefore, already "road-ready."

Response - There have been no shipments of high-level radioactive wastes into the State of Idaho. All of the mixed HLW addressed in this EIS was generated and managed at the INEEL as a result of former spent nuclear fuel reprocessing operations (that were terminated in April 1992). DOE does periodically ship spent nuclear fuel into Idaho in accordance with provisions of the Settlement Agreement/Consent Order discussed in Section 6.2.5 of this EIS. However, DOE does not consider SNF to be HLW, and decisions regarding its management are covered in the SNF & INEL EIS.

VIII.H (5)

Comment - Commentors state that DOE must provide enhanced transportation safety protocols for interstate shipment of spent nuclear fuel and HLW that go beyond regulatory requirements (similar to Waste Isolation Pilot Plant transportation safety protocols) before commentors would support shipment of HLW for treatment or disposal. A commentor notes that trucking treated waste to the Waste Isolation Pilot Plant is preferred over rail shipments because the smaller truck shipments may be transported when ready rather than having to wait on a trainload.

Response - DOE complies with Nuclear Regulatory Commission and Department of Transportation protocols for safe shipment of radioactive materials over highway and rail. INTEC mixed HLW would be packaged and shipped to the national geologic repository in accordance with regulatory requirements designed to address conditions incidental to normal transport and potential accidents. If additional enhanced safety protocols such as emergency preparedness exercises are considered appropriate, DOE would enhance its safety measures accordingly. While truck shipments of radioactive materials may avoid interim storage

requirements, rail shipments can reduce overall risk by minimizing the number of shipments. These risks are presented in Section 5.2.9 and Appendix C.5 of this EIS.

VIII.I Socioeconomics

VIII.I (1)

Comment - A commentor expresses the opinion that continued employment at the site may depend on how promptly and successfully INEEL treats its HLW.

Response - Comment is noted.

VIII.I (2)

Comment - Commentors stress that the EIS should identify impacts to local government services, such as police, fire, roads, and schools.

Response - Section 4.3.3 of this EIS provides a baseline for important community services. Section 5.2.2 shows that the estimated socioeconomic impacts of any waste processing alternative would be minimal.

IX PUBLIC INVOLVEMENT

IX.A EIS - Overall Content, Format, and Appearance

IX.A (1)

Comment - Commentors state that the Summary contains a lot of material that does not appear in the main document, that the EIS fails to address areas of uncertainty and controversy that DOE covered in the public hearings, and that the Summary should be revised to summarize the actual content of the EIS more accurately, including the limitations and uncertainties of the analyses.

Response - DOE believes that the Summary accurately represents the content of this EIS. The Summary condenses much of the material presented in the main EIS document. This information is presented in text, text boxes, or a slightly different format to facilitate readability, but the data are the same. The Draft and Final EIS Summaries do not contain information that is not presented in the EIS including discussions of areas of uncertainty and controversy. However, it may appear that areas of uncertainty and controversy are not included in the EIS, since these issues are dispersed in applicable sections throughout the EIS, but compiled, as required by the CEQ regulations, 40 CFR 1502.12, for the EIS Summary. The purpose of pulling the uncertainty and controversy information together in the Summary is to provide the public and agency reviewers with a complete picture of these issues, which can be critical to decision making. The EIS does not presume to resolve the areas of uncertainty or controversy. However, presenting them may present an awareness that helps bring them to future resolution.

IX.A (2)

Comment - Commentors make various statements commending DOE for the appearance and readability of the Draft EIS:

- DOE has worked hard to make the Draft EIS understandable.
- It is readable and understandable by the general public.
- The document has useful, high-quality graphics and layout.
- It is reliable.
- It has very high production qualities and the same publisher should be used for the EIS.
- It was prepared carefully and thoughtfully.

Response - Comments noted.

IX.A (3)

Comment - Commentors state that DOE worked hard to make the Draft EIS understandable as required by the National Environmental Policy Act, but the agency still needs to improve the readability of the EIS because facts and figures in it should be understandable by the general public. For instance, one commentor says that DOE could have made the Minimum INEEL Processing Alternative more understandable. Another commentor states that DOE intentionally misleads the public by using numbers the public does not understand.

Response - DOE regrets that any readers had difficulty understanding the document. DOE recognizes that this EIS addresses highly complex technical materials and issues and has attempted to respond to all requests for clarification. DOE's goal, in the spirit of the National Environmental Policy Act and as required by CEQ regulations, is to present all information in this EIS so it that can be understood by the public as well as by Congress and regulatory agencies. The commentor should note that the Minimum INEEL Processing Alternative is also discussed in Appendix C.8. See also response to comment summary IX.A (7).

IX.A (4)

Comment - Commentors question the costs related to the multi-color layout of the Draft EIS and request an estimate of the unnecessary extra costs involved.

Response - The cost to print the Draft EIS was about $134,000, of which approximately $77,000 was for higher-quality paper to prevent bleeding of the ink through the paper and for color printing above the cost for printing black and white. The incremental cost of printing the Draft EIS in color instead of black and white is about one half of one percent of total projected EIS costs of about $15 million. DOE considers this additional cost worthwhile because it serves to promote interest, readability, and understanding. The format and printing of the Final EIS was revised to reduce the costs.

IX.A (5)

Comment - A commentor requests clarification/definition of terms relating to the measure of levels of radiation/contamination, use of scientific notation in the Draft EIS, and the relevancy of fractional conclusions that cannot be measured with instruments.

Response - Text boxes on pages S-12 and S-13 of the Draft EIS Summary (and on pages S-42 through S-44 of the Final EIS Summary) discussed radiation in units as applied to the calculation of latent cancer fatalities. Section AA.4 of this EIS explains scientific notation used in this document. Existing radiological risk is described in Section 4.11.1.1, and the radiological health and safety effects under the alternatives are analyzed in Section 5.2.10 of this EIS. The calculation of radiological health effects is described in Appendix C.3 of this EIS. The nature of radiation, at detectable levels, is such that it can be measured in units relevant to calculating health effects and these effects can be expressed in terms of latent cancer fatalities. Calculations can result in conclusions that, in and of themselves, are not measurable, but these conclusions can be compared with measurable levels defining environmental impacts as a frame of reference for comparison. Latent cancer fatalities are calculated mathematically based on National Council on Radiation Protection and Measurements conversion standards.

IX.A (6)

Comment - A commentor states that the EIS uses few adjectives.

Response - The objectivity required in the context of an EIS limits the use of adjectives.

IX.A (7)

Comment - A commentor states that DOE should use layman's terms to help the public better understand the issues.

Response - DOE regrets that any readers had difficulty understanding the document. DOE used techniques in this EIS such as explanation

text boxes, color graphs, and diagrams that were designed specifically to communicate the highly technically subject matter using plain language and in an easily understood manner, as required by CEQ regulations (40 CFR 1502.8).

IX.A (8)

Comment - Commentors request that inconsistencies be resolved and/or editorial/presentational improvements be made, including:

- The date and month should be added to the timeline for newly generated liquid waste on page 3-2.
- Figures depicting alternatives should be more detailed because they are over-simplified.
- A table showing co-located facilities by alternative should be added.
- Section 5.2.13.4 should be clarified to show the difference between process and product wastes.
- Section 3.1 and Table 3.1 should be clarified as to the actual number of alternatives being considered.
- Figure S-18 incorrectly shows a HLW fraction in the Transuranic Separations Option.

Response - The data presented in Figure S-18 in the Draft EIS Summary has been corrected and is presented in Table S-2 of the Final EIS Summary. The 2005 date for newly generated liquid waste is not a legal requirement, however, the date was added to the timeline for the appropriate alternatives/options. DOE believes that the figures depicting the alternatives/options have sufficient detail for this EIS. The EIS indicates from a conceptual standpoint the types of facilities that would be required under each alternative, and all INEEL HLW treatment facilities would be located within INTEC boundaries. Their exact location, and whether they are co-located, would be determined after a decision is made and in the early phases of actual facility design. Section 3.1 of the EIS presents the alternatives and options and Table 3-1 shows the facilities that may be constructed under each alternative/option. Section 5.2.13.1 addresses the difference between process and product waste.

IX.B EIS Distribution

IX.B (1)

Comment - A commentor questions the motive behind the "long overdue" release of the Draft EIS.

Response - The Notice of Intent for this EIS presented a schedule for publishing the Record of Decision by September 30, 1999. After publication of the Notice of Intent, as a result of agency and public scoping comments, DOE identified a number of programmatic and technical issues that expanded the scope of this EIS and required additional analysis. This expanded scope increased the amount of time needed to prepare the Draft EIS.

IX.B (2)

Comment - Commentors request various address and quantity changes in distribution of the Final EIS.

Response - The distribution list will be revised to accommodate all reasonable requests. Initial distribution of the Draft EIS was based on a list of tribes, legislators, agencies, groups, and individuals involved or interested in INEEL environmental issues. The mailing list also included those who, during scoping or other DOE public involvement efforts, indicated they were interested in receiving the Draft EIS.

DOE sent postcards to those interested in receiving information on this EIS. The distribution of this EIS was identified through the responses received and follow-up telephone calls. This EIS has been distributed on compact disc, hard copy, and the Internet.

IX.B (3)

Comment - A commentor expresses concern that media information misleads readers and suggests that DOE should involve the next generation by notifying local high schools directly.

Response - DOE maintains regular contact with the media through press releases, press conferences, editorial board briefings to reporters and editors covering INEEL issues such as this EIS, and distribution of fact sheets and other information materials to promote understanding of complex technical subjects. In this case, the State of Idaho, as a cooperating agency, also produced fact sheets and participated in media briefing opportunities. In spite of these efforts, some individuals may question whether they are receiving complete and accurate information. Both DOE and the State of Idaho have made, and will continue to make, staff and resources available to respond to public inquiry and provide clarification upon request. Primary contacts are provided in the front of this EIS.

DOE makes specific efforts to involve schools. For example, DOE supports programs such as the INEEL Scholastic Tournament to actively encourage students interested in the sciences. With regard to this EIS, DOE gave a presentation to students in Wyoming on the National Environmental Policy Act process and this EIS. DOE also received numerous comments from an elementary school class in Boise, Idaho, that reviewed this EIS as part of their curriculum. In addition, the Draft EIS was widely distributed and made available in public reading rooms throughout the region.

IX.C EIS Comment Period and Public Meetings

IX.C (1)

Comment - Commentors request that DOE respond to their comments. Some commentors ask DOE to provide considered, fact-based responses to questions in their comment letters.

Response - This Comment Response Document includes responses to all comments received on the Draft EIS. For comments that are very similar, DOE developed a summary comment and provided a response to that summary comment.

IX.C (2)

Comment - Commentors state that not enough time was allowed for a meaningful review of the Draft EIS to allow for proper evaluation and comment of such complex issues before the public hearings started. One commentor indicates that the delayed release of the Draft EIS also coincided with the RCRA process on the Advanced Mixed Waste Treatment Project, which further precluded adequate review of the EIS in the time available before the public hearings. Other commentors express appreciation for extension of the public comment period.

Response - The Draft EIS was available 17 days prior to the first public hearing in Idaho Falls. In these public hearings, DOE and State of Idaho officials took time to explain the contents of this EIS and answer questions related to the issues addressed. This would, DOE believed, improve the public's understanding of the document and allow time for the public to develop informed, specific, and detailed comments before the end of the comment period. Further, in response to public requests, DOE agreed to extend the public comment period by 30 days for a total of 90 days.

Release of the EIS during the same period of availability of other documents for public review and attendant public processes of interest to the prospective reviewer of the Draft EIS are unfortunate, yet purely coincidental and unintentional.

IX.C (3)

Comment - Commentors express dissatisfaction with the hearing format. Commentors state that the format should allow more flexibility to accommodate those attending individual hear-

ings because this is a process designed to involve the public. Other commentors expressed appreciation for the conduct of the public meeting as well as the format and support staff.

Response - The public hearings were structured to provide all participants with an equal opportunity to comment or ask questions. The benefit of this kind of format is that everyone has an equal amount of time and one individual cannot, either intentionally or unintentionally, dominate the meeting. The downside is that lengthy comments cannot be made orally. The time limits imposed at the public hearings did not preclude individuals from providing comments, in any number and of any length, in writing. The effectiveness and appropriateness of this format varies from meeting to meeting, but the rules, once adopted, need to be applied consistently at every meeting. The public hearing format used for this EIS may appear too strict and limiting at lightly attended meetings, but at large meetings, its fairness is more apparent because it ensures that all attendees have an equal chance to be heard. All comments received the same level of consideration regardless of how they were received.

IX.C (4)

Comment - Commentors express appreciation for DOE public meetings on the Draft EIS, particularly in Jackson, Wyoming, and at Fort Hall, Idaho, including presentations. Another commentor questions DOE's selection of locations for public hearings on the EIS when there are important regional issues at stake, and specifically why there were not hearings in Montana and Utah.

Response - DOE selected the locations for the public hearings based on its assessment of who would be most impacted by the proposal or would have a high degree of interest. DOE publicized the availability of the Draft EIS and the dates of the associated public hearings in newspapers and distributed the Draft EIS to selected government officials in Montana and Utah. DOE received no inquiries from or requests to hold public hearings in either state, indicating that residents did not have a high degree of interest in this EIS. In addition, based on the information in this EIS, residents in both of those states would be minimally impacted.

IX.C (5)

Comment - A commentor requests information about the cost of the Portland public meeting, including staff and facility costs, which the commentor considers too expensive. The commentor also states that the State of Oregon must participate fully in decisions regarding treatment of Idaho waste at the Hanford Site.

Response - The total cost of supporting the meeting in Portland was approximately $15,000, of which the meeting facility rental cost was $700. The cost of the Portland public hearing is comparable with those of other public hearings held at other locations, and DOE considers those costs reasonable.

DOE welcomes input from the State of Oregon and Oregon stakeholders in all of its processes to comply with the National Environmental Policy Act, including the input received on this EIS. DOE will fully consider any input received from Oregon stakeholders, as it does input from all stakeholders, throughout process of making informed decisions.

IX.C (6)

Comment - Commentors indicate that DOE should do a better job of publicizing hearings in advance.

Response - DOE welcomes suggestions for improving public notification and participation in its National Environmental Policy Act processes. DOE publicized the availability of the Draft EIS and the dates of the associated public hearings using several media outlets, including 26 newspapers in nine states, radio announcements broadcast on 13 stations in four states, and mailings to individuals on DOE's National Environmental Policy Act distribution list. All individuals who submit comments during the scoping period and the public comment period were added to the distribution list for this EIS. In addition, the Notice of Availability of the Draft EIS, which included public hearing dates

and locations, was published in the Federal Register 17 days before the first public hearing held in Idaho Falls.

IX.C (7)

Comment - A commentor states that DOE officials can be hostile and arrogant at public hearings.

Response - DOE regrets the commentor's experience. It is the intention of DOE to treat the public with courtesy and respect.

IX.C (8)

Comment - A commentor asks that handouts made available at public meetings contain a more comprehensive list of chemicals and radionuclides so the potential biologic effects and resulting medical costs from implementing alternatives analyzed in the EIS can be evaluated.

Response - Handouts provided for public meetings are intended for general use and attempt to summarize and explain information in this EIS in a general overview format. More detailed information is provided in the appendices in this EIS. Regarding the specific information of interest to the commentor, Appendix C.7 of this EIS provides a "Description of Input and Final Waste Streams" and lists chemicals and radionuclide concentrations. Appendix C.3 of this EIS provides background on assessing health effects for the impacts of these chemicals and radionuclides as discussed in the alternatives. This material is considered too extensive for presentation in a handout, the focus of which is to promote public awareness of, and interest in, this EIS. The displays used in the meetings did contain an abbreviated list of chemicals and radionuclides.

IX.D DOE Credibility and Suggested Forums for Resolution

IX.D (1)

Comment - Commentors state their opinion that DOE has shown through its past technical and policy failures and untrustworthy acts that it cannot be trusted to make good decisions or to carry out this program. Other commentors maintain that DOE has a history of not keeping its commitments and promises.

Response - DOE cannot abdicate its legal responsibility and authority to make and implement responsible decisions regarding this program. The agency is accountable to the public, the Administration, Congress, and regulators to make responsible decisions and to carry out those decisions in accordance with all applicable laws, agreements, and regulations. A major goal of this EIS is to help DOE, with state and public input, make the decisions that would allow DOE to keep its commitments to the State of Idaho to prepare mixed HLW and mixed transuranic waste/SBW at INTEC for shipment out of Idaho.

IX.D (2)

Comment - Commentors state the opinion that DOE should stop perpetuating falsehoods and be honest with the public, such as by:

1. Being open about the agency's past history.
2. Admitting that the job of environmental cleanup most likely will never end.
3. Admitting that mixed HLW will never leave Idaho.
4. Avoiding semantic and political games.

Response - This EIS openly discloses the history of DOE operations at INTEC as well as the regulatory, financial, and technical difficulties of treating and disposing of mixed transuranic waste/SBW and mixed HLW calcine currently stored there. DOE is working with state and federal regulators to effectively treat and dispose of this waste and to remediate contaminated sites. DOE intends to honor the Settlement Agreement/Consent Order target date of December 2035 to prepare its waste to leave the State of Idaho.

DOE regrets the commentors' opinion that DOE lacks credibility. DOE has worked to include the public throughout the development of this EIS. DOE conducted interviews with interested stake-

holders prior to and during scoping, and prior to and after the release of the Draft EIS. In addition, DOE conducted public hearings and extended the public comment period. In preparing this EIS, DOE responded to every request for information and comment received on the Draft EIS and remains committed to keeping the public informed and involved.

IX.D (3)

Comment - A commentor states that good science is the result of interaction between opposing points of view. The commentor further suggests that concerned scientists and engineers hold a technical forum with DOE scientists and arrive at the best options through collaboration, rather than opposition. Another commentor suggests that trust between DOE and affected communities could be improved by establishing a committee composed of individuals from those communities, and of scientists with no ties to DOE. The purpose of the committee would be to review DOE activities and decisions.

Response - DOE agrees that good science can result from the interaction between opposing points of view. However, good scientists can also agree. One of the purposes of an EIS is to disclose the scientific analyses that led to environmental impact conclusions so that the public can critically review and comment on their adequacy. In this EIS, DOE considers and responds to opposing points of view expressed in public comments. In addition, DOE has in the past and will likely continue to hold forums to discuss various technical issues and provide recommendations to develop solutions to the problems. For example, the DOE Idaho High Level Waste Program asked the National Research Council to review the Program's treatment technologies for mixed transuranic waste/SBW and HLW calcine. The commentors suggest the formation of a committee to provide input on DOE activities and decisions. The INEEL Citizen Advisory Board, established in 1994, essentially fulfills this function. The board is composed of 15 individuals from throughout Idaho who provide the perspectives of environmental interests, natural-resource users, health-care professionals, the educational community, business interests, local governments, the Shoshone-Bannock Tribes, site-related workforce, technical experts, and the general public. Representatives of the State of Idaho, the EPA, and DOE are ex-officio board members who attend to provide their agency's perspective, but do not vote. The board operates under the Federal Advisory Committee Act and is funded by DOE. Board meetings are open to the public; in fact, the public is encouraged to attend and participate. The board reviews ongoing and proposed activities and decisions and provides consensus-based recommendations to DOE. The board's technical subcommittees can obtain additional expertise to help members develop recommendations.

IX.D (4)

Comment - A commentor states that DOE should engage the public as a "business partner" if DOE is ever going to get the mess of nuclear waste and contamination at the government's nuclear weapons and storage facilities under some sort of reasonable control, and that the lies of the past are inexcusable and will not be tolerated in the future.

Response - During this NEPA process, DOE sought to obtain and understand the public's views and input because the public's input is important for DOE to make informed decisions. Toward this end, many opportunities for public involvement were provided and DOE reviewed, considered, and responded to all comments received on the Draft EIS. Then, as now, DOE welcomes the public's interest and will continue to provide information upon request. See response to comment summary IX.D (2) regarding DOE's credibility.

IX.D (5)

Comment - A commentor states that all elected officials paid by tax money should use a new level of consciousness to find solutions to these national and worldwide waste problems.

Response - Environmental restoration and waste management at DOE sites such as the INEEL are identified missions of DOE. Implementation of all activities within the DOE mission is subject to congressional review as a part of annual federal budget processes. In addition, DOE consults with state and local elected officials, tribal

governments, regulators, and other federal, state, and local agencies in establishing priorities, such as addressing the proposed action of this EIS, within the latitude of DOE's budget and administration policy. Citizens have the right, and are encouraged, to express their concerns and opinions regarding such matters to their elected officials as well as to DOE.

IX.D (6)

Comment - A commentor states that DOE should investigate the conduct of its contractor and make its findings publicly available. Other commentors indicate the need for robust project management controls, strategic oversight of contractors, preparation and compliance with plans and procedures, and the need to avoid another Pit-9 fiasco.

Response - The environment, safety, and health records of contractors conducting work at the INEEL are made a matter of public record. DOE management and operating contractors use proven project management methods and tools to administer DOE programs at the DOE sites and operate facilities in a manner that meets applicable safety and health requirements and State of Idaho milestones. In addition, DOE maintains oversight of the contractor to ensure that all plans and procedures are followed and operations are within scope and budget. Federal employees at the DOE Idaho Operations Office oversee INEEL contractors, and the State of Idaho Department of Environmental Quality and the EPA conduct inspections to enforce compliance with permit requirements. The results of compliance inspections are also publicly available, as are documents that report on emissions and discharges from all site operations. For example, the Annual INEEL Site Environmental Report and the INEEL National Emission Standards for Hazardous Air Pollutants-Radionuclides Annual Report are publicly available. In addition, the State of Idaho, INEEL Oversight Program maintains an independent monitoring program and a non-regulatory oversight presence at the INEEL.

IX.D (7)

Comment - A commentor commends the professionalism and credibility of INEEL employees.

Response - Comment noted.

X COSTS, FUNDING, AND FINANCIAL CONSIDERATIONS

X (1)

Comment - A commentor states that a billion dollars was saved by recovering uranium from spent nuclear fuels, but questions this savings in light of the billions of dollars in resulting waste treatment costs. The commentor requests that complete cost/benefit analyses be conducted before DOE chooses an alternative.

Response - The merits and cost benefits of recovering uranium from spent nuclear fuel are beyond the scope of this EIS. DOE assembled cost information comparing the estimated costs of the alternatives and options evaluated in this EIS and considered cost information along with a number of other factors. For more information regarding cost, see *Cost Analysis of Alternatives for the Idaho High-Level Waste and Facilities Disposition EIS* (DOE/ID 10702, January 2000) Final decisions for waste treatment would consider cost and other relevant factors.

X (2)

Comment - Commentors express concern that without a comparison of costs between alternatives, neither DOE nor the public has the information necessary to prioritize and allocate financial resources on a risk reduction/benefit basis. Commentors state that because cost is a major factor, a comparison of costs should be included in the EIS itself, and not as a separate report. A commentor notes that failing to include discussions of costs in the scope of the EIS gives a false impression that costs and funding are not a consideration.

Response - The Cost Report was prepared to provide information concerning the relative cost of alternatives. The Cost Report is not a cost-benefit analysis used to weigh the merits and drawbacks of the alternatives from an environmental standpoint or compare monetary costs with important qualitative considerations. For this reason the Cost Report was made available separately but is not appended to the EIS.

X (3)

Comment - Commentors state opinions as to how funds have been or should have been spent at the INEEL in areas such as research and development. Other commentors express opinions that the government should appropriate funds to support programs other than those discussed in the Draft EIS.

Response - DOE develops annual funding requests based on the projected project plans and mission needs for the respective fiscal year(s). Those requests are subject to the normal Federal budget process that includes review and approval by the Office of Management and Budget and the U.S. Congress.

For funds that are not specifically allocated to a particular project, DOE uses many factors, including regulatory requirements, public input, and legal agreements in allocating funds to accomplish its multiple missions. Some of the higher priorities are attaining milestones required by consent orders and the Settlement Agreement/Consent Orders, public and worker safety, and compliance with various environmental regulatory requirements. Some of these items are considered enforceable milestones because substantial penalties can be imposed by regulatory agencies for failure to meet the required actions. Although costs are a significant consideration in making decisions among alternatives in this EIS, funding allocations among INEEL initiatives are outside the scope of this EIS.

X (4)

Comment - Commentors assert that the costs of transportation and actual disposal in Yucca Mountain are a small fraction of waste management costs, and that development costs are billions of dollars even if waste is never buried there. One commentor adds that total disposal cost comprises the "sunk" research and development cost of the repository, the cost of treating the waste for disposal (indicating that separations options are higher than non-separations options), and the incremental cost of making room in the repository for each kind of waste form (which would be somewhat higher for non-separations options). The commentor maintains only those costs incurred as a direct consequence of choosing a specific option should be considered when comparing the costs of all options, and that the total cost would be much higher for separations options.

As an example, a commentor says that drilling equipment needed to make room for waste is already paid for. Commentors state that it is misleading to incorporate the projected costs for treated waste disposal when calculating life-cycle costs for the Direct Cement Waste Option and Separations Alternative because these costs are entirely speculative. One commentor states that vitrification treatment is cheaper than separations technologies, yet gets more expensive when speculative disposal costs are added. A commentor says that disposal costs are incremental costs, in that the cost will not be directly proportional to waste form volume.

Response - Costs in the report include the prorated cost for development and operation of the potential HLW geologic repository at Yucca Mountain for alternatives that call for disposal at a geologic repository. These costs are part of life-cycle costs for the potential repository and may be borne by projected users. See responses to comment summaries III.F.2 and III.F.3 for discussion on repository costs.

The cost of transportation of HLW can be calculated several ways depending on the mode of transportation. Transportation costs are relatively small for all of the options, less than 10 percent of any alternative total estimated cost. Life-cycle costs for transportation and disposal of wastes were analyzed in the Cost Report.

X (5)

Comment - A commentor expresses the opinion that the cost of a Maximum Achievable Control Technology upgrade to the New Waste Calcining Facility do not appear justified, nor is there time to do it.

Response - DOE used the same cost estimating methods in the Cost Report as are used for estimating costs of other potential capital project expenditures. Estimates of the cost to upgrade the calciner for compliance with EPA Maximum Achievable Control Technology requirements include, where possible, cost of procurement of commercially available air emission packages that treat offgases to meet the Maximum Achievable Control Technology requirements. Any costs associated with a decision to upgrade the calciner to Maximum Achievable Control Technology requirements, if necessary and the associated benefits of calciner operations would be considered in making a final decision.

X (6)

Comment - Commentors state that the Cost Report was not sufficiently detailed. Similar cost analyses for much smaller CERCLA activities contain more detailed information. Specifically, commentors say that the major elements for capital, operations and maintenance, or contingency are missing (precluding any value engineering by the reader), as is a cost/benefit analysis. Commentors also state that the lack of design-basis documents and functional/operational requirements preclude anything other than a rough order of magnitude estimate or any probabilistic estimate at this time. Commentors further state that the costs of alternatives may be greater than available funding and that only the No Action Alternative is within current funding levels; however, that does not make No Action the solution because it could result in permanent environmental damage.

Response - The Cost Report was provided for information concerning the relative cost of alternatives, not as a cost-benefit analysis to weigh the merits and drawbacks of the alternatives from an environmental standpoint. Uncertainty always exists early in the planning process such as when an EIS is being prepared and before a congressional appropriation. There is now a risk-adjusted cost estimating process under DOE's Project Management and Engineering Order 413.A that integrates the appropriation and project management processes. This means that when congress approves a line item project, such as one included in an alternative analyzed in this EIS, the funds are dedicated. This reduces much of the uncertainty associated with trying to forecast future funding levels.

X (7)

Comment - A commentor expresses the opinion that waste heat load (radionuclide content), and not simply waste volume, should dictate repository capacity and costs, which would make the cost of disposal of grouted calcine not enormously higher than the cost of vitrification.

Response - Basing calculations of the capacity of the proposed HLW geologic repository on mass of spent nuclear fuel processed is an approach that has been evaluated. Section 6.3.2.4 of this EIS describes DOE's current method and rationale for calculating MTHM in HLW. This section also describes an alternative approach that bases the calculation on radionuclide content and not on waste volume.

The State of Idaho's position on calculation of MTHM is described in the State's Foreword to this EIS.

X (8)

Comment - A commentor claims it is a policy of DOE sometimes to translate one thing into another thing where there isn't any correlation whatsoever. The commentor also states that somehow the disposition of this much calcine is

going to cost $11 billion, and has to be added to the cheapest and most straightforward way of actually making it suitable for transport, which is the Direct Cement Waste Option.

Response - DOE analyzes EIS alternatives on an equal basis using the same methodology for all alternatives. Accordingly, though in a separate Cost Report, DOE applied a consistent cost estimating methodology for all of the alternatives. Several of the alternatives identified as reasonable for analysis did in fact consist of a low-cost treatment option with a higher unit (and net) cost of disposal under current assumptions.

It was assumed that HLW would be sent to the proposed geologic repository and costs were applied based on the number of canisters that would be produced for each alternative. The Direct Cement Waste Option produces the largest number of canisters; hence, the alternative has the highest total estimated disposal cost.

X (9)

Comment - Commentors express various opinions regarding costs of alternatives, ranging from "cost is no object" to "do only what you can afford to do." Other commentors state that DOE should be concerned about the total ecosystem, and should treat the waste and protect the environment without regard to cost.

Response - The estimated cost of implementing an alternative is important, but it is only one of several factors considered when selecting among reasonable alternatives analyzed in an EIS. For example, potential impacts on human health and the environment, including the total ecosystem, are factors that must be considered in the decision making process. While one factor may be so compelling that it ultimately drives a decision, it is much more common, as in the case of this EIS, to find that the factors associated with each alternative give it a unique set of merits and disadvantages. Under these circumstances, the challenge in making a decision is to determine which of the alternatives provide the best set of benefits, while at the same time posing the fewest disadvantages or if not the fewest, at least disadvantages that can be managed and/or mitigated by agency action.

X (10)

Comment - Commentors state that waste management, monitoring, and cleanup should be funded in lieu of various defense programs such as Star Wars, weapons research, and stockpile maintenance, which are the wrong priorities. Commentors point out that $30 billion should be easily available to clean up the $3,900 billion weapons program legacy. Another commentor indicates that money must be made available if "we" are to survive.

Response - Priorities for funding large federal projects are ultimately determined through the budgets that are approved by Congress. DOE has some limited discretion for how allocated funds are spent for smaller projects within the overall budget appropriation. Congressional decisions as to whether defense and weapons research would have a higher priority for funding than waste treatment and disposal are beyond the scope of this EIS.

Historically, the INEEL HLW program budget has ranged from $50 to $70 million per year. Work at the INEEL will be prioritized to these budgets and requests for additional funding will be made where deemed necessary and appropriate.

X (11)

Comment - A commentor states that more expensive alternatives require either additional funding to INEEL or significant cuts in other INEEL programs that are barely in compliance under current budgets. The commentor adds that additional funding is unlikely and that meeting Settlement Agreement/Consent Order HLW requirements will pose a risk and likely result in noncompliance with other environmental regulations. Another commentor says that each environmental project is bought at the expense of another. Commentors also request that information about the costs of implementing the EIS alternatives, as well as the potential cumulative environmental impacts of not implementing other INEEL compliance activities due to transfer of limited funds to implement selected EIS alternatives, be addressed within the scope of the EIS, or otherwise made available to decision makers and the public.

Response - It is DOE's policy to operate in compliance with all regulatory requirements. Therefore, DOE develops annual funding requests based on the projected project plans and mission needs for the respective fiscal year.

For funds that are not specifically allocated to a particular project, DOE uses many factors, including regulatory, public input, and legal agreements with priorities established in the context of agency coordination in allocating funds to accomplish its multiple missions. Some of the higher priorities are attaining milestones required by consent orders and the Settlement Agreement/Consent Order, public and worker safety, and compliance with environmental requirements. Some of these items are considered enforceable milestones because substantial penalties can be imposed by regulatory agencies for failure to meet the required actions. Although costs are a significant consideration in making decisions among alternatives in this EIS, funding allocations among INEEL initiatives are outside the scope of this EIS. In addition, DOE anticipates that a phased decision could be implemented (and funded) in steps, or in a series of decisions over time. See response to comment summaries VI (1) and VII.D (2).

X (12)

Comment - Commentors express the opinion that DOE should fund research necessary to making sound decisions, stating that:

- Despite the fact that a calcine decision is not pressing, funding must be allocated to continue to obtain technical information necessary to a path-forward decision on calcine disposition.
- Given the multi-billion-dollar cost of implementing alternatives, DOE should fund research necessary to make a sound decision. For example, the Direct Cement Waste Option has had little research funding.
- Money should be put into research until a better solution can be found.

Response - DOE considered available information related to the maturities of technologies associated with alternatives and any additional technology development deemed necessary in identifying the Preferred Alternative, and would consider this information in reaching a Record of Decision on this EIS. DOE recognizes the importance of adequately developing selected technologies before implementing them at production scale. Budget planning for the INEEL includes technology development scopes of work necessary to address preparing the mixed transuranic waste/SBW and calcined mixed HLW for disposal.

DOE is committed to meeting regulatory requirements, as well as agreements with the State of Idaho. These agreements contain milestones for treating waste and preparing it for shipment. DOE anticipates that this EIS may result in a phased decision implemented in steps, or in a series of decisions over time, including further technology development. It is also anticipated that the decision would include milestones, so that actions would be neither premature nor postponed, but planned and implemented as a matter of public record in accordance with the decision.

X (13)

Comment - Commentors offer advice as to how to get alternatives funded. One commentor suggests DOE take out full page ads in national papers discussing contamination at Hanford and risk to the Columbia River, while another suggests asking Congress for funds to convert liquid wastes to a desirable calcine form for now. Another commentor suggests that DOE use money wasted at other sites such as Rocky Flats to fund HLW programs in Idaho.

Response - As a federal agency, DOE must obtain its funds through the established Federal budgeting process. Judgments about how funds are managed, particularly at sites other than Idaho, are outside the scope of this EIS.

X (14)

Comment - A commentor states that it can be deduced from the Cost Report that all alternatives other than No Action and Continued Current Operations have a rough total (trans-

portation and disposal included) cost per cubic meter of HLW of $850,000, which would require funding levels two to eight times larger than current INEEL funding levels. The commentor also cites an article that increases that figure to $2-4 million per cubic meter of HLW, or a total of $75 billion for the three large DOE sites, requiring an increase at INEEL from the current $51 million to $807 million. The commentor maintains that this funding level is not realistic and that DOE should use fiscal common sense in developing alternatives.

Response - Using the estimates from the Cost Report (Table 5) and quantities of expected HLW from Appendix C.7 of the Draft EIS (Table C.7-6), the cost per cubic meter for treatment, storage, and disposal of HLW ranges from $1.2 million to $15.2 million, with the average being $6.3 million per cubic meter. Because the volume of HLW that would be produced is small for the Separations Alternative options (470 cubic meters) compared with the Non-Separations Alternative options (as high as 13,000 cubic meters for the Direct Cement Waste Option), overall disposal cost can vary widely. Under current cost estimates for disposal, it is clear that minimizing volume has significant cost advantages. These estimates are consistent with the article cited by the commentor.

As noted in Appendix E of the Cost Report, the peak annual funding in unescalated dollars ranges from about $150 million to $580 million for the four alternatives evaluated therein (including transportation and disposal). This is substantially lower than the $807 million mentioned by the commentor. DOE has reviewed the article mentioned by the commentor, "Alternatives to High-Level Waste Vitrification: The Need for Common Sense," from the journal Nuclear Technology.

X (15)

Comment - A commentor identifies important components missing from the Cost Report.

Response - DOE acknowledges the limitations of the Cost Report. The report has since been reviewed by the DOE Office of Project Management, and the results of this review are available to DOE decision makers and the public. See also the response to comment summary X (6).

XI ISSUES OUTSIDE THE SCOPE OF THE EIS

XI (1)

Comment - Commentors state that DOE should overcome institutional obstacles identified in the National Academy of Sciences "Barriers to Science" report. One commentor states that the academy members are honest and impartial people. Another commentor states that DOE should use or rely on National Academy of Sciences members to help find solutions to problems such as those analyzed in this EIS.

Response - The commentor references a National Academy of Sciences study, "Barriers to Science." DOE considered this nation-wide study in preparation of the EIS. However, response to comments on the study is beyond the scope of this EIS.

XI (2)

Comment - A commentor asks that DOE stop all plans for the incinerator at INEEL and spend that money on research and development to find other ways to deal with this hazardous waste safely.

Response - DOE believes that the commentor is referring to the incinerator that was proposed as part of the Advanced Mixed Waste Treatment Project that DOE is building to treat transuranic waste. This project is outside the scope of this EIS. However, as discussed in Section 3.1.3 of this EIS, an incinerator was included with Separations Alternatives options that involve the UNEX or TRUEX solvent extraction processes. Under the Separation Alternatives, an incinerator designed to destroy organics was evaluated in this EIS.

XI (3)

Comment - Commentors address subject matter discussed or presented in documents prepared by others, but that is also addressed independently in the Draft EIS. Often, subject matter pertaining both to the Draft EIS and the other documents is integrated within a single comment.

Response - Though the subject matter in documents prepared by others may be referenced in this EIS or relevant to the scope of the analyses, the documents themselves are not part of this EIS. As such, comments specific to these documents should be addressed to the authoring entity for response. DOE carefully evaluated each comment submittal to identify which comments are specific to this EIS and has responded to those accordingly.

XI (4)

Comment - A commentor discusses technical aspects of waste management (including opinions as to how various treatment/handling options should be conducted); however, these opinions are not specifically associated with options, approaches, or alternatives discussed in the Draft EIS.

Response - Such information is unrelated to specific alternatives discussed in the Draft EIS and is considered beyond the scope of this EIS.

XI (5)

Comment - A commentor states that the EIS is inadequate because it fails to fully evaluate the Advanced Mixed Waste Treatment Project as a reasonable waste treatment alternative. Commentors express opinions as to whether or not "the incinerator" (assumed to be the thermal treatment portion of the Advanced Mixed Waste Treatment Project) should be built, permitted, operated, and/or how the flow sheet technology could be improved, in particular expressing concerns as to potential adverse environmental impacts on air quality. Commentors express opinions as to the need for reviews by independent entities, including the EPA and the State of Idaho, of alleged problematic incinerator operations such as the New Waste Calcining Facility before Advanced Mixed Waste Treatment Project permits are issued. Commentors also express opinions as to the lack of involvement of Wyoming residents in decisions regarding the "incinerator" and the processes used by the Idaho Department of Environmental Quality in issuing permits. Commentors state that the lax operation of the calciner without a permit for 18 years should require careful scrutiny by the EPA and this should be resolved before a permit is granted to the Advanced Mixed Waste Treatment Project.

Response - Section 3.3.7 of this EIS discusses this issue and concludes that the Advanced Mixed Waste Treatment Project is not designed to process remote-handled or liquid waste. Thus, it does not present a reasonable treatment option for analysis in this EIS. Decisions regarding the Advanced Mixed Waste Treatment Project and the waste forms that it is being designed to manage are beyond the scope of this EIS. The environmental impacts associated with this project were included in the *Advanced Mixed Waste Treatment Project EIS* (DOE/EIS-0290). However, environmental impacts from operation of the Advanced Mixed Waste Treatment Project are discussed in Section 5.4 and Appendix C.2 of this EIS, insofar as this facility would contribute to cumulative environmental impacts at the INEEL. If implemented, any of the waste treatment facilities evaluated in this EIS would undergo independent review by the EPA and the State of Idaho in accordance with their regulatory authority.

XI (6)

Comment - Commentors express opinions as to the selection, capabilities, and/or past performance of British Nuclear Fuels, Limited.

Response - The perceived or actual performance and awarding of contracts to British Nuclear Fuels, Limited is currently unrelated to the management of mixed transuranic waste/SBW and mixed HLW at INTEC and, therefore, outside the scope of this EIS.

XI (7)

Comment - Commentors rendered opinions as to DOE and/or INEEL programs (or nuclear energy programs in general) unrelated to alternatives discussed in the Draft EIS such as the feasibility, viability, or safety or need for nuclear energy production, weapons programs, Integral Fast Reactor technology, wastes at the Hanford Site, and/or repository programs such as Yucca Mountain, in particular, site characterization issues, pollution issues, and the difficulty of managing associated wastes.

Response - The feasibility, viability, need, and safety of DOE programs other than management of mixed HLW and mixed transuranic waste/SBW at INTEC are beyond the scope of this EIS. Although generation of wastes from activities not discussed in this EIS is out of scope, DOE continues to emphasize waste minimization in all aspects of its operations (both nuclear and otherwise). Issues associated with the siting of federal repositories, such as the Waste Isolation Pilot Plant and the potential Yucca Mountain geologic repository, are addressed in their respective National Environmental Policy Act documents.

XI (8)

Comment - A commentor expresses opinions regarding the role and/or necessity of former INEEL operations that resulted in the generation of wastes being addressed in the EIS. Other commentors express the general opinion that no waste-producing operations should be conducted outside of environmental cleanup and restoration activities.

Response - Although this EIS presents a brief history of the programs that produced the mixed HLW and facilities addressed in this EIS, the purpose and need for such programs is beyond the scope of this EIS. Likewise, decisions to operate facilities (which may or may not produce chemical or radioactive waste streams) beyond those discussed in the alternatives under consideration in this EIS are beyond the scope of this EIS.

XI (9)

Comment - A commentor states that DOE must abandon its disastrous experiment with privatization of treatment facilities.

Response - Privatization (paying for a commercially provided service as opposed to DOE building and operating facilities) is a contracting approach that has been used in the DOE complex, including the INEEL, with varied results. The contractual vehicles used to implement DOE's decisions are beyond the scope of this EIS.

XI (10)

Comment - A commentor requests that minutes of a previous meeting on the Advanced Mixed Waste Treatment Project be included in the record for the public meeting on the Draft EIS.

Response - Including the minutes of meetings concerning the Advanced Mixed Waste Treatment Project would not assist DOE in the analysis of environmental impacts that are within the scope of this EIS. Those minutes are available for review in the Advanced Mixed Waste Treatment Project EIS administrative record files and would be considered in the course of permitting and decisions specific to that project. This EIS analyzes the cumulative environmental impacts of concurrent mixed HLW treatment and Advanced Mixed Waste Treatment Project operations, but does not address the Advanced Mixed Waste Treatment Project public involvement process, nor would the Record of Decision on this EIS address decisions on Advanced Mixed Waste Treatment Project operations.