

## CHAPTER 1: Public Comment Process

*This chapter of the Comment Response Document describes the public comment process for the Draft Programmatic Environmental Impact Statement for Stockpile Stewardship and Management and the procedure used in responding to those comments. Section 1.1 describes the means through which comments were acquired, summarized, and numbered. Section 1.2 discusses the public hearing format that was used to solicit comments from the public. Section 1.3 describes the organization of this document as well as how the comments were categorized, addressed, and documented. Section 1.3 also provides guidance on the use of this document to assist the reader. The chapter concludes with a discussion of the major comments and changes to the Draft Programmatic Environmental Impact Statement for Stockpile Stewardship and Management resulting from the public comment process.*

### 1.1 Introduction

In February 1996, the Department of Energy (DOE) published the *Draft Programmatic Environmental Impact Statement (PEIS) for Stockpile Stewardship and Management*, which described and analyzed alternative ways to implement the proposed actions for the Stockpile Stewardship and Management Program. DOE developed the Program to provide a single highly integrated technical program for maintaining the safety and reliability of the nuclear stockpile in the absence of underground nuclear testing. The 60-day public comment period for the Stockpile Stewardship and Management Draft PEIS began on March 8, 1996, and ended on May 7, 1996.

During the comment period, public hearings were held in Los Alamos, NM; Las Vegas, NV; Albuquerque, NM; Oak Ridge, TN; Kansas City, MO; Livermore, CA; Washington, DC; Amarillo, TX; Santa Fe, NM; and North Augusta, SC. Figure 1.1-1 shows the locations and dates of the hearings. Five of those public hearings were joint meetings to obtain comments on both the Stockpile Stewardship and Management Draft PEIS and the Storage and Disposition of Weapons-Usable Fissile Materials Draft *Programmatic Environmental Impact Statement (Storage and Disposition Draft PEIS)* (DOE/EIS-0229-D, February 1996). Two of the joint meetings (Pantex Plant [Pantex] in Amarillo, TX and Savannah River Site [SRS] in North Augusta, SC) also included the Draft Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components (Pantex Site-Wide Draft EIS) (DOE/EIS-0225-D, March 1996). In addition, the public was encouraged to provide comments via mail, fax, electronic bulletin board (Internet), and telephone (toll-free 800-number).

Attendance at each hearing, together with the number of comment summaries recorded, is presented in table 1.1-1. Attendance numbers are based on the number of participants who completed and returned registration forms and may not include all of those present at the meetings. In addition to comments received at the public hearings, comments were also received during the public comment period through the other means described above.

All public hearing comment summaries were combined with comments received by other means during the public comment period. Comments received by mail, fax, Internet, or telephone were date stamped and assigned a sequential document number according to origin (e.g., fax or mail) of the document. Chapter 2 of this volume contains copies of the documents DOE received. Table 1.1-2 provides an overview of the number of documents and comments submitted by each method. The

document number codes that were assigned to each document based on the method of submission are given in parentheses in table 1.1-2. For example, all documents that were handed in at public hearings have document numbers beginning with SSM-H.

**Table 1.1-1.-- Public Hearing Locations, Attendance, and Comment Summaries**

<b>Hearing Location</b>	<b>Total Attendance</b>	<b>Comment Summaries</b>
Los Alamos, NM	87	89
Las Vegas, NV	51	54
Albuquerque, NM	41	87
Oak Ridge, TN	200	128
Kansas City, MO	21	7
Livermore, CA	176	177
Washington, DC	145	21
Amarillo, TX	350	95
Santa Fe, NM	276	195
<b>North Augusta, SC</b>	91	68

**Table 1.1-2.-- Document and Comment Submission Overview**

<b>Method</b>	<b>Documents Received</b>	<b>Total Comments Received</b>
Hand-in at public hearings (SSM-H)	101	222
Mail-in (SSM-M)	128	446
Letter/postcard campaigns (SSM-C)	6,675	7,038
Fax (SSM-F)	30	155
Phone (SSM-P)	9	10
Electronic bulletin board (SSM-B)	0	0
<b>Transcripts (SSM-ET)</b>	2	11

## 1.2 Public Hearing Format

The public hearings used a modified traditional hearing format which allowed for two-way interaction between DOE and the public and encouraged informed public input and comments on the document. Neutral facilitators were present at the hearings to direct and clarify discussions and comments. Court reporters were also present to provide a verbatim transcript of the proceedings and record all formal comments that the public wished to present. The transcripts are available in DOE Public Reading Rooms near each site and in Washington, DC. These transcripts have been marked

with sidebars to identify specific comments and how the comments were categorized into issue codes.

The format used for each hearing included a Program overview, interactive discussions, and a summary session. There was also an opportunity for formal comment provided for any attendee who wished to read a prepared statement of no more than 5 minutes. The Program overview session opened with a welcome from a site representative, followed by an overview of the Stockpile Stewardship and Management Program by a DOE representative. After clarifying questions, the facilitator opened the interactive general question and discussion period. A notetaker was present at each session to document and consolidate comments for the preparation of the Stockpile Stewardship and Management Final PEIS. Following the question and discussion period, a summary session was held to present the major comments and issues identified in each discussion group. An opportunity for additional comments or clarification was provided at this time. Modifications to the format were made at each public hearing location to best fulfill special needs or requests from the attendees. Following the public hearings, comment summaries were prepared by the notetakers (see [chapter 2](#)) with the verbatim transcripts being used as a reference.

## 1.3 Organization of this Comment Response Document

This Comment Response Document has been organized into the following sections:

- [Chapter 1](#) describes the public comment process and contains tables to assist readers.
- [2](#) contains notetaker-generated summaries of the comments received at the public hearings and scanned copies of comment documents received during the public comment period.
- Chapter 3 contains comment summaries and DOE responses by category.
- Tables are provided at the end of this chapter to assist commentors and other readers in locating individual comments regarding the Stockpile Stewardship and Management Draft PEIS. Once comments were received, they were categorized by issue (e.g., land resources or water resources) and assigned a category code. Table [1.3-1](#) lists the issue categories and corresponding category codes. Similar comments within the same issue category were then summarized and assigned a summary code.

Table [1.3-2](#) identifies the individuals who attended public hearings and the pages where the notetaker-generated comment summaries from those hearings appear. Commentors interested in locating their comment document and reviewing how it was coded can use tables [1.3-3](#) and [1.3-4](#). Table 1.3-3 consists of a list of members of the general public who submitted comments. Commentors are listed by last name, with their assigned document numbers and the pages on which their comment documents appear. Table 1.3-4 consists of a list of state and local officials and agencies, companies, organizations, and special interest groups that submitted comments. The commentors in table 1.3-4 are listed by organization in alphabetical order with the names of the particular individuals who submitted those documents. For each commentor, the assigned document number and the pages on which their comment documents appear are listed.

In some instances multiple duplicate documents were received from a commentor. As a result of the multiple submissions, documents were deleted and gaps exist in the numerical sequence for tables 1.3-5 and 1.3-6. Some commentors submitted documents which were classified as

letter writing or postcard campaigns. These campaigns were conducted by various organizations and special interest groups to express either support or opposition to aspects of the Stockpile Stewardship and Management Program. Although many postcards and duplicate documents were received, only one document scan of each type is included in chapter 2. The names of commentors who participated in most campaigns are included in tables 1.3-3 and 1.3-4. However, the names of commentors who participated in two very large campaigns, identified as campaign 4 (SSM-C-004) and campaign 5 (SSM-C-005), are not provided due to their volume. Lists of these commentors are available in DOE Public Reading Rooms near each site and in Washington, DC.

Table 1.3-6 is organized by summary code. Using the appropriate summary code, commentors can locate all of the comments that are reflected in each summary. The table also lists the page on which the comment summary and corresponding response appear and the pages on which the actual comment documents appear. Some comment documents presented in chapter 2 consist of multiple pages. The document page number given in tables 1.3-2 through 1.3-5 refers to the first page on which the comment document appears. The document page number given in table 1.3-6 refers to the page on which the individual comment begins within a document.

Scans of the documents received during the public comment period are shown in chapter 2. A document number code was assigned to each comment document based on the method of submission. Documents that were handed in at public hearings, mailed, or faxed have document numbers beginning with SSM-H, SSM-M, and SSM-F, respectively. Some documents were mailed in as part of letter writing or postcard campaigns and were given document numbers beginning with SSM-C. Comments that were received over the telephone were transcribed and given document numbers beginning with SSM-P. No comments were received through the electronic bulletin board. Comments from elected officials were given document numbers beginning with SSM-E. Documents from elected officials are not indicated separately in table 1.1-2, but are included in the total document counts based on the type of submission. Elected officials' comments that were transcribed at public hearings and were not submitted in another form were given document numbers beginning with SSM-ET.

## 1.4 How to Use this Comment Response Document

This section and figure 1.4-1 will assist the reader in tracking comment documents and determining how they were responded to. Begin by locating the appropriate name or organization in table 1.3-3 (Figure 1.4.1, Step 1) or 1.3-4. Table 1.3-3 consists of private individuals who submitted comments. Table 1.3-4 is a list of organizations and public officials who submitted comments. Both of these tables also list the document number that was assigned to each comment document (Figure 1.4.1, Step 2) and the page number on which that document appears in chapter 2. In order to see what issue codes were assigned to the comments identified within a document, locate the document number in table 1.3-5 (Figure 1.4.1, Step 3). Table 1.3-5 contains information on the number of comments identified in each document, the issue code assigned to each comment, and the page number for the corresponding summary and response (Figure 1.4.1, Step 4) that appears in chapter 3. In order to locate other comments in chapter 2 that address the same issues as a certain document, or to locate comments that address a certain issue code, use table 1.3-6. Table 1.3-6 lists the summary codes (Figure 1.4.1, Step 5), the page on which the corresponding summary and response appears in chapter 3, and the page numbers



on which each comment that was assigned that issue code appears in chapter 2.

For example, if Cynthia Johnson wanted to track her comments, she would go to table 1.3-3 to find her name, corresponding document number (SSM-M-030), and the corresponding page on which her document appears in chapter 2 (page 2-275). On page 2-275, Ms. Johnson would find that her scanned document has been sidebarred and coded for summary number 40.06. After obtaining the comment document number SSM-M-030, she could use table 1.3-5 to locate the number of comments identified (one), the issue code that her comment was assigned (40.06), the summary page number on which the corresponding summary and response is found in chapter 3 (page 3-93), and the document page number (page 2-275). After obtaining the issue code from either the scanned document on page 2-275 or table 1.3-5, Ms. Johnson could use table 1.3-6 to see how her comment was categorized (nuclear weapons policies), and to locate the page numbers on which other comments that express similar concerns appear in chapter 2. Using table 1.3-6, Ms. Johnson would find that similar concerns were expressed in 80 notetaker-generated comment summaries and comment documents appearing in chapter 2 on pages 2-9, 10, 11, 30, 33, 34, 37, 39, 40, 41, 42, 46, 48, 49, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, 65, 66, 67, 83, 95, 131, 165, 222, 230, 231, 232, 234, 237, 239, 240, 253, 260, 261, 272, 273, 275, 281, 282, 288, 295, 310, 344, 345, 448, 449, 454, and 458.

## 1.5 Changes from the Draft Programmatic Environmental Impact Statement

In response to comments submitted after issuance of the Stockpile Stewardship and Management Draft PEIS, and due to additional technical details not available at the time of issuance of the Draft, Volumes I, II, and III of the Stockpile Stewardship and Management Final PEIS contain revisions and changes. The revisions and changes made since the issuance of the Draft PEIS are indicated by a double underline for minor word changes or by using a sidebar in the margin for paragraph or larger changes. In addition, Volume I and each appendix in Volume III provide a unique reference list to enable the reader to further review and research selected topics. These referenced documents and transcripts from the public hearings on the Draft PEIS may be reviewed or obtained for review in DOE Public Reading Rooms. A brief discussion of the more significant changes is provided in the following paragraphs.

*Alternatives Considered but Eliminated from Detailed Study and Related Issues.* In response to public comments expressing a concern DOE had not analyzed a reasonable range of alternatives, section 3.1.2 of Volume I was expanded. The changes were in response to specific questions concerning compliance with treaties, stockpile size, maintenance and remanufacturing options, and the stockpile stewardship alternatives, including No Action. The discussions in section 3.1.2 provide greater detail and more clarification on why alternatives were eliminated from detailed study in the PEIS. Together, chapter 2 and section 3.1.2 of Volume I explain the framework and the constraints of national security policy that have shaped the proposed actions and reasonable alternatives for the PEIS.

*No Action Alternative.* Several commentators did not think that the No Action alternative was clearly explained in the Draft PEIS. More specifically, they were not sure which existing

facilities at Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), Sandia National Laboratories (SNL), and the Nevada Test Site (NTS) were part of the ongoing stockpile stewardship program. As a result, the description of No Action was modified in Volume II, appendix A (Stockpile Stewardship and Management Facilities) to include a listing of major DOE Office for Defense Programs (DP) function facilities at LANL, LLNL, SNL, and NTS. Additionally, the discussion of impacts of No Action at LANL (Volume I, section 4.6.3) was revised as appropriate to include the effects of the Dual Axis Radiographic Hydrodynamic Test (DARHT) Facility.

*Socioeconomics at Oak Ridge Reservation, Kansas City Plant, and Pantex Plant.* Based on public comments and revised workforce size estimates, the socioeconomic impact sections for the downsizing alternatives at Oak Ridge Reservation (ORR) (Volume I, section 4.2.3.8), Kansas City Plant (KCP) (Volume I, section 4.4.3.8) and Pantex (Volume I, section 4.5.3.8), have been revised. The analyses were also expanded to cover the "base case single-shift" options in greater detail. At these three sites, downsizing of existing facilities is the preferred alternative. For such downsizing, the "base case single-shift" scenario represents the bounding analysis for the workforce. The change in worker estimates did not cause any of the major indicators in the socioeconomic analysis to change in any significant manner.

*Accident Impacts at Pantex Plant.* The analyses of impacts due to an aircraft impact and resulting release of plutonium by a fire or an explosion were modified to include more updated data on probability and source terms developed for the Pantex Site-Wide EIS. Volume I, section 4.5.3.9, and Volume II, appendix sections F.2.1.1 and F.2.1.2, were revised to incorporate the new analytical results. Based on the updated data, the potential impacts and risks to the public from the composite accident presented in the PEIS would be less than previously reported in the Draft PEIS. This change was not significant.

*Normal Operation Radiological/Chemical Impacts.* The discussion of the normal operation radiological affected environment for LANL, Volume I, section 4.6.2.9, has been updated to include data from Environmental Surveillance at Los Alamos During 1993 (LA-12973-ENV, October 1995). The normal operation radiological impact sections 4.2.3.9, 4.3.3.9, and 4.6.3.9 in Volume I have also been revised to include the contribution of recent facilities at ORR, SRS, and the new environmental surveillance data for LANL. The chemical health effects sections in Volume I, 4.6.3.9 for LANL and 4.7.3.9 for LLNL, were revised based on new analyses using updated dispersion rates. Tables in Volume II, appendix section E.3.4, supporting these sections were also updated. The majority of these changes affected the No Action alternative analyses. None of the changes to these sections significantly changed the analysis of impacts for the "action" alternatives.

*Cumulative Impacts.* Volume I, section 4.13, Cumulative Impacts, has been modified to incorporate a discussion of normal operation radiological impacts and other changes based on more recent data from National Environmental Policy Act documents and Record(s) of Decision. The changes to this section did not have a meaningful effect on the analysis/comparative evaluation of alternatives.

*Los Alamos National Laboratory Water Resources.* Changes were incorporated in Volume I, section 4.6.2.4, Water Resources, for LANL based on more recent water use and water quality data. The Draft PEIS had erroneously stated that the LANL water allotment would be fully used by about the year 2000. The Final PEIS correctly reports that this allotment would be fully used by about the year 2052. This change did not have a meaningful effect on the analysis/comparative evaluation of alternatives. Minor revisions reflecting the baseline changes were also made to the LANL water resources impact discussion in Volume I, section 4.6.3.4.

*Health Effects Studies.* Appendix section E.4 in Volume II outlining epidemiological studies at the alternative sites was rewritten to provide more detail and incorporate more recent and other applicable studies. Although these epidemiology sections do not affect the environmental analysis of future stockpile stewardship and management missions, they do provide relevant information regarding potential health effects from past actions. These changes did not have a meaningful effect on the analysis/comparative evaluation of alternatives.

*New Section.* A new section has also been added to the Final PEIS (Volume II, appendix section F.4, Secondary Impacts of Accidents). This section evaluates the secondary impacts of accidents that affect elements of the environment other than humans (e.g., farmland). The section was added because of public The results of this analysis show that secondary impacts from accidents would generally not extend beyond site boundaries, except at Pantex and LLNL, where it is possible that some surface contamination could occur. This new analysis did not have a meaningful effect on the analysis/comparative evaluation of alternatives.

**Table 1.3-1.-- Issue Categories**

Category Code	Issue Category
01	Land Resources
02	Site Infrastructure
03	Air Quality
04	Water Resources
05	Geology and Soils
06	Biotic Resources
07	Cultural and Paleontological Resources
08	Socioeconomics
09	Intersite Transportation
10	Waste Management
11	Radiation and Hazardous Chemicals
12	Environmental Justice
13	Cumulative Impacts
20	Stewardship--Contained Firing Facility

21	Stewardship--National Ignition Facility
22	Stewardship--Atlas Facility
30	Management--Weapons Assembly/Disassembly
31	Management--Nonnuclear Components
32	Management--Pits
33	Management--Secondaries and Cases
34	Management--High Explosives Components
40	Nuclear Weapons Policies
41	Regulatory Compliance
42	Relationship to Other DOE Programs/Activities
43	<b>General/Miscellaneous Environmental</b>

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## CHAPTER 3: COMMENT SUMMARIES AND RESPONSES

This chapter summarizes the comments the Department of Energy received on the *Draft Programmatic Environmental Impact Statement for Stockpile Stewardship and Management* during the public comment period, and provides responses to those comments. Identical or similar comments provided by more than one commentor were grouped together in one comment summary for response. The responses indicate whether any changes were made to the Programmatic Environmental Impact Statement and the rationale behind those decisions. Section 1.3 describes the organization of this Comment Response Document and discusses the tables provided in chapter 1 to assist readers in tracking their comments to the respective comment summary and response.

### 01 Land Resources

#### 01.01

A commentor is concerned that other Department of Energy (DOE) sites do not have a future use plan like the Savannah River Site (SRS). The commentor also states that the SRS future use plan restricts future development to areas with prior development. The commentor wants this to become a DOE-wide policy. Another commentor proposes a land-use concept of multiple use for SRS. Primary uses would be located within the center, and environmental uses would occur within the surrounding buffer area.

- Response: All sites in the Nuclear Weapons Complex (Complex) have future land-use plans. Each site structures its future land-use plan in accordance with DOE guidance, program needs, and security requirements. For the proposed action in this programmatic environmental impact statement (PEIS), SRS is an alternative for plutonium fabrication. That mission would be conducted in developed areas (F- and H-Areas) using existing facilities.

#### 01.02

On Pantex Plant (Pantex) figures 4.5-2 and 4.5.2.1-1, a commentor notes that the playas are incorrectly labeled as dry lakes; they should be described as ephemeral lakes. In addition, the commentor states that all playas shown on these figures, except playa 3, are approximately 900 to 1,000 meters (m) (2,953 to 3,281 feet [ft]) in diameter. Also, the scale on figure 4.5.2.1-1 is incorrect (compared with that of figure 4.5-2, which is correct). Another commentor notes that the maps of the Nevada Test Site (NTS) presented in the document need to depict Area 51.

- Response: The phrase "dry lake" has been deleted from figures 3.4.1.2-1, 4.5-2, 4.5.2.1-1, 4.5.2.4-1, A.1.4-2, and A.3.5.1-1. Furthermore, a definition of playa can be found in the glossary (chapter 9) of the Final Programmatic Environmental Impact Statement for Stockpile Stewardship and Management (Final PEIS). The scale on figure 4.5.2.1-1 has been changed to match that of figure 4.5-2. Regarding Area 51, the maps of NTS do not depict this area since it is not a part of NTS. Lands withdrawn under Public Land Order 1662 are used by the Department of Defense (DOD) for their ongoing operations and are not considered in this PEIS for use by DOE.

#### 01.03

The commentor asks if high explosives (HE) production is moved from Pantex to Los Alamos National Laboratory (LANL) or Lawrence Livermore National Laboratory (LLNL), where would the building be placed and the testing be done. The commentor also asks what the current and projected land use is around LANL and LLNL (particularly Site 300).

- Response: LANL HE fabrication process capability is already established. HE fabrication and storage functions would be supported in existing facilities at LANL Technical Areas (TAs) -9, -16, and -37. Since LANL HE plant facilities already exist and have sufficient capacity for stockpile management requirements, no new building construction and no significant modifications would be required. LANL assembles and detonates explosive test configurations in TA-15, TA-40, and TA-11 through TA-25. The commentor is referred to section 3.4.5.3 and appendix section A.3.5.2 for more information on the LANL HE alternative.

The LLNL HE fabrication alternative would require construction of one new facility and would use 23 existing buildings, 66 existing magazines, and various utilities and services at Site 300. The new facility would be constructed at the HE storage area near M30 and M34. Energetic materials components are test fired at the HE Applications Facility, Building 191, at the Livermore Site. The remote firing facility, Building 851 at Site 300, is remotely located from HE fabrication operations and includes an outdoor firing capability to conduct large-scale explosives tests that cannot be performed in a test chamber. The commentor is referred to section 3.4.5.4 and appendix section A.3.5.3 for more information on the LLNL HE alternative. Regarding current and projected land use around LANL and LLNL, the commentor is referred to sections 4.6.2.1 and 4.6.3.1 for land use at LANL and sections 4.7.2.1 and 4.7.3.1 for land use at LLNL.

## 01.04

The commentor refers to section 4.9, Nevada Test Site, and suggests that the stated area be replaced with the legal size of 320,778 hectares (ha) (792,650 acres). The commentor notes that NTS may have been established in 1950, but it was not legally withdrawn until 1952. The commentor also believes that the PEIS should indicate all of the properties (underground nuclear explosion sites) that the Nevada Operations Office is responsible for such as Nellis Air Force Base Remote Sensing Laboratory, the Project Faultless site, the Project Shoal site, the Salmon site, the sites on Amchitka Island, as well as the Rulison, Rio Blanco, Gnome, and Gasbuggy sites.

- Response: The area given in the PEIS for NTS (approximately 350,866 ha [867,000 acres]) is based upon the definition of the land area presented in the Draft Environmental Impact Statement for the Nevada Test Site and Offsite Locations in the State of Nevada (NTS Site-Wide EIS) (DOE/EIS 0243) and is consistent with the NTS Site Development Plan. DOE is unaware of the origin of the legal size of NTS that the commentor asserts. In addition, this discrepancy in the size of NTS would not affect the impact analysis presented in this PEIS. For more information on public land orders and withdrawals concerning NTS, the commentor is referred to the response to comment summary 01.06 and the NTS Site-Wide EIS. Regarding the other properties for which the Nevada Operations Office is responsible, they are not discussed because they are not relevant to the analysis of the alternatives in the PEIS. None of these sites is considered as a candidate location for future activities within the Stockpile Stewardship and Management Program.

## 01.05

The commentor refers to section 4.12, Environmental Impacts of Underground Testing, and asks that after the description of the land area ruined after each test, an infrared satellite image of the surface of Yucca Flat be provided.

- Response: Section 4.12 provides a programmatic evaluation of the potential environmental impacts of underground nuclear testing. The inclusion of an infrared satellite image of the surface of Yucca Flat would not be a meaningful contribution at this level of programmatic review. The commentor is referred to the NTS Site-Wide EIS for more detailed information on the potential environmental impacts of underground nuclear testing.

## 01.06

The commentor states that the lands comprising NTS are, in fact, public lands that have been withdrawn for a specific national defense purpose, as stipulated in the current public land orders. That purpose, according to the commentor, does not include large scale weapons assembly and disassembly (A/D) and/or the siting of laser fusion technologies such as the National Ignition Facility (NIF). The commentor states that if NTS is chosen for one or more of these functions, an analysis must be contained in the Final PEIS that addresses the facility-use restrictions in the public land orders.

- Response: In 1983, the U.S. Bureau of Land Management, in accordance with the Federal Land Policy and Management Act of 1976 (Public Law 94-579, October 21, 1976), conducted a review of the existing four land withdrawals that comprise NTS. The Bureau of Land Management report compiled during its review, acknowledged that while the primary mission of NTS continued to be weapons testing, other activities and projects are also being pursued. The reports specifically referred the readers to the Final EIS (1977) for "a more detailed explanation of activities and projects." Thus, it is clear that the Bureau of Land Management was well aware of DOE's multiple land uses, including radioactive waste disposal, NTS farm experiments, emergency response tests, etc. Thus informed, the Bureau of Land Management District Manager concurred with the review's conclusion that the lands were still being used for the purpose for which they were withdrawn. The Bureau of Land Management found that any new land uses at NTS at the time were not inconsistent with that original use.

The Federal Land Policy and Management Act of 1976, implementing regulations, and the public land orders themselves, are silent on the use of withdrawn lands for related purposes or purposes in addition to those for which the land was originally reserved. There are no specific prohibitions against additional use, if the purpose for which the withdrawal was authorized remains valid. There is clearly no prohibition of the consideration of alternative uses, through an EIS or otherwise, of withdrawn lands as a management or administrative action to assess the potential for additional beneficial uses of such lands.

The Department of the Interior is vested with oversight responsibility to review existing land withdrawals under the Federal Land Policy and Management Act of 1976. The Department of Interior's San Francisco Office has suggested in its comments on the NTS Site-Wide EIS that substantial changes in land use at NTS may require a new land withdrawal. While DOE believes that any new or proposed land use at NTS is compatible with the primary purpose of

each land withdrawal, the most recent comments from the San Francisco Office of the Department of Interior indicate that a review of the existing land withdrawals may be prudent.

As has been its past practice, DOE continues to be committed to ensuring that all future activities contemplated at NTS, are conducted in compliance with the Federal Land Policy and Management Act of 1976 and Federal land withdrawal policy. In this regard, DOE has begun informal consultation with the Department of Interior to ensure that the appropriate process is followed to enable DOE to fulfill this commitment.

## 02 Site Infrastructure

### 02.01

Several commentors question the estimates for power requirements given in the PEIS, specifically tables 3.4.4.2-2 and 3.4.4.3-2. Commentors note discrepancies between the utility requirements for the secondary and case fabrication mission for the Y-12 Plant (Y-12) at Oak Ridge Reservation (ORR) (appendix section A.3.2.1), LANL (appendix section A.3.2.2), and LLNL (appendix section A.3.2.3), and believe that these numbers show little basis in fact. Y-12, LANL, and LLNL propose to use 118,000, 36,000, and 15,000 megawatt hours (MWh) of electricity; 250,000, 100,00, and 85,200 liters (L) (66,042, 26,417, and 22,507 gallons [gal]) of diesel fuel; and 1.5 billion, 55 million, and 36 million L (0.4 billion, 14.5 million, and 9.5 million gal) of water, respectively. However, the tables state that Y-12 will use 118,000 MWh with a peak of 19 megawatts electric (MWe), 17 million cubic feet (ft<sup>3</sup>) (0.14 cubic meters [m<sup>3</sup>]) of natural gas and 250,000 L (66,042 gal) of liquid fuel, but LANL will only use 36,000 MWh, 5 MWe peak, 100,000 L (26,417 gal) of liquid fuel, and no natural gas. Since the manufacturing processes require electricity and gas to operate and since each plant would produce the same number of parts, the commentors ask why the energy requirements at LANL are so low. According to the commentors these tables show an order of magnitude difference in the estimates for the power requirements for Y-12 and LANL to do the same job. The commentors also question why Y-12 would use 1.5 billion L (0.4 billion gal) of water and LANL only 55 million L (14.5 million gal) to do the same mission.

- Response: As stated in section 3.4.4 of the Draft Programmatic Environmental Impact Statement for Stockpile Stewardship and Management (Draft PEIS), when comparing data between secondary and case manufacturing alternatives it is important to note that there are differences in the facility designs. The production capabilities of each of the three sites at surge capacity are different, with Y-12 the highest and LLNL the lowest. This is further explained in section 3.1.1.1.

### 02.02

The commentor requests resolution of the discrepancy between table 4.13.1.5-1 which states that LANL will use 4,491,240 m<sup>3</sup>/yr (158,608, 141 ft<sup>3</sup>/yr) of natural gas and table 3.4.4.3-2 which states that LANL will use no natural gas.

- Response: Table 4.13.1.5-1 presents the site infrastructure combined impacts at LANL, that is, the total quantity of resources required to implement all missions for which LANL is a candidate. Table 3.4.4.3-2 provides the annual operating requirements to implement only the secondary and case fabrication mission. As presented in sections 3.3 and 3.4, LANL is a



candidate for the stockpile stewardship alternatives associated with the physics of nuclear weapons primaries (ongoing work) and for the physics of nuclear weapons secondaries (ongoing work as well as NIF and the Atlas Facility). LANL is also a candidate for the stockpile management alternatives of nonnuclear fabrication, pit fabrication and intrusive modification pit reuse, secondary and case fabrication, and HE fabrication. Table 4.13.1.5-1 reflects the summation of all of the natural gas requirements to implement all of the above Stockpile Stewardship and Management Program missions at LANL.

## 03 Air Quality

### 03.01

The commentor states that with respect to air quality at LANL using in-house data is unacceptable to the State of New Mexico, the Environmental Protection Agency (EPA), and the citizens of New Mexico.

- Response: LANL is required to comply with the Federal Clean Air Act (CAA) of 1990 and amendments and the New Mexico Air Quality Control Act of 1978, as amended. The ambient air quality standards for the State of New Mexico were recently amended January 10, 1996. These acts establish ambient air quality standards, require permits for new sources, and set acceptable emission limits. To accomplish compliance with these regulations, LANL implemented a site-wide evaluation of chemical emissions from all routine and experimental operations in response to reporting requirements specified in the CAA. These regulations require the laboratory to report all air emissions of criteria pollutants, as well as all hazardous air pollutants. The estimates of air pollutant concentrations presented in the PEIS for LANL were based upon those emissions of air pollutants as reported by LANL in response to reporting requirements specified in the CAA. These emissions are monitored by DOE as specified in permits issued by the State of New Mexico and EPA.

### 03.02

The commentor questions the use of 4.X.2.3 and 4.X.3.3 in appendix section B.1.1 and requests a statement, complete with verifying signature, on the level of quality assurance supporting the air quality sections.

- Response: A reference is made to appendix section B.1.1, Introduction, which states, "This appendix provides detailed data that support impact assessments for air quality addressed in sections 4.X.2.3, Affected Environment--Air Quality, and 4.X.3.3, Environmental Impacts--Air Quality." The "X" in the referenced section numbers is a generic symbol representing affected environment and environmental impacts for each site. This is an abbreviated format used in lieu of sections 4.2.2.3, 4.3.2.3, 4.4.2.3, 4.5.2.3, 4.6.2.3, 4.7.2.3, 4.8.2.3, and 4.9.2.3, Affected Environment--Air Quality, and 4.2.3.3, 4.3.3.3, 4.4.3.3, 4.5.3.3, 4.6.3.3, 4.7.3.3, 4.8.3.3, and 4.9.3.3, Environmental Impacts--Air Quality. The air quality analysis has received a complete internal quality assurance review.

### 03.03

The commentor refers to table 4.6.3.3-1 in the PEIS and states that LANL will be out of compliance

for nitrogen dioxide release (24-hour basis) if the work from Y-12 is moved to LANL. The commentor asks what treatment is planned for the nitrogen dioxide release and if the cost is estimated in the PEIS.

- Response: The PEIS is a multi-site study performed at the programmatic level with the intent of comparing the air quality impacts among alternative sites. Table 4.6.3.3-1 presents the estimated air quality impacts at LANL for each of the proposed alternatives. The estimated 24-hour nitrogen dioxide concentration for the secondary and case fabrication alternative indicates that mitigation measures may be necessary to ensure that compliance is achieved. The degree of mitigation would be determined in a site- or project-specific National Environmental Policy Act (NEPA) of 1969 document containing refined air quality modeling. Cost estimates are not included in the PEIS.

### 03.04

Commentors refer to section 4.6.2.3, table 4.6.2.3-1, Comparisons of Baseline Ambient Air Concentrations with Most Stringent Applicable Regulations and Guidelines at LANL, 1990 and 1992. Referring to the statement that baseline concentrations are in compliance with applicable guidelines and regulations with the exception of the 1-hour photochemical oxidants, a commentor states that photochemical oxidants were out of compliance with New Mexico ambient air concentrations standards for these years. Another commentor states that it is inexcusable that many of the listed pollutants are not monitored and that the baseline concentrations for these pollutants are just assumed to be less than applicable standards. The commentor suggests that more recent data be used.

The commentors also raise the following questions concerning the air quality material: are the years 1990 and 1992 representative years for air emissions, are they a conservative/nonconservative example, are other years in compliance with air standards, and why not use more recent years, such as 1994 or 1995? A commentor refers to section 4.6.3.3, Air Quality, No Action, "No action air quality utilizes estimated air emissions data from operations at LANL in 2005 assuming continuation of current site missions to calculate pollutant concentrations at or beyond LANL site boundary." The commentor states that the photochemical oxidant concentration was not addressed. The commentor states that the estimated concentration of this pollutant was not in the table presented and asks why this pollutant was not included.

- Response: The estimated air quality concentrations at LANL represent a snapshot in time which is used for comparative purposes among the sites presented in the PEIS. The baseline air quality concentrations presented in table 4.6.2.3-1 are based upon the latest air quality emissions data (1990 to 1992) available at the time the air quality analysis was performed. These data are considered representative of recent air quality emissions when compared with those emission data presented in the Environmental Surveillance at Los Alamos During 1993 (1993 Environmental Surveillance Report) (LA-12973-ENV, October 1995).

Table 4.6.3.3-1, Estimated Concentrations of Pollutants from No Action and Stockpile Stewardship and Management Alternatives at Los Alamos National Laboratory, no longer presents photochemical oxidants. In December 1995, the State of New Mexico removed photochemical oxidants from the State's Ambient Air Quality Standard (20 NMAC 2.3). Tables 4.6.2.3-1 and 4.6.3.3-1 and appendix table B.3.1-1 have been updated to reflect the changes in the New Mexico state standards.

### 03.05

The commentor points out that there is a recurrence of number sequences with LANL (appendix section A.3.5.2 emissions estimates [4,540, 22,700, 4,540, 227, 454, 4.5, 45.4, 22.7, and 22.7]), and on comparing these numbers with Pantex, where there is a history of HE production, Pantex shows no such patterns. The commentor believes the LANL numbers have been fabricated. The commentor states that since estimates of environmental, safety, and health (ES&H) impacts are driven by emissions, those estimates are inevitably suspect.

- Response: The commentor refers to appendix table A.3.5.2-6. The emissions presented in this table are estimates of emissions from the LANL HE fabrication surge operation. The emissions presented in this table represent an HE fabrication output which is different than the historical output at Pantex. Air emissions estimates provided in the PEIS have been confirmed with LANL as being correct.

### 03.06

The commentor refers to section 4.6.3.3, Air Quality, subsection on Sensitivity Analysis, and the statement, "The concentrations of pollutants for the high case pit fabrication, HE, and nonnuclear fabrication missions are expected to be within applicable Federal and state regulations and guidelines. The 24-hour concentrations of nitrogen dioxide for the high case secondary and case fabrication mission may be above applicable standards and guidelines." (Table 4.6.3.3-1, Estimated Concentrations of Pollutants from No Action and Stockpile Stewardship and Management Alternatives at Los Alamos National Laboratory, is identified in neighboring sections for reference of the estimated emissions mentioned above.) The commentor states that the estimated concentrations of nitrogen dioxide in the combined program impacts is 276.69 micrograms per cubic meters (mg/m<sup>3</sup>) and the most stringent guidelines are 188 mg/m<sup>3</sup> (24-hour average). The commentor also states that in appendix table B.3.1-1, Ambient Air Quality Standards Applicable to the Candidate Sites, the New Mexico guideline listed for nitrogen dioxide is 117 mg/m<sup>3</sup> (24-hour average). The commentor states that this air quality value was also exceeded and is more stringent than the 188 mg/m<sup>3</sup> value mentioned previously. The commentor suggests that the values should be rechecked or the text should be modified.

- Response: Section 4.6.3.3 has been changed in the Final PEIS to state, "The 24-hour concentration of nitrogen dioxide for the high case secondary and case fabrication mission is above applicable standards and guidelines." In addition, a change has been made in the heading of the last column in appendix table B.3.1-1, Ambient Air Quality Standards Applicable to the Candidate Sites, from "New Mexico (LANL and Sandia National Laboratories [SNL])" to "New Mexico (LANL/SNL)" and the entry for 24-hour nitrogen dioxide under this column changed from "117" to "145/117." This change indicates that the 24-hour nitrogen dioxide state standard for LANL is 145 mg/m<sup>3</sup> while the city/county standard for SNL is 117 mg/m<sup>3</sup>.

### 03.07

The commentor states that for LANL the Draft PEIS contains no plans to directly monitor the emissions from these projects or to conduct ambient monitoring in the community if the projects are implemented. The commentor notes that as of October 1994, with the termination of a 5-year contract between the New Mexico Environment Department and the National Park Service, nonradioactive

ambient monitoring for criteria pollutants was discontinued at the Bandelier site on the southern boundary of LANL adjacent to the Bandelier National Monument. The commentor states that he is not aware of any other ambient monitoring for criteria pollutants being conducted at LANL or in the Los Alamos community. The commentor further states that the radioactive ambient monitoring being conducted by LANL focuses mostly on the Los Alamos Meson Physics Facility, which is currently the largest source of radioactive emissions. In the commentor's opinion, monitoring of actual conditions around the proposed projects is of prime importance to verify the modeled emissions presented in the Draft PEIS. In addition to monitoring, the commentor believes there should also be remediation plans in place in the event of actual emissions being measured higher than modeled ones.

- Response: The air quality analysis was performed at a programmatic level, which is a less detailed level of analysis than would be performed for a site-specific NEPA analysis. The goal of the analysis was to screen for potential major impacts and provide a means to compare air quality impacts among sites. If the site is selected for a specific mission then a more detailed air quality modeling analysis would be performed and appropriate mitigation measures would be undertaken to ensure compliance with Federal and New Mexico state standards.

### 03.08

The commentor states that in LANL table 4.6.3.3-1, the environmental impact resulting from secondary and case fabrication shows that model estimates for 24-hour average concentrations of nitrogen dioxide would be 231 mg/m<sup>3</sup> and 277 mg/m<sup>3</sup> from the combined program, levels which greatly exceed the applicable state standard and worsen the air quality of the area. The commentor states that the State of New Mexico cannot permit such large exceedances of its standard and that the exceedance of the standard is even greater than that shown in tables 4.6.3.3-1 and 4.13.1.5-2. These tables show the most stringent regulation or guideline for nitrogen dioxide to be the state standard, which is listed as 188 mg/m<sup>3</sup>. However, this figure does not reflect a correction for the altitude of LANL, which is approximately 2,194 m (7,200 ft) above sea level. Correcting for altitude, the state standard of 0.10 parts per million (ppm) is calculated to be 146 mg/m<sup>3</sup>. The commentor states that LANL should be omitted as a possible site for secondary and case fabrication because of the high concentration of nitrogen dioxide that would be emitted. (See comment document SSM-M-123, page 5, for the equation used for adjusting the concentration of nitrogen dioxide for altitude.) Another commentor states that in table 4.6.2.3-1 and in other tables containing the most stringent regulations or guidelines for gaseous criteria pollutants, these concentrations have not been adjusted to LANL's altitude which is 2,194 m (7,200 ft) above sea level.

- Response: The PEIS is a multi-site study performed at the programmatic level with the intent of comparing the air quality impacts among alternative sites. Tables 4.6.3.3-1 and 4.13.1.5-2 present the estimated air quality impacts at LANL for each of the proposed alternatives and cumulative impacts, including other proposed actions, respectively. The estimated 24-hour nitrogen dioxide concentration for the secondary and case fabrication alternative indicates that mitigation measures may be necessary to ensure that compliance is achieved. The actual emissions and the degree of mitigation would be determined in a site- or project-specific NEPA document containing refined air quality modeling.

The New Mexico state standard for 24-hour nitrogen dioxide, which is given as 0.10 ppm in state regulations, when adjusted for a site altitude of 2,255 m (7,400 ft) above sea level converts to 145 mg/m<sup>3</sup>. The Final PEIS has been changed to reflect the adjustment for altitude for those New Mexico state standards given as ppm.

The New Mexico state ambient air quality standards for sulfur dioxide, carbon monoxide, nitrogen dioxide, hydrogen sulfide, and total reduced sulfur are given in ppm in state regulations. These standards were converted to  $mg/m^3$  at 1 atmosphere and 25 degrees Celsius ( $^{\circ}C$ ) 77 degrees Fahrenheit ( $^{\circ}F$ ) to be consistent with other Federal and state standards. The results of the modeling were then compared to these standards with the result that the 24-hour nitrogen dioxide concentration exceeds the state standard for the secondary and case fabrication alternative. Adjusting the standards for altitude results in the same conclusions.

If LANL is selected for a new or enhanced mission, then a refined air quality modeling analysis would be performed and appropriate adjustments for altitude would be made to the state standards to ensure compliance with Federal and New Mexico state standards. Performing the adjustment for altitude of the LANL site (2,255 m [7,400 ft] above mean sea level) results in the following New Mexico state standards: sulfur dioxide annual, 40  $mg/m^3$  , 24-hour, 202  $mg/m^3$  ; carbon monoxide 8-hour, 7,689  $mg/m^3$  , 1-hour, 11,578  $mg/m^3$  ; nitrogen dioxide annual, 73  $mg/m^3$  , 24-hour, 145  $mg/m^3$  ; hydrogen sulfide, 1-hour, 11  $mg/m^3$  ; and total reduced sulfur, 30-minute, 3  $mg/m^3$  . The tables presenting New Mexico state standards have been changed to reflect standards adjusted for altitude in the Final PEIS.

### 03.09

*The commentor states that the emission rates reported in appendix B and the estimated pollutant concentrations listed in the Pantex table 4.5.3.3-1 are the same as discussed in the Weapons-Usable Fissile Materials Draft Programmatic Environmental Impact Statement (Storage and Disposition Draft PEIS) (DOE/EIS-0229-D, February 1996). Therefore the comments regarding the discrepancy between estimated concentrations and Texas Natural Resources Conservation Commission monitored concentrations of particulate matter holds true for the Draft PEIS. In addition, the commentor believes that the conclusion that the No Action alternative and the downsize A/D and HE fabrication alternative will not produce air pollutant concentrations exceeding Federal and state regulations and guidelines is acceptable.*

- Response: The concentrations presented for Pantex in the Stockpile Stewardship and Management Draft PEIS and Storage and Disposition Draft PEIS represent the results of modeling using EPA's Industrial Source Complex Short-Term Model 2 and Industrial Source Complex Long-Term Model 2. The concentrations represent the maximum estimated concentration of particulate matter (PM<sub>10</sub>) based upon a base case surge level of activity discussed in section 3.1.1. The PM<sub>10</sub> monitoring data from Texas Natural Resources Conservation Commission monitors at Pantex were not used since these data do not reflect the anticipated future level of activity at the site.

### 03.10

The commentor states that there is a factual error in section 4.13.1.5, in the paragraph titled Air Quality. According to the commentor, the last sentence describing LANL as a nonattainment area for ozone is incorrect. The commentor states that attainment is determined by comparison with the Federal standard, which for ozone is 0.12 ppm/hour average. The rule for determining a nonattainment area is explained in section 4.5.2.3. At the ambient air monitoring site operated by the New Mexico Environment Department at the southern boundary of LANL, adjacent to Bandelier National Monument, the highest value measured for ozone between 1989 and 1994 was 0.090

ppm/hour average. The commentor also notes that there is no state standard for ozone and, as of December 1995, there is not a state standard for photochemical oxidants.

- Response: The commentor is correct. The sentence in section 4.13.1.5, Air Quality, "LANL is in a nonattainment area for ozone concentrations" has been deleted from the document.

### 03.11

The commentor states that the New Mexico regulations alluded to in appendix section K.3.3.1 are obsolete or contain errors. The reference to "total suspended particulates" as "PM10" is incorrect. Although both names refer to particulates, they are measured by different monitors and have different standards. The commentor also states that the reference to New Mexico standards for beryllium, asbestos, heavy metals, photochemical oxidants, and nonmethane hydrocarbons is now obsolete. In 1995, these pollutants were eliminated from the New Mexico regulations. Federal regulations remain in existence for some of these pollutants. The pollutants eliminated from state standards are also mentioned in tables in section 4 and in appendix B.

- Response: The commentor is correct. The text in appendix section K.3.3.1, "total suspended particulates (PM 10 ), including beryllium, asbestos, and heavy metals; sulfur dioxide; total reduced sulfur; carbon monoxide; nitrogen oxides; photochemical oxidants; and nonmethane hydrocarbons" has been changed to "total suspended particulates (TSP), particulate matter less than or equal to 10 microns in diameter (PM 10 ), sulfur dioxide, total reduced sulfur, hydrogen sulfide, carbon monoxide, and nitrogen oxides." Tables in section 4 and in appendix B have also been changed to reflect the pollutants eliminated from state standards.

### 03.12

The commentor points out that the Draft PEIS states that "the irregular terrain of Los Alamos affects wind motion and spreading. Localized wind gusts may not be in the same direction as average wind patterns" (appendix section K.3.3.1). In light of this information, the commentor suggests LANL correlate ambient air monitoring to the complex topography.

- Response: DOE agrees with the comment regarding the correlation between air quality and LANL's complex topography. Air monitoring does correlate to the topography of LANL. The local meteorology is just one of many factors considered in the design of the air sampling network as a whole and when locating individual air quality monitoring stations.

## 04 Water Resources

### 04.01

A commentor indicates that the proposed construction of NIF and other upgrades at SNL would violate the city of Albuquerque's water use and discharge policies. The commentor suggests that water conservation issues in the city of Albuquerque should be discussed in the document relative to the proposed action at SNL.

- Response: As discussed in sections 4.8.2.4 and 4.8.3.4, SNL receives only 30 percent of its water from the city of Albuquerque. The remaining 70 percent is pumped from water supply

wells on Kirtland Air Force Base, which has groundwater rights of 7,900 million liters per year (MLY) (2,089 million gallons per year [MGY]) and is currently operating at only a 50-percent capacity. NIF would increase SNL's water usage by 152 MLY (40 MGY) over No Action water use; this equates to less than 0.2 percent of the city of Albuquerque's annual consumptive water rights. Nonnuclear fabrication would increase SNL's water usage by 893 MLY (236 MGY) over No Action water use; this would total less than 1 percent of the city of Albuquerque's annual consumptive water rights. In addition, the city of Albuquerque also receives a 50-percent return flow credit for sanitary wastewater discharged to the Rio Grande, and the city has the rights to 56,800 MLY (15,005 MGY) of San Juan Chama water. The potential water used by NIF and the nonnuclear fabrication mission would meet the city of Albuquerque's water usage, discharge, and water conservation policies. Discharges from NIF and nonnuclear fabrication would be treated and monitored to meet the standards of the city of Albuquerque's Sewer Use and Wastewater Control Ordinance as well as National Pollutant Discharge Elimination System (NPDES) permits. Discharges would not exceed wastewater treatment capacities. As discussed in section 3.8, the preferred alternative is to downsize nonnuclear fabrication at Kansas City Plant (KCP) and construct and operate NIF at LLNL.

#### 04.02

A commentor states that section 4.6.2.4 indicated that LANL water resource allotment would be used up by the year 2000, and questions how LANL can produce weapons such as Y-12 has done without an adequate water supply.

- Response: The Draft PEIS incorrectly stated the projected groundwater requirements. Section 4.6.2.4 has been revised based on more accurate No Action water use estimates. The present groundwater allotment at LANL, based on the new data, would be fully used by about 2052 instead of the previously estimated year of 2000. If San Juan Chama water is included, the site would not require the total available supply until 2072.

#### 04.03

The commentor, referring to section 4.2.3.4, asks what the increased operating requirements of the existing Y-12 secondary and case fabrication facilities are in the No Action case.

- Response: The Y-12 No Action estimates for various resource consumption and waste generation show an increase over current values primarily due to increased dismantlement activity projections. This increased workload is expected because Y-12 would be working down the backlog of canned subassemblies received from weapons dismantlement activities at Pantex. The Y-12 dismantlement rate has been lower than the Pantex rate because of a production stand-down during portions of 1994 and 1995.

#### 04.04

The commentor states that a contaminated water plume is drifting offsite at LLNL, yet budget cuts may not allow for cleanup.

- Response: The Livermore Site was placed on the National Priorities List (NPL) for Superfund cleanup in 1987. Several documents assessing the area and planning remedial action have been published since that date. As stated in section 4.7.2.4, approximately 150 million L (40 million

gal) of groundwater in the southwest corner of the facility have been treated to remove volatile organic compounds (VOCs). Five treatment facilities, A, B, C, D, and F, built from 1989 to 1994, currently treat VOC-contaminated water. As of 1994, over 470 million L (124 million gal) of water with approximately 50 kilograms (kg) (110 pounds [lb]) of VOCs and 300 L (79 gal) of gasoline have been treated. Facilities E and G were in the planning stages at the time this document was being written.

At Site 300, ongoing remedial investigations, feasibility studies, and remedial actions are being performed as part of the environmental restoration project. Site 300 was placed on the NPL under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in August 1990. During 1993 and 1994, 903,000 L (238,545 gal) of groundwater containing 2,350 grams (g) (5 lb) of VOCs were treated by an air sparging groundwater treatment and vapor extraction system. In addition, pilot vapor extraction treatment of VOCs is ongoing. Environmental restoration budgets are outside the scope of this PEIS.

#### 04.05

One commentor believes that to expand the Pantex role is irresponsible in view of the fact that the plant lies above the largest freshwater aquifer in the United States, and that the aquifer is the lifeblood of the area's agriculture industry. Why the Ogallala aquifer has not been classified as a Class 1 water source is puzzling to the commentor. Another commentor states that the document fails to address the issue of the location of Pantex over the Ogallala aquifer. One commentor states that it is a contention by Pantex boosters that no substantial water pollution has occurred except for the perched water above the Ogallala aquifer. The commentor wants to know how much contamination levels will rise if Pantex's role is expanded and if an expansion is worth the risk. Another commentor believes that concerns about the Ogallala aquifer are unfounded. One commentor also notes that there is no significant discussion of recharge to the Ogallala aquifer, nor is there discussion of groundwater flow in either the perched or Ogallala aquifers. Also, a discussion of the fact that contaminants in the perched aquifer have already moved off Pantex to the east is lacking.

- Response: The only Pantex alternatives discussed in the Stockpile Stewardship and Management PEIS are downsizing (with the establishment of nonintrusive pit reuse) and phaseout of existing missions. As mentioned in section 4.5.3.4, these alternatives, as well as the No Action alternative, will reduce the water requirements at Pantex by at least 69 percent from current use. No expansion is taking place under the Stockpile Stewardship and Management Program.

Sections 4.5.2.4 and 4.5.3.4 address the issue of the location of Pantex over the Ogallala aquifer. Despite the decreases in groundwater use, at the conclusion of every alternative in the groundwater impact sections is the statement "although Pantex water use would decrease, operational water use would still contribute to the overall decline of the Ogallala aquifer because the area groundwater withdrawal rate would exceed the recharge rate."

A detailed discussion of groundwater recharge exceeds the scope of the Stockpile Stewardship and Management PEIS. For more specific information, the reader should refer to the Draft Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapons Components (Pantex Site-Wide Draft EIS) (DOE/EIS-0225 D, March 1996). This PEIS summarizes the recharge data available and draws conclusions from that data. Estimates of groundwater recharge are given in section 4.5.2.4 as



0.02 to 4.1 centimeter (cm)/yr (0.0079 to 1.6 inches [in]/yr) in comparison with withdrawal rates of 0.6 to 2 m/yr (1.97 to 6.56 ft/yr). The extent of the contaminants in the perched aquifer moving off Pantex to the east is under investigation as discussed in the groundwater quality section of the Pantex Site-Wide Draft EIS.

#### 04.06

A commentor states that the information presented on groundwater quality at LANL is misleading. The commentor further states that contaminant levels have fluctuated over time and that there is evidence that contaminants are reaching the deeper aquifer from surface discharges and shallower, more contaminated areas. The commentor cites considerable mobility of contaminants in the subsurface at Mortandad Canyon which has been discovered and states that this is an area into which LANL currently discharges a significant portion of its liquid radioactive waste.

Other commentors express concern about the nuclear laundry in Santa Fe and suggest that it be closed. Another commentor states that the public does not want LANL wandering up Cerrillos Road, two blocks up beyond the old Ramada Inn, pumping radioactive waste into the Santa Fe water table.

- Response: The information presented in the PEIS is based on the best available data. Since publication of the Draft PEIS, the 1993 Environmental Surveillance Report data was published in October 1995. This new data shows four monitoring well locations in Los Alamos, Pueblo, and Mortandad Canyons with low levels of tritium contamination. The highest tritium concentration is approximately 2 percent of the Federal drinking water limit. Other contaminants were not found in measurable amounts. This is consistent with past monitoring results. As stated in section 4.6.3.4, no process wastes would be discharged directly to the groundwater. All treated wastewater discharges to the canyons would be monitored to comply with NPDES permits and other applicable discharge requirements.

The commentor is referring to a privately operated commercial laundry, located in the vicinity of Cerrillos Road in Santa Fe. The facility launders laboratory coats, booties, and other clothing used in operations around radioactive materials. LANL has been a customer of this laundry for several years, but not the only customer. The vendor operates several laundry facilities around the country. Discharges from the commercial laundry are monitored by the New Mexico Environment Department, which has permitting authority over the facility.

#### 04.07

The commentor refers to the NTS section 4.9.2.4 and suggests that the word "affected" be replaced with the word "contaminated." In addition, the commentor suggests that the sixth line be removed or corrected because the statement does not make sense. According to the commentor, tests conducted below the NTS water table contaminate the surrounding groundwater with radionuclides. The commentor also refers to section 4.12 and states that groundwater that may be potentially contaminated is water that people are likely to avoid. The subsistence farmer, in the distant future, may not have his well water checked on a regular basis. The commentor feels phrases such as "quality," "some," "impacts," and "could be expected" should be replaced with "purity," "extensive," "damage," and "would take place," respectively, when describing the unavoidable impacts that underground testing has on groundwater.

- Response: The terminology used in the Stockpile Stewardship and Management PEIS is

accepted within the environmental community to characterize conditions at the site and is consistent with the terminology used in the NTS Site-Wide EIS. In reference to the commentor's suggestion about the sixth line, the following statement in section 4.9.2.4 has been removed from the Final PEIS, "subsurface migration of tritium to offsite areas is possible, but the probability of tritium reaching offsite wells or springs is minimal."

As stated in section 4.12, underground testing would be expected to have a significant impact on groundwater quality only if the testing is conducted in, or near, the water table. In this event, large scale contamination of the near-test groundwater resources could occur. However, because of the conditions at NTS (low hydraulic conductivities, high absorption geologic media, and slight hydraulic gradients), it is not considered likely that any significant impacts would occur in areas downgradient of the underground testing locations.

#### **04.08**

The commentor states that maximum groundwater concentrations at LLNL, reported in the PEIS, of gross alpha, nitrate/nitrite, trichloroethylene, and tritium exceeded water quality criteria/standards in 1993. According to the commentor, VOC-contaminated water is present under 85 percent of the Livermore Site and various other examples of groundwater contamination exist. The commentor asks what measures are proposed to mitigate further groundwater contamination at LLNL resulting from proposed actions.

- Response: DOE agrees that the current groundwater monitoring system is inadequate. LLNL has implemented a system of satellite monitoring stations positioned at strategic locations within the main sewer system. Each station has an automatic sampler which, in the event of a release, can be used to find the origin of the spill. During 1993, no releases warranted a sewer diversion. In comparison, during 1991 and 1992, 15 and 13 releases, respectively, were detected. In addition, all building drains were tested to determine their points of discharge and all deficiencies were categorized and are being corrected (major deficiencies were remedied immediately). Relining of the major laterals of the sanitary sewer system also began in 1993.

The preferred stockpile stewardship alternative site for NIF is LLNL. The increase in wastewater discharges due to NIF is 3.9 percent over No Action. Since there are no direct discharges to surface or groundwater, no adverse impacts are anticipated. At Site 300, the Contained Firing Facility (CFF) is the preferred stockpile stewardship alternative. Wastewater discharge is expected to increase 6.8 percent over No Action. Wastewater is discharged to leach fields and septic systems at Site 300. These discharges are monitored and must comply with NPDES permits and waste discharge requirements.

#### **04.09**

The commentor states that the radiological sources in the groundwater section of the NTS Site-Wide EIS should be included in the Stockpile Stewardship and Management PEIS. According to the commentor, the text in question extends from page 4-159, line 8 to page 4-163, line 24 and should include table 4-27. Further, the commentor disputes the amount of plutonium-239 buried under the NTS testing grounds.

- Response: Section 4.9.2.4 discusses groundwater monitoring at NTS. As stated in this section, tritium is the only radionuclide that appears in sampled groundwater at significant levels. These

levels (120 picocuries [pCi]/L for 1993) are well below the National Primary Drinking Water Regulations (40 CFR 141) of 20,000 pCi/L. In section 4.12 of the PEIS, the effects of underground nuclear testing on several resources, including groundwater, are discussed. In addition, radiological impacts are discussed in the Radiation and Hazardous Chemical Environment sections 4.2.9.3 through 4.9.9.3. For more detailed analysis beyond the scope of the Stockpile Stewardship and Management PEIS, site-specific documents such as the NTS Site-Wide EIS should be reviewed.

#### 04.10

The commentor asks why the uranium in water values in tables 4.2.2.4-1, 4.5.2.4-1, and 4.6.2.4-1 are different (20 pCi/L and 20 mg/L). In addition, the commentor asks why these tables state that the uranium value of 20 pCi/L or 20 mg/L is a National Primary Drinking Water Standard, when it is only a proposed standard.

- Response: *The proposed National Primary Drinking Water Standard (56 FR 33050) for uranium (20 mg/L ) only applies to table 4.6.2.4 - 1. The other tables reflect Derived Concentration Guides in pCi/L as the standard because the samples reflect total uranium concentrations which do not apply to the proposed National Primary Drinking Water Standard.*

#### 04.11

The commentor believes that the PEIS should evaluate hydrology of surface and subsurface waters at LANL and SNL, not just potable water sources. Hydrology involves the potential for subsurface travel of materials such as petrochemicals and the resultant contamination of the Southern Valley of Albuquerque, according to the commentor. Another commentor asks where hydrology is discussed in the PEIS.

- Response: Surface water quality at LANL and SNL is evaluated in sections 4.6.2.4 and 4.6.3.4, and 4.8.2.4 and 4.8.3.4, respectively. Groundwater monitoring wells exist at several depths, both in perched aquifers and deeper aquifers, potable and nonpotable. Drinking water standards are listed in tables 4.6.2.4-1 and 4.8.2.4-1 for comparison purposes only.

All treated wastewater discharges would be monitored to comply with NPDES permits and other applicable discharge requirements. The preferred alternatives of pit fabrication and the Atlas Facility at LANL would only increase wastewater discharges by 1.8 percent. These discharges would be treated before release to the canyons. No adverse impacts to either surface or groundwater are expected. There are no stockpile stewardship and management preferred alternatives identified for SNL.

#### 04.12

The commentor expresses concern about the quality of the drinking water at Pantex. The commentor notes that Pantex is monitored for 160 contaminants, the majority of which ended up being discharged to groundwater. The commentor wants a broader spectrum of contaminant analysis for drinking water.

- Response: Pantex is monitored to comply with all Federal, state, and site-specific regulations.

The groundwater monitoring program is constantly being updated based on past results to provide the best analysis possible. As discussed in sections 4.5.2.4 and 4.5.3.4, there are no direct discharges to groundwater. All wastewater is processed at the Pantex wastewater treatment facility before release to the playas. All discharges comply with NPDES permits and surface water monitoring is conducted regularly.

#### **04.13**

The commentor asks if, in section 4.2.3.4, the statements are correct that the phaseout of work at Y-12 would reduce the flow in the East Fork of Poplar Creek to zero and would have no impact on the water quality in the creek, and that there are no natural springs beneath some buildings in the plant that run continuously into the East Fork of Poplar Creek (very low flow rates). The commentor asks further, if it is not correct that the city of Oak Ridge must have a flow in the East Fork of Poplar Creek in order to discharge the treated sewerage water from the city, and if the flow from Y-12 is zero, would the city of Oak Ridge be allowed to continue to discharge the treated water into the creek.

- Response: In section 4.2.3.4, the statement should read that the phaseout of secondary and case fabrication would decrease the discharges from the mission to zero; other missions at Y-12 would continue to discharge to East Fork Poplar Creek. Phaseout would not be expected to impact the city of Oak Ridge discharge of treated sewage water.

#### **04.14**

According to the commentor, section 4.5.2.4 does not provide adequate information for the reader to determine if environmental impacts could result from the proposed alternative actions at Pantex.

- Response: Chapter 4 of the PEIS is broken down into two sections, the affected environment and environmental impacts. Section 4.5.2.4 is intended to provide only the affected environment, or a baseline for comparison of environmental issues. Water impacts due to No Action and proposed alternatives at Pantex are discussed in section 4.5.3.4. In addition, all of the alternatives considered for Pantex decrease the amount of water used and discharged.

#### **04.15**

Commentors ask if an analysis has been made of the impact on the Las Vegas municipal water supply of NTS workers and their families associated with the 2,253 new jobs at NTS (Stockpile Stewardship and Management Summary section S.4.1) who are likely to reside in Las Vegas.

- Response: Based on the population of Las Vegas (327,878), the 2,253 new workers associated with the A/D mission at NTS would represent less than a 1-percent population growth. The population growth in the area is approximately 7 percent per year. Because this increase in population is within normal growth rates, minimal impacts to the municipal water supply are expected and no specific analysis was included in the PEIS.

#### **04.16**

The commentor states that there are numerous factual errors in section 4.6.2.4, Water Resources at LANL. The commentor points out that the 1992 data is being used and suggests using more recent

data (for example, the 1993 Environmental Surveillance Report). The commentor notes that in Parajito Canyon, Homestead Spring feeds a perennial stream only a few hundred yards long. The stream is fed by other springs in addition to Homestead Spring. According to the commentor, only during periods of heavy precipitation or snowmelt would water from Pueblo, Los Alamos, or Sandia Canyons extend beyond LANL boundaries and reach the Rio Grande. The commentor suggests that this information be supported by good volumetric data which can be obtained from the data provided by the gauging stations.

- Response: The water resource data has been updated with information from the 1993 *Environmental Surveillance Report*, which had not been published at the time the Stockpile Stewardship and Management Draft PEIS was prepared. DOE agrees with the commentor that Homestead Spring feeds a perennial stream 3 to 5 kilometers (km) (2 to 3 miles [mi]) long, and the Final PEIS has been corrected accordingly (see section 4.6.2.4); however, the 3- to 5-km (2- to 3-mi) distance is largely due to contributions from other springs and runoff, and not solely to Homestead Spring discharge.

The following volumetric data regarding surface water runoff beyond LANL boundaries is provided at the commentor's request. At the LANL boundary during water year 1995 (fiscal year 1995), the last year for which data is available, the streams mentioned in the PEIS flowed as follows:

Pueblo: 365 days with flow (typically about 0.03 m<sup>3</sup> [51 ft<sup>3</sup>] per second)

Los Alamos: 94 days with flow

Sandia: 6 days with flow

Mortandad: 0 days with flow

- In addition, visual and chemical observations from Mortandad Canyon since 1960 by U.S. Geological Survey and LANL hydrologists have not noted any continuous flow from the upper canyon to the LANL boundary.

#### 04.17

The commentor points out that according to the PEIS, groundwater in the LANL area exists in three modes. The commentor advises that there is a fourth mode-shallow perched in the Bandelier Tuff. In addition, the commentor states that in the PEIS, under Groundwater Availability and Use, downgradient users beside the communities of Los Alamos and White Rock are not mentioned. The commentor asks about other possible usage by pueblos such as San Ildefonso and Santa Clara.

- Response: The commentor notes a fourth occurrence of groundwater: shallow perched water in the Bandelier Tuff. This mode of groundwater occurrence is known to be present west of LANL on the flanks of the Jemez Mountains. While it is possible that this form is present beneath LANL, it is not known to be present, and hydrologic studies would have to be performed to confirm this condition.

#### 04.18

The commentor is of the opinion that there is little consistency in the placement of groundwater monitoring wells at LANL and that existing wells are inadequate. The commentor points out that the wells are very old (the most recent was drilled in 1963), and may not be thoroughly grouted and may

be leaking. The commentor is concerned that contaminants may not be detected because of the lengthy intervals between sampling screens (some greater than 30.5 m [100 ft], e.g. DT-9 is screened at 317 m [1,040 ft] and 457 m [1,500 ft]).

- Response: DOE agrees with the commentor that the present groundwater monitoring network is inadequate. DOE and LANL have initiated a major upgrade to the monitoring network to include additional wells drilled to monitor all zones of groundwater beneath LANL (see the LANL Groundwater Protection Management Program Plan, January 31, 1996).

## 05 Geology and Soils

### 05.01

The commentor states contamination in soils has been omitted almost entirely from the discussion of the current environment at LANL.

- Response: LANL has a long-standing soils monitoring program to identify potential contamination of soils; this is reported to the public annually in LANL's Environmental Surveillance Report and other publications. DOE is working with Federal and state regulatory authorities to address compliance and cleanup obligations arising from its operation of LANL and is engaged in several activities to bring its current operations into full regulatory compliance. Although LANL is not listed on the NPL, it is required to obtain a Resource Conservation and Recovery Act (RCRA) permit in accordance with the Hazardous and Solid Waste Amendments of 1984. This requires that permits for treatment, storage, and disposal facilities include provisions for corrective action to mitigate releases from facilities in operation and to clean up contamination in areas designated as solid waste management units at LANL. The commentor is referred to sections 4.6.2.10, 4.6.3.10, and appendix section H.2.5 of the Final PEIS for more information about waste management and identified release sites at LANL.

### 05.02

Commentors believe that the description of the geology and soils at Pantex is inadequate. According to one commentor, section 4.5.2.5 does not provide adequate information for the reader to determine if environmental impacts could result from the proposed alternative actions at Pantex. It is therefore not possible to determine that "hazards posed by geological conditions are negligible at Pantex." The commentor also states that the role of salt dissolution and subsidence in the formation of the playa basins should be described, as well as the potential effects, if any, of dissolution-induced subsidence at the plant. Another commentor notes that Pantex is located on a geological fault that has been active enough in the last century to cause damage to farm buildings.

- Response: The discussion in sections 4.5.2.5 and 4.5.3.5 now includes the two main geological processes that are relevant to the Pantex area: subsidence and seismic activity. The following text has been added to section 4.5.2.5 in the Final PEIS, "In the High Plains area, salt dissolution in Permian formations is an active process which can lead to sinkholes and fractures. Such surficial expressions have not been identified in Carson County, where Pantex is located. Sinkholes and fractures have been identified, however, in adjacent Armstrong County to the south and Hutchinson County to the north." The following text has been added to

section 4.5.3.5, "Potential subsidence impacts resulting from salt dissolution are considered negligible at Pantex because salt dissolution is a slow process relative to human activities." While there are no active faults identified beneath Pantex, it is true that seismic events have occurred in the region which have caused damage to residential buildings. The level of seismicity historically associated with the Pantex region, however, is low. The seismic risk at Pantex, therefore, is judged to be low.

The commentors are referred to the geology and soils section of the Pantex Site-Wide Draft EIS for a more detailed discussion of salt dissolution and seismicity in the Pantex region. Aside from these geological processes, it should be noted that the proposed alternatives at Pantex involve no new construction. As a result, no adverse geological or soils impacts are anticipated.

### 05.03

The commentor states that the lithology of the Ogallala Formation is not described in the PEIS. The significance to groundwater flow of the fine-grained zone as well as gravels in buried channels beneath the plant should be described, according to the commentor.

- Response: A detailed discussion of the lithology of the Ogallala Formation is more information than necessary to evaluate potential aquifer impacts for a programmatic review. The commentor is referred to the groundwater section of the *Pantex Site-Wide Draft EIS* for a discussion of the fine-grained zone and buried channels beneath Pantex.

### 05.04

The commentor refers to section 4.12, Environmental Impacts of Underground Nuclear Testing, and requests correction of the effects of subsidence to state that radioactivity is only partially confined and that the effects will persist for at least a quarter million years.

- Response: The commentor is correct, radioactivity from some materials in NTS soils would remain for a long time. As stated in section 4.12, radioactive noble gases and tritium may be released to the surface by gradual seepage from the cavities and by escape of gases during sampling operations. This statement is meant to indicate that the radioactivity is not entirely confined.

### 05.05

The commentor notes that no mention is made that the Randall clay soils at Pantex contain potential pathways for groundwater recharge (i.e., deep desiccation cracks and root tubules).

- Response: The fact that Randall clay soils at Pantex contain potential pathways for groundwater recharge is considered in the estimates of annual recharge rates to the Ogallala aquifer. The commentor is referred to section 4.5.2.4, Water Resources, for a discussion of aquifer recharge.

## 06 Biotic Resources

### 06.01

The commentor is concerned that SRS is destroying the natural habitat along the Savannah River.

- Response: Impacts to natural habitat along the Savannah River would not be expected from either the No Action or management alternative (i.e., pit fabrication mission). Under the No Action alternative, there would be no change to current biological conditions of the site, including habitat along the Savannah River. The pit fabrication mission also would not be expected to adversely affect habitat along the Savannah River since existing facilities within the F- and H-Areas would be used and wastewater would be released through NPDES-permitted discharges.

## **06.02**

The commentor states that there is no discussion in section 4.6.2.6, Biotic Resources, of the effects that LANL contaminants may have on wildlife.

- Response: Section 4.6.3.6 discusses the potential impacts of the No Action, management, and stewardship alternatives at LANL on terrestrial resources, wetlands, aquatic resources, and threatened and endangered species. LANL conducts ongoing studies to monitor the effects of LANL operations on biota. LANL monitors plants and wildlife populations on and near laboratory property to determine if there are impacts from LANL activities to individual animals or entire populations. LANL has issued numerous publications over the past 20 years regarding its findings, which do not indicate significant adverse effects to laboratory biota as a whole.

## **07 Cultural and Paleontological**

### **07.01**

One commentor asks what the Stockpile Stewardship and Management PEIS cultural and paleontological analysis involved.

- Response: The analysis involved is described in section 4.1.7 for the affected environment and environmental impacts descriptions. The affected environment descriptions resulted from documentary research, including examination of previous site documents such as archaeological and historic structure survey reports, reports of interviews with Native Americans, general texts about an area's history and geology, National Register of Historic Places (NRHP) guidelines, and discussions with the alternative sites and with the NRHP.

The impacts analysis involved identifying the areas (and standing structures) that might be affected by the potential alternatives, comparing the affected environment resources data to the potentially affected areas, and determining whether or not the alternatives might affect cultural and paleontological resources.

### **07.02**

The commentor states that DOE is taking and has taken land from the Western Shoshones. The commentor claims that DOE has ignored the native peoples who own the land at NTS and Yucca



Mountain through treaties. Another commentor states that DOE should keep its word and return Indian land to its rightful owners.

- Response: DOE is aware that the Western Shoshone have disputed the U.S. Government's ownership of lands on NTS and Yucca Mountain. The land ownership issue has been brought to court on several occasions. In the early 1950s, the Western Shoshone filed a claim concerning the lands at issue under the Indian Claims Commission Act of 1946. This Act provided that if a claim against the Government for unkept treaty promises was upheld, the tribe making the claim could receive only a monetary award, not land or other remuneration. In 1962, the Commission ruled that all Western Shoshone land titles had been extinguished, and later, to establish valuation for a monetary award, set July 1, 1872, as the date the land was taken. In 1976, the Commission awarded the Western Shoshone \$26 million as payment for the land. The Western Shoshone refused to accept payment, arguing that rejection of the money meant that they had not been compensated and their claim to the land was still alive. With interest, the award, held in the U.S. Treasury in trust for the Western Shoshone, is now more than \$100 million.

The land ownership issue has been brought to court on several occasions. In 1984, the U.S. Supreme Court agreed to hear the case, considering only the issue of whether "payment" for the land had been made. In 1985, the Supreme Court held that the payment had been made in accordance with the Indian Claims Commission Act of 1946. This constituted full and final settlement for the land. Whether or not the Western Shoshone accepted the payment had no effect on the transaction; the land was ruled to belong to the United States. Subsequent challenges to this ruling have been made before the U.S. Court of Appeals who reiterated the Supreme Court decision: the Western Shoshone have no right to the land. In response to a subsequent appeal, the U.S. Supreme Court refused to hear the case, letting the appellate court decision stand.

The U.S. Government (and DOE) must abide by the current U.S. Supreme Court rulings on this issue. The U.S. Government is aware of significant disagreement with the rulings, especially by the Western Shoshone, and realizes there are likely to be additional challenges and appeals. The U.S. Government must abide by any new rulings made on this subject.

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## 08 Socioeconomics

### 08.01

Commentors express concern that the perceived mitigative effects of decontamination and decommissioning (D&D) jobs at ORR described in Summary section S.4.1 and table 3.7.1-5 would not materialize based on previous experience. The commentors are concerned about when the D&D work would be budgeted and whether these jobs would begin immediately or would be phased in. One commentor wants to know specifically what jobs are going to be created and if Washington agrees that these new jobs are going to be funded and asks that a table be provided showing employment and socioeconomic impacts through 2030. The commentors ask if Washington does intend on funding the (proposed 1,318) D&D jobs, is this a steady state requirement and how many years can the level of expenditure continue once it starts. A commentor states as an example that the D&D on Building 9201-4 has been scheduled for 15 years and does not seem to be a priority. A commentor is also concerned about who would do the D&D work (Lockheed-Martin people or contract workers), and how soon it would have to be scheduled in order for Lockheed-Martin workers to be kept on the payroll. Another commentor is concerned that people from K-25 are included in the D&D figures that are planned for Y-12. The commentor is concerned that DOE is just shifting people and money for D&D.

- Response: For base case single-shift operations, the total Y-12 workforce would fall to 3,916 from the No Action level of 4,721. The workforce would consist of 1,980 workers conducting nonstockpile management activities, 784 core stockpile management workers, and 1,152 workers performing landlord activities in preparation for D&D of the facilities. The projected D&D employment at Y-12 is shown in section 4.2.3.8. Workers performing landlord activities are necessary for transition of the facility and would be in place whether the funding comes from the Environmental Management program or continues to come from DOE's Office of Defense Programs (DP). Over the period 2005 to 2030, the number of these workers would range from a high of 1,522 in 2016 to a low of 557 in 2030. When D&D activities reach a peak in 2016, Y-12 would employ 435 fewer workers than under the No Action alternative.

### 08.02

The commentor wants to know where the impacts to the agricultural economy were analyzed in the PEIS.

- Response: The Stockpile Stewardship and Management PEIS does not analyze the economic impacts to particular sectors such as the agriculture sector. Rather, the document evaluates impacts to the regional economy as a whole, which includes the agricultural sector. However, none of the proposed alternatives would make use of prime farmland or involve activities affecting farm production. Under normal operation, there would be no direct impacts to the agricultural economy. Any potential impacts to agriculture resulting from an accident are analyzed in appendix section F.4.

### 08.03

Commentors state that the socioeconomic impact to Oak Ridge and the surrounding communities has

not been appropriately analyzed. One commentor expresses concern about the data used for the socioeconomic study and the financial impact studies which show little impact on the city of Oak Ridge and the ORR region. Another commentor asks what the community will do with the unemployed workers that have been at ORR for 20 to 25 years. The commentors also indicate that the study's results must be questioned because personnel from the city of Oak Ridge were not directly involved in the analysis.

- Response: The socioeconomic impacts associated with the alternatives at ORR extend beyond the city of Oak Ridge and include all the jurisdictions within the four-county region of influence (ROI). The database used for the socioeconomic study was developed using the most recent information available from the Departments of Commerce and Labor, as well as financial reports provided by cities, counties, and school districts. The impacts were measured using the latest version of Regional Input-Output Modeling System II (RIMS II), a model developed by the U.S. Bureau of Economic Analysis. The model is used by Government agencies, university researchers, and private economists to measure economic impacts. The socioeconomic impacts for the alternatives considered for ORR are discussed in section 4.2.3.8. DOE has created the Office of Worker and Community Transition to help ease the unavoidable impacts associated with the restructuring of the contractor workforce at DOE sites. The office has issued its Interim Guidance for Contractor Workforce Restructuring which includes options to encourage voluntary separations and assist affected workers in transition to new careers. The final guidance also includes measures such as transferring employees to other missions or other sites, providing additional training and educational assistance, or counseling for the employees. In addition, DOE anticipates working closely with other businesses in the communities surrounding the sites to keep them informed of skilled personnel in the labor market.

In accordance with the NEPA process, the city of Oak Ridge has been invited to provide comments on the proposed alternatives from the time of initial scoping to the Final PEIS. Any comments provided by the city or any other commentors are taken into account and incorporated into the Final PEIS.

## 08.04

Commentors recognize that downsizing the nonnuclear fabrication mission at KCP will result in a loss of possibly 300 to 900 jobs over a period of time. The commentors want to know what can be done, what resources can be utilized, and how the business community can help lessen the number of jobs lost. The commentors point out that even with the possibility of additional future work at KCP, there is concern and they want to know if it is possible to maintain a higher rate of employment in the Kansas City area.

- Response: In September 1994, DOE created the Office of Worker and Community Transition to help ease the unavoidable impacts associated with the restructuring of the contractor workforce at DOE sites. The office has issued its Interim Guidance for Contractor Workforce Restructuring which includes options to encourage voluntary separations and assist workers in transition to new careers. The final guidance also includes measures such as transferring employees to other missions or other sites, providing additional training and educational assistance, or counseling for the employees. In addition, DOE anticipates working closely with other businesses in the communities surrounding the sites to keep them informed of skilled personnel in the labor market. Because KCP is small relative to the large, diversified economy

of the Kansas City region, the downsizing is expected to have little effect on the regional economy. Kansas City derives almost all of its employment growth from non-DOE activities.

## 08.05

The commentor believes that the socioeconomic analysis does not consider the social and economic impact of the people at LANL who were laid off at the plutonium facility. The commentor believes that DOE needs to look at the integrity of the people in the socioeconomic analysis. The commentor also believes that the 22 people laid off at the plutonium facility should be interviewed for the socioeconomic analysis.

- Response: The Stockpile Stewardship and Management PEIS identifies and analyzes potential impacts of the proposed Stockpile Stewardship and Management Program alternatives, including the reestablishing of pit fabrication at LANL. The PEIS does include in the analysis the impacts of previous actions, such as layoffs at the LANL plutonium facility. The commentor's concerns about downsizing and the effects on site employees are being addressed by DOE's Office of Worker and Community Transition. This office oversees DOE policies to facilitate worker transition, including worker retraining, education, and relocation assistance. The socioeconomic impact analysis estimates direct and indirect economic impacts, including employment and income. The PEIS also estimates impacts to the regional population and the housing market, as well as impacts to public finance.

## 08.06

The commentor believes that any additional work that would come to Los Alamos from pit production should be contracted out to a private taxpaying company instead of going to the University of California, which does not pay taxes to the state or the community.

- Response: The economic analysis does not take into account what type of contractor would be managing the implementation of the proposed alternatives. The purpose of the economic analysis is to evaluate the socioeconomic impacts of the proposed alternatives on employment and income in the regional economic area. The socioeconomic impact analysis also addresses impacts to population, housing, and public finances. Selection of the preferred alternative would not be affected if LANL's contractor were a private in-state company instead of the University of California. This is because the benefits to the local communities from a private contractor as opposed to a non-profit contractor are likely to be small. Any revenues generated by corporate taxes levied on a private company would be the result of a state corporate income tax. This revenue could then be dispersed throughout the state, rather than remain in the LANL region. It is unknown what portion of these funds would actually be allocated to the LANL region. Impacts to the local community public finance would more likely stem from local taxes paid by workers directly associated with the facility. Furthermore, the process of selecting a contractor for performing proposed alternatives would be accomplished separately from the NEPA process.

## 08.07

Several commentors believe that the laboratories do not understand the various processes at Y-12 to estimate accurate employment figures. The commentors state that a detailed breakdown of the job structure does not exist. The commentors wonder how the waste job structures at Y-12 will be moved

to LANL and how many people for each function will be at all three of the sites. In addition, the commentors state that there is no description on a function-by-function basis of how the fabrication process can be implemented at another site, and this oversight allows for wildly unrealistic estimates at the other sites. Further, the commentors would like the PEIS to address the difference in worker experience between Y-12 and the laboratories and the cost of having to train a new workforce if the secondary and case fabrication mission were moved.

- Response: In developing the data used in the PEIS and in the cost estimates, DOE formed a working group for each functional area that included all affected sites in order to share information and provide consistent data for all of the proposed alternatives. In the case of secondary and case manufacturing, this included knowledgeable personnel from both Y-12 and the laboratories so that all three alternatives would be evaluating the same mission and requirements. Appendix A gives a breakdown of employment by labor category for each alternative at each site, and also includes details on how the process would be implemented at each site. This functional breakdown estimates the workers needed at Y-12, LANL, or LLNL.

## 08.08

Commentors ask about the difference between socioeconomics and environmental justice.

- Response: Environmental justice analysis, as defined in Executive Order 12898, is performed to assess whether the proposed alternatives would have a disproportionately high and adverse effect on minority and low-income populations. The analysis is accomplished by examining the size and distribution of these populations and determining if adverse health and economic impacts would be borne by these groups to a greater degree than the population as a whole. Socioeconomics has a broader focus. Socioeconomics addresses the impacts of the alternatives on the economic and social characteristics of a region, such as population, employment, housing, and public finances. The socioeconomic impact sections analyze the effect the alternatives would have on the entire region, rather than on particular populations.

## 08.09

The commentor points out peculiarities, such as the concept that no indirect jobs would be generated for the 523 workers and 321 incremental workers associated with the secondary/case mission (table 3.4.4.3-2), that need to be resolved.

- Response: The number of indirect jobs generated by each alternative depends on the mission performed and the types of existing industries within the region. In the region around LANL, there are few or no industries that would support the secondary and case fabrication mission. Therefore, the increase in site employment (direct jobs) would not result in a corresponding increase in supporting industry employment (indirect jobs).

## 08.10

The commentor states that the numbers included in the PEIS contain inconsistencies in logic and mathematics. For example, in section 3.4, the commentor notes surge operation is used for generating the operations analysis numbers, rather than the base case, which would presumably be the actual staffing levels and would be a more realistic identification of the manpower and socioeconomic impact. The commentor also wonders why the impact numbers calculated in the analysis in section

3.7.1.1 are based on the three-shift surge operation, when single-shift operation is the base case (table 3.1.1.1-1). The commentor feels this may have been done to reduce the socioeconomic impacts.

- Response: The Final PEIS assesses socioeconomic impacts using both the base case single-shift and the base case surge (three-shift) production scenarios. However, DOE has analyzed the base case surge scenario (as well as a high case scenario where appropriate) to fully capture the bounding case. This is because a surge operation would require more workers than a one-shift operation and could potentially cause greater disruption of the local infrastructure (e.g., housing and public finances).

## 08.11

The commentor expresses confusion about the difference between direct and indirect jobs and requests that the glossary include these terms. Another commentor refers to the discussion in the Summary section S.4.1 and states that only direct employment impacts are considered in socioeconomics. The commentor questions whether negative factors (such as land use, waste management, hazardous operations, and transportation problems) would have negative socioeconomic impacts.

- Response: The socioeconomic analysis assesses both direct and indirect economic employment impacts. Indirect employment refers to jobs created or lost in industries that support activities associated with the proposed alternatives while direct employment refers to changes in site workforce. These definitions are included in chapter 9, Glossary. Waste management, transportation, and hazardous operations are assessed in terms of health risks to workers and the public.

## 08.12

The commentor refers to figure 4.2.3.8-4 and states that the text under public finance only discusses ROI impacts when the city of Oak Ridge impacts are 5.5 and 7.5 percent. The commentor asks, since these numbers are for 2005 and the staffing levels in 2030 are only half of the 2005 level, how this affects projected impacts in 2030.

- Response: The text presents overall ROI impacts while the figures show the effects to individual cities and counties. In the Final PEIS, the range of the effects on cities and counties is included in the text.

## 08.13

Commentors state there are inconsistencies between the Draft PEIS (figure 4.2.3.8-1) and the Stockpile Management Preferred Alternatives Report (page 39) regarding employment figures. The commentors note that the Draft PEIS projects a continuously decreasing employment level for the downsizing ORR alternative until the year 2030. The commentors note that section 4.2.3.8 is the only section which mentions Environmental Management support employment figures. The commentors point out that the Stockpile Management Preferred Alternatives Report contradicts the information in the Draft PEIS by reporting employment levels that will not continue to decline after the year 2008 and will in fact remain constant between the years 2008 and 2030. The commentors state the public is unsure which figures are accurate.

- Response: Figure 4.2.3.8-1 was incorrect and did not properly reflect the employment numbers presented in the PEIS which represent DOE's most recent estimates of the labor force required for the mission. The ORR labor requirements have been revised since the publication of the Draft PEIS. The base case single-shift core stockpile management workforce will be 784 in 2005, while the base case surge (three-shift) core stockpile management workforce would be 1,376 in 2005. In addition, D&D employment would begin in 2003, increase its employment requirements until 2016, and gradually decrease until 2030. This is shown in section 4.2.3.8. The preferred alternative number of workers expected at Y-12 is 1,080, which falls between the two bounding values analyzed in the PEIS.

## 08.14

The commentor states that the 1,100 employees that have been added to the Pantex workforce in the past few years are mostly ES&H workers and not A/D workers.

- Response: Of the 1,100 worker increase at Pantex over the past 5 years, approximately 25 percent are associated with ES&H and waste management activities. About 75 percent of the additional workforce is employed in production and dismantlement operations.

## 08.15

The commentor urges DOE to correct the socioeconomic impact portions of the PEIS to accurately reflect the impact of Pantex on the local economy, stating that employment related to Pantex represents over 12 percent of all jobs in the Amarillo metropolitan area. The commentor's assertion is based on the fact that the money Pantex brings into the local economy supports many retail, medical, educational, finance, insurance, and real estate jobs. Other commentors state that the dramatic employment reduction of 3,549 jobs forecasted in the Draft PEIS will severely impact the Panhandle economy and that any reductions should come only after intensive cost and technical analyses. The commentors feel the loss of 3,549 high paying jobs would have greater than a 1-percent impact.

- Response: The socioeconomic impact sections look at the entire regional economic area around the site, rather than the nearest metropolitan area. The jobs considered are those jobs associated with the mission at the site, and those jobs in other industries in the area that are related to and support the mission activities. Other changes to the local economy, such as changes in tax revenues and Government expenditures, are analyzed in the public finance portions of the socioeconomic sections. Total phaseout of Pantex would result in a loss of 3,549 jobs (1,644 direct and 1,905 indirect). This represents 1.4 percent of total employment in the Pantex regional economic area. The downsize A/D and HE fabrication alternative would result in a loss of 475 jobs (220 direct and 255 indirect), which is 0.2 percent of total regional economic area employment. While these job losses could negatively affect the Panhandle region, DOE's Office of Worker and Community Transition would work with the area to lessen any impacts.

## 08.16

The commentor states that the PEIS does not address the social impacts that go beyond the direct number of jobs, such as unnecessary infrastructure and empty schools. The commentor believes the main adverse impacts of a stockpile stewardship program would be associated with the construction of new facilities and in the societal effects of shifting responsibilities among installations.

- Response: The socioeconomic impact analysis estimates direct and indirect economic impacts, including employment and income. The PEIS also estimates impacts to regional population and the housing market, as well as impacts to public finance for all sites and all alternatives. The analysis of population impacts indicates that any population change would be small relative to the resident population, and would not significantly impact school populations or existing infrastructure.

## 08.17

The commentor notes that in the Summary section entitled Secondary and Case Fabrication, the proposed plan is to cut Y-12's manufacturing capability from 2,350 current DP workers to 870, but that the data presented at the April 1 and 2, 1996 meetings in Oak Ridge were 3,126 current DP workers at Y-12 to be reduced to a downsized level of 1,080 in the year 2003. The commentor points out that the meeting data indicate a cut of 2,046 employees while the PEIS shows a reduction in DP supported workers of 1,480 for the same years. The commentor wants to know the impact of the new data which calls for a cut of 2,046 workers which is 38-percent higher than the data in the Summary section S.4.1 and in section 4.2.3.8.

- Response: For base case single-shift production in 2005, the number of core stockpile management workers at Y-12 would fall from the No Action level of 2,741 to 784 while landlord responsibilities in preparation for D&D would require 1,152 workers. An additional 1,980 workers would be required for other program activities at the Y-12 facility under both the No Action or the downsize alternative. Total Y-12 workforce (core stockpile management and other programs) would be reduced from the No Action level of 4,721 to 3,916, a loss of 805 jobs. Employment in the ORR regional economic area would fall by less than 1 percent as a result of the change in site workforce.

## 08.18

The commentor refers to the Summary section S.4.1 and the proposed plan to cut Y-12's manufacturing capability from the current 2,350 workers to 870. The commentor wants to know the skill mix that will comprise the proposed 131 craftworkers and the 93 operatives identified in order to evaluate the feasibility of meeting the proposed production requirements. The commentor is interested in knowing how many workers will be involved in quality and certification and process development.

- Response: The socioeconomic impact sections analyze changes to regional economics, employment, population, housing, and public finance resulting from changes in site employment. The detailed data requested by the commentor is not available because the types of craftworkers and operators were not needed for determining environmental impacts. The skill mix of the workers does not change the environmental impacts of the proposed alternatives. The Stockpile Management Preferred Alternatives Report presents an evaluation of the technical ability of the alternatives to meet the proposed production requirements. This report is available in the DOE Public Reading Rooms near each site.

## 08.19

The commentor contends that substantial local public and private money was put into building



infrastructure to support DOE operations (i.e., roads, schools, and utilities). The commentor states that the PEIS does not consider the total national impact on local socioeconomics (i.e., cuts at ORR, expansion at another site). The commentor suggests that the PEIS needs to account for and address these "stranded costs."

- Response: As seen in the socioeconomic analysis, the impacts to the regional economies from any of the proposed alternatives is small. In the case of the preferred alternative, the losses to the regional economy would be diminished by D&D activities associated with downsizing. Population decrease in any ROI jurisdiction would not exceed 4 percent as a result of downsizing to the preferred alternative. Therefore, there would be no large changes in the utilization of local services or utilities.

## 08.20

The commentor requests clarification on the level of importance placed on the impact of jobs lost or jobs gained in any particular area in making recommendations.

- Response: The primary purpose of the Stockpile Stewardship and Management Program is to continue to support U.S. national security policies as directed by the President and Congress. The final decision to select a preferred alternative takes into account impacts to various environmental resources, including socioeconomics. The Record of Decision (ROD) will explain the rationale and the factors for DOE's decisions.

## 08.21

The commentor states that DOE should have analyzed in more detail the socioeconomic impacts associated with each of the proposed alternatives, including impacts associated with loss of employment population, unnecessary infrastructure, and empty schools, as well as other financial impacts on the region's economy. The commentor believes that local government representatives should be included in this more detailed analysis.

- Response: The PEIS analyzes impacts to regional employment and income, as well as any changes to population or housing markets that could result from the proposed alternatives. In addition, impacts to local government and school district finances are assessed. Information on public finances were obtained from each city, county, and school district. Other data came from sources such as the U.S. Census Bureau and the U.S. Bureau of Economic Statistics. Input from local government officials and other stakeholders is obtained from public meetings, including scoping meetings.

## 08.22

The commentor states that DOE should explain the statement in the Stockpile Stewardship and Management Draft PEIS, "The downsizing A/D and HE fabrication alternative would result in the addition of 280 workers at Pantex."

- Response: A majority of the worker reductions at Pantex would have already occurred under No Action. Under the base case single-shift scenario, downsizing Pantex (retaining A/D and HE missions) would result in the loss of 189 jobs from the No Action level of 1,644 jobs. A base case surge (three-shift) operation would require 1,927 workers. This represents an increase

in employment requirements over No Action of 283 jobs. This number was rounded to 280 in the Draft PEIS.

## 08.23

The commentor refers to the ORR section 4.2.3.8 on public finance and wonders who projected that total expenditures for the public area would increase an average of less than 1 percent per year from the year 2000 to 2030.

- Response: Section 4.2.3.8 on public finance at ORR states that total expenditures are projected to increase at an annual average of less than 1 percent during the period 2000 to 2005, and that this rate of increase should continue until 2030. The increase for the ORR combined ROI cities and counties expenditures between 2000 and 2030 is 9 percent. These projections are developed from financial forecasting models described in the methodology section and are based upon financial statements and budgets from these cities and counties; the latest available projections for population, income, and employment from the U.S. Bureau of Economic Analysis; and other data.

## 08.24

The commentor requests that the Comment Response Document contain a description of the statistical rationale which supports the PEIS statement that direct and indirect jobs lost (from transfer of HE mission to laboratories) would not change the Pantex regional economic area's unemployment rate, housing/rental vacancies, and public finance expenditures/revenues. Another commentor feels DOE should not consider 33 HE jobs as insignificant.

- Response: Under No Action, the HE mission at Pantex would employ 105 workers and generate an additional 122 jobs in related industries within the region. Phaseout of this mission would therefore result in a total loss of 227 jobs in the Pantex regional economic area. Total employment in the region is projected to be 248,442 in 2005. Therefore, the jobs lost as a result of the phaseout of the HE mission would result in a loss of less than one tenth of 1 percent of total regional employment and would not have a measurable effect on the unemployment rate. Even if all of the displaced workers were to leave the area, the impacts on population, housing, and public finance would be negligible. As described in section 3.8, the preferred alternative is to assign the HE mission to Pantex.

## 08.25

The commentor requests an explanation be given in the Comment Response Document regarding the apparent inconsistencies between the Pantex Site-Wide Draft EIS, the Stockpile Stewardship and Management Draft PEIS, and the Storage and Disposition Draft PEIS regarding the numbers of indirect jobs created in the region for each direct job at Pantex. The commentor notes that the Pantex Site-Wide Draft EIS, page S-17; Stockpile Stewardship and Management Draft PEIS, Summary section S.4.1; and Storage and Disposition Draft PEIS, page 4-205 assume an economic multiplier of 1.65, 1.16, and 3.51 indirect jobs in the region for every direct job created at Pantex, respectively.

- Response: Projections of the number of indirect jobs generated depends on a number of factors, including the type of mission activity performed, the type of data used, and the methodology employed. This PEIS evaluates the socioeconomic impact of weapons A/D at Pantex, while the

Storage and Disposition Draft PEIS evaluates the impacts from the storage and disposition of fissile material. The activities involved in the two programs are quite different and each requires vastly different inputs. The availability of inputs within the region is what determines the multiplier. For example, if the Pantex region contains industries that produce the inputs required for storage and disposition activities, but no industries that produce stockpile stewardship and management required inputs, the storage and disposition mission would generate a greater number of indirect jobs in the region. The Pantex Site-Wide Draft EIS impact analysis was conducted at a different level of detail, and the analysis employed a somewhat different methodology.

## 08.26

The commentor requests an explanation in the Comment Response Document as to why DOE did not consult with the Amarillo Economic Development Commission and/or the city of Amarillo regarding the ratio of additional jobs in the region related to each job at Pantex and use the information that taxpayers had already paid for.

- Response: The number of indirect jobs generated by any of the alternatives was determined using RIMS II from the U.S. Bureau of Economic Analysis. This information is available for every economic region in the Nation, and therefore lends consistency to the analysis across sites.

## 08.27

The commentor states that the resulting benefits to the regional economy, if the Stockpile Stewardship and Management PEIS alternatives were located at LLNL, would be less than 1 percent. Given the additional radioactive and hazardous materials and wastes to be shipped to and from LLNL and handled at the facility, which projects a certain radiological risk to the public (albeit small, as estimated by DOE), the commentor states that the PEIS should contain an explanation which details how regional/state costs resulting from the proposed action will be offset by benefits to the regional economy.

- Response: The benefits to the local economy in terms of increased regional income and employment and public finance impacts are discussed in the socioeconomic section 4.7.3.8. These benefits can be compared to the costs of the alternatives.

## 08.28

The commentor feels the statement in the ORR section 4.2.2.8, that all jurisdictions have positive fund balances, may be misleading, since state law requires positive fund balances and jurisdictions deal with this by generating capital obligations, which are not included in fund balance calculations.

- Response: Not all states require positive fund balances. The statement that all jurisdictions have positive fund balances was used in all sections where applicable. Otherwise, local governments without positive fund balances were identified. The analysis of public finances includes past capital bonding obligations and the projected payout of these existing obligations. However, as stated in the methodology, there was no attempt to project capital bonding that may be made in the future. The purpose of analysis was to compare effects of the proposed alternatives to No Action. Both were projected using the same assumptions and methodology.

## 09 Intersite Transportation

### 09.01

One commentor asks DOE to comment on its methodology for choosing transportation routes, parking areas, and the overall transportation plan. Several commentors urge DOE to educate the public about the risks associated with hazardous shipments and to consult and coordinate with local communities and interested parties along proposed transportation routes regarding each community's transportation responsibilities and needs (such as additional roads); the routing of hazardous shipments and notification of interested parties; the effects of these additional shipments on traffic patterns; and the effect on property values. One commentor asks that DOE expand the ROI beyond 80 km (50 mi), as these people could be affected by transportation issues as well. Another commentor urges DOE to use every safeguard possible to ensure that the public is not at risk from transportation of nuclear materials.

- Response: The intersite transportation of Stockpile Stewardship and Management Program materials is discussed in section 4.10 of the PEIS. Hazardous materials transportation routes are predetermined by the Department of Transportation (DOT) in conjunction with the individual states. Parking areas are generally at DOE sites, military bases, and other predetermined locations. The transportation planning for plutonium and highly enriched uranium (HEU) shipments is carefully prepared by the DOE Transportation Safeguards Division to provide both safety and cargo security. The risk from normal (accident-free) transportation of radioactive materials by DOE is minimal. Even severe accidents are highly unlikely to cause injury or death from a radiological release because of the stringent Federal DOT/Nuclear Regulatory Commission (NRC) packaging design and transport safety requirements. In over 40 years of shipment activity, neither DOE nor its predecessor has ever experienced an injury or death from a radiological release during transportation. The volume of radioactive shipments associated with this PEIS would be small and would have negligible effects on the number of shipments in transportation corridors. The transportation risk analysis for the alternatives presented in section 4.10 of the PEIS included the entire route, which is beyond the 80-km (50-mi) ROI.

### 09.02

Several commentors contend that DOE has not provided equal treatment to local communities and Native Americans in regard to transportation issues such as emergency response and preparedness, and urge DOE to inform all local communities of important transportation issues. Another commentor notes that there are no evacuation plans for the people of Santa Fe and Albuquerque in case of a transportation accident involving nuclear materials. The commentor feels that the PEIS does not adequately analyze the impacts of accidents at LANL on the Pueblo of San Ildefonso. One commentor states that DOE needs to provide better oversight and notification regarding shipments through the city of Pahrump and Nye County, specifically emergency preparedness, as Pahrump does not have the population to be trained. Another commentor states that the emergency response personnel along the transportation routes are not properly trained and equipped to handle an accident involving nuclear materials.

- Response: DOT is responsible for coordinating Federal training programs and for providing

technical assistance to states, tribes, and local governments for emergency response training and planning. Evacuation plans and emergency response are local jurisdictional responsibilities. However, DOE voluntarily provides limited free training and technical assistance to local jurisdictions when there is a specific special interest (e.g., in areas most likely to be traversed by safe secure trailer shipments). Training is also provided separately to law enforcement and emergency services personnel to familiarize them with DOE's system for the safe transport of nuclear materials. Interested parties can request this free training through the DOE Community Advisory Board for each site. Regarding the impacts of accidents at LANL and their effects on the Pueblo of San Ildefonso, the PEIS describes postulated transportation accident impacts at LANL and their effects on surrounding communities in section 4.10.

If NTS were selected as the weapons A/D site, it is unlikely that radioactive shipments would pass through Pahrump because of its out-of-the-way location. The Federal officers who escort plutonium and HEU shipments are trained to actuate the National Emergency Response System if they, themselves, cannot handle emergencies that may occur en route. First responders, such as state police or other emergency services personnel, also know how to actuate this system.

### 09.03

Commentors state that there is local concern about the transportation of nuclear weapons parts and materials on the highways of Nevada, Clark County in particular. The commentors do not want these types of materials to go through Clark County and urge implementation of a rail system through low-population areas. The rail system could serve a multitude of purposes (e.g., mining) in addition to DOE transportation, and would eliminate the danger of highway transportation. The commentors urge a study of this alternative and state that the rail system would provide equity to the people of Nevada.

- Response: The methodology for the safe secure transportation of nuclear materials (plutonium and HEU) is well established. Acceptable risk is not dependent upon the transportation mode (truck versus rail) but rather upon the rigorous packaging design requiring Federal safety certification. The packaging must retain its contents under the most severe accident conditions (i.e., fire, impact, puncture, or water immersion). Rail transportation for plutonium and HEU was abandoned in favor of the safe secure trailers several years ago and is not now considered a viable transportation alternative for these materials related to the Stockpile Stewardship and Management Program.

### 09.04

The commentor believes that the PEIS should consider the risks of hijacking when looking at the intersite transport of nuclear materials.

- Response: All potential threats (including hijacking) to the safety and security of nuclear materials in transit are considered by DOE's Transportation Safeguards Division.

### 09.05

The commentor questions the safety record of nuclear shipments in the Los Alamos area. Another commentor cites a safe secure trailer turnover in Colorado about 5 years ago as proof that there have been accidents with nuclear cargo.

- Response: Although DOE's transportation safeguards system has experienced traffic accidents involving vehicles carrying interstate shipments of radioactive materials, none, including the accident in Colorado referred to by the commentor, have resulted in a release of radioactive material. The safety of the system is attributable in part to the training and certification of vehicle operators and the design of the vehicles themselves. However, the safety of DOE shipments does not rely just on these measures. Primary containment of radioactive materials is provided by the containers within which the material is placed for shipment. These containers are designed to conform to the requirements for Type B packages as specified by the NRC in 10 CFR 71. The packages are fabricated and tested to ensure compliance with the standard under normal conditions of transport and hypothetical accident conditions including fire, impact, puncture, and water immersion.

## 09.06

The commentor refers to the Summary section S.2.3, High Explosive Components, and states that safety issues related to shipment of shaped charges were not assessed in detail, either in terms of increased volume of shipments of shaped components over raw HE, or in terms of the technical vulnerabilities of the components. Another commentor questions whether hearings have been held to discuss main charge transportation through the appropriately affected states. Other commentors ask if an analysis has been made of the additional hazards of transportation of HE from either of the national laboratories to where it would be used, and what are the increased costs of intersite transportation of HE from either of the national laboratories to where it will be used. One commentor contends that the safety impact of transporting hundreds of HE hemispheres from the laboratories to Pantex (should HE manufacturing be moved) is not adequately evaluated. A commentor also asks if scrap explosives will be returned to the laboratories for disposal or if Pantex will be responsible for disposition. Another commentor states that separation of the explosive fabrication and A/D missions would require that explosives be transported over long distances in order to be mated with the physics packages. Therefore, the commentor believes that in the case of LLNL, the extensive fogs that create near zero visibility should be considered in any safety analysis.

- Response: Transferring the HE fabrication mission from Pantex to LANL and/or LLNL would require an estimated 150 rebuilds to be shipped per year from the HE fabrication site to the weapons A/D site. The accident risk from transporting this material would be no greater than the risk encountered by the public from industry's transport of similar explosives. Hearings are not required for shipments of HE made in compliance with Federal transportation regulations.

Transferring all or part of the HE fabrication mission from Pantex to LANL and/or LLNL would require an estimated 12 round trips per year to transport HE materials including the return of scrap HE to the laboratories. The transportation of HE is described in section 4.10 and appendix G of the PEIS. There would be no impact from normal (accident-free) transportation. HE accident impacts from transportation are bounded by the risk analyzed and presented in the Facility Accident sections. Weapon component shapes are classified and are shipped using the appropriate safeguard measures in accordance with approved Federal regulations. HE main charges would not be shipped with detonators installed and would meet all DOT safety requirements.

## 09.07

The commentor asks how reliable the PEIS transportation computer modeling is.

- Response: The RADTRAN computer code has been used in risk analysis for over 10 years and is being constantly improved and updated. It is accepted by the International Atomic Energy Agency and its worldwide member countries as a reliable risk assessment tool. RADTRAN calculates the collective dose to the exposed population (workers and the public) from a postulated accident as well as the collective dose from accident-free transportation. It produces conservative estimates (those that tend to overstate impacts) of radiation dose rates in a way that can be supported by available data.

## 09.08

The commentor recommends that DOE should (a) directly involve corridor states and tribes in preparing for large quantity radioactive material shipments associated with the Stockpile Stewardship and Management Program and other DOE programs; this would include developing rail and truck transport plans, preferred routes, and procedures prior to shipment (similar to the plans developed by DOE and the Western Governors' Association for transuranic [TRU] waste shipments to the Waste Isolation Pilot Plant [WIPP]); (b) use only shipping containers that can be manufactured to meet current Federal transport safety requirements; and (c) provide accurate projected shipment information (i.e., quantities, schedules), as well as necessary assistance and lead time for state emergency response preparation. The commentor feels the Draft PEIS should quantify the number, volume, transport mode, and characteristics of radioactive materials being transported under the proposed alternatives relative to baseline shipments.

- Response: Large numbers of radioactive shipments are not expected under the Stockpile Stewardship and Management Program. The actual route and quantity of material transported would be classified information for purposes of national security, including security of the shipments against attempts of diversion. However, DOE has, on occasion, been able to identify to specific concerned communities that shipments are not planned through their location. The analysis presented in section 4.10 of the PEIS shows the risk to the public to be low. Plutonium and HEU will be transported exclusively in a Government-owned and -operated transportation system that provides maximum safety and security. All shipments are escorted by Federal officers, and only packaging that meets stringent Federal standards for the shipment of these materials is used. The packaging and transportation vehicles have, for example, been extensively tested and certified to assure their safety against material dispersal to the environment in hypothetical accidents involving such events as crashes, fires, and water immersion. Packaging and transportation methods and impacts are discussed in section 4.10 of the PEIS and appendix G of the PEIS. Projected estimates of plutonium and HEU shipments for the proposed alternatives are considered in the transportation risk analysis. Information is provided by DOE to state law enforcement and emergency services personnel on a regular basis.

## 09.09

The commentor asks if it would violate security to tell us how many shipments of radioactive material are going through Santa Fe at this time.

- Response: Appendix section G.3 summarizes the shipments of these radioactive materials

between the sites. For the PEIS, shipment numbers, routing, and date and time of shipments of plutonium and HEU would be classified. See also the response to comment summary 09.08.

## 09.10

Commentors express opposition to the transport of nuclear waste and other deadly toxins. One commentor states that the transportation risk numbers are terrifying.

- Response: Transport of nuclear materials has been ongoing safely for more than 40 years. The analysis in this PEIS for transporting nuclear materials shows that risks to the public are low. The plutonium and HEU would be transported exclusively in a Government-owned and -operated transportation system that provides maximum safety and security. These hazardous materials shipments would be escorted by Federal officers who can handle transport emergencies or actuate the National Emergency Response System for assistance.

## 09.11

Commentors feel that transporting nuclear waste through New Mexico's cities and countryside is dangerous, irresponsible, and the chance for accident is too big to be taken. One commentor states that they do not want high-level waste (HLW) trucked to LANL or on New Mexico's highways. The commentor states that Federal Emergency Management Agency does not even have a protocol for dealing with a collision spill.

- Response: The Stockpile Stewardship and Management Program does not generate HLW; however, under the preferred alternative, there would be TRU waste shipments from LANL as discussed in section 4.6.3.10. The transportation of hazardous materials, including radioactive waste, is essential for national commerce. The methodology for the safe transport of these materials is well established. The packaging is federally certified for safety and must retain its contents under the most severe accident conditions (e.g., fire, impact, puncture, or water immersion). The transport of all hazardous materials is regulated by Federal hazardous materials laws that are applicable to DOE and other hazardous material shippers, and cannot be preempted by individual states.

## 09.12

One commentor wants to know the extent of transportation (number of trucks, routes, safety precautions, accident mitigation, and such) of all nuclear materials along New Mexico's roads and the extent to which this will increase once the pit fabrication mission is implemented at LANL. Another commentor is concerned about the number of pits that would be transferred between Santa Fe and Pantex, and asks if there would be trucks going through Santa Fe with Hiroshima-size nuclear potentials on them. Finally, one commentor asks if there are trucks right now on the highway that are transporting waste between Pantex and LANL.

- Response: Pit fabrication is not a new function at LANL; they already have a research and development (R&D) pit fabrication mission. As discussed in section 4.10, pit transportation would include about four round trips per year of safe secure trailer shipments. For the transportation of pits under this PEIS, the shipment numbers, routing, and date and time of shipments would be classified. These materials, however, would be transported exclusively by the Government-owned and -operated transportation system that provides maximum safety and



security. A pit would be shipped as a separate weapon component (without HE) and, as such, would be unable to explode as a nuclear weapon. The potential risk from transporting pits would be radiation exposure as a result of a traffic accident. Nuclear materials in shipment are contained in packages that have been designed and certified to meet NRC standards to prevent a radioactive release during an accident. There are currently no trucks on the highway transporting waste between Pantex and LANL.

## 09.13

The commentor expresses concern about the transportation and safety of low-level radioactive waste on commercial carriers.

- Response: DOE low-level waste (LLW), which consists primarily of materials such as radioactively contaminated paper, protective clothing, or cleaning materials that result from industrial processes, has been transported safely and securely by commercial carriers for more than 40 years. DOT requires high-integrity packaging for such materials to the extent that potential exposure of radiation at the outside of the package is insignificant (typically less than 1 millirem (mrem) per hour per package at 1 m from the package). DOE selects its commercial motor freight carriers of radioactive material very carefully and subjects each carrier to routine evaluation of its operating practices to ensure that they meet DOE and DOT standards.
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## 10 Waste Management

### 10.01

One commentor states that DOE plans to continue the production of nuclear waste but does not talk about what they plan to do with the waste. The proposed expansion of Area G at LANL is unacceptable to the commentor. Another commentor asks what kind of waste will be put into the LANL expanded Area G and what safety measures will be used at the facility. Another commentor believes that the expansion of Area G would not have any adverse affects on the area. One commentor suggests that waste should be stored aboveground.

- Response: The PEIS describes impacts and management of wastes in the waste impacts analysis in chapter 4. Waste management activities that would support the Stockpile Stewardship and Management Program are assumed to be per current site practice and are contingent upon decisions to be made through the Draft Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste (Waste Management Draft PEIS) (DOE/EIS-0200-D, August 1995) and the LANL Site-Wide EIS. Thus, as currently envisioned, LLW would go to Area G for disposal. Appendix section A.3.3.1 provides a description of the kinds of LLW that would require disposal. The decision as to whether or not to expand the low-level disposal facility at Area G is not within the scope of this PEIS. Decisions concerning the Area G expansion will be made as a result of the LANL Site-Wide EIS. The proposed expansion of Area G is driven by existing and continuing operations.

The potential human health risks, environmental impacts, and costs associated with waste management alternatives could be reduced or mitigated through the implementation of programmatic and site-specific mitigation measures. Chapter 12 of the Waste Management Draft PEIS provides a description of these programmatic and site-specific mitigation measures. Appropriate control procedures, engineered safety systems, and worker training programs are established and implemented to ensure compliance with all applicable ES&H regulations before beginning any radioactive operation of any facility. In addition to DOE assessments and independent internal appraisals, there are external appraisals such as those conducted by the New Mexico Environment Department to ensure the effectiveness of the ES&H program.

### 10.02

In section 4.2.3.10, a commentor inquires how DOE projects zero waste associated with the move of HEU to another location unless containers can be removed and shipped in existing trucks with no repackaging.

- Response: The paragraph referred to by the commentor has been rewritten in the Final PEIS as follows: "The waste volumes given in table 4.2.3.10-2 include the storage of the strategic reserve of HEU. The volume of waste associated with the storage of the strategic reserve HEU is very small (less than 0.01 percent) in relation to the total amount of wastes generated from the secondary and case fabrication mission and is an even smaller percentage of the total ORR waste generation volume. Therefore, the continued storage of the strategic reserve HEU would have a negligible impact on waste management at ORR. The impact of continuing to store the strategic reserve HEU as part of the total inventory of nonsurplus HEU at ORR is also

addressed in the Storage and Disposition Draft PEIS. In addition, the Storage and Disposition Draft PEIS also analyzes moving the HEU to another DOE site location. Since the HEU is already packaged, it is expected that any waste generated from repackaging, health physics, and analytical chemistry activities would be very small in comparison to the total wastes generated at ORR. Therefore, the moving of HEU would have a minimal impact on ORR waste management."

### 10.03

Commentors note that the Waste Management Draft PEIS summary shows a large amount of waste generation related to the Stockpile Stewardship and Management Program. The commentors also note that for LLW, mixed LLW, and TRU wastes, the volumes differ between the Stockpile Stewardship and Management Draft PEIS and Waste Management Draft PEIS. The commentors also believe DOE has not changed directions from the past practices of producing massive quantities of nuclear waste and express concern about the nuclear waste that would be generated. One commentor questions the statements in the cumulative impact section "that wastes would be minor."

- Response: The waste volumes presented in the Waste Management Draft PEIS are for all DOE facilities not just the Stockpile Stewardship and Management Program. The waste volumes from the Stockpile Stewardship and Management Program have been provided to Environmental Management to include in the Waste Management Final PEIS analysis. The statements in section 4.13, Cumulative Impacts, regarding whether wastes generated by stockpile stewardship and management alternatives would be minor compared to other programs have been deleted. DOE has a waste reduction policy that requires DOE sites to employ waste minimization and pollution prevention strategies. To implement these requirements, DOE issued the 1994 Waste Minimization/Pollution Prevention Crosscut Plan that establishes a DOE-wide goal to meet pollution prevention targets (Executive Order 12856 Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements)--a 50-percent reduction in total releases and offsite shipment of toxic chemicals and pollutants by December 31, 1999. The 1994 Crosscut Plan calls for each DOE site to establish site-specific reduction goals for hazardous, radioactive, radioactive mixed, and sanitary wastes and pollutants.

### 10.04

Commentors question the sites' estimates of waste streams. A commentor states that LANL and LLNL claim moving the secondary and case mission to their site is going to generate 102,000 m<sup>3</sup> (133,416 cubic yards [yd<sup>3</sup>]) of sanitary waste and that they will be able to handle these huge volumes of waste with no changes whatsoever. One commentor does not believe that other sites have adequate infrastructure to handle waste without having to build new facilities. The commentor states that ORR has available infrastructure in the private sector that are outstanding and a model for the world.

- Response: The site estimates of waste volumes were coordinated among the sites through a coordination data committee chaired by a DOE official and represent the best estimates available. All of the DOE sites analyzed in the PEIS have adequate capability to handle the onsite waste volumes generated as a result of the Stockpile Stewardship and Management Program.

## 10.05

The commentor wants to know what portion of the DOE budget is going towards site cleanup and solution of the nuclear waste problem. The commentor believes that new solutions need to be developed to handle the terrible problem of nuclear waste because the current practices are not working.

- Response: The entire DOE budget for 1996 is approximately \$14.2 billion of which \$6 billion is for environmental management. The DOE Office of the Assistant Secretary for Environmental Management through its Office of Research and Development (EM-53) is continually investigating and developing new technologies to treat radioactive waste.

## 10.06

Commentors express negative feelings about LANL's record involving radioactive waste and emissions, and state that New Mexico is contaminated in many places and that DOE should not dump any more nuclear waste in the state.

- Response: DOE is committed to operating its facilities in compliance with all applicable Federal and state regulations, and DOE orders. To fulfill its mission under the Atomic Energy Act of 1954, as amended, the generation of radioactive, mixed, hazardous, and nonhazardous wastes is unavoidable. Per DOE policy, the facilities that would support the Stockpile Stewardship and Management Program incorporate waste minimization and pollution prevention. Appropriate control procedures, engineered safety systems, and worker training programs are established and implemented to ensure compliance with all applicable ES&H regulations before beginning any radioactive operation of any facility. In addition to DOE assessments and independent internal appraisals, there are external appraisals such as those conducted by the New Mexico Environment Department to ensure the effectiveness of the ES&H program. Radioactive wastes generated by the Stockpile Stewardship and Management Program would be managed in accordance with decisions made as a result of the Waste Management PEIS and any respective site-specific NEPA documentation. The Waste Management PEIS considers alternatives that include local, regional, and/or consolidated waste management facilities. Regardless of the decisions from the Waste Management PEIS or any respective site-specific NEPA documentation, wastes generated from the Program will be managed in accordance with all applicable Federal and state regulations, and DOE orders.

## 10.07

A commentor believes that nuclear waste should be centralized into a repository to provide better safety monitoring for the material. The commentor does not believe that there would be significant risk in transporting nuclear materials to a repository. Another commentor believes that consolidating waste at one site would lead to increased risks due to the risks involved with transportation of the nuclear materials. Another commentor thinks there should be a concerted effort to open Yucca Mountain.

- Response: Decisions regarding the management (treatment, storage, and disposal) of radioactive and hazardous wastes from a DOE-wide perspective are not within the scope of this PEIS. Waste management activities that would support the Stockpile Stewardship and

Management Program are assumed to be per current site practice and are contingent upon decisions to be made through the Waste Management PEIS and any respective site-specific NEPA documentation. The Waste Management PEIS will assist DOE in making decisions regarding the sites at which it should locate waste management facilities to include treatment and disposal facilities for mixed LLW, treatment and disposal facilities for LLW, treatment and storage facilities for TRU waste, storage facilities for treated HLW canisters until a geologic repository is available, and treatment facilities for hazardous nonwastewater. The Waste Management PEIS considers four broad categories of alternatives for each waste type: No Action, decentralized, regionalized, and centralized.

## 10.08

The commentor wonders if the PEIS includes an analysis of the overall waste management plans at LLNL for the next 20 years.

- Response: Two site-specific waste management plan documents were used in the stockpile stewardship and management analysis at LLNL: Waste Management Plan FY 1995 Update in Accordance with DOE Order 5820.2A, and the Federal Facility Compliance Act Proposed Site Treatment Plan for LLNL. The full document reference citations are provided in the chapter 6 reference list see LLNL 1995d and LLNL 1995h). Radioactive waste generated by the Stockpile Stewardship and Management Program would be managed in accordance with decisions made as a result of the Waste Management PEIS and any respective site-specific NEPA documentation. Regardless of the decisions from the Waste Management PEIS or any respective site-specific NEPA documentation, wastes generated from the Stockpile Stewardship and Management Program will be managed in accordance with all applicable Federal and state regulations, and DOE orders.

## 10.09

The commentor notes that in addition to waste created from the Stockpile Stewardship and Management Program, there is a proposal to construct an incinerator to handle mixed nuclear waste at Site 300.

- Response: Waste generated at Site 300 includes explosive waste from testing activities and waste from various other operations, and environmental restoration generated waste. The LLNL Site Treatment Plan once approved will include a description of the technology and capacity needs to treat each mixed waste stream, along with a preferred option. The LLNL Site Treatment Plan in its present form does not include a proposal for an incinerator at Site 300.

## 10.10

The commentor's primary concern is that an increased stockpile and resulting waste disposal problems at LANL are a direct threat to the Penasco Valley watershed and communities.

- Response: The nuclear stockpile is not increasing. The nuclear stockpile level is set by a Presidential Decision Directive (PDD) and has been decreasing due to negotiated treaties and unilateral reductions. Due to waste minimization and pollution prevention practices, the volume of wastes generated from weapons program activities are decreasing. Wastes generated by the Stockpile Stewardship and Management Program would be managed in accordance with

all applicable Federal and state regulations, and DOE orders. Waste management activities that would support the Stockpile Stewardship and Management Program at LANL are assumed to be per current site practice and are contingent upon decisions to be made through the Waste Management PEIS and the LANL Site-Wide EIS.

## 10.11

The commentor believes that staggering rates of nuclear waste will be generated by the proposed stockpile stewardship and management activities thereby creating a need for more waste management and future cleanup costs. The commentor questions why we should put more of our environment at risk and cautions DOE to think carefully about producing new wastes given its inability to develop solutions for existing nuclear waste.

- Response: DOE is required by the Atomic Energy Act of 1954, as amended, to support a nuclear weapons stockpile as defined in a PDD signed by the President. All of the existing basic capabilities continue to be needed even though there have been changes in national security policy since the end of the Cold War. To fulfill its mission under the Atomic Energy Act of 1954, as amended, generation of radioactive, mixed, hazardous, and nonhazardous wastes are unavoidable. All of the alternative sites have adequate capability to manage the wastes generated from the Stockpile Stewardship and Management Program in accordance with all applicable Federal and state regulations, and DOE orders. Under the preferred alternative of downsizing and consolidating A/D, nonnuclear fabrication, and secondary and case fabrication, the waste generation would actually decrease at Pantex, KCP, and ORR.

## 10.12

The commentor states that the PEIS activities will have a significant impact on the numbers and quantities of nuclear and hazardous materials and wastes moved in and out of the LLNL site and to and from NTS. The large number of nuclear waste shipments anticipated in the Waste Management Draft PEIS and the Stockpile Stewardship and Management Draft PEIS, combined with waste shipments from other DOE proposed activities at LLNL, including environmental restoration activities, would be unprecedented. Commentor states that in the Draft PEIS the No Action alternative estimates of cumulative waste impacts should use current waste generation annual rates at LLNL, not waste generation rates from a nonexistent waste treatment and disposal facility at LLNL. The commentor adds that the Draft PEIS should state what options are available for LLW and mixed LLW disposal in the event that NTS and the proposed LLW/mixed LLW treatment and disposal facility at LLNL are not available.

- Response: The amount of hazardous waste requiring shipment to RCRA-permitted treatment and disposal facilities, and LLW requiring shipment to NTS is described in section 4.7.3.10. These waste shipments must meet the packaging (containment) requirements prescribed by DOT under 49 CFR and other applicable Federal regulations. The transportation analysis in section 4.10 of the PEIS and in the Waste Management Draft PEIS illustrates that the risks associated with the movement of these wastes are minimal. The use of current generation rates (1994) for No Action would not provide an accurate representation of the LLNL site in 2005. However, the 2005 projection was based on 1994 generation rates with the appropriate adjustments made for those changing operational requirements where the volume of wastes generated is identifiable. The projection does not include wastes from future, as yet uncharacterized, environmental restoration activities. For the purposes of analysis, waste

management activities that would support the Stockpile Stewardship and Management Program are assumed to be per current site practice. If the LLNL Site Treatment Plan, when approved, or the ROD from the Waste Management PEIS change the site practice, the waste management activities that would support the Stockpile Stewardship and Management Program would change accordingly. In any case, wastes generated from the Stockpile Stewardship and Management Program will be managed in accordance with all applicable Federal and state regulations, and DOE orders.

### 10.13

The commentor asks what DOE and "we" will do with all the waste that will be generated for at least the next 20 years. Commentor states there are no licensed facilities to accept the wastes that are piled up on facilities throughout the DOE Complex at this time and asks, "Why generate more than needs to be generated?" The commentor adds that we are now faced with storage and disposition of surplus fissile materials and that every option considered has tremendous waste streams attached to it. The commentor asks where this waste will go. It seems quite evident that the site that creates the waste, keeps the waste. Commentors ask if that will saddle communities across this country with the economic and environmental problems of hosting waste treatment, storage, and processing facilities.

- Response: It is incorrect to state that there are no licensed facilities to dispose of waste generated at DOE facilities. At most DOE sites, hazardous waste is shipped to offsite commercial RCRA-permitted treatment and disposal facilities. LLW is shipped to one of the DOE low-level disposal facilities in accordance with the waste acceptance criteria of that facility. Mixed waste would be treated and disposed of in accordance with the site treatment plans that have been negotiated between the DOE sites and the appropriate state regulatory authority. TRU waste is destined for a geologic repository. The Stockpile Stewardship and Management Program would not generate any HLW. To fulfill its mission under the Atomic Energy Act of 1954, as amended, the generation of radioactive, mixed, hazardous, and nonhazardous wastes is unavoidable. Per DOE policy, the facilities that support the Stockpile Stewardship and Management Program incorporate waste minimization and pollution prevention. The storage and disposition of surplus fissile materials are not within the scope of the Stockpile Stewardship and Management PEIS; however, it is addressed in the Storage and Disposition PEIS, section 4.7, Potential Cumulative Impacts of the Storage and Disposition Program.

### 10.14

The commentor asks how LANL treats current nitrate liquid waste and if the site is planning any new treatment plants for the future nitrate liquid waste that would be generated if the uranium processes are moved to LANL.

- Response: Nitrate liquid waste from uranium processes is currently treated at TA-50. No new treatment plants would be required to treat the nitrate liquid waste from the secondary and case fabrication mission if it were moved to LANL.

### 10.15

The commentor states that both LLNL and SRS are still practicing shallow land burial of radioactive wastes and this practice must be stopped, not continued and increased as contemplated in the Draft

PEIS.

- Response: Only solid LLW is suitable for shallow land burial. LLNL does not dispose of LLW onsite as it ships its LLW to NTS for disposal. Shallow land burial for SRS was analyzed in the Savannah River Site Waste Management Final Environmental Impact Statement (DOE/EIS-0217, July 1995). Radiological performance assessments are conducted to ensure that disposal facilities meet the performance objectives of DOE Order 5820.2A, Radioactive Waste Management. At SRS, only stabilized LLW forms and selected LLW (suspect soils and naval hardware) are planned for shallow land burial.

## 10.16

The commentor states that WIPP must not be opened without meeting environmental standards. Another commentor asserts that the reason DOE wants to move all the waste to WIPP is so that they can continue plutonium production.

- Response: There are a number of requirements that must be met before the Secretary of Energy will approve the opening of WIPP. The State of New Mexico must issue the RCRA Part B Permit. This permit application has been submitted to the state. EPA must (1) grant the no-migration variance petition and (2) certify compliance with requirements that WIPP is safe to operate. The no-migration variance petition and the application for certification have been submitted to EPA. The NRC has already approved the TRUPACT II container for shipment of contact-handled TRU waste, and has yet to approve the application for certification of the container for remote-handled waste. A supplemental EIS covering the phased development of WIPP is currently being prepared.

## 10.17

The commentor cites section 3.5.2, Uranium Fabrication and Processing, and asks is it not true that recycled materials are defined as a "solid waste." Commentor asks what DOE's legal interpretation of their statement is, what the definition of "recycled" is and if EPA and the Department of Justice concur. Commentor asks, "If I machined lead, are the residuals a hazardous waste?" The commentor also asks what is meant by the term "residue production," and if it is DOE's policy to prevent and minimize residue, not produce it.

- Response: The paragraph referred to by the commentor is addressing the machining of HEU. "Source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et. seq." is not solid waste as defined by 40 CFR 261.4. Residues are materials that contain sufficient quantities of recoverable fissile material. It is part of DOE's waste minimization policy to minimize the production of residues. The processes that would be used in the secondary and case fabrication facility would not generate any residue that would require long-term storage. No residues would be generated in which the HEU could not be recovered. Materials contaminated with HEU would only be declared waste if the HEU can no longer be recovered and the materials meets one of the radioactive waste definitions as outlined in chapter 9, Glossary. Guidance provided in 40 CFR 261.2 would determine whether or not the lead residuals would be considered a hazardous waste.

## 10.18



The commentor refers to section 3.7.1, Stockpile Management, and asks if it is true that both NTS and Pantex have adequate waste management facilities to treat, store, and/or dispose. Commentor thought NTS mixed waste disposal was limited to environmental remediation activities from certain projects. The commentor asks if there is mixed waste disposal for operational waste streams. Commentor also asks if it is not true that at Pantex they are planning to treat mixed waste but currently have limited disposal. Commentor asks how many offsite disposal shipments they have done since 1984 and since 1987.

- Response: The existing waste management infrastructure at NTS and Pantex is adequate to manage the anticipated waste streams from the Stockpile Stewardship and Management Program. Waste management activities that would support the Stockpile Stewardship and Management Program were assumed to be per current site practice which includes the use of offsite RCRA-permitted treatment and disposal facilities such as Envirocare, Inc., in Utah and offsite disposal such as LLW from Pantex being shipped to NTS. No new waste management facilities will be constructed for the expressed purpose of supporting the Stockpile Stewardship and Management Program. Any mixed waste generated in the State of Nevada that meets the Land Disposal Restrictions of RCRA can be disposed of at NTS in the Area 5, Mixed Waste Disposal Unit (Pit 3). Mixed waste generated at NTS or Pantex would be managed in accordance with the site treatment that was developed to comply with the Federal Facility Compliance Act of 1992 and in accordance with any decisions resulting from the respective site-wide EISs for continued operations.

## 10.19

The commentor references section 4.1.10 and asks if it is prudent to include waste minimization in the analysis. Commentor says the impact assessment is reduced and does not bound the impacts.

- Response: The waste minimization and pollution prevention strategies employed in the waste estimates are achievable with current technology. In addition to following waste-disposal policies, DOE is committed to and expects to further reduce the waste generated from the Stockpile Stewardship and Management Program.

## 10.20

One commentor cites appendix figure A.3.1-2, and asks if an unusable part is a waste or inherently waste-like. The commentor asks for a description of sanitize and demilitarize, if it is a treatment process, and what are the processes and their purpose. Another commentor cites appendix figure A.3.1.1-5 and asks if classified waste (parts) are solid waste as the figure shows classified waste being sent to sanitization, since it is the commentor's understanding that classified material is sent to sanitization before becoming waste. The commentor also asks where the exit arrows are for sanitization and demilitarization, and if sanitizing is a RCRA treatment. A commentor also cites appendix table A.3.5.1-2 and asks where the sanitization and demilitarization facilities are; if the Burning Ground is limited to explosives disposal; and if it completes sanitization and demilitarization through open burning. Another commentor also cites appendix figures A.3.3-1 and A.3.3.1-3 and states that according to these figures, explosive components are solid waste. The commentor asks where treatment and disposal fit into demilitarization, sanitization, and disposition.

- Response: Weapons components or parts of a component that are not being reused cannot be

declared waste until they have been demilitarized and sanitized. As noted in chapter 9, Glossary, sanitization is the irreversible modification or destruction of a component or part of a component to the extent required to prevent revealing classified or otherwise controlled information; whereas, demilitarization is the irreversible modification or destruction of a component or part of a component to the extent required to prevent use in its original weapon purpose. These are not considered waste treatment processes but procedures in order for DOE to meet its statutory requirements of the Atomic Energy Act of 1954, as amended. For example, sanitization and demilitarization of classified HE components is accomplished at the Burning Ground. The Burning Ground is used for the burning of HE components and disposal of HE waste, HE-contaminated waste, and various HE-contaminated liquids and solvents. Disposal of solvents at the site was discontinued in the early 1980s. Once materials are declared waste, they would be managed in accordance with all applicable Federal and state regulations, and DOE orders. Appendix figure A.3.1.1-5 has been redone in the Final PEIS to more clearly show how sanitization and demilitarization fit in process flow at Pantex.

## 10.21

Commentors refer to section 3.5.1, Plutonium Fabrication and Processing, and ask, based on the discussion of reduced scrap, waste, and residue, if plutonium and HEU pits, scrap, materials, and residue placed into storage are considered a solid waste. One commentor cites appendix section A.3.2.1 and asks, what the statement, "Classified wastes enter a declassification step resulting in classified and unclassified waste" means. The commentor asks if DOE is stating that some materials will be classified no matter what physical or administrative actions occur.

- Response: The purpose of the declassification step for waste in the secondary and case fabrication facility is to process material or weapon components to the point where they no longer reveal classified information. The vast majority of this material is successfully declassified or processed to enable reuse of the classified constituents. A very small amount of material cannot readily be declassified. Of this material, a small amount is disposed of onsite in a permitted land-fill as nonhazardous classified waste. Additionally, a very small amount of hazardous or mixed classified waste is stored until treatment/processing capabilities are established to eliminate the hazardous or mixed waste component of the classified material. This then enables either reuse of the classified material or disposal onsite as a nonhazardous classified waste. No classified waste is disposed of offsite.

## 10.22

The commentor references appendix section A.3.5.2, which states HE-contaminated process water is not a waste, but HE-contaminated process water is collected in tanks and then treated with activated carbon filters. Commentor asks if this means "filtered." The commentor suggests a change from waste minimization and recycle to pollution prevention, and adds, technically speaking, one cannot minimize or recycle a material that is not a waste. The commentor also cites the waste management text in appendix section A.3.5.3 and has the same comments. Another commentor cites the waste management text in appendix section A.3.5.2, and asks why recycling scrap HE is not a waste (both recycle and scrap are clearly associated with solid waste definition in 40 CFR 261); and under what solid waste exclusion in 40 CFR 261 does DOE claim.

- Response: Scrap HE that is recycled is not considered a solid waste as it is returned to the HE fabrication process to be used as a substitute for raw material feedstock (40 CFR 261.2[e]).

Scrap HE that is excess to needs is thermally treated and disposed of in accordance with applicable Federal and state regulations. HE-contaminated process water is filtered before being collected in holding tanks. From the holding tanks, it is returned to be used as cooling water for the HE fabrication process. At LANL, recycled process water that can no longer be used is sent to the LANL HE waste- water treatment facility where it is treated using activated carbon filtration. In the Final PEIS the paragraph has been rewritten for clarification.

## 10.23

The commentor refers to section 4.2.2, Oak Ridge Reservation, and states that the PEIS should provide an estimate of the volume, in km<sup>3</sup>, of TRU waste, affected rock, soil, and groundwater at NTS as a result of underground tests. The text should also indicate whether this material comes under the *Federal Facilities Compliance Act* and if it does, if it will require treatment.

- Response: Estimates of the waste volumes that would be generated from environmental restoration activities in the Central Nevada Test Area of NTS have not been determined. The waste volumes generated during environmental restoration activities would be greatly dependent on the cleanup criteria which have not been established. Any wastes generated as part of these activities would be managed in accordance with all applicable Federal and state regulations, and DOE orders to include the Federal Facility Compliance Act and the NTS Site Treatment Plan which was developed to comply with the Federal Facility Compliance Act.

## 10.24

Commentors ask that waste be stored where it happens to be, not shipped from all around the country to further endanger American citizens. One commentor adds that waste should be stored aboveground.

- Response: Waste shipments must meet the packaging (containment) requirements prescribed by DOT under 49 CFR and other applicable Federal regulations. The transportation analysis in section 4.10 of the PEIS and in the Waste Management Draft PEIS clearly illustrates that the risks associated with the movement of these wastes is minimal. It is impractical and in some cases not permissible under the law (e.g., RCRA) to store wastes aboveground indefinitely.

## 10.25

The commentor feels that DOE should focus massive attention on the subject of transmutation; it is critical that we learn how to neutralize nuclear waste onsite.

- Response: Environmental Management, through its Office of Research and Development (EM-53), is continually investigating and developing new technologies to treat radioactive waste. Radioactive wastes generated from the Stockpile Stewardship and Management Program will be treated in existing onsite radioactive waste treatment facilities.

## 10.26

The commentor urges DOE to figure out a way to dispose of plutonium onsite.

- Response: The disposition of surplus weapons-usable fissile materials such as plutonium is not

within the scope of the PEIS. The Storage and Disposition Draft PEIS analyzes the disposition of surplus weapons-usable fissile materials. Due to environmental considerations, it is not always possible to dispose of waste contaminated with plutonium onsite. Radioactive waste generated from the Stockpile Stewardship and Management Program will be categorized according to the definitions in chapter 9, Glossary, and will be managed in accordance with all applicable Federal and state regulations, and DOE Order 5820.2A, Radioactive Waste Management.

## 10.27

The commentor feels that efforts should be concentrated towards D&D.

- Response: None of the manufacturing and surveillance capabilities of the current industrial base can be eliminated on the basis of the post-Cold War changes in national security policies. The industrial base possesses core competencies, such as manufacturing product, process, and quality control know-how. However, with a smaller stockpile and no new-design weapons production, industrial capacity can be reduced to meet anticipated manufacturing requirements for stockpile repair and replacement activities. This reduction in industrial capacity would lead to deactivation of some facilities. After proper characterization these facilities would be transferred to Environmental Management for eventual D&D. The waste volumes associated with D&D have been estimated and presented in the waste management impacts analysis in chapter 4.

## 10.28

The commentor cites section 3.5.1, Plutonium Fabrication and Processing, and asks when plutonium and HEU meet the definition of a solid waste. Commentor asks if stored plutonium and HEU in any form is a solid waste as defined under RCRA. Commentor asks DOE to provide independent confirmation of this issue by EPA and the Department of Justice.

- Response: Weapons-usable fissile materials such as plutonium and HEU are not considered waste. The President has declared that some quantities of fissile materials are declared surplus to national defense and defense-related program needs. DOE is developing an integrated strategy for storage and disposition of weapons-usable fissile materials. The Storage and Disposition Draft PEIS is focused on the storage of all plutonium and nonsurplus HEU, and the disposition of surplus plutonium. The Disposition of Surplus Highly Enriched Uranium Final Environmental Impact Statement (DOE/EIS-0240-F, June 1996) addresses the disposition of surplus HEU. Materials contaminated with plutonium and HEU would only be declared waste if the plutonium and HEU are at levels defined as discard limits and the materials meets one of the radioactive waste definitions as outlined in chapter 9, Glossary. "Source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et. seq." is not solid waste as defined by 40 CFR 261.4. Under 10 CFR 962, all DOE radioactive waste contaminated with hazardous constituents as defined by RCRA is subject to regulation under both RCRA and the Atomic Energy Act of 1954, as amended.

## 10.29

The commentor states that LANL has not shown good faith in developing and maintaining safety standards while involved in nuclear weapons research and application. The commentor is concerned

about exposure to radioactive waste that is produced in the name of "safety and reliability" of nuclear stockpiles.

- Response: To fulfill its mission under the Atomic Energy Act of 1954, as amended, DOE will unavoidably generate radioactive, mixed, hazardous, and nonhazardous wastes. Appropriate control procedures, engineered safety systems, and worker training programs are established and implemented to ensure compliance with all applicable ES&H regulations before beginning any radioactive operation of any facility. In addition to DOE assessments and independent internal appraisals, there are external appraisals such as those conducted by the New Mexico Environment Department to ensure the effectiveness of the ES&H program.

### 10.30

Commentors feel that it is immoral and unfair to consider New Mexico as an empty state into which garbage can be piled with no opposition. One commentor adds that nuclear waste should be treated properly onsite and if it cannot then it should not be produced. Another commentor is opposed to increasing activities at LANL that would increase production of radioactive waste because by implementing this project, DOE is creating a nuclear waste dump upwind of most of northern New Mexico.

- Response: LANL was identified as the preferred alternative because it ranked highest in the selection criteria: basic production capability to support scheduled work, capability of production infrastructure to support scheduled work, and minimized cost. LANL has adequate capacity through its TA-50 and TA-55 facilities to treat the radioactive waste that would be generated in support of the Stockpile Stewardship and Management Program. These facilities would treat and package all radioactive waste into forms that would enable long-term storage and/or disposal in accordance with the Atomic Energy Act of 1954, *as amended*, other applicable Federal and state regulations, and DOE orders.

### 10.31

The commentor would like the PEIS to discuss the capability of existing processing facilities and disposal sites to handle the projected quantities of radioactive and mixed waste generated by the Stockpile Stewardship and Management Program.

- Response: Under each alternative description in chapter 3, it is explicitly stated that the existing site "waste management infrastructure can be applied to manage and treat all anticipated waste streams from this alternative." Appendix H lists the existing waste treatment capability by waste category for each of the alternative sites. All hazardous, radioactive, and mixed waste generated would be managed in accordance with all applicable Federal and state waste regulations.

### 10.32

The commentor wants to know where the nuclear waste from the pit fabrication mission at LANL will be stored, how much it will cost, and where will the money come from.

- Response: There are no plans to store radioactive waste from the pit fabrication mission at LANL indefinitely. LLW would be treated and then disposed of in Area G per current site

practice. Radioactive mixed waste would be treated and disposed of in accordance with the LANL Site Treatment Plan which was negotiated between LANL and the State of New Mexico. TRU waste would be stored temporarily at Area G until the Federal geologic repository is approved by EPA and NRC and a supplemental EIS is completed. Costs associated with the Stockpile Stewardship and Management Program can be found in the Analysis of Stockpile Management Alternatives report produced by the DOE Albuquerque Operations Office. Congress funds the Stockpile Stewardship and Management Program through the Defense Appropriations Bill.

### 10.33

The commentor questions the readiness of the environmental treatment systems placed in cold standby at ORR, should future increases in production occur.

- Response: The preferred alternative does not put any of the waste management facilities into cold standby at ORR. The buildings designated to be placed in cold standby as a result of downsizing the secondary and case fabrication mission are buildings that have a production mission only.

### 10.34

The commentor states that the Radioactive Liquid Waste Treatment Facility (TA-50) at LANL does not have a treatment permit issued by the State of New Mexico as stated in appendix section A.3.3.1.

- Response: The commentor is correct. The text has been changed in the Final PEIS to read, "the waste would be processed, with radioactive constituents removed, in accordance with the NPDES permit."

## Radiation and Hazardous Chemicals

### 11.01

The commentor asks DOE to address a worst-case accident analysis for a "parking lot" nuclear weapons accident for Pantex and NTS, and asks how on a safety-to-the public basis DOE can justify operations at Pantex instead of at NTS. The commentor states that DOE is taking special mitigating actions at Pantex to keep site boundary dose under 100 rem per person in the event of an accident at Pantex. The same accident at the NTS Device Assembly Facility must be less than 1 percent of this, according to the commentor, since no one lives at the NTS site boundary. The commentor asks what the dose to the public is if there is an aircraft accident at Pantex, since that site is in the flight path of Amarillo airport and has a much greater risk of experiencing an accident than does NTS, which is in completely controlled airspace. Commentor asks how can DOE justify exposing the public to this additional risk in order to save money.

- Response: The accident analyses assume a hypothetical member of the public (the maximum exposed individual ) resides at the nearest site boundary. Based on the accident analysis for NTS and Pantex, the maximum exposed individual at Pantex would have a fatality risk of  $5.6 \times 10^{-8}$ , while at NTS that risk would be  $8.1 \times 10^{-9}$ . While it is true there is a lower risk at NTS than at Pantex, the risk at both sites is low. The potential for severe accidents including

those involving an aircraft at Pantex, is provided in sections 4.5.3.9. Additional details on potential accidents are also given in appendix F and in a topical report: Supporting Documentation for the Accident Impacts Presented in the Stockpile Stewardship and Management Programmatic Environmental Impact Statement, (HNUS Report No. ARP-96-042) which has been placed in the DOE Public Reading Rooms near each site. The final selection of a site for the A/D mission will be announced in the ROD, which will take into account all relevant factors including accident risks.

## 11.02

*The commentor asks why we use the year 2030 staff levels for radiation doses (section 4.3.2.9) and use 2005 for economic impacts.*

- Response: The cumulative effects of both radiation and socioeconomics are calculated over a 25-year period from 2005 to 2030.

## 11.03

The commentor believes that DOE uses different risk standards for different programs (specifically Yucca Mountain versus other programs) and that the public does not understand the risks associated with DOE activities. The commentor voices concern over the 300 million curies (Ci) at NTS. The commentor urges DOE to use one risk standard in its analyses and educate the public about the risk numbers and what they mean.

- Response: To ensure a consistent set of risk standards in the preparation of environmental assessments (EAs) and EISs, DOE has established recommended guidelines for the preparation of human health impact sections in these documents (Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements, Office of NEPA Oversight, May 1993). The public and occupational health risk for normal radiological operations analyzed in the Stockpile Stewardship and Management PEIS uses the two dose-to-risk conversion factors for the public and workers recommended by DOE's Office of NEPA Oversight and established in the National Research Council's Committee on the Biological Effects of Ionizing Radiation Health Effects of Exposure to Low Levels of Ionizing Radiation BEIR V (BEIR V Report) published in 1990. These risk factors are 0.0005 deaths per person-rem to the general public and 0.0004 deaths per person-rem to workers (the lower number for workers accounts for the absence of children in the workforce).

Appendix E, Human Health, presents a detailed discussion of the methodology used to determine the radiological impacts to human health. The appendix also includes a section on the development and use of the risk factors presented in the Stockpile Stewardship and Management PEIS.

## 11.04

The commentor believes that a 160-km (100-mi) radius would be more appropriate for the analysis of radiation health effects to the public.

- Response: The 80-km (50-mi) radius for calculating collective dose is a practical limitation for analytical purposes in this PEIS. NRC guidance requires that an 80-km (50-mi) radius be

investigated for potential impacts to the population living within 80 km (50 mi) of a radiation source. Studies have shown that at some distance, frequently within 80 km (50 mi), the magnitude of variations in doses from background radiation becomes greater than the doses from radiological releases from DOE and NRC sites.

## 11.05

The commentor asks if the PEIS considers multigenerational problems in the analysis of cancer fatalities. The commentor also asks if the cancer statistics and studies from Chernobyl and Nagasaki are taken into consideration in the calculation of the PEIS cancer fatality numbers.

- Response: When modeling is performed to determine human health impacts, "nonfatal cancer" risks and "genetic (multigenerational) effects" risks are tabulated in appendix section E.2.1.2. Cancer statistics and studies from Nagasaki are included within the risk estimation parameters associated with presented cancer fatality numbers (refer to the BEIR V Report). The methodology outlining these "multigenerational effect" tabulations is presented in appendix section E.2.1.2 of the PEIS. The data available from the Chernobyl incident are still being analyzed and have not been used in the human health analyses investigated in this PEIS. However, national and international regulatory bodies continually review the results of new research in order to determine whether changes should be made to recommended dose limits.

## 11.06

Several commentors believe that DOE downplays the dangers of radiation and that the PEIS accident analysis tends to trivialize accidents. One commentor states that DOE should investigate the elevated levels of thyroid and breast cancer in Los Alamos, Bernalillo County, and surrounding towns. Another commentor disagrees, stating that cancer rates in Los Alamos are in line with cancer rates expected from a town at an elevation of 2,438 m (8,000 ft). Another commentor believes that DOE should initiate a series of health studies to determine the extent of contamination in the State of New Mexico. The commentor believes that these studies have not been carried out in the past because it would indicate public health problems.

- Response: The accident analyses were performed in accordance with DOE guidance (refer to the *Office of NEPA Oversight document*). A set of accidents have been analyzed that include high-probability/low-consequence accidents as well as low-probability/high-consequence accidents that are not expected to occur during the lifetime of the facility but have been included to show the consequences of an accident. The levels of thyroid and breast cancer are discussed in section 4.6.2.9, Health Effects Studies. Additional information is presented in appendix section E.4.6. DOE puts a great deal of emphasis on protecting the public and occupational workers from radiation exposure. There are numerous promulgated DOE orders which establish conservative dose limits to both the public and workers at risk of exposure.

In section 4.1.9.1, subsection on Epidemiological Studies, there is a statement that defines DOE's program to monitor health effects on workers and the public in the communities surrounding DOE facilities. An independent agency, Health and Human Services, has been conducting a health effects research program on DOE facilities under a 1991 Memorandum of Agreement. The National Institute for Occupational Safety and Health initiated a study in 1994, but does not expect results before 1997. However, extensive health studies have already been conducted on the public within the State of New Mexico in the counties surrounding both



LANL and SNL, as well as workers within those facilities. Summaries of the results of the studies at LANL and Los Alamos County are presented under Health Effect Studies in section 4.6.2.9, with details presented in appendix section E.4.6. Summaries of the results of the studies at SNL and the surrounding county, Bernalillo, are presented in section 4.8.2.9 under Health Effects Studies, with details presented in appendix section E.4.8. All studies reported are referenced. Past and present radiation and hazardous chemical releases have been documented and are used as one of the bases for predicting future releases when the proposed actions, if approved, are implemented.

The impacts of potential accidents at LANL are discussed in section 4.6.3.9. Figure 4.6.3.9-1 and tables 4.6.3.9-3 through 4.6.3.9-7 present the impacts of accidents. The graph in figure 4.6.3.9-1 indicates the probability of fatalities due to accidents associated with the proposed actions.

## 11.07

The commentors refer to LANL section 4.6.3.9 and the following text, "The average annual dose to involved workers for this alternative would be 380 mrem. The dose to the entire facility workforce would be 55.6 person-rem. As stated in the methodology, section 4.1.9, all worker doses were referenced either from alternative-specific working group data reports or from the Radiation Exposures for DOE and DOE Contractor Employees 1992 Database which reports doses for similar types of operations...." A commentor asks if the 1992 database is representative for the projected years and if working group data contain situation-specific source terms and shielding considerations. Another commentor asks if linear extrapolation was used to determine the doses to the workers at LANL and SRS in the Summary section S.4.1. The commentor believes that these are overestimates of what would happen to the workers. The commentor asks if LANL ever had pit production capacity and if data on worker safety, accidents, and contamination were used in the PEIS. The commentor also asks how the radiation doses to workers calculated in the PEIS for pit fabrication at LANL compare to the doses that were observed at Rocky Flats when pit fabrication was performed there.

- Response: The conservative 380 mrem/yr dose to involved workers at LANL and SRS for pit fabrication operations was arrived at through direct measurement and calculation. In 1995, LANL started work on Defense Nuclear Facilities Safety Board Recommendation 94-1, processing a full load of pits for the pit surveillance program and the Cassini project. Many of the operations for these programs at LANL are considered comparable to "pit manufacturing" operations. The total annual dose for TA-55 personnel during full operations was 153.8 person-rem. By dividing this number by 405, the number of personnel who received a nonzero dose during that period (i.e., the hands-on workers and support personnel, but not office workers), the resulting average dose for plutonium manufacturing personnel is approximately 380 mrem per worker.

Comparing the historic Rocky Flats Plant pit fabrication activities and doses to workers to the proposed pit fabrication mission at LANL would not be appropriate. The pit fabrication mission at Rocky Flats used a different process than the one proposed for LANL, and the production volume at Rocky Flats was much larger because of the larger stockpile levels at that time.

LANL currently maintains a limited capability to fabricate plutonium components using its Plutonium Research and Development Facility and provides safety and reliability assessments

of the stockpile (section 3.4.3.1). Sections 4.6.2.9 and 4.6.3.9 provide a description of the radiation and hazardous chemical environment at LANL, including descriptions of health effects studies, a brief accident history, and emergency preparedness considerations. Data on worker safety, accidents, and contamination at LANL were analyzed in the preparation of this PEIS. The safety analysis report prepared by LANL for the TA-55 plutonium operations was a source of considerable data used in this PEIS for identifying and estimating the impacts of accidents.

The 1992 database is representative of worker dose data for the year 1992. This report provides a recent source of dose data through which estimations of potential doses to stockpile stewardship and management involved and noninvolved workers can be made. These doses are based on actual dosimeter measurements and therefore take into account existing shielding at the work site. The working group data report does contain source terms associated with this Stockpile Stewardship and Management Program activity.

## 11.08

The commentor asks what DOE considers to be an accident and if there is enough historical data to constitute a fair analysis of pit fabrication related accidents. The commentor asks if the analysis examines risks to the workers in the workplace. The commentor also asks if the accident modeling included real accidents at TA-55 reported to the Occurrence Reporting System.

- Response: DOE considers an accident to be an unplanned sequence of events that results in undesirable consequences. More information on accidents is provided in a DOE standard, (DOE DP-STD-3005-93 Proposed, Definitions and Criteria for Accident Analysis, DOE, March 8, 1993). Accidents that are of the highest concern have high consequences and low probabilities of occurrence and therefore have never occurred. However, even without historical data, techniques are available to predict the sequence of events that may lead to an accident and to estimate the accident's impacts. The PEIS contains an evaluation of the risk of accidental exposure of a hypothetical worker located at either 1,000 m (3,281 ft) or the nearest site boundary, whichever is smaller, to radioactive substances released during an accident. An important source of data for accidents at LANL is the safety analysis report recently prepared for TA-55, which includes any applicable accidents reported to the Occurrence Reporting System.

## 11.09

Commentors question the exposure limits for noninvolved and involved workers in the ORR table 4.2.3.9-2. Commentors are concerned that the exposure limits for noninvolved workers is higher than for involved workers and wants to know where the D&D workers are in the table. In addition, commentors are concerned with the quality of estimated health impacts to the general public.

- Response: The exposure limits (i.e., average worker dose) to the noninvolved worker represents the estimated average dose to all noninvolved workers from all radiological sources at ORR. Conversely, the average worker dose to the involved worker represents the estimated average dose from the downsized secondary and case fabrication three-shift operation only. The average dose to the involved worker does not include the average dose from all other sources. If one were to include the additional dose from all other sources at ORR, the average dose to the involved worker is expected to be slightly higher than the average dose to the

noninvolved worker. D&D workers are not included here, because they are not present during the normal operation of the stockpile management alternative at ORR. Site-specific information was used in the preparation of this analysis.

In regard to the integrity (quality) of the general public dose estimates, the analytical "worker dose" methodology and associated data used in the PEIS were independent of those utilized for public dose calculations. For public health impacts, an indepth assessment was made using the GENII computer code. This type of analysis uses site-dependent factors including meteorology, population distributions, agricultural production, and an assumed facility location on a given site.

## 11.10

The commentor questions the accident history in section 4.2.2.9, which states that the most noteworthy accident at Y-12 resulted in temporary radiation sickness for a few ORR employees. The commentor would like to know whether the employees involved in this accident view its effects as temporary radiation sickness.

- Response: All accidents at DOE facilities are investigated in detail in order to understand the root causes and to identify corrective actions to prevent their recurrence. The health of workers following an accident is closely monitored to ensure every opportunity is taken for a complete recovery. There are a number of DOE orders in effect to protect the health and safety of workers. The requirements for investigation and documentation of the circumstances surrounding an accident are specified in DOE O 232.1, Occurrence Reporting and Processing of Operations Information. Other DOE orders that address a worker's health and safety include DOE O 231.1, Environment, Safety, and Health Reporting, and DOE O 440.1, Worker Protection Management for DOE Federal and Contractor Employees.

## 11.11

Commentors express concern about the health of area residents. One commentor believes that the breast cancer rate in Livermore is the highest in the nation. Other commentors state that activities at LLNL have created plutonium pollution at nearby parks, tritium contamination of the water, and onsite contamination from leaking drums. Another commentor states that workers at LLNL are 400 percent more likely to develop malignant melanoma than the general public. The commentor also contends that the children of Livermore are 6 times more likely to develop skin cancer as a result of activities at LLNL.

- Response: The environmental impacts associated with radiological and hazardous chemical operations at LLNL are described in section 4.7.3.9, in appendix E for normal operations, and appendix F for potential accidents. The human health analyses presented for LLNL in the PEIS, conclude that "adverse health effects to the public and to workers will be small." This conclusion pertains only to the "alternatives" presented in the PEIS. Historical contamination and cancer incidences are discussed in section 4.7.2.9, the subsections on Accident History and Health Effects Studies.

## 11.12

The commentor states that the PEIS does not clearly differentiate the safety risks associated with each

alternative if an accident were to occur.

- Response: The composite risk value for accident impacts provided for each alternative in the main body of the PEIS and in appendix F can be used to differentiate the safety risks associated with each alternative. Appendix F also provides risk information for individual accidents in terms of accident consequences and probability of occurrence which can also be used to differentiate between alternatives. In addition, complimentary cumulative distribution functions are provided for each alternative at each site in the PEIS as an indication of the full range of probable impacts.

### 11.13

The commentor believes that none of the Draft PEISs have adequately addressed what would happen to the area's farm and ranch economy if a significant accident, releasing substantial quantities of radionuclides, were to occur, regardless of how well it were to be cleaned up. The commentor thinks that the public's perception of the contamination would be such as to make local products unmerchantable not just for the immediately affected area, but for the entire Panhandle's products.

- Response: The likelihood of a significant accident that would impact the area's farm and ranch economy is very small. The PEIS identifies several potential accidents that can result in undesirable offsite consequences, measured in terms of the risk of cancer fatalities to the workers and members of the public. Secondary impacts of accidents affecting elements of the environment other than humans are also presented in a new section, appendix section F.4. This section identifies the extent of radiological releases due to accidents that may result in the contamination of farmland, surface and groundwater, recreational areas, industrial parks, cultural resources, or habitat of endangered species. The accident analyses were performed in accordance with DOE guidance (refer to the Office of NEPA Oversight document).

### 11.14

The commentor would like the PEIS to address the impacts which would result from a nuclear explosion, including the resulting deaths, the cancers created, and the spread of radioactivity.

- Response: The devastating effect of a nuclear explosion is clearly recognized and has been the driving force to prevent any accidental or intentional occurrence. Within the DOE system, strict compliance with DOE orders and procedures is enforced to minimize the probability of any technical or human cause of an inadvertent nuclear explosion. Some examples of applicable DOE orders are DOE O 452.1, Nuclear Explosive and Weapons Surety, and DOE O 452.2, Safety of Nuclear Explosive Operations. Inadvertent detonation of a nuclear weapon has a probability of occurrence which is much less than 10<sup>-7</sup> per year or once in 10 million years and is not evaluated. The risk of an explosive dispersal of nuclear materials is evaluated for weapons A/D operations at Pantex and NTS where work is performed on nuclear components in the presence of explosive materials.

### 11.15

The commentor suggests that DOE provide additional information and clarity concerning the accident risk analysis. Another commentor believes that the accident analysis tends to trivialize accidents and notes that very low-probability events that have very catastrophic consequences are difficult to

comprehend.

- Response: The accident analyses were performed in accordance with DOE guidance (refer to the Office of NEPA Oversight document). A set of accidents have been analyzed that include high probability/low consequence as well as low probability/high consequence events to show the range of possible impacts. The low probability/high consequence accidents are not expected to occur during the lifetime of the facility but have been included to show the worst possible consequences of an accident.

### 11.16

The commentor does not share DOE's confidence that operating its new weapons complex at surge capacity can be done largely without waste management and capacity difficulties, and more than proportionally increased risk of both routine and accidental releases of radioactive and hazardous materials and of worker exposures.

- Response: The PEIS analysis bounds potential environmental impacts by assuming operations at a surge capacity. This means greater wastes and greater radiation doses are assessed than we would normally expect. It provides a reasonable level of conservatism such that DOE can be confident that any impacts would stay within the bounding envelope provided in the PEIS.

### 11.17

The commentor views the reservations near Los Alamos, NM, as a "dump" (i.e., nuclear waste and radiation) and believes the populations are affected.

- Response: LANL health effects studies are presented in section 4.6.2.9 and appendix section E.4.6 of the PEIS. Several key facets of concern including cancer incidences among the general public (including those who may reside on the nearby reservations) have been addressed. Table 4.6.2.9-2 conveys data on the total annual radiological dose incurred to the LANL surrounding population (within an 80-km [50-mi] radius). The extremely small annual population-dose imparted in this table yields an associated cancer risk which is also very small (i.e., 0.0015 of one fatal cancer per year).

### 11.18

The commentor wants to know to what extent the analysis of cancer risk factors into different schools of thought. The commentor notes that others have different views on exposure to radiation and its effects. The commentor wants a balanced view in the PEIS.

- Response: To ensure a consistent set of risk standards in the preparation of EAs and EISs, DOE has established recommended guidelines for the preparation of human health impact sections in these documents (refer to the Office of NEPA Oversight document). The public and occupational health risk for normal radiological operations analyzed in the PEIS uses the two dose-to-risk conversion factors for the public and workers recommended by DOE's Office of NEPA Oversight and established in the BEIR V Report. These risk factors are 0.0005 deaths per person-rem to the general public and 0.0004 deaths per person-rem to workers (the lower number for workers accounts for the absence of children in the workforce). Appendix E, Human Health, presents a detailed discussion of the methodology used to determine the

radiological impacts to human health. The appendix also includes a section on the development and use of the risk factors presented in the Stockpile Stewardship and Management PEIS.

### 11.19

The commentor asks if the PEIS projects what would be considered a safe dose of radiation in the future. The commentor notes that what we may have considered safe 25 years ago is much different based on today's knowledge.

- Response: Radiological doses during normal operations (to both the public and workers) associated with all future Stockpile Stewardship and Management Program activities would be well below regulatory standards established by the NRC and EPA. Over the last 20 to 30 years, enormous progress has been made in the study of biological effects resulting from radiation exposure; today's "conservative" exposure limits are a reflection of these research results. Over the past 25 years, a concept known "as low as reasonably achievable" has been the benchmark goal of all nuclear-oriented facilities licensed in the United States. Regularly "lowered" dose limits are a prime example of how much emphasis has been placed upon radiation safety in recent years. As to whether the dose limits will conservatively change in the coming years will be subject to the results of further data analyses, such as from the Chernobyl accident.

### 11.20

The commentor states that Savannah, GA, is known to be a cancer site. The commentor asks if the PEIS contains statistics on the amount of radiation that flows through Savannah via SRS plus the existing high cancer rate.

- Response: For the purposes of this analysis, a radius of up to 80 km (50 mi) around a site was investigated for potential radiological impacts to public health. The city of Savannah is beyond this 80-km (50-mi) zone (roughly 160 km [100 mi]) and therefore has not been analyzed for potential impacts from SRS radiological airborne releases. However, potential radiological impacts to the Savannah area through the drinking water pathway are routinely assessed via the monitoring of offsite water treatment plants at Beaufort-Jasper and Port Wentworth, which are both located in reasonably close proximity to the city of Savannah. The PEIS reports these normal operational radiological impacts (incurred from the liquid pathway) in table 4.3.2.9-2. These liquid doses include constituents from drinking water, sampled at the site boundary--downstream to the Atlantic Ocean (i.e., Savannah River). The cancer risks per year associated with these modeled liquid doses are extremely small (0.0008 of one fatal cancer is estimated within the total population under investigation). For further information on health risk studies involving communities around the SRS area, see appendix section E.4.3.

### 11.21

The commentor wants to know how old the epidemiological studies are that were used in the PEIS.

- Response: They began as early as 1942, but some reports are as recent as 1996.

### 11.22

The commentor is concerned that a direct link cannot be identified between SRS radiation releases

and latent cancer. The commentor also states that at the same time, it cannot be proven scientifically that radiation from Federal facilities does not cause cancer.

- Response: In 1984, Sauer and Associates examined mortality rates in Georgia and South Carolina by distance from SRS (see Volume I, chapter 6, SR duPont 1984b). Rates for areas near the plant were compared with U.S. rates and with rates for counties located more than 80-km (50-mi) away. Breast cancer, respiratory cancer, leukemia, thyroid cancer, bone cancer, malignant melanoma of the skin, nonrespiratory cancer, congenital anomalies or birth defects, early infancy death rates, stroke, or cardiovascular disease in the populations living within 80 km (50 mi) of the plant did not show any excess risk compared with the reference populations. Historical data and associated statistics have indicated that there have been essentially no significant health risk increases as a result of normal operation radiological releases. EPA and NRC regulatory standards are designed to protect the public from potential health impacts resulting from normal operational radiological releases.

## 11.23

The commentor wants to know the impact of radiation as a result of the Stockpile Stewardship and Management Program on children, particularly birth defects. Another commentor believes that the PEIS's risk analysis is one-dimensional and not accurate; it cannot take into account the future legacy of radioactivity, the future health and genetic consequences, or the environmental impacts.

- Response: Radiological impacts to the public (including children) from planned Stockpile Stewardship and Management Program activities are presented in section 4.3.3.9 of the PEIS. Modeling has shown that potential doses to adults and children alike, would be extremely small (billions of times lower than that incurred from natural background radiation). Appendix section E.2.1.2 of the PEIS presents risk estimations for "genetic effects." The risk of incurring these effects are even smaller than that for fatal cancer (about 75-percent smaller).

## 11.24

The commentor asks for the basis of the assumption that, in the accident scenarios, the worker is assumed to be a kilometer away.

- Response: In general, exposures to workers decrease with increasing distance away from the location of the accident. The evaluation of impacts to noninvolved workers (i.e., workers that are located on the site independent of the proposed action) assumed a hypothetical noninvolved worker located at 1,000 m (3,281 ft) from the location of the accident or the nearest site boundary, whichever is closer. For distances less than 1,000 m (3,281 ft), modeling techniques are less effective because of the effects of buildings on meteorology and dispersion.

## 11.25

Referring to the uncertainty of potential, long-term health effects due to exposure at Pantex, the commentor would like to know how DOE can be so sure of the consequences of future missions that may be brought to the site.

- Response: Section 4.5.2.9 presents a discussion of health effects studies which have been previously conducted in the communities surrounding Pantex. These studies indicated that

there have been no significant excess cancer mortality incidences in the Pantex area; thus, there have been no verifiable indicators as to any short- or long-term health impacts at the Pantex site. Public exposure to radiological effluents has conventionally been of extremely small quantity due to DOE safeguards and the nature of the missions conducted at the facility. In addition, DOE orders and required standard operating procedures have been established in order to ensure the safe and reliable operation of DOE facilities. The planned stockpile management program options at Pantex would not alter these circumstances. DOE's utilization of radiological dose modeling techniques quantitatively estimates exposure to the public and workers as a result of potential future stockpile management missions. Appendix section E.2.2 describes the methodology used to estimate radiological impacts during normal operations from DOE facilities analyzed in the PEIS such as tritium in the environment.

The risk analysis employed in the PEIS for normal radiological releases takes into account the potential future health consequences which may occur from planned Stockpile Stewardship and Management Program activities. Expected radiological release quantities from each Program alternative are modeled to determine potential doses which may be incurred to members of the public in future years. Hypothesized future residential populations are included within the calculations in an effort to calculate future population-dose values. The future "behavior" (or "legacy") of radiological material(s) related to Stockpile Stewardship and Management Program operations are analyzed for anticipated characteristics which are to be expected over the coming years, including: decay rates, transport through air and water media, and uptake frequencies. When modeling is performed to determine human health impacts, "genetic consequences" can be calculated from information presented in appendix section E.2.1.2 of the PEIS. The risk of incurring "genetic effects" is even smaller than that for fatal cancer (about 75-percent smaller).

## 11.26

The commentor, a landowner near Pantex, is concerned about the integrity of her property and her personal safety, claiming that past accidents and explosions at Pantex have adversely affected her and others in the neighborhood of Pantex.

- Response: All facilities at Pantex and other DOE facilities are operated in strict compliance with DOE orders to minimize the chances of an accident that would release radioactivity to the surrounding area and to also mitigate the effects of a release if one were to occur. Any accident that has occurred is thoroughly investigated to identify its cause. Corrective actions that minimize or eliminate any repetition of the accident are also identified and implemented to maintain operations that are safe for workers and the public. For the preparation of the PEIS, a variety of potential accidents that may be initiated by operational causes, such as an explosion, or by natural phenomena, such as earthquakes, were identified and their impacts estimated using appropriate analytical methods. The results, as well as the history of Pantex accidents, are discussed in section 4.5.3.9 of the PEIS.

## 11.27

The commentor states that Santa Fe is the capital of New Mexico and therefore has an increasing populace. The commentor is concerned that the area surrounding LANL is very near Santa Fe. The commentor feels possible contamination of the water, groundwater, and radioactive accident or sabotage, if they would occur, would make Santa Fe and the surrounding area uninhabitable. Another



commentor suggests that the mere perception that an accident is possible could damage the tourist industry in New Mexico. Other commentors state that one nuclear accident would destroy the tourist, manufacturing, and agrarian industries in the State of New Mexico.

- Response: For the PEIS, a variety of potential accidents that may be initiated by operational causes or by natural phenomena, such as earthquakes, were identified and their impacts estimated using appropriate analytical methods. The results are documented in the PEIS. Appendix section F.4 discusses the secondary accident impacts to these types of resources for each site. In addition, other recent NEPA reviews for prior or interim actions (such as the Dual Axis Radiographic Hydrodynamic Test [DARHT] Facility EIS, DOE/EIS-0228) have analyzed the potential impacts of specific hypothetical facility accidents on the environment around LANL, including Santa Fe.

## 11.28

The commentor states that the PEIS needs to document more fully why the assumptions associated with the PEIS accident scenarios are reasonable, and how these assumptions and other inputs are used by the Melcor Accident Consequence Code System model.

- Response: Additional information on accident scenarios and source terms for the accidents described in the PEIS are documented in a topical report (refer to HNUS Report No. ARP-96-042), which has been placed in the DOE Public Reading Rooms near each site. The Final PEIS contains an expanded discussion to further explain how data and assumptions are used by the Melcor Accident Consequence Code System model.

## 11.29

The commentor refers to the ORR section 4.2.3.9, Radiation and Hazardous Chemical Environment, and asks if it is true that hazardous impacts would be reduced to zero as a result of secondary and case fabrication phaseout, unless we completely greenfield the site, including recovery of material from burial grounds.

- Response: Phaseout of these activities would reduce the added burden (beyond No Action) to zero because only other unrelated No Action activities would remain.

## 11.30

The commentor refers to the ORR table 4.2.3.9-4 and asks how accident numbers were generated, and states that it is not clear why the probability of a significant beryllium oxide release is so high.

- Response: Additional information on accident scenarios, frequencies and source terms for the accidents described in the PEIS is documented in a topical report (refer to HNUS Report No. ARP-96-042), which has been placed in the DOE Public Reading Rooms near each site. The accident scenarios and related parameter values are based on safety analyses of facilities that perform operations at Y-12. The probability of a release is conservatively high in order to bound the impacts of the event.

## 11.31

The commentor notes, with regard to nuclear weapons "safety," that morbidity and mortality in the cleanup crews at nuclear weapons accidents have not been studied, and long-term effects at these sites are unknown. The commentor states that with these possible exceptions, no one is known to have ever been injured from a nuclear weapon in an accident. Another commentor states, with regard to nuclear weapons "safety," that a risk of death from a nuclear weapons accident appears to be about a million times smaller than other causes of accidental death and about 100 to 1,000 times smaller than the public health risks from exposure to environmental pollution at current health standards.

- Response: The PEIS presents a full disclosure of all the human health risks associated with each of the alternatives based on best available data. All new construction and modifications to existing structures would meet or exceed applicable environmental, health, and safety standards for the public and workers. Because of these factors, the measures taken by DOE to limit impacts to human health from normal operations, and to prevent accidents which would impact human health, the analysis in this PEIS shows the risks associated with these technologies to be low.

## 11.32

The commentor contends that the analysis of radiological impacts is too limited. It omits entirely the impacts of radioactive releases on aspects of the biosphere other than human health (see section 4.1.6). The commentor states that the analysis for radiation releases for normal operations of the proposed stockpile stewardship and management facilities is difficult to follow, and appears to be based on assumptions which may substantially understate potential impacts. The explanation of the health effects calculations in appendix E states that source terms for radiological releases are for "stockpile management alternatives," and there is no reference to or data for releases from stockpile stewardship alternatives provided in appendix section E.2.3. The source terms include "only atmospheric releases, because liquid radiological discharges are not expected from any of the alternatives at any of the sites" (appendix section E.2.3). The commentor believes there is no explanation of why this is so.

- Response: As discussed in section 4.1.6 of the PEIS, impacts on biotic resources from the release of radionuclides would be expected to be less than that on the human population based on studies which have shown humans to be the most sensitive organism to radiation release.

Regarding the analysis of radiation releases for normal operations, section 4.1.9.1 discusses the methodology that was employed to estimate potential impacts. Appendix E provides greater detail of how health effects were estimated, including the reasons why the analysis in the PEIS is conservative.

The source terms for radiological releases from stockpile stewardship alternatives are not included in appendix E of the PEIS. Because each of the stockpile stewardship facilities are addressed in greater detail in appendix I (NIF), appendix J (CFF), and appendix K (Atlas), source term information for each of these facilities is addressed in those appendices, as appropriate.

The statement, "source terms include only atmospheric releases because liquid radiological discharges are not expected from any of the alternatives at any of the sites" found in appendix section E.2.3 of the PEIS is correct. During normal operations, no liquid releases of

radionuclides are expected. This is because the facilities are designed to have no liquid radionuclide discharges.

### 11.33

The commentor cites section 3.7.1, Stockpile Management, "Worker exposure to radiation is expected to be about equal" and asks if it is reasonable to believe that NTS workers might receive higher doses for several years because of the lack of experience compared to Pantex workers. Commentor believes nothing replaces actual experience and thinks DOE should consider a learning curve at NTS.

- Response: The worker dose estimates presented (i.e., the 10 mrem/yr) are tabulated via historical worker dose data for comparable operations. These data provide the most accurate values available for the planned program activities being analyzed in the PEIS.

### 11.34

The commentor cites section 4.1.9.1, Hazardous Chemical Impacts, and asks why CERCLA guidance was used. Commentor does not believe the CERCLA guidance bounds the issue because the higher risk occupations such as medical personnel, fire fighters, radiation workers, HE workers, roofers, machine operators, security personnel, and such would not be covered.

- Response: This section has been modified to reflect that CERCLA does not override the Occupational Safety and Health Administration's (OSHA) regulations for workers and EPA guidance for calculating risk to the public and workers relative to cancer risk. Instead, CERCLA should be correctly used in setting the cancer de minimus risk of  $10^{-6}$  and the range of acceptable cancer risks for specific carcinogens based on how they are used and their mechanism of action (i.e., threshold versus nonthreshold carcinogens); the range of  $10^{-4}$  to  $10^{-6}$  specified under CERCLA covers the chemical-specific assessment as to whether a cancer risk is acceptable. Calculations for worker exposures were always done based on OSHA regulations for exposures to noncarcinogens and guidance for safety required for carcinogens.

### 11.35

The commentor believes, contrary to the statement in appendix section E.3.1, that exposure to hazardous chemical releases to surface water, groundwater, and soils should be included when assessing the risk to the public and site workers.

- Response: The text cited by the commentor in appendix section E.3.1 refers to conditions under normal operations. Under such conditions hazardous chemicals are not released into surface water or groundwater or onto soil; therefore, inhalation is assumed to be the only route of exposure. For accident scenarios involving the release of hazardous chemicals into the environment, refer to appendix F, Facility Accidents.

### 11.36

The commentor expresses concern that the hazard indexes and total cancer risk provided for the phaseout alternative at Pantex (appendix table E.3.4-12) are not properly evaluated. The commentor points out the risks for the phaseout of Pantex are lower than the risks cited for the other

programmatic alternatives, with the exception of the A/D and HE fabrication alternative, which essentially equal the risk of the phaseout alternative. However, the amounts of hazardous and mixed LLW generated during phaseout of Pantex are anticipated to be 100 to 1,000 times greater than the other alternatives (tables 4.5.3.10-2 and 4.3.5.10-3). According to the commentor, section 4.5.3.9 of the PEIS states that no hazardous chemical emissions are anticipated for the phaseout alternative at Pantex, and the hazard index and cancer risk to the public and onsite workers would be zero. The commentor believes that it is more reasonable to assume that some exposure will occur during a phaseout of Pantex when over 6 million m<sup>3</sup> of waste is generated.

- Response: The fact that all hazardous chemical emissions are lower than other programmatic alternatives is attributed to the emissions that would no longer occur should this activity cease (i.e., the greater the contribution of an activity the more the reduction when it is phased out). In fact, table 4.5.3.10-2 shows that there is a reduction in solid hazardous waste generated from No Action and no change in liquid waste from No Action whereas solid mixed LLW is reduced and liquid wastes are reduced slightly. However, disposing of wastes using state-of-the-art technologies is not expected to result in increased releases to the environment. In fact, as is shown by appendix table E.3.4-12, the hazard indexes would be between 4- and 5-fold below a safe level (1.0) and the cancer risks contributed would be 2 to 3 orders of magnitude below that in the general unexposed population.

### 11.37

The commentor refers to the NTS section 4.9.2.9, Radiation and Hazardous Chemical Environment, and suggests that the word "radioactivity" be removed, and the phrase "radioactive activity level" be inserted before the word "approximately." The commentor also suggests the words "were accidental" be replaced with "was an accidental release" in the sentence. The commentor further states that the NTS Accident History is inaccurate and has been manipulated to exclude the Baneberry venting accident (1970), and that NTS atmospheric tests released  $1.2 \times 10^{10}$  Ci into the atmosphere.

- Response: The releases from underground tests stated in the Draft PEIS are for the period from 1971 to 1988. Tests prior to 1971 were the cause of releases totaling 25,300,000 Ci, which includes the Baneberry release in 1970 (6,700,000 Ci). The discussion of NTS accident history has been expanded in the Final PEIS to include the Baneberry release and other atmospheric test releases. Additional details on accidental releases are documented in the report, The Containment of Underground Nuclear Explosions, Congress of the United States (OTA-ISC-414, October 1989).

### 11.38

The commentor refers to section 4.1.9.2, Facility Accidents, "Accident risk to collocated workers was calculated for a hypothetical worker at 1,000 m (3,281 ft) from the facility, or at the site boundary, whichever is closer." The commentor states that usually in EISs, EAs, and safety analysis reports, the collocated workers are located at a much closer distance, such as 100 m (328 ft) and then at increments to 1,000 m (3,281 ft). The closer distances provide a more conservative (and more realistic) risk analysis for accidents.

- Response: In general, exposures to workers decrease with increasing distance away from the location of the accident. The programmatic level evaluation of impacts to noninvolved workers (i.e., workers that are located on the site independent of the proposed action) assumed a

hypothetical noninvolved worker located at 1,000 m (3,281 ft) from the location of the accident or the nearest site boundary, whichever is closer. For distances less than 1,000 m (3,281 ft), the screening model techniques used in the programmatic level analyses are less effective because of the effects of buildings on meteorology and dispersion. For site-specific assessments, specialized modeling techniques would be used for estimating exposures at closer distances.

### 11.39

The commentor refers to the LANL section 4.6.3.9, "... the presented noninvolved worker impacts were not modeled due to the unavailability of certain site-specific information. There also may be small risks to construction workers who are involved with tasks that are in close proximity to potentially contaminated areas." The commentor states the following: 1) noninvolved workers were not modeled; and 2) if risks to construction workers were not modeled, how can they be quantified as "small." If the source term of contaminated soil that they may be exposed to is a low activity or limited to a small area, it should be indicated in text. In addition, the commentor refers to the SNL section 4.8.3.9, "The presented total dose to noninvolved workers was not modeled due to the unavailability of certain site-specific information." The commentor states that radiological impacts to noninvolved workers were not performed.

- Response: Impacts to noninvolved workers and construction workers may be described in this manner because historical data and experience indicate that these workers would primarily be subjected only to radiation exposure from their designated job tasks. There are no verifiable "contaminated soil" source terms available to model radiological impacts to construction workers.

A dose (impact) assessment for the LANL and SNL noninvolved worker was performed for the PEIS (sections 4.6.3.9 and 4.8.3.9, respectively). Noninvolved worker impacts were determined from information presented in the annually published report *Compilation of Doses to Workers at DOE Facilities*, for the year 1992. This report (database) provides a recent source of dose data from operations which are comparable to planned stockpile stewardship and management activities. Estimations of potential doses to stockpile stewardship and management workers were calculated from this historic record.

### 11.40

The commentor refers to the LANL section 4.6.3.9, "... there are potential impacts to involved workers who would be located in the facilities. Quantitative statements of these impacts cannot be made until design details are developed further, at which time the number and location of facility workers can be estimated to support accident impact analyses. However, depending on the type of accident, facility workers in close proximity to the point of the accident could receive high levels of exposure to radiation, with potentially fatal impacts." The commentor states that impacts to workers were not modeled for accident analysis, however, fatalities may occur and the number of deaths is not estimated nor projected.

- Response: The design and layout of facilities, operating procedures, protective features, training and other safety measures all serve to prevent the occurrence of accidents and mitigate its effects if one were to occur. This is not a discriminator for mission siting and not addressed at the programmatic level. However, for any alternative that is selected, tiered NEPA studies and safety analysis reports required before operations are permitted to commence, will include

estimates of impacts to involved workers that are based on well-defined safety measures.

#### 11.41

The commentor states that it is not clear whether DOE's risk assessment includes those hazardous constituents that do not meet the narrow definition of hazardous waste under RCRA or toxic substances under the Toxic Substances Control Act (TSCA). The commentor suggests DOE consider the risk posed to human health and the environment by what DOE defines as nonhazardous waste constituents (appendix table H.1.1-1).

- Response: DOE's risk assessment includes chemicals considered hazardous under RCRA or TSCA, and any others regulated by EPA or OSHA for which there is information that describes the nature of the hazard (e.g., National Institute of Safety and Health handbook, American Conference of Governmental Industrial Hygienists [threshold limit values and biological exposure indices], etc.). The nonhazardous waste constituents are not included in the assessment because they are not considered to pose a human health or environmental hazard. However, many of these constituents are considered in the air quality and water quality sections of the document.

#### 11.42

The commentor refers to appendix section E.2.2 and the statement, "For use in design basis accidents, the 50-percentile option was used." The commentor states that the 50-percentile option depicts conditions that are "average." Usually in EISs, environmental assessments, and routine site analyses for risk from accidents, risks are analyzed under "worst-case" conditions, which are also known as 95-percentile conditions (when using certain codes). Accident risks were not analyzed under worst-case conditions in the PEIS, and an underestimation for accidents under extreme conditions could result.

- Response: The accident analyses were performed in accordance with DOE guidance. This guidance states that "Analyses generally should be based on realistic exposure conditions ... and characterize the "average" or "probable exposure conditions ..." and therefore the results in the Draft PEIS are based on 50-percentile meteorological conditions (refer to the Office of NEPA Oversight document, page 21). Other conservative assumptions are made in the accident analyses in order to bound potential impacts. In addition, a spectrum of accidents is evaluated ranging from low-consequence/high-probability events to high-consequence/low-probability events to reflect bounding-case impacts. The complimentary cumulative distribution functions included in the Final PEIS also show the bounding-case impacts.

#### 11.43

The commentor refers to appendix F, Accidents, and states that solid uranium and plutonium liquid criticalities were modeled; however, no plutonium metal criticalities (solid) were analyzed. This accident analysis may not have been performed in the past; however, the accident scenario should be considered due to the projected increases in the number of pits under the "Pit Fabrication alternative." In addition, the commentor states that the methodology section should mention how the source terms for the criticalities are determined, and source terms should be listed by radionuclide and activity, not only as the number of fissions. From the information presented in the PEIS, the commentor says it is not possible to determine whether the criticality analyses are valid.

- Response: The PEIS identifies appropriate accident scenarios based on existing safety analysis reports and operating procedures which are analyzed to estimate bounding impacts. In this case, the liquid plutonium criticality was selected because it has higher impacts to workers and the public than a solid criticality. Additional information on accident scenarios and source terms for the accidents described in the PEIS are documented in a topical report (refer to HNUS Report No. ARP-96-042), which has been placed in the DOE Public Reading Rooms located near each site.

#### 11.44

The commentor states that in appendix section E.4.6, the discussion revolves around an investigation undertaken to assess melanoma risk at LANL because of worker exposure to low-level ionizing radiation. The study was the result of "a reported three-fold excess of melanoma among laboratory workers" at LLNL in California. The study was applied to LANL because of the similarity of the work done at both labs. At the end of the first paragraph in column 2, it is stated that "the only significant association with diagnosis of melanoma for males was being a college graduate ... or having a graduate degree...." To the commentor, it follows obviously that the vast majority of workers at both LLNL and LANL are males who are college graduates or who have graduate degrees and that the workers at LANL are significantly at risk for melanoma resulting from exposure to low-level ionizing radiation. The commentor asks if workers will be informed of the risk, if this is an acceptable risk, and if anything can be done to diminish it.

- Response: The commentor fails to mention that no excess risk for melanoma was detected at LANL among 11,308 workers between 1969 and 1978 (see Volume I, chapter 6, Lancet 1982a:883-884). Other studies clearly established no association between external radiation or chemical exposures in the workplace and melanoma. The association between melanoma and a college graduate or graduate degree (as the only association) then takes on lifestyle rather than work-related cause and effect (e.g., college graduates and those with graduate degrees have lifestyles that may differ from the general population, which could well be associated with how they spend their leisure time). DOE workers receive occupational safety and health training, which places a prime emphasis on "as low as reasonably achievable" principles. Through an "as low as reasonably achievable" program, workers are made aware of potential risks, and are trained to minimize (diminish) these risks to the lowest levels possible.

#### 11.45

Commentors state that the New Mexico Environment Department is sometimes referred to by its previous name, Environmental Improvement Division, or by the incorrect form, New Mexico Health and Environmental Department. Examples of incorrect naming can be found in appendix section K.3.3.1 and table 5.3-4. The commentor states that these should all be changed to New Mexico Environment Department.

- Response: In accordance with the commentor's suggestions, these changes have been made in the Final PEIS.

#### 11.46

The commentor identifies the following errors in appendix section E.4.6: there is repetition of the

sentence "Population exposures are confounded by occupational exposures," and the word "countries" should be "counties."

- Response: Appendix section E.4.6 in the Final PEIS has been rewritten and the errors the commentor noted have been corrected.

## 11.47

The commentor identifies the following errors in appendix F: in section F.2.2.1, there is jumbled spelling of the word "national," and in section F.2.3.1, the sentence, "The fire releases the plutonium contamination from the inner surfaces of the gloves" should read "... the inner surfaces of the glovebox."

- Response: The spelling has been corrected in the Final PEIS. The contamination that is released is from the outer surface of the gloves that are in the glovebox. The statement has been modified in the Final PEIS.

## 12 Environmental Justice

### 12.01

The commentor believes that DOE has unfairly placed their nuclear facilities in low-income areas. The commentor notes that New Mexico, "the home of the bomb," has a low per capita income and a high minority population. Another commentor believes that the PEIS minority population maps for LANL and SNL have errors in them.

- Response: LANL and SNL were established in 1943 and 1945, respectively. These sites were selected, in part, due to their isolation from large population centers. The fact that the State of New Mexico has a relatively low per capita income played no role in siting these facilities and does not influence DOE decisions on whether to continue operating these facilities. Los Alamos and Bernalillo Counties, where most of the LANL and SNL workers reside, both had 1993 per capita incomes (\$28,753 and \$19,854, respectively), significantly higher than the average for the State of New Mexico (\$16,346). The per capita income of these counties approached or exceeded the national average per capita income, of \$20,800. Only one county (Rio Arriba) in either ROI had a per capita income significantly lower than the State of New Mexico. Less than 5 percent of the SNL workforce resides in Rio Arriba County.

The environmental justice maps have been reviewed and revised, as appropriate. Several counties and census tracts were improperly categorized for both low-income and minority populations. The Final PEIS contains revised maps that are demographically correct.

### 12.02

The commentor states that DOE has polluted Western Shoshone land and that, as a result, cancer rates are high in the area. The commentor urges moving activities at the site elsewhere.

- Response: Appendix section E.4.9 describes epidemiological studies performed in the area around NTS, which includes the Western Shoshone land. These studies were performed to



evaluate adverse health impacts on the exposed populations in Nevada and Utah from aboveground nuclear testing carried out by DOE at NTS in the 1950s. The results of the studies are inconclusive and contradictory. Underground testing that followed did contaminate land on NTS, but resulted in no additional exposure to surrounding populations. None of the proposed alternatives would result in adverse health impacts to the surrounding populations or cause disproportionate adverse health impacts to the Western Shoshone.

### 12.03

The commentor wants to know exactly what was analyzed under environmental justice in the Stockpile Stewardship and Management Draft PEIS, the Pantex Site-Wide Draft EIS, and the Storage and Disposition Draft PEIS.

- Response: Environmental justice is the equal treatment of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The environmental justice analyses examine the distribution of low-income and racial and ethnic minority populations in the areas surrounding the alternative sites. Demographic analyses are performed at the census tract level for the area within 80 km (50 mi) of the alternative sites. Proposed alternatives are assessed to determine if these populations would receive disproportionate adverse health and socioeconomic impacts.

### 12.04

Commentor asks if it is a Government policy to view certain demographic groups as less valuable or more expendable than institutions like SRS.

- Response: No, the Government has no such policy.

### < 12.05

Commentor believes that African Americans and low-income populations are being affected by SRS activities.

- Response: The analysis of demographic data for the communities surrounding SRS, as well as the health data presented elsewhere in the document, shows that any air or chemical releases would not exceed the threshold of regulatory concern, and that these impacts would not disproportionately affect minority or low-income groups.

### 12.06

Commentor wants the impact analyses to include the combined exposure of not only SRS, but other non-DOE industrial uses on low-income and affected communities.

- Response: The PEIS assesses potential impacts from proposed DOE stockpile stewardship and management alternatives. The impacts of other sources of pollution are taken into account as a part of the No Action alternative in the human health analysis. For example, the air and water analyses evaluate whether incremental emissions from the proposed alternatives would lead to any exceedance of air and water quality standards. As noted in the document, DOE will operate in full compliance with all Federal, state, and local regulations. Furthermore, the impacts of

other potential DOE and non-DOE activities are explicitly evaluated in section 4.13, Cumulative Impacts.

## 12.07

Commentor requests an explanation in the Comment Response Document regarding the apparent failure of the PEIS to comply with Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and President Clinton's memo to heads of all departments and agencies of February 11, 1994, on the subject of environmental justice in minority populations and low-income populations. The commentor states the PEIS did not address the social and economic effects, as required.

- Response: DOE is committed to full compliance with all provisions of Executive Order 12898. The environmental justice sections explicitly analyze the proposed alternatives at each alternative site to determine if any of the proposed actions would result in disproportionate adverse health impacts on low-income or minority populations. The PEIS also addresses socioeconomic impacts, including impacts to employment, income, housing, population, and public finances, for all of the proposed actions. The socioeconomic impact analyses indicate that none of the proposed actions would result in either significant impacts to the entire affected populations or disproportionate adverse impacts to low-income or minority populations.

## 12.08

The commentor states that LANL has had, and threatens to continue to have, disproportionate impacts on the Pueblo of San Ildefonso, and that because of this, the issue of environmental justice is not given adequate attention in the PEIS. The commentor states that LANL's use and disposal of radioactive materials has caused serious contamination to the air, soil, and water, and continued operations threaten the destruction of sacred sites.

- Response: Continued operations of the LANL mission will be conducted in compliance with Federal, state, and local regulations. The PEIS assesses the potential health impacts from chemical and radioactive emissions during normal operations as well as from accidents. The analysis indicates there would be no disproportionate adverse health impacts to the Pueblo of San Ildefonso.

## 12.09

The commentor states that in the environmental justice sections of the PEIS, human health is covered, but no socioeconomic analysis is done.

- Response: The environmental justice section addresses potential disproportionate adverse impacts to minority populations and low-income populations. The socioeconomic analyses include impacts to regional economies, population, housing, and public finance characteristics. These impacts are determined at a regional level. The analyses performed for the PEIS indicate that none of the downsizing alternatives would result in significant economic impact on the affected regional economies. For those alternatives involving new workers at alternative sites, there would be small economic benefits. Therefore, there would be no environmental justice impacts. For the proposed phaseout alternatives, impacts would be larger but would still not be

economically significant. Both the regional economic area and ROI around each site include areas where environmental justice principles apply. The impacts to these areas are included in the regional impact analysis.

## 12.10

According to the commentor, Executive Order 12898, requires special attention to be given to subsistence consumption of fish and wildlife. The commentor adds that the order requires Federal agencies to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risk associated with the consumption of pollutant-bearing fish and wildlife. The commentor feels that consumption issues are important to address in the PEIS because of their uniqueness in minority and low-income populations and the detrimental range of impacts they may have. tion and waste management) of different programs. DOE should present this document to the public to increase their awareness of the overall impact of DOE activities.

- Response: Subsistence is defined as the traditional use by rural residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation. Subsistence populations heavily rely on local fish and wildlife to meet their food supply. DOE is unaware of any identified subsistence populations residing on or near any of the alternative sites.

DOE also notes that because none of the proposed alternatives would lead to radiological releases to water, there would be no impacts to fish or other edible aquatic life in the areas surrounding the alternative sites. All chemical releases would be regulated by NPDES permits and would be in compliance with Federal and state regulations. Furthermore, chapter 4 in the PEIS evaluated doses to the surrounding population through air and liquid exposures for all of the proposed alternatives, including No Action. The analysis indicates that there would be no adverse disproportionate impacts to minority or low-income populations.

# 13 Cumulative Impacts

## 13.01

The commentator expresses concern about the cumulative impact of different programs on local communities. The commentor urges DOE to adopt a "local community" perspective and create a document that would detail the cumulative impacts (e.g. in transportation and waste management) of different programs. DOE should present this document to the public to increase their awareness of the overall impact of DOE activities.

- Response: The cumulative impact analysis of the Stockpile Stewardship and Management Program is discussed in section 4.13 of this PEIS. Other Federal, state, and local actions all have the potential to contribute to cumulative impacts, and all planned, reasonably foreseeable actions are considered in the cumulative impact analysis of this PEIS. However, as stated in section 4.13, programs planned for beyond the 2005 No Action baseline considered in this PEIS would be in such a preliminary stage as to make detailed analysis speculative; these activities are more effectively addressed in site-specific, tiered NEPA documentation.

## 13.02

The commentor quotes from the cumulative impact section of the Council on Environmental Quality (CEQ) regulations and asks why past socioeconomic actions (that led to reductions in employment and that are still felt today) are not discussed in the cumulative impact section of the PEIS.

Specifically, the commentor mentions the cancellation in 1988 of the DOE program of a mine geologic repository for spent nuclear fuel and high-level radioactive waste in Deaf Smith County.

- Response: Although the socioeconomic effects of past actions are not specifically addressed in the cumulative impacts section, these effects are reflected in the affected environment discussion for each site. As shown in appendix section D.2, Deaf Smith County is one of 26 counties included in Pantex's regional economic area; however, Deaf Smith County is not located within the ROI used in the PEIS. Information on the current and projected civilian labor force, employment, unemployment, personal income, and per capita income were considered for each of these counties in the PEIS. Yucca Mountain Site in Nevada has been selected for detailed study as the candidate for the Nation's first geologic repository. The disposal of HLW and commercial spent nuclear fuel in a radioactive waste geologic repository is discussed in the Environmental Assessment, Yucca Mountain Site, Nevada Research and Development Area, Nevada (DOE/RW-0073, May 1986). The impacts described in that EA are included in section 4.13, Cumulative Impacts, of this PEIS.

### 13.03

The commentor believes that DOE should look at the cumulative impact of the Stockpile Stewardship and Management, the Storage and Disposition, and the Pantex programs.

- Response: Section 4.13 of this PEIS discusses the cumulative impacts of the Stockpile Stewardship and Management Program, the Storage and Disposition Program, and other proposed actions. As stated in section 4.1.12, Cumulative Impacts, continuing DOE missions and any reasonably foreseeable changes to these missions are addressed as part of the affected environment baseline, or No Action. The Pantex Site-Wide Draft EIS which analyzes impacts associated with conducting nuclear weapons operations at Pantex for the next 5 to 10 years, is included in No Action for the PEIS. The ROD for this PEIS will determine which facilities at Pantex should be upgraded, downsized, or replaced as part of the Stockpile Stewardship and Management Program and will take into consideration all of Pantex's current and reasonably foreseeable activities.

### 13.04

The commentor argues that the Draft PEIS cumulative impacts analysis is more like an incremental impact analysis, illustrating the relative insignificance of the proposed action's contribution to ongoing, similar degradation of the environment, instead of determining the aggregate or cumulative effects of related impacts in order to judge whether those impacts, taken together, are significant. The commentor cites waste management as an example, contending that there is no real analysis of whether the proposed Draft PEIS alternatives, in combination with other foreseeable activities in the same area, will have significant waste management impacts. The commentor further states that the use of resources and impacts on the biosphere and on human health from routine and accidental releases from waste management facilities are not analyzed in the waste management cumulative impacts discussion for each site. The commentor also states that the cumulative impacts analysis is not done on an alternative-by-alternative basis, so it is difficult to compare alternatives to one

another. The commentor calls the cumulative impacts analysis cursory and conclusory, offering no supporting analysis and no indication where such analysis could be found. The commentor cites section 4.13.1.1 where the cumulative impacts analysis for nonaccident radiological impacts for rebuilding the complex is one paragraph long.

- Response: Impacts from past actions and continuing actions contribute to the affected environment at each of the sites as described in sections 4.2.2 through 4.9.2. In sections 4.2.3 through 4.9.3, the impacts from continuing actions are presented in the No Action alternative. The impacts from the proposed action and the alternatives are also discussed in those sections to allow for comparison to the No Action alternative. Section 4.13 of the PEIS includes a site-by-site discussion of cumulative impacts, focusing not only on the future impacts from the Stockpile Stewardship and Management Program, but also on the future impacts from other reasonably foreseeable programs and actions. As discussed in that section, many other significant programs are included in that cumulative impact analysis, including Environmental Management and Materials Disposition Programs. That analysis focuses on those resources that were judged to have the greatest potential to be impacted. Depending on the particular site of concern, these resources included air quality, water resources, socioeconomics, radiation and human health, and waste management.

The cumulative impact assessment was done for a bounding analysis on a site-by-site basis. This means that at a given site the contribution from stockpile stewardship and management alternatives was based on the maximum number of potential missions added to other programs' potential impacts at that site. The intent of the analysis was not to illustrate the relative significance of the Stockpile Stewardship and Management Program alternative impacts, but rather to determine whether the Stockpile Stewardship and Management Program potential impacts, in combination with other programs' potential impacts, could produce significant impacts.

### 13.05

The commentor questions where the supporting analysis was for the statements in the Draft PEIS that "all program totals would be within radiological limits to the public and the effects to workers would be small," and that "[c]umulatively, radiological impacts are expected to be within radiological limits."

- Response: Section 4.13 in the Final PEIS has been expanded to include tables identifying the normal operation cumulative radiological doses and resulting health effects for the potential stockpile stewardship and management alternatives at each site alongside other potential site activities.

### 13.06

A commentor questions cumulative impacts associated with accidents. Specifically, the commentor questions the potential radiological impacts associated with earthquakes affecting multiple facilities.

- Response: For purposes of analyzing the potential cumulative environmental impacts associated with accidents, the information presented is based on the conservative assumption that the worst consequence accident for the activity has occurred, based on existing NEPA analyses.



## 10 Waste Management

### 10.01

One commentor states that DOE plans to continue the production of nuclear waste but does not talk about what they plan to do with the waste. The proposed expansion of Area G at LANL is unacceptable to the commentor. Another commentor asks what kind of waste will be put into the LANL expanded Area G and what safety measures will be used at the facility. Another commentor believes that the expansion of Area G would not have any adverse affects on the area. One commentor suggests that waste should be stored aboveground.

- Response: The PEIS describes impacts and management of wastes in the waste impacts analysis in chapter 4. Waste management activities that would support the Stockpile Stewardship and Management Program are assumed to be per current site practice and are contingent upon decisions to be made through the Draft Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste (Waste Management Draft PEIS) (DOE/EIS-0200-D, August 1995) and the LANL Site-Wide EIS. Thus, as currently envisioned, LLW would go to Area G for disposal. Appendix section A.3.3.1 provides a description of the kinds of LLW that would require disposal. The decision as to whether or not to expand the low-level disposal facility at Area G is not within the scope of this PEIS. Decisions concerning the Area G expansion will be made as a result of the LANL Site-Wide EIS. The proposed expansion of Area G is driven by existing and continuing operations.

The potential human health risks, environmental impacts, and costs associated with waste management alternatives could be reduced or mitigated through the implementation of programmatic and site-specific mitigation measures. Chapter 12 of the Waste Management Draft PEIS provides a description of these programmatic and site-specific mitigation measures. Appropriate control procedures, engineered safety systems, and worker training programs are established and implemented to ensure compliance with all applicable ES&H regulations before beginning any radioactive operation of any facility. In addition to DOE assessments and independent internal appraisals, there are external appraisals such as those conducted by the New Mexico Environment Department to ensure the effectiveness of the ES&H program.

### 10.02

In section 4.2.3.10, a commentor inquires how DOE projects zero waste associated with the move of HEU to another location unless containers can be removed and shipped in existing trucks with no repackaging.

- Response: The paragraph referred to by the commentor has been rewritten in the Final PEIS as follows: "The waste volumes given in table 4.2.3.10-2 include the storage of the strategic reserve of HEU. The volume of waste associated with the storage of the strategic reserve HEU is very small (less than 0.01 percent) in relation to the total amount of wastes generated from the secondary and case fabrication mission and is an even smaller percentage of the total ORR waste generation volume. Therefore, the continued storage of the strategic reserve HEU would have a negligible impact on waste management at ORR. The impact of continuing to store the strategic reserve HEU as part of the total inventory of nonsurplus HEU at ORR is also

addressed in the Storage and Disposition Draft PEIS. In addition, the Storage and Disposition Draft PEIS also analyzes moving the HEU to another DOE site location. Since the HEU is already packaged, it is expected that any waste generated from repackaging, health physics, and analytical chemistry activities would be very small in comparison to the total wastes generated at ORR. Therefore, the moving of HEU would have a minimal impact on ORR waste management."

### 10.03

Commentors note that the Waste Management Draft PEIS summary shows a large amount of waste generation related to the Stockpile Stewardship and Management Program. The commentors also note that for LLW, mixed LLW, and TRU wastes, the volumes differ between the Stockpile Stewardship and Management Draft PEIS and Waste Management Draft PEIS. The commentors also believe DOE has not changed directions from the past practices of producing massive quantities of nuclear waste and express concern about the nuclear waste that would be generated. One commentor questions the statements in the cumulative impact section "that wastes would be minor."

- Response: The waste volumes presented in the Waste Management Draft PEIS are for all DOE facilities not just the Stockpile Stewardship and Management Program. The waste volumes from the Stockpile Stewardship and Management Program have been provided to Environmental Management to include in the Waste Management Final PEIS analysis. The statements in section 4.13, Cumulative Impacts, regarding whether wastes generated by stockpile stewardship and management alternatives would be minor compared to other programs have been deleted. DOE has a waste reduction policy that requires DOE sites to employ waste minimization and pollution prevention strategies. To implement these requirements, DOE issued the 1994 Waste Minimization/Pollution Prevention Crosscut Plan that establishes a DOE-wide goal to meet pollution prevention targets (Executive Order 12856 Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements)--a 50-percent reduction in total releases and offsite shipment of toxic chemicals and pollutants by December 31, 1999. The 1994 Crosscut Plan calls for each DOE site to establish site-specific reduction goals for hazardous, radioactive, radioactive mixed, and sanitary wastes and pollutants.

### 10.04

Commentors question the sites' estimates of waste streams. A commentor states that LANL and LLNL claim moving the secondary and case mission to their site is going to generate 102,000 m<sup>3</sup> (133,416 cubic yards [yd<sup>3</sup>]) of sanitary waste and that they will be able to handle these huge volumes of waste with no changes whatsoever. One commentor does not believe that other sites have adequate infrastructure to handle waste without having to build new facilities. The commentor states that ORR has available infrastructure in the private sector that are outstanding and a model for the world.

- Response: The site estimates of waste volumes were coordinated among the sites through a coordination data committee chaired by a DOE official and represent the best estimates available. All of the DOE sites analyzed in the PEIS have adequate capability to handle the onsite waste volumes generated as a result of the Stockpile Stewardship and Management Program.



## 10.05

The commentor wants to know what portion of the DOE budget is going towards site cleanup and solution of the nuclear waste problem. The commentor believes that new solutions need to be developed to handle the terrible problem of nuclear waste because the current practices are not working.

- Response: The entire DOE budget for 1996 is approximately \$14.2 billion of which \$6 billion is for environmental management. The DOE Office of the Assistant Secretary for Environmental Management through its Office of Research and Development (EM-53) is continually investigating and developing new technologies to treat radioactive waste.

## 10.06

Commentors express negative feelings about LANL's record involving radioactive waste and emissions, and state that New Mexico is contaminated in many places and that DOE should not dump any more nuclear waste in the state.

- Response: DOE is committed to operating its facilities in compliance with all applicable Federal and state regulations, and DOE orders. To fulfill its mission under the Atomic Energy Act of 1954, as amended, the generation of radioactive, mixed, hazardous, and nonhazardous wastes is unavoidable. Per DOE policy, the facilities that would support the Stockpile Stewardship and Management Program incorporate waste minimization and pollution prevention. Appropriate control procedures, engineered safety systems, and worker training programs are established and implemented to ensure compliance with all applicable ES&H regulations before beginning any radioactive operation of any facility. In addition to DOE assessments and independent internal appraisals, there are external appraisals such as those conducted by the New Mexico Environment Department to ensure the effectiveness of the ES&H program. Radioactive wastes generated by the Stockpile Stewardship and Management Program would be managed in accordance with decisions made as a result of the Waste Management PEIS and any respective site-specific NEPA documentation. The Waste Management PEIS considers alternatives that include local, regional, and/or consolidated waste management facilities. Regardless of the decisions from the Waste Management PEIS or any respective site-specific NEPA documentation, wastes generated from the Program will be managed in accordance with all applicable Federal and state regulations, and DOE orders.

## 10.07

A commentor believes that nuclear waste should be centralized into a repository to provide better safety monitoring for the material. The commentor does not believe that there would be significant risk in transporting nuclear materials to a repository. Another commentor believes that consolidating waste at one site would lead to increased risks due to the risks involved with transportation of the nuclear materials. Another commentor thinks there should be a concerted effort to open Yucca Mountain.

- Response: Decisions regarding the management (treatment, storage, and disposal) of radioactive and hazardous wastes from a DOE-wide perspective are not within the scope of this PEIS. Waste management activities that would support the Stockpile Stewardship and

Management Program are assumed to be per current site practice and are contingent upon decisions to be made through the Waste Management PEIS and any respective site-specific NEPA documentation. The Waste Management PEIS will assist DOE in making decisions regarding the sites at which it should locate waste management facilities to include treatment and disposal facilities for mixed LLW, treatment and disposal facilities for LLW, treatment and storage facilities for TRU waste, storage facilities for treated HLW canisters until a geologic repository is available, and treatment facilities for hazardous nonwastewater. The Waste Management PEIS considers four broad categories of alternatives for each waste type: No Action, decentralized, regionalized, and centralized.

## 10.08

The commentor wonders if the PEIS includes an analysis of the overall waste management plans at LLNL for the next 20 years.

- Response: Two site-specific waste management plan documents were used in the stockpile stewardship and management analysis at LLNL: Waste Management Plan FY 1995 Update in Accordance with DOE Order 5820.2A, and the Federal Facility Compliance Act Proposed Site Treatment Plan for LLNL. The full document reference citations are provided in the chapter 6 reference list see LLNL 1995d and LLNL 1995h). Radioactive waste generated by the Stockpile Stewardship and Management Program would be managed in accordance with decisions made as a result of the Waste Management PEIS and any respective site-specific NEPA documentation. Regardless of the decisions from the Waste Management PEIS or any respective site-specific NEPA documentation, wastes generated from the Stockpile Stewardship and Management Program will be managed in accordance with all applicable Federal and state regulations, and DOE orders.

## 10.09

The commentor notes that in addition to waste created from the Stockpile Stewardship and Management Program, there is a proposal to construct an incinerator to handle mixed nuclear waste at Site 300.

- Response: Waste generated at Site 300 includes explosive waste from testing activities and waste from various other operations, and environmental restoration generated waste. The LLNL Site Treatment Plan once approved will include a description of the technology and capacity needs to treat each mixed waste stream, along with a preferred option. The LLNL Site Treatment Plan in its present form does not include a proposal for an incinerator at Site 300.

## 10.10

The commentor's primary concern is that an increased stockpile and resulting waste disposal problems at LANL are a direct threat to the Penasco Valley watershed and communities.

- Response: The nuclear stockpile is not increasing. The nuclear stockpile level is set by a Presidential Decision Directive (PDD) and has been decreasing due to negotiated treaties and unilateral reductions. Due to waste minimization and pollution prevention practices, the volume of wastes generated from weapons program activities are decreasing. Wastes generated by the Stockpile Stewardship and Management Program would be managed in accordance with

all applicable Federal and state regulations, and DOE orders. Waste management activities that would support the Stockpile Stewardship and Management Program at LANL are assumed to be per current site practice and are contingent upon decisions to be made through the Waste Management PEIS and the LANL Site-Wide EIS.

## 10.11

The commentor believes that staggering rates of nuclear waste will be generated by the proposed stockpile stewardship and management activities thereby creating a need for more waste management and future cleanup costs. The commentor questions why we should put more of our environment at risk and cautions DOE to think carefully about producing new wastes given its inability to develop solutions for existing nuclear waste.

- Response: DOE is required by the Atomic Energy Act of 1954, as amended, to support a nuclear weapons stockpile as defined in a PDD signed by the President. All of the existing basic capabilities continue to be needed even though there have been changes in national security policy since the end of the Cold War. To fulfill its mission under the Atomic Energy Act of 1954, as amended, generation of radioactive, mixed, hazardous, and nonhazardous wastes are unavoidable. All of the alternative sites have adequate capability to manage the wastes generated from the Stockpile Stewardship and Management Program in accordance with all applicable Federal and state regulations, and DOE orders. Under the preferred alternative of downsizing and consolidating A/D, nonnuclear fabrication, and secondary and case fabrication, the waste generation would actually decrease at Pantex, KCP, and ORR.

## 10.12

The commentor states that the PEIS activities will have a significant impact on the numbers and quantities of nuclear and hazardous materials and wastes moved in and out of the LLNL site and to and from NTS. The large number of nuclear waste shipments anticipated in the Waste Management Draft PEIS and the Stockpile Stewardship and Management Draft PEIS, combined with waste shipments from other DOE proposed activities at LLNL, including environmental restoration activities, would be unprecedented. Commentor states that in the Draft PEIS the No Action alternative estimates of cumulative waste impacts should use current waste generation annual rates at LLNL, not waste generation rates from a nonexistent waste treatment and disposal facility at LLNL. The commentor adds that the Draft PEIS should state what options are available for LLW and mixed LLW disposal in the event that NTS and the proposed LLW/mixed LLW treatment and disposal facility at LLNL are not available.

- Response: The amount of hazardous waste requiring shipment to RCRA-permitted treatment and disposal facilities, and LLW requiring shipment to NTS is described in section 4.7.3.10. These waste shipments must meet the packaging (containment) requirements prescribed by DOT under 49 CFR and other applicable Federal regulations. The transportation analysis in section 4.10 of the PEIS and in the Waste Management Draft PEIS illustrates that the risks associated with the movement of these wastes are minimal. The use of current generation rates (1994) for No Action would not provide an accurate representation of the LLNL site in 2005. However, the 2005 projection was based on 1994 generation rates with the appropriate adjustments made for those changing operational requirements where the volume of wastes generated is identifiable. The projection does not include wastes from future, as yet uncharacterized, environmental restoration activities. For the purposes of analysis, waste

management activities that would support the Stockpile Stewardship and Management Program are assumed to be per current site practice. If the LLNL Site Treatment Plan, when approved, or the ROD from the Waste Management PEIS change the site practice, the waste management activities that would support the Stockpile Stewardship and Management Program would change accordingly. In any case, wastes generated from the Stockpile Stewardship and Management Program will be managed in accordance with all applicable Federal and state regulations, and DOE orders.

### 10.13

The commentor asks what DOE and "we" will do with all the waste that will be generated for at least the next 20 years. Commentor states there are no licensed facilities to accept the wastes that are piled up on facilities throughout the DOE Complex at this time and asks, "Why generate more than needs to be generated?" The commentor adds that we are now faced with storage and disposition of surplus fissile materials and that every option considered has tremendous waste streams attached to it. The commentor asks where this waste will go. It seems quite evident that the site that creates the waste, keeps the waste. Commentors ask if that will saddle communities across this country with the economic and environmental problems of hosting waste treatment, storage, and processing facilities.

- Response: It is incorrect to state that there are no licensed facilities to dispose of waste generated at DOE facilities. At most DOE sites, hazardous waste is shipped to offsite commercial RCRA-permitted treatment and disposal facilities. LLW is shipped to one of the DOE low-level disposal facilities in accordance with the waste acceptance criteria of that facility. Mixed waste would be treated and disposed of in accordance with the site treatment plans that have been negotiated between the DOE sites and the appropriate state regulatory authority. TRU waste is destined for a geologic repository. The Stockpile Stewardship and Management Program would not generate any HLW. To fulfill its mission under the Atomic Energy Act of 1954, as amended, the generation of radioactive, mixed, hazardous, and nonhazardous wastes is unavoidable. Per DOE policy, the facilities that support the Stockpile Stewardship and Management Program incorporate waste minimization and pollution prevention. The storage and disposition of surplus fissile materials are not within the scope of the Stockpile Stewardship and Management PEIS; however, it is addressed in the Storage and Disposition PEIS, section 4.7, Potential Cumulative Impacts of the Storage and Disposition Program.

### 10.14

The commentor asks how LANL treats current nitrate liquid waste and if the site is planning any new treatment plants for the future nitrate liquid waste that would be generated if the uranium processes are moved to LANL.

- Response: Nitrate liquid waste from uranium processes is currently treated at TA-50. No new treatment plants would be required to treat the nitrate liquid waste from the secondary and case fabrication mission if it were moved to LANL.

### 10.15

The commentor states that both LLNL and SRS are still practicing shallow land burial of radioactive wastes and this practice must be stopped, not continued and increased as contemplated in the Draft

PEIS.

- Response: Only solid LLW is suitable for shallow land burial. LLNL does not dispose of LLW onsite as it ships its LLW to NTS for disposal. Shallow land burial for SRS was analyzed in the Savannah River Site Waste Management Final Environmental Impact Statement (DOE/EIS-0217, July 1995). Radiological performance assessments are conducted to ensure that disposal facilities meet the performance objectives of DOE Order 5820.2A, Radioactive Waste Management. At SRS, only stabilized LLW forms and selected LLW (suspect soils and naval hardware) are planned for shallow land burial.

## 10.16

The commentor states that WIPP must not be opened without meeting environmental standards. Another commentor asserts that the reason DOE wants to move all the waste to WIPP is so that they can continue plutonium production.

- Response: There are a number of requirements that must be met before the Secretary of Energy will approve the opening of WIPP. The State of New Mexico must issue the RCRA Part B Permit. This permit application has been submitted to the state. EPA must (1) grant the no-migration variance petition and (2) certify compliance with requirements that WIPP is safe to operate. The no-migration variance petition and the application for certification have been submitted to EPA. The NRC has already approved the TRUPACT II container for shipment of contact-handled TRU waste, and has yet to approve the application for certification of the container for remote-handled waste. A supplemental EIS covering the phased development of WIPP is currently being prepared.

## 10.17

The commentor cites section 3.5.2, Uranium Fabrication and Processing, and asks is it not true that recycled materials are defined as a "solid waste." Commentor asks what DOE's legal interpretation of their statement is, what the definition of "recycled" is and if EPA and the Department of Justice concur. Commentor asks, "If I machined lead, are the residuals a hazardous waste?" The commentor also asks what is meant by the term "residue production," and if it is DOE's policy to prevent and minimize residue, not produce it.

- Response: The paragraph referred to by the commentor is addressing the machining of HEU. "Source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et. seq." is not solid waste as defined by 40 CFR 261.4. Residues are materials that contain sufficient quantities of recoverable fissile material. It is part of DOE's waste minimization policy to minimize the production of residues. The processes that would be used in the secondary and case fabrication facility would not generate any residue that would require long-term storage. No residues would be generated in which the HEU could not be recovered. Materials contaminated with HEU would only be declared waste if the HEU can no longer be recovered and the materials meets one of the radioactive waste definitions as outlined in chapter 9, Glossary. Guidance provided in 40 CFR 261.2 would determine whether or not the lead residuals would be considered a hazardous waste.

## 10.18

The commentor refers to section 3.7.1, Stockpile Management, and asks if it is true that both NTS and Pantex have adequate waste management facilities to treat, store, and/or dispose. Commentor thought NTS mixed waste disposal was limited to environmental remediation activities from certain projects. The commentor asks if there is mixed waste disposal for operational waste streams. Commentor also asks if it is not true that at Pantex they are planning to treat mixed waste but currently have limited disposal. Commentor asks how many offsite disposal shipments they have done since 1984 and since 1987.

- Response: The existing waste management infrastructure at NTS and Pantex is adequate to manage the anticipated waste streams from the Stockpile Stewardship and Management Program. Waste management activities that would support the Stockpile Stewardship and Management Program were assumed to be per current site practice which includes the use of offsite RCRA-permitted treatment and disposal facilities such as Envirocare, Inc., in Utah and offsite disposal such as LLW from Pantex being shipped to NTS. No new waste management facilities will be constructed for the expressed purpose of supporting the Stockpile Stewardship and Management Program. Any mixed waste generated in the State of Nevada that meets the Land Disposal Restrictions of RCRA can be disposed of at NTS in the Area 5, Mixed Waste Disposal Unit (Pit 3). Mixed waste generated at NTS or Pantex would be managed in accordance with the site treatment that was developed to comply with the Federal Facility Compliance Act of 1992 and in accordance with any decisions resulting from the respective site-wide EISs for continued operations.

## 10.19

The commentor references section 4.1.10 and asks if it is prudent to include waste minimization in the analysis. Commentor says the impact assessment is reduced and does not bound the impacts.

- Response: The waste minimization and pollution prevention strategies employed in the waste estimates are achievable with current technology. In addition to following waste-disposal policies, DOE is committed to and expects to further reduce the waste generated from the Stockpile Stewardship and Management Program.

## 10.20

One commentor cites appendix figure A.3.1-2, and asks if an unusable part is a waste or inherently waste-like. The commentor asks for a description of sanitize and demilitarize, if it is a treatment process, and what are the processes and their purpose. Another commentor cites appendix figure A.3.1.1-5 and asks if classified waste (parts) are solid waste as the figure shows classified waste being sent to sanitization, since it is the commentor's understanding that classified material is sent to sanitization before becoming waste. The commentor also asks where the exit arrows are for sanitization and demilitarization, and if sanitizing is a RCRA treatment. A commentor also cites appendix table A.3.5.1-2 and asks where the sanitization and demilitarization facilities are; if the Burning Ground is limited to explosives disposal; and if it completes sanitization and demilitarization through open burning. Another commentor also cites appendix figures A.3.3-1 and A.3.3.1-3 and states that according to these figures, explosive components are solid waste. The commentor asks where treatment and disposal fit into demilitarization, sanitization, and disposition.

- Response: Weapons components or parts of a component that are not being reused cannot be

declared waste until they have been demilitarized and sanitized. As noted in chapter 9, Glossary, sanitization is the irreversible modification or destruction of a component or part of a component to the extent required to prevent revealing classified or otherwise controlled information; whereas, demilitarization is the irreversible modification or destruction of a component or part of a component to the extent required to prevent use in its original weapon purpose. These are not considered waste treatment processes but procedures in order for DOE to meet its statutory requirements of the Atomic Energy Act of 1954, as amended. For example, sanitization and demilitarization of classified HE components is accomplished at the Burning Ground. The Burning Ground is used for the burning of HE components and disposal of HE waste, HE-contaminated waste, and various HE-contaminated liquids and solvents. Disposal of solvents at the site was discontinued in the early 1980s. Once materials are declared waste, they would be managed in accordance with all applicable Federal and state regulations, and DOE orders. Appendix figure A.3.1.1-5 has been redone in the Final PEIS to more clearly show how sanitization and demilitarization fit in process flow at Pantex.

## 10.21

Commentors refer to section 3.5.1, Plutonium Fabrication and Processing, and ask, based on the discussion of reduced scrap, waste, and residue, if plutonium and HEU pits, scrap, materials, and residue placed into storage are considered a solid waste. One commentor cites appendix section A.3.2.1 and asks, what the statement, "Classified wastes enter a declassification step resulting in classified and unclassified waste" means. The commentor asks if DOE is stating that some materials will be classified no matter what physical or administrative actions occur.

- Response: The purpose of the declassification step for waste in the secondary and case fabrication facility is to process material or weapon components to the point where they no longer reveal classified information. The vast majority of this material is successfully declassified or processed to enable reuse of the classified constituents. A very small amount of material cannot readily be declassified. Of this material, a small amount is disposed of onsite in a permitted land-fill as nonhazardous classified waste. Additionally, a very small amount of hazardous or mixed classified waste is stored until treatment/processing capabilities are established to eliminate the hazardous or mixed waste component of the classified material. This then enables either reuse of the classified material or disposal onsite as a nonhazardous classified waste. No classified waste is disposed of offsite.

## 10.22

The commentor references appendix section A.3.5.2, which states HE-contaminated process water is not a waste, but HE-contaminated process water is collected in tanks and then treated with activated carbon filters. Commentor asks if this means "filtered." The commentor suggests a change from waste minimization and recycle to pollution prevention, and adds, technically speaking, one cannot minimize or recycle a material that is not a waste. The commentor also cites the waste management text in appendix section A.3.5.3 and has the same comments. Another commentor cites the waste management text in appendix section A.3.5.2, and asks why recycling scrap HE is not a waste (both recycle and scrap are clearly associated with solid waste definition in 40 CFR 261); and under what solid waste exclusion in 40 CFR 261 does DOE claim.

- Response: Scrap HE that is recycled is not considered a solid waste as it is returned to the HE fabrication process to be used as a substitute for raw material feedstock (40 CFR 261.2[e]).

Scrap HE that is excess to needs is thermally treated and disposed of in accordance with applicable Federal and state regulations. HE-contaminated process water is filtered before being collected in holding tanks. From the holding tanks, it is returned to be used as cooling water for the HE fabrication process. At LANL, recycled process water that can no longer be used is sent to the LANL HE waste- water treatment facility where it is treated using activated carbon filtration. In the Final PEIS the paragraph has been rewritten for clarification.

## 10.23

The commentor refers to section 4.2.2, Oak Ridge Reservation, and states that the PEIS should provide an estimate of the volume, in km<sup>3</sup>, of TRU waste, affected rock, soil, and groundwater at NTS as a result of underground tests. The text should also indicate whether this material comes under the *Federal Facilities Compliance Act* and if it does, if it will require treatment.

- Response: Estimates of the waste volumes that would be generated from environmental restoration activities in the Central Nevada Test Area of NTS have not been determined. The waste volumes generated during environmental restoration activities would be greatly dependent on the cleanup criteria which have not been established. Any wastes generated as part of these activities would be managed in accordance with all applicable Federal and state regulations, and DOE orders to include the Federal Facility Compliance Act and the NTS Site Treatment Plan which was developed to comply with the Federal Facility Compliance Act.

## 10.24

Commentors ask that waste be stored where it happens to be, not shipped from all around the country to further endanger American citizens. One commentor adds that waste should be stored aboveground.

- Response: Waste shipments must meet the packaging (containment) requirements prescribed by DOT under 49 CFR and other applicable Federal regulations. The transportation analysis in section 4.10 of the PEIS and in the Waste Management Draft PEIS clearly illustrates that the risks associated with the movement of these wastes is minimal. It is impractical and in some cases not permissible under the law (e.g., RCRA) to store wastes aboveground indefinitely.

## 10.25

The commentor feels that DOE should focus massive attention on the subject of transmutation; it is critical that we learn how to neutralize nuclear waste onsite.

- Response: Environmental Management, through its Office of Research and Development (EM-53), is continually investigating and developing new technologies to treat radioactive waste. Radioactive wastes generated from the Stockpile Stewardship and Management Program will be treated in existing onsite radioactive waste treatment facilities.

## 10.26

The commentor urges DOE to figure out a way to dispose of plutonium onsite.

- Response: The disposition of surplus weapons-usable fissile materials such as plutonium is not



within the scope of the PEIS. The Storage and Disposition Draft PEIS analyzes the disposition of surplus weapons-usable fissile materials. Due to environmental considerations, it is not always possible to dispose of waste contaminated with plutonium onsite. Radioactive waste generated from the Stockpile Stewardship and Management Program will be categorized according to the definitions in chapter 9, Glossary, and will be managed in accordance with all applicable Federal and state regulations, and DOE Order 5820.2A, Radioactive Waste Management.

## 10.27

The commentor feels that efforts should be concentrated towards D&D.

- Response: None of the manufacturing and surveillance capabilities of the current industrial base can be eliminated on the basis of the post-Cold War changes in national security policies. The industrial base possesses core competencies, such as manufacturing product, process, and quality control know-how. However, with a smaller stockpile and no new-design weapons production, industrial capacity can be reduced to meet anticipated manufacturing requirements for stockpile repair and replacement activities. This reduction in industrial capacity would lead to deactivation of some facilities. After proper characterization these facilities would be transferred to Environmental Management for eventual D&D. The waste volumes associated with D&D have been estimated and presented in the waste management impacts analysis in chapter 4.

## 10.28

The commentor cites section 3.5.1, Plutonium Fabrication and Processing, and asks when plutonium and HEU meet the definition of a solid waste. Commentor asks if stored plutonium and HEU in any form is a solid waste as defined under RCRA. Commentor asks DOE to provide independent confirmation of this issue by EPA and the Department of Justice.

- Response: Weapons-usable fissile materials such as plutonium and HEU are not considered waste. The President has declared that some quantities of fissile materials are declared surplus to national defense and defense-related program needs. DOE is developing an integrated strategy for storage and disposition of weapons-usable fissile materials. The Storage and Disposition Draft PEIS is focused on the storage of all plutonium and nonsurplus HEU, and the disposition of surplus plutonium. The Disposition of Surplus Highly Enriched Uranium Final Environmental Impact Statement (DOE/EIS-0240-F, June 1996) addresses the disposition of surplus HEU. Materials contaminated with plutonium and HEU would only be declared waste if the plutonium and HEU are at levels defined as discard limits and the materials meets one of the radioactive waste definitions as outlined in chapter 9, Glossary. "Source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et. seq." is not solid waste as defined by 40 CFR 261.4. Under 10 CFR 962, all DOE radioactive waste contaminated with hazardous constituents as defined by RCRA is subject to regulation under both RCRA and the Atomic Energy Act of 1954, as amended.

## 10.29

The commentor states that LANL has not shown good faith in developing and maintaining safety standards while involved in nuclear weapons research and application. The commentor is concerned

about exposure to radioactive waste that is produced in the name of "safety and reliability" of nuclear stockpiles.

- Response: To fulfill its mission under the Atomic Energy Act of 1954, as amended, DOE will unavoidably generate radioactive, mixed, hazardous, and nonhazardous wastes. Appropriate control procedures, engineered safety systems, and worker training programs are established and implemented to ensure compliance with all applicable ES&H regulations before beginning any radioactive operation of any facility. In addition to DOE assessments and independent internal appraisals, there are external appraisals such as those conducted by the New Mexico Environment Department to ensure the effectiveness of the ES&H program.

### 10.30

Commentors feel that it is immoral and unfair to consider New Mexico as an empty state into which garbage can be piled with no opposition. One commentor adds that nuclear waste should be treated properly onsite and if it cannot then it should not be produced. Another commentor is opposed to increasing activities at LANL that would increase production of radioactive waste because by implementing this project, DOE is creating a nuclear waste dump upwind of most of northern New Mexico.

- Response: LANL was identified as the preferred alternative because it ranked highest in the selection criteria: basic production capability to support scheduled work, capability of production infrastructure to support scheduled work, and minimized cost. LANL has adequate capacity through its TA-50 and TA-55 facilities to treat the radioactive waste that would be generated in support of the Stockpile Stewardship and Management Program. These facilities would treat and package all radioactive waste into forms that would enable long-term storage and/or disposal in accordance with the Atomic Energy Act of 1954, *as amended*, other applicable Federal and state regulations, and DOE orders.

### 10.31

The commentor would like the PEIS to discuss the capability of existing processing facilities and disposal sites to handle the projected quantities of radioactive and mixed waste generated by the Stockpile Stewardship and Management Program.

- Response: Under each alternative description in chapter 3, it is explicitly stated that the existing site "waste management infrastructure can be applied to manage and treat all anticipated waste streams from this alternative." Appendix H lists the existing waste treatment capability by waste category for each of the alternative sites. All hazardous, radioactive, and mixed waste generated would be managed in accordance with all applicable Federal and state waste regulations.

### 10.32

The commentor wants to know where the nuclear waste from the pit fabrication mission at LANL will be stored, how much it will cost, and where will the money come from.

- Response: There are no plans to store radioactive waste from the pit fabrication mission at LANL indefinitely. LLW would be treated and then disposed of in Area G per current site

practice. Radioactive mixed waste would be treated and disposed of in accordance with the LANL Site Treatment Plan which was negotiated between LANL and the State of New Mexico. TRU waste would be stored temporarily at Area G until the Federal geologic repository is approved by EPA and NRC and a supplemental EIS is completed. Costs associated with the Stockpile Stewardship and Management Program can be found in the Analysis of Stockpile Management Alternatives report produced by the DOE Albuquerque Operations Office. Congress funds the Stockpile Stewardship and Management Program through the Defense Appropriations Bill.

### 10.33

The commentor questions the readiness of the environmental treatment systems placed in cold standby at ORR, should future increases in production occur.

- Response: The preferred alternative does not put any of the waste management facilities into cold standby at ORR. The buildings designated to be placed in cold standby as a result of downsizing the secondary and case fabrication mission are buildings that have a production mission only.

### 10.34

The commentor states that the Radioactive Liquid Waste Treatment Facility (TA-50) at LANL does not have a treatment permit issued by the State of New Mexico as stated in appendix section A.3.3.1.

- Response: The commentor is correct. The text has been changed in the Final PEIS to read, "the waste would be processed, with radioactive constituents removed, in accordance with the NPDES permit."

## Radiation and Hazardous Chemicals

### 11.01

The commentor asks DOE to address a worst-case accident analysis for a "parking lot" nuclear weapons accident for Pantex and NTS, and asks how on a safety-to-the public basis DOE can justify operations at Pantex instead of at NTS. The commentor states that DOE is taking special mitigating actions at Pantex to keep site boundary dose under 100 rem per person in the event of an accident at Pantex. The same accident at the NTS Device Assembly Facility must be less than 1 percent of this, according to the commentor, since no one lives at the NTS site boundary. The commentor asks what the dose to the public is if there is an aircraft accident at Pantex, since that site is in the flight path of Amarillo airport and has a much greater risk of experiencing an accident than does NTS, which is in completely controlled airspace. Commentor asks how can DOE justify exposing the public to this additional risk in order to save money.

- Response: The accident analyses assume a hypothetical member of the public (the maximum exposed individual ) resides at the nearest site boundary. Based on the accident analysis for NTS and Pantex, the maximum exposed individual at Pantex would have a fatality risk of  $5.6 \times 10^{-8}$ , while at NTS that risk would be  $8.1 \times 10^{-9}$ . While it is true there is a lower risk at NTS than at Pantex, the risk at both sites is low. The potential for severe accidents including

those involving an aircraft at Pantex, is provided in sections 4.5.3.9. Additional details on potential accidents are also given in appendix F and in a topical report: Supporting Documentation for the Accident Impacts Presented in the Stockpile Stewardship and Management Programmatic Environmental Impact Statement, (HNUS Report No. ARP-96-042) which has been placed in the DOE Public Reading Rooms near each site. The final selection of a site for the A/D mission will be announced in the ROD, which will take into account all relevant factors including accident risks.

## 11.02

*The commentor asks why we use the year 2030 staff levels for radiation doses (section 4.3.2.9) and use 2005 for economic impacts.*

- Response: The cumulative effects of both radiation and socioeconomics are calculated over a 25-year period from 2005 to 2030.

## 11.03

The commentor believes that DOE uses different risk standards for different programs (specifically Yucca Mountain versus other programs) and that the public does not understand the risks associated with DOE activities. The commentor voices concern over the 300 million curies (Ci) at NTS. The commentor urges DOE to use one risk standard in its analyses and educate the public about the risk numbers and what they mean.

- Response: To ensure a consistent set of risk standards in the preparation of environmental assessments (EAs) and EISs, DOE has established recommended guidelines for the preparation of human health impact sections in these documents (Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements, Office of NEPA Oversight, May 1993). The public and occupational health risk for normal radiological operations analyzed in the Stockpile Stewardship and Management PEIS uses the two dose-to-risk conversion factors for the public and workers recommended by DOE's Office of NEPA Oversight and established in the National Research Council's Committee on the Biological Effects of Ionizing Radiation Health Effects of Exposure to Low Levels of Ionizing Radiation BEIR V (BEIR V Report) published in 1990. These risk factors are 0.0005 deaths per person-rem to the general public and 0.0004 deaths per person-rem to workers (the lower number for workers accounts for the absence of children in the workforce).

Appendix E, Human Health, presents a detailed discussion of the methodology used to determine the radiological impacts to human health. The appendix also includes a section on the development and use of the risk factors presented in the Stockpile Stewardship and Management PEIS.

## 11.04

The commentor believes that a 160-km (100-mi) radius would be more appropriate for the analysis of radiation health effects to the public.

- Response: The 80-km (50-mi) radius for calculating collective dose is a practical limitation for analytical purposes in this PEIS. NRC guidance requires that an 80-km (50-mi) radius be

investigated for potential impacts to the population living within 80 km (50 mi) of a radiation source. Studies have shown that at some distance, frequently within 80 km (50 mi), the magnitude of variations in doses from background radiation becomes greater than the doses from radiological releases from DOE and NRC sites.

## 11.05

The commentor asks if the PEIS considers multigenerational problems in the analysis of cancer fatalities. The commentor also asks if the cancer statistics and studies from Chernobyl and Nagasaki are taken into consideration in the calculation of the PEIS cancer fatality numbers.

- Response: When modeling is performed to determine human health impacts, "nonfatal cancer" risks and "genetic (multigenerational) effects" risks are tabulated in appendix section E.2.1.2. Cancer statistics and studies from Nagasaki are included within the risk estimation parameters associated with presented cancer fatality numbers (refer to the BEIR V Report). The methodology outlining these "multigenerational effect" tabulations is presented in appendix section E.2.1.2 of the PEIS. The data available from the Chernobyl incident are still being analyzed and have not been used in the human health analyses investigated in this PEIS. However, national and international regulatory bodies continually review the results of new research in order to determine whether changes should be made to recommended dose limits.

## 11.06

Several commentors believe that DOE downplays the dangers of radiation and that the PEIS accident analysis tends to trivialize accidents. One commentor states that DOE should investigate the elevated levels of thyroid and breast cancer in Los Alamos, Bernalillo County, and surrounding towns. Another commentor disagrees, stating that cancer rates in Los Alamos are in line with cancer rates expected from a town at an elevation of 2,438 m (8,000 ft). Another commentor believes that DOE should initiate a series of health studies to determine the extent of contamination in the State of New Mexico. The commentor believes that these studies have not been carried out in the past because it would indicate public health problems.

- Response: The accident analyses were performed in accordance with DOE guidance (refer to the *Office of NEPA Oversight document*). A set of accidents have been analyzed that include high-probability/low-consequence accidents as well as low-probability/high-consequence accidents that are not expected to occur during the lifetime of the facility but have been included to show the consequences of an accident. The levels of thyroid and breast cancer are discussed in section 4.6.2.9, Health Effects Studies. Additional information is presented in appendix section E.4.6. DOE puts a great deal of emphasis on protecting the public and occupational workers from radiation exposure. There are numerous promulgated DOE orders which establish conservative dose limits to both the public and workers at risk of exposure.

In section 4.1.9.1, subsection on Epidemiological Studies, there is a statement that defines DOE's program to monitor health effects on workers and the public in the communities surrounding DOE facilities. An independent agency, Health and Human Services, has been conducting a health effects research program on DOE facilities under a 1991 Memorandum of Agreement. The National Institute for Occupational Safety and Health initiated a study in 1994, but does not expect results before 1997. However, extensive health studies have already been conducted on the public within the State of New Mexico in the counties surrounding both

LANL and SNL, as well as workers within those facilities. Summaries of the results of the studies at LANL and Los Alamos County are presented under Health Effect Studies in section 4.6.2.9, with details presented in appendix section E.4.6. Summaries of the results of the studies at SNL and the surrounding county, Bernalillo, are presented in section 4.8.2.9 under Health Effects Studies, with details presented in appendix section E.4.8. All studies reported are referenced. Past and present radiation and hazardous chemical releases have been documented and are used as one of the bases for predicting future releases when the proposed actions, if approved, are implemented.

The impacts of potential accidents at LANL are discussed in section 4.6.3.9. Figure 4.6.3.9-1 and tables 4.6.3.9-3 through 4.6.3.9-7 present the impacts of accidents. The graph in figure 4.6.3.9-1 indicates the probability of fatalities due to accidents associated with the proposed actions.

## 11.07

The commentors refer to LANL section 4.6.3.9 and the following text, "The average annual dose to involved workers for this alternative would be 380 mrem. The dose to the entire facility workforce would be 55.6 person-rem. As stated in the methodology, section 4.1.9, all worker doses were referenced either from alternative-specific working group data reports or from the Radiation Exposures for DOE and DOE Contractor Employees 1992 Database which reports doses for similar types of operations...." A commentor asks if the 1992 database is representative for the projected years and if working group data contain situation-specific source terms and shielding considerations. Another commentor asks if linear extrapolation was used to determine the doses to the workers at LANL and SRS in the Summary section S.4.1. The commentor believes that these are overestimates of what would happen to the workers. The commentor asks if LANL ever had pit production capacity and if data on worker safety, accidents, and contamination were used in the PEIS. The commentor also asks how the radiation doses to workers calculated in the PEIS for pit fabrication at LANL compare to the doses that were observed at Rocky Flats when pit fabrication was performed there.

- Response: The conservative 380 mrem/yr dose to involved workers at LANL and SRS for pit fabrication operations was arrived at through direct measurement and calculation. In 1995, LANL started work on Defense Nuclear Facilities Safety Board Recommendation 94-1, processing a full load of pits for the pit surveillance program and the Cassini project. Many of the operations for these programs at LANL are considered comparable to "pit manufacturing" operations. The total annual dose for TA-55 personnel during full operations was 153.8 person-rem. By dividing this number by 405, the number of personnel who received a nonzero dose during that period (i.e., the hands-on workers and support personnel, but not office workers), the resulting average dose for plutonium manufacturing personnel is approximately 380 mrem per worker.

Comparing the historic Rocky Flats Plant pit fabrication activities and doses to workers to the proposed pit fabrication mission at LANL would not be appropriate. The pit fabrication mission at Rocky Flats used a different process than the one proposed for LANL, and the production volume at Rocky Flats was much larger because of the larger stockpile levels at that time.

LANL currently maintains a limited capability to fabricate plutonium components using its Plutonium Research and Development Facility and provides safety and reliability assessments

of the stockpile (section 3.4.3.1). Sections 4.6.2.9 and 4.6.3.9 provide a description of the radiation and hazardous chemical environment at LANL, including descriptions of health effects studies, a brief accident history, and emergency preparedness considerations. Data on worker safety, accidents, and contamination at LANL were analyzed in the preparation of this PEIS. The safety analysis report prepared by LANL for the TA-55 plutonium operations was a source of considerable data used in this PEIS for identifying and estimating the impacts of accidents.

The 1992 database is representative of worker dose data for the year 1992. This report provides a recent source of dose data through which estimations of potential doses to stockpile stewardship and management involved and noninvolved workers can be made. These doses are based on actual dosimeter measurements and therefore take into account existing shielding at the work site. The working group data report does contain source terms associated with this Stockpile Stewardship and Management Program activity.

## 11.08

The commentor asks what DOE considers to be an accident and if there is enough historical data to constitute a fair analysis of pit fabrication related accidents. The commentor asks if the analysis examines risks to the workers in the workplace. The commentor also asks if the accident modeling included real accidents at TA-55 reported to the Occurrence Reporting System.

- Response: DOE considers an accident to be an unplanned sequence of events that results in undesirable consequences. More information on accidents is provided in a DOE standard, (DOE DP-STD-3005-93 Proposed, Definitions and Criteria for Accident Analysis, DOE, March 8, 1993). Accidents that are of the highest concern have high consequences and low probabilities of occurrence and therefore have never occurred. However, even without historical data, techniques are available to predict the sequence of events that may lead to an accident and to estimate the accident's impacts. The PEIS contains an evaluation of the risk of accidental exposure of a hypothetical worker located at either 1,000 m (3,281 ft) or the nearest site boundary, whichever is smaller, to radioactive substances released during an accident. An important source of data for accidents at LANL is the safety analysis report recently prepared for TA-55, which includes any applicable accidents reported to the Occurrence Reporting System.

## 11.09

Commentors question the exposure limits for noninvolved and involved workers in the ORR table 4.2.3.9-2. Commentors are concerned that the exposure limits for noninvolved workers is higher than for involved workers and wants to know where the D&D workers are in the table. In addition, commentors are concerned with the quality of estimated health impacts to the general public.

- Response: The exposure limits (i.e., average worker dose) to the noninvolved worker represents the estimated average dose to all noninvolved workers from all radiological sources at ORR. Conversely, the average worker dose to the involved worker represents the estimated average dose from the downsized secondary and case fabrication three-shift operation only. The average dose to the involved worker does not include the average dose from all other sources. If one were to include the additional dose from all other sources at ORR, the average dose to the involved worker is expected to be slightly higher than the average dose to the

noninvolved worker. D&D workers are not included here, because they are not present during the normal operation of the stockpile management alternative at ORR. Site-specific information was used in the preparation of this analysis.

In regard to the integrity (quality) of the general public dose estimates, the analytical "worker dose" methodology and associated data used in the PEIS were independent of those utilized for public dose calculations. For public health impacts, an indepth assessment was made using the GENII computer code. This type of analysis uses site-dependent factors including meteorology, population distributions, agricultural production, and an assumed facility location on a given site.

## 11.10

The commentor questions the accident history in section 4.2.2.9, which states that the most noteworthy accident at Y-12 resulted in temporary radiation sickness for a few ORR employees. The commentor would like to know whether the employees involved in this accident view its effects as temporary radiation sickness.

- Response: All accidents at DOE facilities are investigated in detail in order to understand the root causes and to identify corrective actions to prevent their recurrence. The health of workers following an accident is closely monitored to ensure every opportunity is taken for a complete recovery. There are a number of DOE orders in effect to protect the health and safety of workers. The requirements for investigation and documentation of the circumstances surrounding an accident are specified in DOE O 232.1, Occurrence Reporting and Processing of Operations Information. Other DOE orders that address a worker's health and safety include DOE O 231.1, Environment, Safety, and Health Reporting, and DOE O 440.1, Worker Protection Management for DOE Federal and Contractor Employees.

## 11.11

Commentors express concern about the health of area residents. One commentor believes that the breast cancer rate in Livermore is the highest in the nation. Other commentors state that activities at LLNL have created plutonium pollution at nearby parks, tritium contamination of the water, and onsite contamination from leaking drums. Another commentor states that workers at LLNL are 400 percent more likely to develop malignant melanoma than the general public. The commentor also contends that the children of Livermore are 6 times more likely to develop skin cancer as a result of activities at LLNL.

- Response: The environmental impacts associated with radiological and hazardous chemical operations at LLNL are described in section 4.7.3.9, in appendix E for normal operations, and appendix F for potential accidents. The human health analyses presented for LLNL in the PEIS, conclude that "adverse health effects to the public and to workers will be small." This conclusion pertains only to the "alternatives" presented in the PEIS. Historical contamination and cancer incidences are discussed in section 4.7.2.9, the subsections on Accident History and Health Effects Studies.

## 11.12

The commentor states that the PEIS does not clearly differentiate the safety risks associated with each



alternative if an accident were to occur.

- Response: The composite risk value for accident impacts provided for each alternative in the main body of the PEIS and in appendix F can be used to differentiate the safety risks associated with each alternative. Appendix F also provides risk information for individual accidents in terms of accident consequences and probability of occurrence which can also be used to differentiate between alternatives. In addition, complimentary cumulative distribution functions are provided for each alternative at each site in the PEIS as an indication of the full range of probable impacts.

### 11.13

The commentor believes that none of the Draft PEISs have adequately addressed what would happen to the area's farm and ranch economy if a significant accident, releasing substantial quantities of radionuclides, were to occur, regardless of how well it were to be cleaned up. The commentor thinks that the public's perception of the contamination would be such as to make local products unmerchantable not just for the immediately affected area, but for the entire Panhandle's products.

- Response: The likelihood of a significant accident that would impact the area's farm and ranch economy is very small. The PEIS identifies several potential accidents that can result in undesirable offsite consequences, measured in terms of the risk of cancer fatalities to the workers and members of the public. Secondary impacts of accidents affecting elements of the environment other than humans are also presented in a new section, appendix section F.4. This section identifies the extent of radiological releases due to accidents that may result in the contamination of farmland, surface and groundwater, recreational areas, industrial parks, cultural resources, or habitat of endangered species. The accident analyses were performed in accordance with DOE guidance (refer to the Office of NEPA Oversight document).

### 11.14

The commentor would like the PEIS to address the impacts which would result from a nuclear explosion, including the resulting deaths, the cancers created, and the spread of radioactivity.

- Response: The devastating effect of a nuclear explosion is clearly recognized and has been the driving force to prevent any accidental or intentional occurrence. Within the DOE system, strict compliance with DOE orders and procedures is enforced to minimize the probability of any technical or human cause of an inadvertent nuclear explosion. Some examples of applicable DOE orders are DOE O 452.1, Nuclear Explosive and Weapons Surety, and DOE O 452.2, Safety of Nuclear Explosive Operations. Inadvertent detonation of a nuclear weapon has a probability of occurrence which is much less than 10<sup>-7</sup> per year or once in 10 million years and is not evaluated. The risk of an explosive dispersal of nuclear materials is evaluated for weapons A/D operations at Pantex and NTS where work is performed on nuclear components in the presence of explosive materials.

### 11.15

The commentor suggests that DOE provide additional information and clarity concerning the accident risk analysis. Another commentor believes that the accident analysis tends to trivialize accidents and notes that very low-probability events that have very catastrophic consequences are difficult to

comprehend.

- Response: The accident analyses were performed in accordance with DOE guidance (refer to the Office of NEPA Oversight document). A set of accidents have been analyzed that include high probability/low consequence as well as low probability/high consequence events to show the range of possible impacts. The low probability/high consequence accidents are not expected to occur during the lifetime of the facility but have been included to show the worst possible consequences of an accident.

## 11.16

The commentor does not share DOE's confidence that operating its new weapons complex at surge capacity can be done largely without waste management and capacity difficulties, and more than proportionally increased risk of both routine and accidental releases of radioactive and hazardous materials and of worker exposures.

- Response: The PEIS analysis bounds potential environmental impacts by assuming operations at a surge capacity. This means greater wastes and greater radiation doses are assessed than we would normally expect. It provides a reasonable level of conservatism such that DOE can be confident that any impacts would stay within the bounding envelope provided in the PEIS.

## 11.17

The commentor views the reservations near Los Alamos, NM, as a "dump" (i.e., nuclear waste and radiation) and believes the populations are affected.

- Response: LANL health effects studies are presented in section 4.6.2.9 and appendix section E.4.6 of the PEIS. Several key facets of concern including cancer incidences among the general public (including those who may reside on the nearby reservations) have been addressed. Table 4.6.2.9-2 conveys data on the total annual radiological dose incurred to the LANL surrounding population (within an 80-km [50-mi] radius). The extremely small annual population-dose imparted in this table yields an associated cancer risk which is also very small (i.e., 0.0015 of one fatal cancer per year).

## 11.18

The commentor wants to know to what extent the analysis of cancer risk factors into different schools of thought. The commentor notes that others have different views on exposure to radiation and its effects. The commentor wants a balanced view in the PEIS.

- Response: To ensure a consistent set of risk standards in the preparation of EAs and EISs, DOE has established recommended guidelines for the preparation of human health impact sections in these documents (refer to the Office of NEPA Oversight document). The public and occupational health risk for normal radiological operations analyzed in the PEIS uses the two dose-to-risk conversion factors for the public and workers recommended by DOE's Office of NEPA Oversight and established in the BEIR V Report. These risk factors are 0.0005 deaths per person-rem to the general public and 0.0004 deaths per person-rem to workers (the lower number for workers accounts for the absence of children in the workforce). Appendix E, Human Health, presents a detailed discussion of the methodology used to determine the

radiological impacts to human health. The appendix also includes a section on the development and use of the risk factors presented in the Stockpile Stewardship and Management PEIS.

### 11.19

The commentor asks if the PEIS projects what would be considered a safe dose of radiation in the future. The commentor notes that what we may have considered safe 25 years ago is much different based on today's knowledge.

- Response: Radiological doses during normal operations (to both the public and workers) associated with all future Stockpile Stewardship and Management Program activities would be well below regulatory standards established by the NRC and EPA. Over the last 20 to 30 years, enormous progress has been made in the study of biological effects resulting from radiation exposure; today's "conservative" exposure limits are a reflection of these research results. Over the past 25 years, a concept known "as low as reasonably achievable" has been the benchmark goal of all nuclear-oriented facilities licensed in the United States. Regularly "lowered" dose limits are a prime example of how much emphasis has been placed upon radiation safety in recent years. As to whether the dose limits will conservatively change in the coming years will be subject to the results of further data analyses, such as from the Chernobyl accident.

### 11.20

The commentor states that Savannah, GA, is known to be a cancer site. The commentor asks if the PEIS contains statistics on the amount of radiation that flows through Savannah via SRS plus the existing high cancer rate.

- Response: For the purposes of this analysis, a radius of up to 80 km (50 mi) around a site was investigated for potential radiological impacts to public health. The city of Savannah is beyond this 80-km (50-mi) zone (roughly 160 km [100 mi]) and therefore has not been analyzed for potential impacts from SRS radiological airborne releases. However, potential radiological impacts to the Savannah area through the drinking water pathway are routinely assessed via the monitoring of offsite water treatment plants at Beaufort-Jasper and Port Wentworth, which are both located in reasonably close proximity to the city of Savannah. The PEIS reports these normal operational radiological impacts (incurred from the liquid pathway) in table 4.3.2.9-2. These liquid doses include constituents from drinking water, sampled at the site boundary--downstream to the Atlantic Ocean (i.e., Savannah River). The cancer risks per year associated with these modeled liquid doses are extremely small (0.0008 of one fatal cancer is estimated within the total population under investigation). For further information on health risk studies involving communities around the SRS area, see appendix section E.4.3.

### 11.21

The commentor wants to know how old the epidemiological studies are that were used in the PEIS.

- Response: They began as early as 1942, but some reports are as recent as 1996.

### 11.22

The commentor is concerned that a direct link cannot be identified between SRS radiation releases

and latent cancer. The commentor also states that at the same time, it cannot be proven scientifically that radiation from Federal facilities does not cause cancer.

- Response: In 1984, Sauer and Associates examined mortality rates in Georgia and South Carolina by distance from SRS (see Volume I, chapter 6, SR duPont 1984b). Rates for areas near the plant were compared with U.S. rates and with rates for counties located more than 80-km (50-mi) away. Breast cancer, respiratory cancer, leukemia, thyroid cancer, bone cancer, malignant melanoma of the skin, nonrespiratory cancer, congenital anomalies or birth defects, early infancy death rates, stroke, or cardiovascular disease in the populations living within 80 km (50 mi) of the plant did not show any excess risk compared with the reference populations. Historical data and associated statistics have indicated that there have been essentially no significant health risk increases as a result of normal operation radiological releases. EPA and NRC regulatory standards are designed to protect the public from potential health impacts resulting from normal operational radiological releases.

## 11.23

The commentor wants to know the impact of radiation as a result of the Stockpile Stewardship and Management Program on children, particularly birth defects. Another commentor believes that the PEIS's risk analysis is one-dimensional and not accurate; it cannot take into account the future legacy of radioactivity, the future health and genetic consequences, or the environmental impacts.

- Response: Radiological impacts to the public (including children) from planned Stockpile Stewardship and Management Program activities are presented in section 4.3.3.9 of the PEIS. Modeling has shown that potential doses to adults and children alike, would be extremely small (billions of times lower than that incurred from natural background radiation). Appendix section E.2.1.2 of the PEIS presents risk estimations for "genetic effects." The risk of incurring these effects are even smaller than that for fatal cancer (about 75-percent smaller).

## 11.24

The commentor asks for the basis of the assumption that, in the accident scenarios, the worker is assumed to be a kilometer away.

- Response: In general, exposures to workers decrease with increasing distance away from the location of the accident. The evaluation of impacts to noninvolved workers (i.e., workers that are located on the site independent of the proposed action) assumed a hypothetical noninvolved worker located at 1,000 m (3,281 ft) from the location of the accident or the nearest site boundary, which ever is closer. For distances less than 1,000 m (3,281 ft), modeling techniques are less effective because of the effects of buildings on meteorology and dispersion.

## 11.25

Referring to the uncertainty of potential, long-term health effects due to exposure at Pantex, the commentor would like to know how DOE can be so sure of the consequences of future missions that may be brought to the site.

- Response: Section 4.5.2.9 presents a discussion of health effects studies which have been previously conducted in the communities surrounding Pantex. These studies indicated that

there have been no significant excess cancer mortality incidences in the Pantex area; thus, there have been no verifiable indicators as to any short- or long-term health impacts at the Pantex site. Public exposure to radiological effluents has conventionally been of extremely small quantity due to DOE safeguards and the nature of the missions conducted at the facility. In addition, DOE orders and required standard operating procedures have been established in order to ensure the safe and reliable operation of DOE facilities. The planned stockpile management program options at Pantex would not alter these circumstances. DOE's utilization of radiological dose modeling techniques quantitatively estimates exposure to the public and workers as a result of potential future stockpile management missions. Appendix section E.2.2 describes the methodology used to estimate radiological impacts during normal operations from DOE facilities analyzed in the PEIS such as tritium in the environment.

The risk analysis employed in the PEIS for normal radiological releases takes into account the potential future health consequences which may occur from planned Stockpile Stewardship and Management Program activities. Expected radiological release quantities from each Program alternative are modeled to determine potential doses which may be incurred to members of the public in future years. Hypothesized future residential populations are included within the calculations in an effort to calculate future population-dose values. The future "behavior" (or "legacy") of radiological material(s) related to Stockpile Stewardship and Management Program operations are analyzed for anticipated characteristics which are to be expected over the coming years, including: decay rates, transport through air and water media, and uptake frequencies. When modeling is performed to determine human health impacts, "genetic consequences" can be calculated from information presented in appendix section E.2.1.2 of the PEIS. The risk of incurring "genetic effects" is even smaller than that for fatal cancer (about 75-percent smaller).

## 11.26

The commentor, a landowner near Pantex, is concerned about the integrity of her property and her personal safety, claiming that past accidents and explosions at Pantex have adversely affected her and others in the neighborhood of Pantex.

- Response: All facilities at Pantex and other DOE facilities are operated in strict compliance with DOE orders to minimize the chances of an accident that would release radioactivity to the surrounding area and to also mitigate the effects of a release if one were to occur. Any accident that has occurred is thoroughly investigated to identify its cause. Corrective actions that minimize or eliminate any repetition of the accident are also identified and implemented to maintain operations that are safe for workers and the public. For the preparation of the PEIS, a variety of potential accidents that may be initiated by operational causes, such as an explosion, or by natural phenomena, such as earthquakes, were identified and their impacts estimated using appropriate analytical methods. The results, as well as the history of Pantex accidents, are discussed in section 4.5.3.9 of the PEIS.

## 11.27

The commentor states that Santa Fe is the capital of New Mexico and therefore has an increasing populace. The commentor is concerned that the area surrounding LANL is very near Santa Fe. The commentor feels possible contamination of the water, groundwater, and radioactive accident or sabotage, if they would occur, would make Santa Fe and the surrounding area uninhabitable. Another

commentor suggests that the mere perception that an accident is possible could damage the tourist industry in New Mexico. Other commentors state that one nuclear accident would destroy the tourist, manufacturing, and agrarian industries in the State of New Mexico.

- Response: For the PEIS, a variety of potential accidents that may be initiated by operational causes or by natural phenomena, such as earthquakes, were identified and their impacts estimated using appropriate analytical methods. The results are documented in the PEIS. Appendix section F.4 discusses the secondary accident impacts to these types of resources for each site. In addition, other recent NEPA reviews for prior or interim actions (such as the Dual Axis Radiographic Hydrodynamic Test [DARHT] Facility EIS, DOE/EIS-0228) have analyzed the potential impacts of specific hypothetical facility accidents on the environment around LANL, including Santa Fe.

## 11.28

The commentor states that the PEIS needs to document more fully why the assumptions associated with the PEIS accident scenarios are reasonable, and how these assumptions and other inputs are used by the Melcor Accident Consequence Code System model.

- Response: Additional information on accident scenarios and source terms for the accidents described in the PEIS are documented in a topical report (refer to HNUS Report No. ARP-96-042), which has been placed in the DOE Public Reading Rooms near each site. The Final PEIS contains an expanded discussion to further explain how data and assumptions are used by the Melcor Accident Consequence Code System model.

## 11.29

The commentor refers to the ORR section 4.2.3.9, Radiation and Hazardous Chemical Environment, and asks if it is true that hazardous impacts would be reduced to zero as a result of secondary and case fabrication phaseout, unless we completely greenfield the site, including recovery of material from burial grounds.

- Response: Phaseout of these activities would reduce the added burden (beyond No Action) to zero because only other unrelated No Action activities would remain.

## 11.30

The commentor refers to the ORR table 4.2.3.9-4 and asks how accident numbers were generated, and states that it is not clear why the probability of a significant beryllium oxide release is so high.

- Response: Additional information on accident scenarios, frequencies and source terms for the accidents described in the PEIS is documented in a topical report (refer to HNUS Report No. ARP-96-042), which has been placed in the DOE Public Reading Rooms near each site. The accident scenarios and related parameter values are based on safety analyses of facilities that perform operations at Y-12. The probability of a release is conservatively high in order to bound the impacts of the event.

## 11.31

The commentor notes, with regard to nuclear weapons "safety," that morbidity and mortality in the cleanup crews at nuclear weapons accidents have not been studied, and long-term effects at these sites are unknown. The commentor states that with these possible exceptions, no one is known to have ever been injured from a nuclear weapon in an accident. Another commentor states, with regard to nuclear weapons "safety," that a risk of death from a nuclear weapons accident appears to be about a million times smaller than other causes of accidental death and about 100 to 1,000 times smaller than the public health risks from exposure to environmental pollution at current health standards.

- Response: The PEIS presents a full disclosure of all the human health risks associated with each of the alternatives based on best available data. All new construction and modifications to existing structures would meet or exceed applicable environmental, health, and safety standards for the public and workers. Because of these factors, the measures taken by DOE to limit impacts to human health from normal operations, and to prevent accidents which would impact human health, the analysis in this PEIS shows the risks associated with these technologies to be low.

### 11.32

The commentor contends that the analysis of radiological impacts is too limited. It omits entirely the impacts of radioactive releases on aspects of the biosphere other than human health (see section 4.1.6). The commentor states that the analysis for radiation releases for normal operations of the proposed stockpile stewardship and management facilities is difficult to follow, and appears to be based on assumptions which may substantially understate potential impacts. The explanation of the health effects calculations in appendix E states that source terms for radiological releases are for "stockpile management alternatives," and there is no reference to or data for releases from stockpile stewardship alternatives provided in appendix section E.2.3. The source terms include "only atmospheric releases, because liquid radiological discharges are not expected from any of the alternatives at any of the sites" (appendix section E.2.3). The commentor believes there is no explanation of why this is so.

- Response: As discussed in section 4.1.6 of the PEIS, impacts on biotic resources from the release of radionuclides would be expected to be less than that on the human population based on studies which have shown humans to be the most sensitive organism to radiation release.

Regarding the analysis of radiation releases for normal operations, section 4.1.9.1 discusses the methodology that was employed to estimate potential impacts. Appendix E provides greater detail of how health effects were estimated, including the reasons why the analysis in the PEIS is conservative.

The source terms for radiological releases from stockpile stewardship alternatives are not included in appendix E of the PEIS. Because each of the stockpile stewardship facilities are addressed in greater detail in appendix I (NIF), appendix J (CFF), and appendix K (Atlas), source term information for each of these facilities is addressed in those appendices, as appropriate.

The statement, "source terms include only atmospheric releases because liquid radiological discharges are not expected from any of the alternatives at any of the sites" found in appendix section E.2.3 of the PEIS is correct. During normal operations, no liquid releases of

radionuclides are expected. This is because the facilities are designed to have no liquid radionuclide discharges.

### 11.33

The commentor cites section 3.7.1, Stockpile Management, "Worker exposure to radiation is expected to be about equal" and asks if it is reasonable to believe that NTS workers might receive higher doses for several years because of the lack of experience compared to Pantex workers. Commentor believes nothing replaces actual experience and thinks DOE should consider a learning curve at NTS.

- Response: The worker dose estimates presented (i.e., the 10 mrem/yr) are tabulated via historical worker dose data for comparable operations. These data provide the most accurate values available for the planned program activities being analyzed in the PEIS.

### 11.34

The commentor cites section 4.1.9.1, Hazardous Chemical Impacts, and asks why CERCLA guidance was used. Commentor does not believe the CERCLA guidance bounds the issue because the higher risk occupations such as medical personnel, fire fighters, radiation workers, HE workers, roofers, machine operators, security personnel, and such would not be covered.

- Response: This section has been modified to reflect that CERCLA does not override the Occupational Safety and Health Administration's (OSHA) regulations for workers and EPA guidance for calculating risk to the public and workers relative to cancer risk. Instead, CERCLA should be correctly used in setting the cancer de minimus risk of  $10^{-6}$  and the range of acceptable cancer risks for specific carcinogens based on how they are used and their mechanism of action (i.e., threshold versus nonthreshold carcinogens); the range of  $10^{-4}$  to  $10^{-6}$  specified under CERCLA covers the chemical-specific assessment as to whether a cancer risk is acceptable. Calculations for worker exposures were always done based on OSHA regulations for exposures to noncarcinogens and guidance for safety required for carcinogens.

### 11.35

The commentor believes, contrary to the statement in appendix section E.3.1, that exposure to hazardous chemical releases to surface water, groundwater, and soils should be included when assessing the risk to the public and site workers.

- Response: The text cited by the commentor in appendix section E.3.1 refers to conditions under normal operations. Under such conditions hazardous chemicals are not released into surface water or groundwater or onto soil; therefore, inhalation is assumed to be the only route of exposure. For accident scenarios involving the release of hazardous chemicals into the environment, refer to appendix F, Facility Accidents.

### 11.36

The commentor expresses concern that the hazard indexes and total cancer risk provided for the phaseout alternative at Pantex (appendix table E.3.4-12) are not properly evaluated. The commentor points out the risks for the phaseout of Pantex are lower than the risks cited for the other



programmatic alternatives, with the exception of the A/D and HE fabrication alternative, which essentially equal the risk of the phaseout alternative. However, the amounts of hazardous and mixed LLW generated during phaseout of Pantex are anticipated to be 100 to 1,000 times greater than the other alternatives (tables 4.5.3.10-2 and 4.3.5.10-3). According to the commentor, section 4.5.3.9 of the PEIS states that no hazardous chemical emissions are anticipated for the phaseout alternative at Pantex, and the hazard index and cancer risk to the public and onsite workers would be zero. The commentor believes that it is more reasonable to assume that some exposure will occur during a phaseout of Pantex when over 6 million m<sup>3</sup> of waste is generated.

- Response: The fact that all hazardous chemical emissions are lower than other programmatic alternatives is attributed to the emissions that would no longer occur should this activity cease (i.e., the greater the contribution of an activity the more the reduction when it is phased out). In fact, table 4.5.3.10-2 shows that there is a reduction in solid hazardous waste generated from No Action and no change in liquid waste from No Action whereas solid mixed LLW is reduced and liquid wastes are reduced slightly. However, disposing of wastes using state-of-the-art technologies is not expected to result in increased releases to the environment. In fact, as is shown by appendix table E.3.4-12, the hazard indexes would be between 4- and 5-fold below a safe level (1.0) and the cancer risks contributed would be 2 to 3 orders of magnitude below that in the general unexposed population.

### 11.37

The commentor refers to the NTS section 4.9.2.9, Radiation and Hazardous Chemical Environment, and suggests that the word "radioactivity" be removed, and the phrase "radioactive activity level" be inserted before the word "approximately." The commentor also suggests the words "were accidental" be replaced with "was an accidental release" in the sentence. The commentor further states that the NTS Accident History is inaccurate and has been manipulated to exclude the Baneberry venting accident (1970), and that NTS atmospheric tests released  $1.2 \times 10^{10}$  Ci into the atmosphere.

- Response: The releases from underground tests stated in the Draft PEIS are for the period from 1971 to 1988. Tests prior to 1971 were the cause of releases totaling 25,300,000 Ci, which includes the Baneberry release in 1970 (6,700,000 Ci). The discussion of NTS accident history has been expanded in the Final PEIS to include the Baneberry release and other atmospheric test releases. Additional details on accidental releases are documented in the report, The Containment of Underground Nuclear Explosions, Congress of the United States (OTA-ISC-414, October 1989).

### 11.38

The commentor refers to section 4.1.9.2, Facility Accidents, "Accident risk to collocated workers was calculated for a hypothetical worker at 1,000 m (3,281 ft) from the facility, or at the site boundary, whichever is closer." The commentor states that usually in EISs, EAs, and safety analysis reports, the collocated workers are located at a much closer distance, such as 100 m (328 ft) and then at increments to 1,000 m (3,281 ft). The closer distances provide a more conservative (and more realistic) risk analysis for accidents.

- Response: In general, exposures to workers decrease with increasing distance away from the location of the accident. The programmatic level evaluation of impacts to noninvolved workers (i.e., workers that are located on the site independent of the proposed action) assumed a

hypothetical noninvolved worker located at 1,000 m (3,281 ft) from the location of the accident or the nearest site boundary, whichever is closer. For distances less than 1,000 m (3,281 ft), the screening model techniques used in the programmatic level analyses are less effective because of the effects of buildings on meteorology and dispersion. For site-specific assessments, specialized modeling techniques would be used for estimating exposures at closer distances.

### 11.39

The commentor refers to the LANL section 4.6.3.9, "... the presented noninvolved worker impacts were not modeled due to the unavailability of certain site-specific information. There also may be small risks to construction workers who are involved with tasks that are in close proximity to potentially contaminated areas." The commentor states the following: 1) noninvolved workers were not modeled; and 2) if risks to construction workers were not modeled, how can they be quantified as "small." If the source term of contaminated soil that they may be exposed to is a low activity or limited to a small area, it should be indicated in text. In addition, the commentor refers to the SNL section 4.8.3.9, "The presented total dose to noninvolved workers was not modeled due to the unavailability of certain site-specific information." The commentor states that radiological impacts to noninvolved workers were not performed.

- Response: Impacts to noninvolved workers and construction workers may be described in this manner because historical data and experience indicate that these workers would primarily be subjected only to radiation exposure from their designated job tasks. There are no verifiable "contaminated soil" source terms available to model radiological impacts to construction workers.

A dose (impact) assessment for the LANL and SNL noninvolved worker was performed for the PEIS (sections 4.6.3.9 and 4.8.3.9, respectively). Noninvolved worker impacts were determined from information presented in the annually published report *Compilation of Doses to Workers at DOE Facilities*, for the year 1992. This report (database) provides a recent source of dose data from operations which are comparable to planned stockpile stewardship and management activities. Estimations of potential doses to stockpile stewardship and management workers were calculated from this historic record.

### 11.40

The commentor refers to the LANL section 4.6.3.9, "... there are potential impacts to involved workers who would be located in the facilities. Quantitative statements of these impacts cannot be made until design details are developed further, at which time the number and location of facility workers can be estimated to support accident impact analyses. However, depending on the type of accident, facility workers in close proximity to the point of the accident could receive high levels of exposure to radiation, with potentially fatal impacts." The commentor states that impacts to workers were not modeled for accident analysis, however, fatalities may occur and the number of deaths is not estimated nor projected.

- Response: The design and layout of facilities, operating procedures, protective features, training and other safety measures all serve to prevent the occurrence of accidents and mitigate its effects if one were to occur. This is not a discriminator for mission siting and not addressed at the programmatic level. However, for any alternative that is selected, tiered NEPA studies and safety analysis reports required before operations are permitted to commence, will include

estimates of impacts to involved workers that are based on well-defined safety measures.

#### 11.41

The commentor states that it is not clear whether DOE's risk assessment includes those hazardous constituents that do not meet the narrow definition of hazardous waste under RCRA or toxic substances under the Toxic Substances Control Act (TSCA). The commentor suggests DOE consider the risk posed to human health and the environment by what DOE defines as nonhazardous waste constituents (appendix table H.1.1-1).

- Response: DOE's risk assessment includes chemicals considered hazardous under RCRA or TSCA, and any others regulated by EPA or OSHA for which there is information that describes the nature of the hazard (e.g., National Institute of Safety and Health handbook, American Conference of Governmental Industrial Hygienists [threshold limit values and biological exposure indices], etc.). The nonhazardous waste constituents are not included in the assessment because they are not considered to pose a human health or environmental hazard. However, many of these constituents are considered in the air quality and water quality sections of the document.

#### 11.42

The commentor refers to appendix section E.2.2 and the statement, "For use in design basis accidents, the 50-percentile option was used." The commentor states that the 50-percentile option depicts conditions that are "average." Usually in EISs, environmental assessments, and routine site analyses for risk from accidents, risks are analyzed under "worst-case" conditions, which are also known as 95-percentile conditions (when using certain codes). Accident risks were not analyzed under worst-case conditions in the PEIS, and an underestimation for accidents under extreme conditions could result.

- Response: The accident analyses were performed in accordance with DOE guidance. This guidance states that "Analyses generally should be based on realistic exposure conditions ... and characterize the "average" or "probable exposure conditions ..." and therefore the results in the Draft PEIS are based on 50-percentile meteorological conditions (refer to the Office of NEPA Oversight document, page 21). Other conservative assumptions are made in the accident analyses in order to bound potential impacts. In addition, a spectrum of accidents is evaluated ranging from low-consequence/high-probability events to high-consequence/low-probability events to reflect bounding-case impacts. The complimentary cumulative distribution functions included in the Final PEIS also show the bounding-case impacts.

#### 11.43

The commentor refers to appendix F, Accidents, and states that solid uranium and plutonium liquid criticalities were modeled; however, no plutonium metal criticalities (solid) were analyzed. This accident analysis may not have been performed in the past; however, the accident scenario should be considered due to the projected increases in the number of pits under the "Pit Fabrication alternative." In addition, the commentor states that the methodology section should mention how the source terms for the criticalities are determined, and source terms should be listed by radionuclide and activity, not only as the number of fissions. From the information presented in the PEIS, the commentor says it is not possible to determine whether the criticality analyses are valid.

- Response: The PEIS identifies appropriate accident scenarios based on existing safety analysis reports and operating procedures which are analyzed to estimate bounding impacts. In this case, the liquid plutonium criticality was selected because it has higher impacts to workers and the public than a solid criticality. Additional information on accident scenarios and source terms for the accidents described in the PEIS are documented in a topical report (refer to HNUS Report No. ARP-96-042), which has been placed in the DOE Public Reading Rooms located near each site.

#### 11.44

The commentor states that in appendix section E.4.6, the discussion revolves around an investigation undertaken to assess melanoma risk at LANL because of worker exposure to low-level ionizing radiation. The study was the result of "a reported three-fold excess of melanoma among laboratory workers" at LLNL in California. The study was applied to LANL because of the similarity of the work done at both labs. At the end of the first paragraph in column 2, it is stated that "the only significant association with diagnosis of melanoma for males was being a college graduate ... or having a graduate degree...." To the commentor, it follows obviously that the vast majority of workers at both LLNL and LANL are males who are college graduates or who have graduate degrees and that the workers at LANL are significantly at risk for melanoma resulting from exposure to low-level ionizing radiation. The commentor asks if workers will be informed of the risk, if this is an acceptable risk, and if anything can be done to diminish it.

- Response: The commentor fails to mention that no excess risk for melanoma was detected at LANL among 11,308 workers between 1969 and 1978 (see Volume I, chapter 6, Lancet 1982a:883-884). Other studies clearly established no association between external radiation or chemical exposures in the workplace and melanoma. The association between melanoma and a college graduate or graduate degree (as the only association) then takes on lifestyle rather than work-related cause and effect (e.g., college graduates and those with graduate degrees have lifestyles that may differ from the general population, which could well be associated with how they spend their leisure time). DOE workers receive occupational safety and health training, which places a prime emphasis on "as low as reasonably achievable" principles. Through an "as low as reasonably achievable" program, workers are made aware of potential risks, and are trained to minimize (diminish) these risks to the lowest levels possible.

#### 11.45

Commentors state that the New Mexico Environment Department is sometimes referred to by its previous name, Environmental Improvement Division, or by the incorrect form, New Mexico Health and Environmental Department. Examples of incorrect naming can be found in appendix section K.3.3.1 and table 5.3-4. The commentor states that these should all be changed to New Mexico Environment Department.

- Response: In accordance with the commentor's suggestions, these changes have been made in the Final PEIS.

#### 11.46

The commentor identifies the following errors in appendix section E.4.6: there is repetition of the

sentence "Population exposures are confounded by occupational exposures," and the word "countries" should be "counties."

- Response: Appendix section E.4.6 in the Final PEIS has been rewritten and the errors the commentor noted have been corrected.

## 11.47

The commentor identifies the following errors in appendix F: in section F.2.2.1, there is jumbled spelling of the word "national," and in section F.2.3.1, the sentence, "The fire releases the plutonium contamination from the inner surfaces of the gloves" should read "... the inner surfaces of the glovebox."

- Response: The spelling has been corrected in the Final PEIS. The contamination that is released is from the outer surface of the gloves that are in the glovebox. The statement has been modified in the Final PEIS.

## 12 Environmental Justice

### 12.01

The commentor believes that DOE has unfairly placed their nuclear facilities in low-income areas. The commentor notes that New Mexico, "the home of the bomb," has a low per capita income and a high minority population. Another commentor believes that the PEIS minority population maps for LANL and SNL have errors in them.

- Response: LANL and SNL were established in 1943 and 1945, respectively. These sites were selected, in part, due to their isolation from large population centers. The fact that the State of New Mexico has a relatively low per capita income played no role in siting these facilities and does not influence DOE decisions on whether to continue operating these facilities. Los Alamos and Bernalillo Counties, where most of the LANL and SNL workers reside, both had 1993 per capita incomes (\$28,753 and \$19,854, respectively), significantly higher than the average for the State of New Mexico (\$16,346). The per capita income of these counties approached or exceeded the national average per capita income, of \$20,800. Only one county (Rio Arriba) in either ROI had a per capita income significantly lower than the State of New Mexico. Less than 5 percent of the SNL workforce resides in Rio Arriba County.

The environmental justice maps have been reviewed and revised, as appropriate. Several counties and census tracts were improperly categorized for both low-income and minority populations. The Final PEIS contains revised maps that are demographically correct.

### 12.02

The commentor states that DOE has polluted Western Shoshone land and that, as a result, cancer rates are high in the area. The commentor urges moving activities at the site elsewhere.

- Response: Appendix section E.4.9 describes epidemiological studies performed in the area around NTS, which includes the Western Shoshone land. These studies were performed to

evaluate adverse health impacts on the exposed populations in Nevada and Utah from aboveground nuclear testing carried out by DOE at NTS in the 1950s. The results of the studies are inconclusive and contradictory. Underground testing that followed did contaminate land on NTS, but resulted in no additional exposure to surrounding populations. None of the proposed alternatives would result in adverse health impacts to the surrounding populations or cause disproportionate adverse health impacts to the Western Shoshone.

## 12.03

The commentor wants to know exactly what was analyzed under environmental justice in the Stockpile Stewardship and Management Draft PEIS, the Pantex Site-Wide Draft EIS, and the Storage and Disposition Draft PEIS.

- Response: Environmental justice is the equal treatment of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The environmental justice analyses examine the distribution of low-income and racial and ethnic minority populations in the areas surrounding the alternative sites. Demographic analyses are performed at the census tract level for the area within 80 km (50 mi) of the alternative sites. Proposed alternatives are assessed to determine if these populations would receive disproportionate adverse health and socioeconomic impacts.

## 12.04

Commentor asks if it is a Government policy to view certain demographic groups as less valuable or more expendable than institutions like SRS.

- Response: No, the Government has no such policy.

## < 12.05

Commentor believes that African Americans and low-income populations are being affected by SRS activities.

- Response: The analysis of demographic data for the communities surrounding SRS, as well as the health data presented elsewhere in the document, shows that any air or chemical releases would not exceed the threshold of regulatory concern, and that these impacts would not disproportionately affect minority or low-income groups.

## 12.06

Commentor wants the impact analyses to include the combined exposure of not only SRS, but other non-DOE industrial uses on low-income and affected communities.

- Response: The PEIS assesses potential impacts from proposed DOE stockpile stewardship and management alternatives. The impacts of other sources of pollution are taken into account as a part of the No Action alternative in the human health analysis. For example, the air and water analyses evaluate whether incremental emissions from the proposed alternatives would lead to any exceedance of air and water quality standards. As noted in the document, DOE will operate in full compliance with all Federal, state, and local regulations. Furthermore, the impacts of

other potential DOE and non-DOE activities are explicitly evaluated in section 4.13, Cumulative Impacts.

## 12.07

Commentor requests an explanation in the Comment Response Document regarding the apparent failure of the PEIS to comply with Executive Order 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and President Clinton's memo to heads of all departments and agencies of February 11, 1994, on the subject of environmental justice in minority populations and low-income populations. The commentor states the PEIS did not address the social and economic effects, as required.

- Response: DOE is committed to full compliance with all provisions of Executive Order 12898. The environmental justice sections explicitly analyze the proposed alternatives at each alternative site to determine if any of the proposed actions would result in disproportionate adverse health impacts on low-income or minority populations. The PEIS also addresses socioeconomic impacts, including impacts to employment, income, housing, population, and public finances, for all of the proposed actions. The socioeconomic impact analyses indicate that none of the proposed actions would result in either significant impacts to the entire affected populations or disproportionate adverse impacts to low-income or minority populations.

## 12.08

The commentor states that LANL has had, and threatens to continue to have, disproportionate impacts on the Pueblo of San Ildefonso, and that because of this, the issue of environmental justice is not given adequate attention in the PEIS. The commentor states that LANL's use and disposal of radioactive materials has caused serious contamination to the air, soil, and water, and continued operations threaten the destruction of sacred sites.

- Response: Continued operations of the LANL mission will be conducted in compliance with Federal, state, and local regulations. The PEIS assesses the potential health impacts from chemical and radioactive emissions during normal operations as well as from accidents. The analysis indicates there would be no disproportionate adverse health impacts to the Pueblo of San Ildefonso.

## 12.09

The commentor states that in the environmental justice sections of the PEIS, human health is covered, but no socioeconomic analysis is done.

- Response: The environmental justice section addresses potential disproportionate adverse impacts to minority populations and low-income populations. The socioeconomic analyses include impacts to regional economies, population, housing, and public finance characteristics. These impacts are determined at a regional level. The analyses performed for the PEIS indicate that none of the downsizing alternatives would result in significant economic impact on the affected regional economies. For those alternatives involving new workers at alternative sites, there would be small economic benefits. Therefore, there would be no environmental justice impacts. For the proposed phaseout alternatives, impacts would be larger but would still not be

economically significant. Both the regional economic area and ROI around each site include areas where environmental justice principles apply. The impacts to these areas are included in the regional impact analysis.

## 12.10

According to the commentor, Executive Order 12898, requires special attention to be given to subsistence consumption of fish and wildlife. The commentor adds that the order requires Federal agencies to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risk associated with the consumption of pollutant-bearing fish and wildlife. The commentor feels that consumption issues are important to address in the PEIS because of their uniqueness in minority and low-income populations and the detrimental range of impacts they may have. tion and waste management) of different programs. DOE should present this document to the public to increase their awareness of the overall impact of DOE activities.

- Response: Subsistence is defined as the traditional use by rural residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation. Subsistence populations heavily rely on local fish and wildlife to meet their food supply. DOE is unaware of any identified subsistence populations residing on or near any of the alternative sites.

DOE also notes that because none of the proposed alternatives would lead to radiological releases to water, there would be no impacts to fish or other edible aquatic life in the areas surrounding the alternative sites. All chemical releases would be regulated by NPDES permits and would be in compliance with Federal and state regulations. Furthermore, chapter 4 in the PEIS evaluated doses to the surrounding population through air and liquid exposures for all of the proposed alternatives, including No Action. The analysis indicates that there would be no adverse disproportionate impacts to minority or low-income populations.

# 13 Cumulative Impacts

## 13.01

The commentator expresses concern about the cumulative impact of different programs on local communities. The commentor urges DOE to adopt a "local community" perspective and create a document that would detail the cumulative impacts (e.g. in transportation and waste management) of different programs. DOE should present this document to the public to increase their awareness of the overall impact of DOE activities.

- Response: The cumulative impact analysis of the Stockpile Stewardship and Management Program is discussed in section 4.13 of this PEIS. Other Federal, state, and local actions all have the potential to contribute to cumulative impacts, and all planned, reasonably foreseeable actions are considered in the cumulative impact analysis of this PEIS. However, as stated in section 4.13, programs planned for beyond the 2005 No Action baseline considered in this PEIS would be in such a preliminary stage as to make detailed analysis speculative; these activities are more effectively addressed in site-specific, tiered NEPA documentation.

## 13.02



The commentor quotes from the cumulative impact section of the Council on Environmental Quality (CEQ) regulations and asks why past socioeconomic actions (that led to reductions in employment and that are still felt today) are not discussed in the cumulative impact section of the PEIS. Specifically, the commentor mentions the cancellation in 1988 of the DOE program of a mine geologic repository for spent nuclear fuel and high-level radioactive waste in Deaf Smith County.

- Response: Although the socioeconomic effects of past actions are not specifically addressed in the cumulative impacts section, these effects are reflected in the affected environment discussion for each site. As shown in appendix section D.2, Deaf Smith County is one of 26 counties included in Pantex's regional economic area; however, Deaf Smith County is not located within the ROI used in the PEIS. Information on the current and projected civilian labor force, employment, unemployment, personal income, and per capita income were considered for each of these counties in the PEIS. Yucca Mountain Site in Nevada has been selected for detailed study as the candidate for the Nation's first geologic repository. The disposal of HLW and commercial spent nuclear fuel in a radioactive waste geologic repository is discussed in the Environmental Assessment, Yucca Mountain Site, Nevada Research and Development Area, Nevada (DOE/RW-0073, May 1986). The impacts described in that EA are included in section 4.13, Cumulative Impacts, of this PEIS.

### 13.03

The commentor believes that DOE should look at the cumulative impact of the Stockpile Stewardship and Management, the Storage and Disposition, and the Pantex programs.

- Response: Section 4.13 of this PEIS discusses the cumulative impacts of the Stockpile Stewardship and Management Program, the Storage and Disposition Program, and other proposed actions. As stated in section 4.1.12, Cumulative Impacts, continuing DOE missions and any reasonably foreseeable changes to these missions are addressed as part of the affected environment baseline, or No Action. The Pantex Site-Wide Draft EIS which analyzes impacts associated with conducting nuclear weapons operations at Pantex for the next 5 to 10 years, is included in No Action for the PEIS. The ROD for this PEIS will determine which facilities at Pantex should be upgraded, downsized, or replaced as part of the Stockpile Stewardship and Management Program and will take into consideration all of Pantex's current and reasonably foreseeable activities.

### 13.04

The commentor argues that the Draft PEIS cumulative impacts analysis is more like an incremental impact analysis, illustrating the relative insignificance of the proposed action's contribution to ongoing, similar degradation of the environment, instead of determining the aggregate or cumulative effects of related impacts in order to judge whether those impacts, taken together, are significant. The commentor cites waste management as an example, contending that there is no real analysis of whether the proposed Draft PEIS alternatives, in combination with other foreseeable activities in the same area, will have significant waste management impacts. The commentor further states that the use of resources and impacts on the biosphere and on human health from routine and accidental releases from waste management facilities are not analyzed in the waste management cumulative impacts discussion for each site. The commentor also states that the cumulative impacts analysis is not done on an alternative-by-alternative basis, so it is difficult to compare alternatives to one

another. The commentor calls the cumulative impacts analysis cursory and conclusory, offering no supporting analysis and no indication where such analysis could be found. The commentor cites section 4.13.1.1 where the cumulative impacts analysis for nonaccident radiological impacts for rebuilding the complex is one paragraph long.

- Response: Impacts from past actions and continuing actions contribute to the affected environment at each of the sites as described in sections 4.2.2 through 4.9.2. In sections 4.2.3 through 4.9.3, the impacts from continuing actions are presented in the No Action alternative. The impacts from the proposed action and the alternatives are also discussed in those sections to allow for comparison to the No Action alternative. Section 4.13 of the PEIS includes a site-by-site discussion of cumulative impacts, focusing not only on the future impacts from the Stockpile Stewardship and Management Program, but also on the future impacts from other reasonably foreseeable programs and actions. As discussed in that section, many other significant programs are included in that cumulative impact analysis, including Environmental Management and Materials Disposition Programs. That analysis focuses on those resources that were judged to have the greatest potential to be impacted. Depending on the particular site of concern, these resources included air quality, water resources, socioeconomics, radiation and human health, and waste management.

The cumulative impact assessment was done for a bounding analysis on a site-by-site basis. This means that at a given site the contribution from stockpile stewardship and management alternatives was based on the maximum number of potential missions added to other programs' potential impacts at that site. The intent of the analysis was not to illustrate the relative significance of the Stockpile Stewardship and Management Program alternative impacts, but rather to determine whether the Stockpile Stewardship and Management Program potential impacts, in combination with other programs' potential impacts, could produce significant impacts.

### 13.05

The commentor questions where the supporting analysis was for the statements in the Draft PEIS that "all program totals would be within radiological limits to the public and the effects to workers would be small," and that "[c]umulatively, radiological impacts are expected to be within radiological limits."

- Response: Section 4.13 in the Final PEIS has been expanded to include tables identifying the normal operation cumulative radiological doses and resulting health effects for the potential stockpile stewardship and management alternatives at each site alongside other potential site activities.

### 13.06

A commentor questions cumulative impacts associated with accidents. Specifically, the commentor questions the potential radiological impacts associated with earthquakes affecting multiple facilities.

- Response: For purposes of analyzing the potential cumulative environmental impacts associated with accidents, the information presented is based on the conservative assumption that the worst consequence accident for the activity has occurred, based on existing NEPA analyses.



## **20 Stewardship--Contained Firing Facility**

### **20.01**

The commentor asks how much CFF will cost.

- Response: Design and construction of CFF is expected to total \$53 million. While cost and whether and how the President and Congress should allocate funds for CFF is outside the scope of the PEIS, cost is one of the many factors which will be considered by decisionmakers in the PEIS ROD as it relates to CFF.

## **21 Stewardship--National Ignition Facility**

### **21.01**

The commentors believe the technical justification for NIF in the PEIS is poor and not cogent and the facility will only benefit an elite few. Commentors believe that NIF is the least relevant alternative as far as safety and reliability and it will provide only marginal information on reliability. Commentors question whether there are alternative means of obtaining each of the categories of data that NIF is intended to provide. Another commentor asks if DOE could identify a single past safety or reliability issue that NIF would have the ability to evaluate. The commentor states that the PEIS does not acknowledge that DOE cannot assure high confidence in achieving ignition at NIF and that construction of NIF should be delayed.

- Response: The President has declared that the maintenance of a safe and reliable nuclear weapons stockpile will remain a cornerstone of national security policy for the foreseeable future. Changes to U.S. national security policies in the post-Cold War have placed two significant constraints on the way DOE has traditionally accomplished its statutory nuclear mission: the United States has declared a moratorium on underground nuclear testing, and has stopped the production of new-design nuclear weapons. In August 1995, the President declared that the United States was seeking ratification of a zero-yield Comprehensive Test Ban Treaty (CTBT). Within these constraints, the proposed actions in the Stockpile Stewardship and Management PEIS will enable DOE to maintain the core intellectual and technical competencies necessary to ensure the continued safety and reliability of the stockpile under a CTBT. In this situation, the United States needs a comprehensive computational ability and a set of experimental facilities that can replicate conditions expected to occur within a nuclear detonation. NIF is one of those experimental facilities. It is a key component of the Stockpile Stewardship and Management Program and is necessary to help maintain confidence in the reliability of the nuclear deterrent.

As stated in the appendix section I.2.2, the purpose and need for NIF is to achieve fusion ignition and to use inertial fusion technology for helping nuclear weapons scientists maintain the safety and reliability of the nuclear weapons stockpile in the absence of nuclear testing. Therefore, NIF experiments can be used to verify computer models associated with the reliability of nuclear weapons and assess the impact of age- or remanufacture-related changes in the weapon. NIF would reach temperatures and pressures closer to those in a nuclear detonation than any other technology and is the only facility in the program capable of fusion

ignition. This national security mission is the principal justification for NIF; it is necessary to help maintain confidence in the reliability of the nuclear deterrent. However, the high energy density experiments proposed to be performed at NIF would also help determine if inertial fusion can be developed as a practical energy source. The challenging science at NIF would help attract the best scientists and engineers to work on these issues of national importance (appendix section I.2.2.3).

The facilities for enhanced experimental capability would complement each other and produce more sophisticated and comprehensive computer models which would be able to provide data on all processes in the seven relevant physical regimes (appendix section I.2.2.2) that occur in weapons. NIF was designed to be a minimum-sized facility that has a reasonable probability of achieving ignition and the same ability to access high temperatures and densities that occur in weapons materials. NIF would address weapons processes that occur in five of the seven regimes, including some of the processes that occur in weapons' primaries and secondaries. The purpose of NIF is to study isolated phenomena in weapons in the stockpile. In the future, the complex interactions which occur in the detonation of a complete weapon would be investigated through advanced computer modeling.

There is a high probability that NIF would achieve ignition and an even higher probability that NIF would achieve its weapon physics mission. A 1990 National Academy of Sciences study, Second Review of the Department of Energy's Inertial Confinement Fusion Program, Final Report, September 1990 (1990 National Academy of Sciences study) (cited as NAS 1990 in appendix I), concluded that the probability of achieving ignition was great enough to justify proceeding with the next steps in designing such a facility. It also recommended that DOE establish a standing review group to continue tracking progress in target physics. That group, the Inertial Confinement Fusion Advisory Committee, has followed the program for more than three years and concluded (Inertial Confinement Fusion Advisory Committee Report, January 1996) that there is a high probability of achieving ignition if NIF is built as currently designed.

To fulfill its mission in stockpile stewardship, NIF is designed to achieve ignition and, in addition, to perform experiments at high temperatures and densities using the laser energy alone. Many of the needs of the weapons program can be met with these ignitionless experiments. Indeed, experiments are planned well before it is expected that ignition is likely to occur. Ignition would enhance NIF's capabilities for weapons studies but NIF is not necessary for many of them. In 1994, the JASONs group of independent academic scientists reviewed the science-based stockpile stewardship program and concluded that NIF is "... the most scientifically valuable of the programs proposed for SBSS [science based stockpile stewardship]..." In 1996 JASONs reiterated this position and stated its "... support for proceeding to the next step of achieving ignition with NIF because of NIF's expected value to science-based stockpile stewardship as well as its collateral scientific and energy interest." In summary, the Inertial Confinement Fusion Program and NIF have been reviewed by many independent expert groups, such as the National Academy of Sciences, Inertial Confinement Fusion Advisory Committee, and the JASONs, over the years and all have endorsed moving ahead quickly with a facility as currently designed.

A projection from past experience with the stockpile (Stockpile Surveillance: Past and Future, SAND95-2751, January 1996) indicates that there will be cases that will require a weapon scientist to make a judgment about a change that could affect safety or reliability. NIF would be able to help with many of them.

If NIF would not achieve ignition, the environmental impacts associated with construction would not change; however, the potential environmental impacts associated with operation could be smaller, but probably similar, to those presented in the PEIS. Delaying the construction of NIF would not cause any planned differences in the inertial confinement fusion R&D nor change the environmental impacts which are described in the PEIS.

## 21.02

A commentor notes that with respect to environmental impacts the public should be skeptical with the statement "... there will be no significant impacts." Another commentor notes that LLNL's environmental report claims "no significant impact" yet over a million Ci of radiation has been released in the air. The commentor states that 120 cancers and 60 cancer deaths resulted from the top 10 accidents that occurred at LLNL. A commentor points out that tritium levels in rainwater and drinking water in Livermore has been measured to be over seven times the acceptable level. The commentor also points out that plutonium-contaminated soil was discovered at a local playground.

- Response: Over the past 40 years of operations at LLNL, tritium gas was released as a result of accidents and normal operations. The releases consisted of mostly tritium gas which is much less of a hazard to human health than tritiated water which can be absorbed more easily into the body. Additional information concerning radiological health impacts can be found in appendix section E.2 of the PEIS.

The 1994 LLNL Environmental Monitoring Report states that the tritium activity levels in drinking water in the Livermore Valley are less than 1 percent of the EPA drinking water standard. Over the past 40 years, there was one rainwater sample that read seven times the EPA guideline for tritium in potable water. This occurrence may have been caused by tritium releases during cleanup operations.

There is some groundwater (not drinking water) tritium contamination greater than EPA standards for drinking water under the eastern portion of the LLNL site. However, the tritium in this groundwater will decay (due to radioactive disintegration) to levels well below EPA standards before it leaves the site boundary. Therefore, it presents no health impact to humans or the environment. In addition, LLNL monitors the groundwater under the site on a regular basis (as reported in the annual LLNL Environmental Monitoring Reports) and can ensure that the public will not be exposed to tritium at levels that exceed EPA standards. Additional information concerning accidental release can be found in a report by Myers, et al., Health Physics Aspects of a Large Accidental Tritium Release, published in 1993.

Routine releases from NIF are estimated to be about 30 Ci/yr (0.003 g/yr), which is roughly 100 times lower than the routine average annual releases that took place from the LLNL tritium facility prior to 1989. Therefore, the use of standard risk coefficients for the extremely low doses and dose rates under discussion in the PEIS is at the least, extremely health conservative, and may, in fact, be significantly overestimating the risks (if any) associated with such low doses.

The commentor refers to levels of plutonium that were detected in soil samples taken from Big Trees Park in Livermore. The plutonium levels in two of the 16 areas sampled in the park were found to be above the normal range of global fallout levels (from aboveground nuclear weapons testing many years ago). The soil in this park was investigated for plutonium in 1995

as a joint effort among LLNL, EPA, and the California Department of Health Services. The investigation of park soils also involved various community stakeholders--the city of Livermore, the park and school districts, the local homeowners association, and Tri-Valley Citizens Against a Radioactive Environment. The investigation found that there is no soil at the park that has plutonium levels above the current EPA risk-based preliminary remediation goal of 2.5 pCi/g for residential areas. The EPA concluded that there is no health risk from this plutonium and that no remedial action is necessary.

## 21.03

Commentor wants to know what the key factors were in the NIF preferred alternative decision and if the timetable for NIF is the same as the PEIS.

- Response: The Secretary of Energy stated in a press release in October 1994, "Lawrence Livermore National Laboratory was chosen as the preferred site because it contains the Nation's leading experts in large laser facilities. Lawrence Livermore National Laboratory has constructed five consecutive versions of the world's largest laser, including the currently operational Nova laser. The National Ignition Facility would be the successor to Nova. Alternative sites will be examined, and a final site selection will be not be made until completion of the National Environmental Policy Act process, which includes public meetings." In the letter approving Key Decision 1 (approval for start of a major new project), the Secretary supported the statement "The National Environmental Policy Act requires that any preference related to the siting of a facility be stated by the Department of Energy. Given the resident technical expertise and existing infrastructure at LLNL, we believe that Lawrence Livermore National Laboratory is preferable at this time to other candidate sites."

Following completion of the Final PEIS, but at least 30 days after it is issued, DOE will issue an ROD. The ROD will explain all factors, including environmental impacts, that DOE considered in its decisions for NIF. The timetable for NIF is within the envelope for the PEIS. It is anticipated that NIF would be constructed between late 1996 and 2002, with operations commencing in 2003.

## 21.04

Several commentors do not support NIF, a new experimental \$4.5 billion facility, feeling that it is not the policy direction the United States should undertake and the public should inform elected officials that NIF is not necessary. Some commentors disapprove of the funding allocation on the basis that NIF competes for funds with cleanup programs and waste management. Other commentors feel it costs too much and the funds could be better spent on health care, social services, low-income housing, education, and infrastructure. Still others prefer funds spent on socially beneficial programs, such as conservation, renewable energy, and clean cars.

- Response: The cost of NIF is estimated at \$1.1 billion for construction (including escalation and contingency) through 2002. After construction is complete, NIF operating costs are anticipated to be \$60 million per year (in fiscal year 1996 dollars) to provide approximately 600 experiments per year. The incremental cost of the Inertial Confinement Fusion Research Program is estimated to be \$55 million per year (in fiscal year 1996). Cost is one of many factors which will be considered by decisionmakers in the ROD for NIF.

DOE has the responsibility for ensuring the safety and reliability of the downsized U.S. nuclear weapons stockpile, a policy priority for the President and Congress. Congress determines how the funds are allocated among programs.

## 21.05

Commentors believe that the discussion of NIF in the PEIS is inadequate in scope and content. A commentor believes that a reasonable range of alternatives is not provided for the NIF in the NEPA context. The commentors also question whether there are alternative means of obtaining each of the categories of data that NIF is intended to provide. A commentor states a fair and impartial environmental analysis of NIF, as required by NEPA, should include the extensive concomitant environmental impacts from the potential for nuclear weapons proliferation resulting from the spread of inertial confinement fusion technology and the environmental impacts from the successful deployment of fusion as a commercial power source. Several commentors state that in regard to the site-specific review of the various stockpile stewardship facilities, and NIF in particular, that it is inappropriate to include site-specific reviews in the PEIS.

- Response: DOE believes that appendix I, the National Ignition Facility Project-Specific Analysis, was adequate. The NIF project-specific analysis assessed the direct, indirect, and cumulative environmental impacts of the proposed action (appendix section I.3.2), which is to construct and operate NIF (two operational options--Conceptual Design Option and Enhanced Option) and the No Action alternative (appendix section I.3.3). NIF was designed to be the minimum-sized facility that has a reasonable probability of achieving ignition and achieving its high temperature density weapon physics goals. No other known technologies are capable of achieving ignition and the high temperatures and densities that occur in weapons materials. Specifically, the pulsed-power technology alluded to in a commentor's letter is not a substitute for NIF capabilities. In general, high intensity laser facilities, like NIF, can achieve temperatures and pressures closer to those in a weapon than can pulsed-power facilities. On the other hand, pulsed-power facilities can put more but less concentrated energy on target than laser facilities, and are, therefore, able to follow certain phenomena for longer times, albeit at much lower temperatures. Thus, rather than providing the same capabilities, laser and pulsed-power facilities complement one another. There are no other design alternatives that would enable NIF to perform its intended mission, therefore, no others were assessed. Thus, the only alternatives that are judged reasonable are to build NIF or not to build it, and if so, where. These two alternatives were explained in detail in appendix I.

Section 1.5 of the PEIS explains the DOE NEPA strategy for the Stockpile Stewardship and Management Program. During the second phase of the NEPA strategy, which would follow the ROD, DOE would prepare any necessary tiered project-specific NEPA documents to implement any programmatic decisions. However, for the three facilities in the proposed action for stockpile stewardship--NIF, CFF, and Atlas--the Stockpile Stewardship and Management PEIS is intended to include sufficient project-specific analyses to complete NEPA requirements for siting, construction, and operation, and thus, satisfy both phases of the NEPA strategy. Including the project-specific analyses for the three facilities in the PEIS does not prejudice the programmatic review. In addition, the CEQ regulations do not preclude this approach.

NIF is not capable of being a prototype for a commercial inertial confinement fusion reactor. As stated in the Justification of Mission Need, the purpose of NIF is to achieve fusion ignition and to use inertial fusion technology for helping nuclear weapons scientists maintain the



reliability of the nuclear weapons stockpile in the absence of nuclear testing. This national security mission is the principal justification for NIF. However, the high energy density experiments done at NIF would also help determine if inertial fusion can be developed as a practical energy source. In this context, obtaining ignition on NIF at the lowest laser energy possible would be an important set of experiments. If this is successful, other experiments would study target science that is applicable to any laser or particle accelerator driver that may be used in the future to study inertial confinement fusion as an energy source. NIF experiments could also provide the data necessary to design an engineering test facility, which would be the true engineering basis for a commercial reactor.

A comparative study of the four driver concepts under consideration (Laboratory Microfusion Capability Study Phase I Report, DOE/DP-0069, April 1989)--the solid state laser, the krypton fluoride laser, the heavy ion accelerator, and the light ion driver--was done in the late 1980s for what was called the Laboratory Microfusion Facility. This study provided a technical analysis of each driver, a description of their respective research programs, their status, cost, and, in general, the features asked for in the above comment. The Laboratory Microfusion Facility was designed to achieve ignition and high gain, with fusion yields of 200 to 1000 megajoules (MJ), a much larger facility than NIF. During 1989 and 1990, the National Academy of Sciences reviewed the Inertial Confinement Fusion Program and all of these drivers. It was given the information from the previous comparative study. Some of the drivers required several intermediate facilities before the technologies would be mature enough to propose as the driver for a machine of the scale required. In its 1990 study, the National Academy of Sciences recommended that DOE plan on building an ignition facility (eventually this was called NIF) rather than the Laboratory Microfusion Facility and it recommended that DOE pursue this option quickly. Indeed, it suggested that start of the project be in 1992. Finally, the study also concluded that the only driver capable of achieving ignition within the next decade or so is the neodymium glass laser.

DOE accepted the recommendations of the 1990 National Academy of Sciences study and began concentrating resources on NIF, driven by a neodymium glass laser. Four inertial confinement fusion laboratories participated in the conceptual design study for a neodymium glass driven NIF. A prototype beamline of the NIF neodymium glass laser was built and tested successfully. While there has been progress in all driver technologies since the 1990 National Academy of Sciences study, it is clear that the neodymium glass laser's readiness to perform the NIF mission has grown faster than that of any other driver. Thus, for NIF's mission, the neodymium glass laser was judged to be the only reasonable option that would meet program goals.

The programs and facilities that make up the existing weapons program have evolved to their present state because of diverse technical, programmatic, and budgetary considerations. The present programmatic change is the need for improved science-basis to ensure the safety and reliability of our nuclear weapons within a zero-yield test ban. In the case of inertial confinement fusion, technical reviews by the JASONs and the Inertial Confinement Fusion Advisory Committee specifically questioned the technical status, issues, and activities mix of the program within the context of changed programmatic need. Neither the programmatic changes nor the technical reviews have provided any basis for defining a change in the existing program other than adding the significant new capabilities that NIF could contribute. The technical reviews provide a strong basis for continuing today's program and facilities except that the NOVA laser might reasonably stop operation after "NIF construction is well underway ..." (JASONs JSR 96-300 p.16).

Since there is no reasonable basis for defining an option for inertial fusion that is a reduction from today's program, no such option has been considered in the PEIS. Like most research programs, inertial fusion can be adjusted in pace and level of effort based on scientific findings or budget considerations. Any required changes in the program, including reductions, would be accommodated but there are no apparent break points for existing facilities and activities, in a programmatic or environmental sense, that suggest analysis of a particular reduced case.

The addition of an ignition facility to the program has been technically defined and endorsed since 1990. The addition of NIF is considered because it addresses science-based stockpile stewardship needs and is technically consistent with the logic and status of inertial fusion research. Technical reviews have not identified any alternatives to NIF for the mission needs. Any follow on facilities are, at present, too ill defined and speculative to analyze.

Issues such as the environmental impacts from nuclear weapons proliferation resulting from the spread of inertial confinement fusion technology and the environmental impacts from the successful deployment of fusion as a commercial power source are beyond the scope of the PEIS. Knowledge does not, in itself, have environmental impacts, and thus is not analyzed in the PEIS.

## 21.06

Many commentators support the NIF project on the basis of their perception that NIF would: 1) ensure world peace; 2) maintain a safe, reliable, and viable stockpile through science-based stewardship; 3) keep weapons scientists knowledgeable and equipped with the best available tools; 4) increase security of the United States; 5) continue the evolutionary process for eventual cessation of nuclear weapons and final disarmament; 6) not contribute to proliferation; 7) provide economic benefits; 8) create data on enhanced nuclear fusion energy; 9) help negotiations for the Nuclear Nonproliferation Treaty (NPT) and CTBT; 10) justify the need to eliminate underground nuclear testing; 11) create many employment opportunities in the region as a result of new fusion technology; and 12) have a benign environmental and safety impact with mitigation measures minimizing any possible impacts.

- Response: The purpose of and need for the Stockpile Stewardship and Management Program, and NIF's role within a science-based stockpile stewardship program, are detailed in chapter 2 of the PEIS. The purpose of and need for the NIF project are detailed in appendix section I.2.1. NIF is one of the technologies that is enabling the United States to seek a CTBT. The study, The National Ignition Facility (NIF) and the Issues of Nonproliferation, Draft Study, Office of Arms Control and Nonproliferation, August 23, 1995 (citation: U.S. Department of Energy, 1995a in appendix I) concluded that NIF can contribute positively to the U.S. nonproliferation policy and arms control goals. NIF would perform a key role in ensuring the reliability of the Nation's nuclear weapons stockpile without the need for underground testing. Performing this function requires extensive research and experimentation in the areas of weapons physics and advanced computation that can only be provided at the proposed NIF. In addition, through the same scientific accomplishments resulting from stockpile stewardship, science and technological research endeavors can be advanced, including optics, lasers, materials, and measurement techniques, fostered by the challenges of constructing and operating this facility (appendix section I.2.3).

## 21.07

The commentors believe the NIF superlaser affords excellent nonweapons research opportunities into the potential of thermonuclear fusion energy without damaging the environment. Commentors believe advancing research into areas such as new energy sources are vital to our civilization considering there may be a lack of natural resources in the 21st century. A commentor states there is no programmatic discussion of the full Inertial Confinement Fusion Program and the follow-on facilities to NIF or other inertial confinement fusion programs in operation. Other commentors state NIF's justification of inertial confinement fusion as a commercial energy source is suspect because inertial confinement fusion cannot serve as the basis for a commercial reactor since it has high cost, low driver efficiency, and the needed repetition rate of target implosions cannot be obtained with neodymium glass lasers. The commentors also state that the NIF design should be modified to increase driver energy to a higher level to give a greater confidence that ignition could be achieved. A commentor believes that no nuclear waste will be generated because fusion will be studied, not fission. Another commentor notes that if NIF is to be used for civilian purposes like DOE claims, then let private companies compete for the funding for this program.

- Response: Research opportunities and scientific and technological benefits would derive from NIF being a multipurpose, multi-use facility. NIF would be constructed for its national security and weapons research role, but it also would present the scientific community with a range of civilian applications. The unique properties of NIF are attracting a broad spectrum of interest from the international community for basic science applications. Although diverse programs of scientific and technological research have been conducted at large lasers in the United Kingdom, France, Germany, and Japan, information on equivalent research in the United States has been restricted because of past substantial classification requirements on much of the research and development associated with the Inertial Confinement Fusion Program.

Recent changes in U.S. classification guidelines have modified the atmosphere for research at NIF, with the result that U.S. scientists are designing programs of basic and applied research that could be accomplished openly at NIF. The NIF role in fusion energy would be to demonstrate ignition, optimize target gain curves, provide initial data on fusion reactor materials, and allow sound decisions to be made concerning inertial confinement energy development. These data would determine if inertial confinement fusion can be a viable source of electrical power in the future. NIF is not intended to be the basis for a commercial inertial confinement fusion reactor. The neodymium glass laser that would power NIF is recognized not to be a good candidate for a reactor. Several other drivers, including crystalline solid state lasers, krypton fluoride lasers, heavy ion accelerators, and light ion diodes are under development. The National Academy of Sciences stated that ignition should be the next goal for inertial confinement fusion and that the only way to achieve that in the next decade or so is with a neodymium glass laser driver (1990 National Academy of Sciences study). The Inertial Confinement Fusion Advisory Committee stated that achieving ignition by any driver was the most important next step in development of inertial fusion energy.

NIF would also establish new capabilities in many other potential areas of study, including: astrophysics, hydrodynamics, material properties, plasma physics, radiation sources, radiative properties, and other potential applications, such as nonlinear physics, geophysics, other atomic physics applications, and optical physics. NIF could also spur high-technology industries in optics, lasers, materials, high-speed instrumentation, semiconductors, and precision manufacturing. Further discussion is included in appendix section I.2.3.

Any follow-on facilities to NIF are, at present, too ill defined and speculative to include. For accomplishing the mission of NIF, there are no reasonable alternatives.

Article IV of the NPT commits parties to facilitating the "fullest possible exchange of "... scientific and technological information" related to peaceful uses of nuclear energy. This commitment was included in the NPT at the insistence of nonnuclear weapons states that were concerned that they would suffer scientific and technological disadvantages compared to the nuclear weapon states.

Environmental impacts associated with the construction and operation of NIF are detailed in appendix sections I.4.1.2, I.4.2.2, I.4.3.2, I.4.4.2, and I.4.5.2. The comment that no nuclear work would be generated by NIF is incorrect; however, the small quantities of low-level radioactive wastes estimated to be generated by NIF can be handled by current or planned waste management capabilities at each alternative site for NIF.

## 21.08

The commentor suggests the unevenness of LLNL's early expenditure estimates, coupled with the rapid growth of spending a year ahead of when it would be expected to occur based on past projects, leads commentor to conclude that NIF may overspend early in the project cycle and may experience significant delays due to the attempt to "push" the project in the first four years.

- Response: The proposed NIF funding profile is based on the annual funding necessary to construct a facility which begins operation in 2003. The apparent rapid growth of funding "a year ahead of when it would be expected to occur based on past projects" is required so that initial construction contracts and long lead procurements can be placed near the end of fiscal year 1997 for actual accomplishment during fiscal year 1998.

## 21.09

Commentors note that there are several varying estimates regarding the number of jobs which would be created each year by NIF and the regional economic impacts were misleading. One commentor notes that the regional economic impacts from building NIF cited in the Conceptual Design Report are inflated and misleading. According to the commentor, the regional economic effects of the construction and pre-operation of NIF will be small over the 7-year construction period. A large influx of construction employees during years 3, 4, and 5 of the construction period and a correspondingly large decrease in construction employees during 6 and 7 has the potential to create a boom-and-bust scenario in the Livermore region since approximately 1,200 people would move in and out during the last 4 years of the construction of NIF. The commentor states that the jobs will vary during each year of construction from 22 jobs the first year to 600 jobs the fifth year. The commentor contends that construction jobs would decrease to 120 by year 7 and only about 230 long-term jobs will stay at NIF.

- Response: The socioeconomic analysis provides data on the peak number of jobs, in-migrating population, number of housing units required, increase in local jurisdiction (revenues and expenditures), and number of daily vehicle trips associated with the construction and operation of NIF. Several other sources have analyzed the impact of NIF on employment, and have reached different conclusions regarding the employment impact of the facility. The differences are attributable to different data, methodologies, and assumptions used in the studies. For

example, the project-specific analysis supporting NIF in appendix I is of greater depth than that performed for the PEIS alternatives.

Socioeconomic impacts were measured using the latest version of RIMS II, an accounting framework model developed by the U.S. Bureau of Economic Analysis (section 4.1.8). The model is used by Government agencies, university researchers, and economists to measure economic impacts. The database used for the socioeconomic study was developed using the most recent information available from the Departments of Commerce and Labor, as well as financial reports provided by cities, counties, and school districts. The model estimates impacts occurring in the local area surrounding each site and those that occur in the regional and national economy as well. Appendix table I.3.6.1-1 provides a comparison of socioeconomic impacts across the five candidate sites.

Appendix section I.4.1.2.6 provides information on the effects of constructing and operating NIF at LLNL in the San Francisco Bay area economy. A number of related industries are located outside the San Francisco Bay area, and therefore, some of the economic benefits would be gained elsewhere in the U.S. economy. However, in terms of impacts across all industries that would provide inputs to NIF, the majority of employment created from construction at LLNL would occur in the San Francisco Bay area economy. The expected demand for housing for in-migrating construction workers is less than 2 percent of the housing units available, therefore NIF construction would not create a boom-bust effect in the local housing market (appendix section I.4.2.6). Text has been added in appendix I to explicitly address the issue of retained jobs.

The analysis performed for the NIF project-specific analysis (appendix section I.4.1.2.6) estimated that a total of 1,900 construction-related workers and their families would move into the LLNL area from the start of construction in 1996 to the peak in 1998. The project-specific analysis estimates that this would result in the demand for an additional 690 housing units in the area surrounding LLNL. Baseline projections show that 54,000 housing units would be available over this period in the local area, indicating that NIF-related in-migration would use less than 2 percent of locally available housing. It is unlikely, therefore, that NIF construction would create the boom-bust effect in the local housing market described by the commentor.

## 21.10

Commentors feel that jobs being created by NIF would be costly, not prosperous, come at the risk to other LLNL programs, ignore those created from technological inventions, and are at risk because of the annual budget process. Other commentors support NIF at LLNL and feel that NIF is a responsible project which would not be trivial work and should not be minimized.

- Response: NIF would be a unique, state-of-the-art scientific facility whose primary mission would be to ensure the continued reliability of the nuclear weapons stockpile. Creating employment at the site chosen and for the surrounding economy is secondary to this objective. Many commercial facilities are likely to create more employment than NIF at a lower cost of investment, but many of these facilities do not have a research mission and none use comparable technologies. It is not, therefore, possible to compare the costs and benefits of NIF versus commercial facilities solely on the basis of the number of jobs created.

The estimates of employment impacts associated with NIF do not include the economic

benefits of any additional new technologies and scientific enterprises that might result from experimentation at NIF and that could be transferred to the commercial sector. For example, no assessment was made of the potential economic benefits from a possible development of inertial fusion as a source of electrical power for use by the commercial sector. As the nature, scale, and timing of any future benefits of new technological and scientific developments associated with NIF are uncertain, these are not currently included in the assessment of economic impacts in the EIS.

As with any government research facility and program funded through the annual appropriation process, funding for NIF would be dependent on annual decisions by the President and Congress. The purpose and need for NIF are tied directly to U.S. decisions to maintain a safe and reliable weapons stockpile as a key element of the deterrence policy. In the appropriations process, all Government programs compete for funding based on their merits. There is no direct causal relationship between funding one program and an increase or decrease in funding for another program at the same site.

## 21.11

The commentor feels the construction of NIF will be delayed because the decision regarding NIF will drag on for the next few years.

- Response: DOE has developed a timeline of numbered sequential Key Decisions, now known as critical decisions. This management system will be used to ensure the orderly progress of the proposed NIF project. The Secretary of Energy in Key Decision 0 (January 1993) affirmed the need for NIF. Key Decision 1 (October 1994) approved the preliminary engineering design and site evaluation. Critical decision 3, scheduled in 1997 after the PEIS ROD, would authorize construction and major procurements. Critical decision 4, scheduled in late 2002, would authorize operation and first experiments.

## 21.12

The commentors state that DOE cannot state that the radiological health threat of NIF is small with certainty from a threshold exposure basis. Commentors are concerned that the use of tritium and deuterium fuel at NIF will add to the amount of tritium and other toxic chemicals being released into the environment and create radioactive waste. Another commentor is concerned that plutonium-239 or tritium would be produced at NIF. Other commentors express confidence that NIF is a safe facility which is not hazardous to the environment and that they believe that LLNL will accept and diligently implement any mitigation measures contained in the NIF appendix.

- Response: Appendix section I.3.6.7 summarizes and compares the radioactive and hazardous chemicals impacts from normal operations at NIF, a low hazard radiological facility, to the general public surrounding all candidate sites. Conservative assumptions were used to ensure estimated potential radiological doses were maximized in the PEIS analysis. The calculated doses were then multiplied by 0.0005 fatal cancers per rem to obtain radiological health effects, assuming no threshold exposure limits. Results indicated that no cancer deaths would occur among workers and in the general public due to construction and operation of NIF.

The maximum tritium effluent (atmospheric release) from normal operations would be 10 Ci/yr (0.001 g/yr) for conceptual design operations and 30 Ci/yr (0.003 g/yr) for enhanced operations

(appendix sections I.3.2.2.1 and I.3.2.2.2). No latent cancers are projected from NIF's 30 years of operation at any of the candidate sites. The quantities of hazardous chemicals used are small and the only emissions would be from the small quantities of volatile materials used for optics cleaning.

Under the postulated accident conditions at any candidate site over the 30-year lifetime, the risk of radiation-caused cancer fatalities to the public would be essentially zero (less than 1 in 700,000) when the anticipated extremely low accident frequency during NIF operations is taken into account. Modeling of four release scenarios covering a wide range of nonradiological chemical releases for each candidate site for NIF revealed that offsite nonradiological impacts would be negligible and no fatalities would occur (appendix section I.3.6.7).

The fuel for NIF experiments would consist of a mixture of tritium and deuterium and the experiments would create small amounts of activation products. The ratio of the mixture of tritium to deuterium, however, has not been determined. The unignited fuel and any activation products would be removed from the target chamber as described in the NIF appendix (appendix section I.4.1.2.8.1) and disposed of according to established procedures. The amount of low level radioactive waste projected to be generated is small and it is analyzed in the PEIS (appendix section I.3.6.8) for all candidate sites. Although each alternative site would implement waste minimization practices, the generation of additional wastes would be unavoidable. All alternative sites have current or planned capacity to handle wastes associated with construction and operation of NIF; however, this would entail offsite shipment of some of the wastes for all sites, except at LANL.

Experiments that use fissile material, such as plutonium-239, have been postulated, but not defined. However, no experiments of this type are foreseen in planned NIF operations and thus are not considered in this document. Any future determination to conduct experiments that have implications beyond the currently defined operational envelope and safety analysis would require both additional safety analysis and NEPA action in addition to possible facility modifications. Additional information can be found in appendix section I.3.5 of the PEIS.

NIF would monitor the release of elemental tritium and tritiated water. In addition, the tritium air monitoring system would measure NIF tritium emissions as part of the total from all site operations. Since tritiated water is 25,000 times as toxic as tritium in the hydrogen gas form, the site monitoring system concentrates on measurement of tritiated water. These measurements would be peer reviewed and would be done in accordance with the procedures approved by the respective regulatory agencies.

NIF would be constructed and operated in compliance with all applicable statutes, regulations, and standards (see appendix section I.5). In addition, specific mitigation measures that the selected site would implement are addressed in appendix section I.4.7. If specific mitigation measures, monitoring, or other conditions are required, they will be adopted as part of the ROD.

## 21.13

The commentor states that a "total systems life-cycle-cost" study should be performed, and updated every few years, for NIF. This would be similar to what is required of the Yucca Mountain project

under the Nuclear Waste Policy Act. Another commentor states that whatever the estimate of how much NIF is going to cost, the life-cycle cost will probably end up being greater than the estimate.

- Response: The individual elements of the NIF life-cycle costs such as design, construction and equipment procurement, installation and inspection, start-up testing, environmental and safety reviews, operations, and D&D were estimated in the Conceptual Design Report, which is available in the DOE Public Reading Rooms near each site. These cost elements, except for D&D, were independently reviewed in 1994. The review of D&D costs was performed in 1996. DOE requires that all projects conduct a life-cycle cost study, though not in the depth and complexity of that performed for the Yucca Mountain project under the Nuclear Waste Policy Act. NIF would perform a life-cycle cost study as part of the design process. The life-cycle cost study would be updated if any significant assumptions change.

## 21.14

The commentor suggests that both the proposed areas considered for "laydown" or temporary staging of equipment, materials, and supplies at LLNL, in the construction of NIF, be designated in the project-specific assessment in appendix I. The commentor also suggests that the potential impacts of the staging of NIF construction equipment and supplies at LLNL, as well as the impacts of construction of the proposed NIF, also be addressed in appendix I, as well as in the PEIS text.

- Response: The proposed areas considered for "laydown" or temporary staging of equipment, materials, and supplies at LLNL, in the construction of NIF, are designated in appendix section I.3.4.1.3 and shown in appendix figure I.3.4.1.1-2 of the project-specific assessment in appendix I. The potential impacts of the staging of NIF construction equipment and supplies at LLNL, as well as the impacts of construction of the proposed NIF are addressed in appendix section I.4.1.2, as well as in the main text of the PEIS. Discussions of this same topic are also included in the appropriate sections of appendix I for the other alternative sites for construction and operation of NIF.

## 21.15

Commentors believe that the purpose of NIF is to advance nuclear weapons research, science, design, development, and testing. Commentors believe new materials require new designs, as occurred from the 1960s through the 1980s, and the combination of new materials and NIF will help contribute to new designs today. One commentor states that it is already known and certified through nuclear tests that the secondaries will operate as designed, if driven by the test certified primary, and questions the need for NIF for stockpile stewardship. Another commentor thinks NIF will probably have a major role in weapons research and design, wants an analysis of the long- and short-term impacts. Another commentor states that because NIF will continue weapons development that the PEIS should evaluate the impacts of nuclear explosions. A commentor is concerned with NIF being like a "super-oven" and is opposed to it being sited at LLNL.

- Response: The President has declared that the maintenance of a safe and reliable nuclear weapons stockpile will remain a cornerstone of national security policy for the foreseeable future. Changes to U.S. national security policies in the post-Cold War period have placed two significant constraints on the way DOE has traditionally accomplished its statutory nuclear mission: the United States has declared a moratorium on underground nuclear testing, and has stopped the development and production of new-design weapons. In August 1995, the



President declared that the United States was seeking ratification of a zero-yield CTBT. Within these constraints, the proposed actions in the Stockpile Stewardship and Management PEIS will enable DOE to maintain the core intellectual and technical competencies necessary to ensure the continued safety and reliability of the stockpile under a CTBT. In this situation the United States needs a comprehensive calculational ability and a set of experimental facilities that can access the physical regimes that exist inside exploding weapons. NIF is one of those experimental facilities. The Stockpile Stewardship and Management Program was constructed with the national mission of maintaining U.S. security in response to requests from the President and Congress.

In the science-based stockpile stewardship program, NIF nuclear weapons research experiments can be used to verify increasingly sophisticated and comprehensive computer models and codes of the performance (reliability) of nuclear weapons and to assess the impact of changes in that performance due to age- or remanufacture-related changes in the remaining weapons stockpile in the absence of nuclear testing. This type of evaluation can be done for a weapon that has been tested before. NIF experiments, in combination with the existing nuclear test database, would be used in the computer calculations to determine if changes detected have an adverse effect on weapon reliability.

A study of the technical vertical and horizontal proliferation concerns surrounding NIF occurred between September 1994 and December 1995, including external reviewers, interagency coordination (DOD, Department of State, the Central Intelligence Agency, and the National Security Council), and public meetings. The unclassified results were published in the DOE document, *NIF and the Issues of Nonproliferation Draft Study*. In that study, the weapons design capabilities of NIF were extensively examined. It concluded that the development of new weapons requires integrated testing, such as occurs in nuclear explosive tests, in order to determine if the thousands of individual events interact properly. NIF by itself cannot perform such integrated testing of new concepts and, therefore, cannot replace nuclear testing for development of new nuclear weapons designs.

## 21.16

The commentor wants DOE to take a leadership role in preventing NIF from polluting the San Francisco Bay area.

- Response: The construction and operation of NIF would not pollute the San Francisco Bay area. The analysis has shown that NIF would have no significant impacts to workers, the environment, or the public. The public would be exposed to a very small dose of radiation over the 30-year operating lifetime of NIF. No cancer fatalities would be expected to occur from exposures associated with routine operations (appendix section I.3.6.7). The release of volatile organic materials used for optics cleaning is small. All candidate sites have current or planned waste management capability to handle the wastes generated by operation (appendix section I.3.6.8).

## 21.17

Commentors feel that NIF will contribute to proliferation and lead to a less secure nation. Several commentors request that the short- and long-term nonproliferation aspects of NIF be further analyzed and included in the EIS. One commentor states that the detailed analysis in the report, National

Ignition Facility and the Issue of Nonproliferation, does not support its conclusions. A commentor states there is no substantial analysis of the ongoing controversy on potential proliferation impacts of NIF. Another commentor believes that the only way NIF contributes to U.S. nonproliferation goals is by making the test ban acceptable to the U.S. weapons establishment. One commentor feels that discussions to determine the impacts of NIF on proliferation had occurred. A commentor states that the Draft PEIS does not have substantive detailed discussions about specific experiments NIF will do, such as studies of mixing of fissionable material into fusion fuel, on which to base a conclusion about NIF's worth and effect on nonproliferation.

- Response: The Secretary of Energy committed the DOE's Office of Arms Control and Nonproliferation, an independent branch of DOE, which has no programmatic responsibility for NIF, to examine whether the facility would aid or hinder U.S. nonproliferation efforts before proceeding with substantial budgetary commitments to construct NIF. A study of the technical vertical and horizontal proliferation concerns surrounding NIF occurred between September 1994 and December 1995, including external reviewers, interagency coordination (DOD, Department of State, the Central Intelligence Agency, and the National Security Council), and public meetings. The original draft was classified so that all aspects of NIF operations could be analyzed. An unclassified version was then prepared and both versions were reviewed by seven independent experts in the technical, policy, and arms control fields to ensure accuracy, comprehensiveness, and consistency. The unclassified results were published in the DOE document, NIF and the Issues of Nonproliferation Draft Study and submitted to the Secretary of Energy for her decision. It concluded that the technical vertical and horizontal proliferation issues of NIF are manageable and can be made acceptable, and that NIF can contribute positively to the U.S. nonproliferation policy and arms control goals. DOE believes that the conclusions of the report are supported by the body of the report and the process that was followed assured that all views were accounted for and dealt with.

Article VI of the NPT calls for all of the parties to the NPT to "undertake to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control." NIF and other stockpile stewardship programs are designed to provide the United States with the confidence that its arsenal is adequately maintained during size reduction without testing.

The NIF and the Issues of Nonproliferation Draft Study does discuss, to the extent allowed by classification, the areas of weapons physics that can be addressed by NIF and the types of transparency and access control measures that can be used to assure support of the U.S. goals for nonproliferation. Detailed discussions, such as the mixing of fissionable material into fusion fuel, and its specific relevance to weapons physics issues remains classified. Such specific issues were addressed in detail in the classified version of the study and in classified discussions with the independent expert reviewers. These reviewers determined the conclusions of the unclassified report were supported by the full content of the study.

## 21.18

The commentor believes that NIF may contribute to exceedances of state standards for PM10 and VOC emissions and that complying with air quality standards will help sustain economic growth and vitality in the San Francisco Bay area. Therefore, the commentor recommends that NIF obtain offsets to mitigate its emissions of PM10 and VOC from operation even if they are not legally mandated.

- Response: NIF would have small PM10 emissions during construction and small VOC emissions from operation largely from optics cleaning. Emission offsets will be provided for this project as required by air district regulation. California law prohibits any air district from issuing a permit which represents a growth in emissions after January 1, 1988. The air districts comply with this requirement by offsetting emissions from other sources. Each permit application is evaluated and offsets are provided from the Small Facility Bank, which is operated by the district or by the facility making the application in the form of emission reductions or emission banking certificates. Sources such as LLNL, with very small total emissions, may use the Small Facility Bank until their growth reaches a trigger level where the facility is required to offset all they have borrowed from the Small Facility Bank plus the emissions for the permit tripping the requirement. This offsetting policy provides for economic growth while at the same time reducing emissions. Facilities must offset to "permitted" emission levels and operate at "actual" emissions levels. The difference between "permitted" and "actual" levels is a reduction in the district's total emissions as required by California law. Also facilities may only obtain banking certificates for "actual" emissions while offsetting to "permitted" levels for their next project. This also provides for a reduction in emissions and is often referred to as the "transaction cost."

## 21.19

The commentor feels LLNL is not accurately reporting tritium in the yearly annual environmental report and values presented are underestimated. The commentor feels the tritium released from NIF will probably not be reported accurately as well. The commentor points out that the problem exists because the values reported represent contaminated water only. The commentor notes that tritium organically bound in organic surroundings, such as grass and tritiated water, is not being measured and it represents a hazard which is approximately 25,000 to 2,500,000 times more toxic than tritium gas.

- Response: As described in the 1994 LLNL Environmental Monitoring Report, LLNL collects vegetation samples (usually annual grasses) quarterly from about 15 different locations throughout the Livermore, San Joaquin, and San Ramon Valleys. Vegetation samples are analyzed using a freeze-drying method, which removes essentially all of the water (which would, of course, include any tritium) from the sample. It is possible that some small fraction of tritium in the vegetation may be "organically bound," and not recovered in the freeze-drying process. However, this small fraction of unrecovered tritium would not add significantly to the amount of tritium reported. These measurements have been peer reviewed and are completely accepted by state and Federal agencies.

NIF would emit less than 30 Ci/yr (0.003 g/yr) of tritium. The impact of this small release to the public or the environment would be negligible. NIF would continuously monitor the release of elemental tritium and tritiated water. The LLNL sitewide monitoring system will monitor tritium emissions as part of the total from laboratory operations.

## 21.20

Commentors ask how LLNL became the preferred site, several encourage a Federal decision to proceed with NIF at the LLNL site because of the site's advantages and the analyses of environmental impacts showing any adverse impacts are generally not significant. Commentors desire to know if

there was any possibility that NIF may come to NTS or LANL. Commentors are troubled by political siting decisions, including that elected officials lobby for NIF at LLNL on the basis of jobs and economics.

- Response: Five locations (LLNL, LANL, NTS, North Las Vegas Facility [NLVF], and SNL) are considered in the PEIS for the NIF based on a two-step process for selection (appendix section I.3.4) and DOE has assessed the impacts of constructing and operating NIF at all of the candidate locations at the candidate sites. The PEIS provides information to decisionmakers and the public to allow a comprehensive assessment of the purpose and need, and to compare potential environmental impacts of constructing and operating NIF at all of the candidate sites. In the ROD, the Secretary of Energy will make a final site selection taking into account the results of the PEIS and other considerations such as cost differences, availability of scientific and technical personnel, and capability of facility infrastructure to support NIF. In the ROD, to be published at least 30 days after the Final PEIS is completed, DOE will explain all the factors, including environmental impacts, that DOE considered in reaching its decision on siting NIF.

In her October 20, 1994 approval letter for Key Decision 1, Energy Secretary Hazel O'Leary announced LLNL as the preferred site (appendix section I-5.6) because of its prominence as a leading center for laser science, engineering, and technology. LLNL has the required combination of existing facilities, equipment, infrastructure, and technical and management personnel required. The other weapons laboratories, SNL and LANL, meet all of the criteria, but not to the extent of LLNL. NTS meets four of the five primary siting criteria, lacking only a significant inertial confinement fusion infrastructure.

The environmental analysis for the construction and operation of NIF at each of the alternative sites is described in appendix sections I.4.1.2, I.4.2.2, I.4.3.2, I.4.4.2, and I.4.5.2. Impacts to human health from NIF operations would be within regulatory limits. NIF would be operated in accordance with applicable statutes, regulations, and standards (appendix section I.5) and enacting appropriate mitigation measures, including the development of a monitoring and mitigation plan which accompanies the ROD.

## ***22 Stewardship--Atlas Facility***

### **22.01**

The commentor asks why a new Atlas Facility is under construction in Los Alamos when DOE already has an Atlas Facility in North Las Vegas, NV. The commentor questions why both are needed if they are the same. If they are different, the commentor states, the name of the new one should be changed to avoid confusion.

- Response: The two facilities are not the same and have different purposes. The Atlas Facility in North Las Vegas was developed by LLNL from a plan called the Augmented Test Logistics Assembly System (ATLAS). The purpose of the facility was to provide a location for canister fabrication, instrumentation preparation, and other prestaging operations prior to vertical emplacement for underground nuclear testing at NTS. These activities were related to mechanical operations of the past experimental program. As a potential future stockpile stewardship facility, the purpose of Atlas at LANL is to perform high-energy pulsed-power experiments to simulate certain hydrodynamic and radiation effects and to predict the effects of

aging on the weapons in the existing stockpile.

## 22.02

The commentor states that the description of the Atlas Facility is limited in both the executive summary and in section 3.3.2.3 of Volume I. Commentor recommends that DOE expand the discussion of the uses of the facility since it is unclear and, therefore, difficult to review the potential environmental impacts.

- Response: A detailed description of the Atlas Facility and its potential environmental impacts and accidents are included in appendix K, Volume III of the PEIS.

## 22.03

The commentor states that the Atlas Facility is not needed because defects in secondaries (the primary area of research for Atlas) are quite rare. The commentor, noting that the Pegasus II Facility is used for up to 24 experiments annually while Atlas is supposed to perform up to 100 experiments, asks what is the need for the dramatic rise in experiments.

- Response: This stockpile stewardship facility would be used to gauge the safety and reliability of weapons in the enduring stockpile. As noted in section 2.3.3, of the approximately 400 defects which required some corrective action since 1958, 110 were in the nuclear package. Of these the majority (approximately 90) were indeed associated with the weapon primary. However, the remaining number were still associated with the weapon secondary. The lower frequency of these relative to the primary related defects does not imply that DOE need not develop capabilities to address such defects, which might otherwise compromise stockpile reliability, when they arise. The existing weapons will age beyond the point in which DOE has historical experience. Furthermore, even defects which are determined to not require corrective action would have to be evaluated by DOE through the stockpile stewardship program including relevant experiments such as those for which Atlas is proposed.

There is no correlation between the number of experiments conducted annually at the Pegasus II Facility and the design capacity for Atlas because Pegasus II currently supplies limited data regarding weapons physics and Pegasus II's power capacity is insufficient to reach the conditions necessary for experiments planned for Atlas. Pegasus II, which was developed before the cessation of nuclear testing, does not readily support larger numbers of experiments because of operational procedures related to the facility design. The capability of Atlas to support up to 100 experiments per year, to meet anticipated programmatic needs, would be enabled by the design of that new facility.

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## **30 Management--Weapons Assembly/Disassembly**

### **30.01**

Several commentors express support for continued operation of Pantex, citing lower costs, sound environmental and safety record, and local support. Some commentors specifically endorse continuance of the weapons A/D and HE fabrication missions.

- As the commentors note, the preferred alternative for the weapons A/D mission is to downsize operations at Pantex. The HE production mission includes HE procurement, formulation, component fabrication, characterization, surveillance, disposal, and storage. As discussed in the Analysis of Stockpile Management Alternatives report, DOE's goal for the HE fabrication mission is to assure core competency maintenance while achieving cost efficiencies. At the time the Draft PEIS was issued, the HE production mission which best achieved these objectives was not clear, therefore DOE deferred identification of a preferred alternative for the HE production mission while further analysis was performed. Since that time, DOE has completed the analysis and has identified the preferred alternative for the HE production mission which is to downsize the production mission at Pantex. The decisions on the A/D mission and the HE fabrication mission will be documented in the ROD. The Analysis of Stockpile Management Alternatives report is available for public review at the DOE Public Reading Rooms near each site.

### **30.02**

Several commentors request additional cost information or express dissatisfaction with the selection of Pantex as the preferred alternative over NTS. Information requested includes specific differences in security guard costs and estimated dollar savings for Pantex versus NTS. Another commentor requests that DOE use a "fair and open cost comparison" of all alternatives in analyzing sites and that this information be shared with the public.

- Response: The preferred alternative for the A/D mission is to downsize the current operations at Pantex. The final decision will be documented in the ROD. Cost effectiveness is only one of the many factors DOE used to arrive at the preferred alternative. The PEIS analysis shows that while there is some potential for adverse environmental impacts associated with continuing A/D operations at Pantex, the impacts would be less for the downsized facilities than for the No Action alternative. Additionally, there is less technical risk associated with the Pantex alternative because Pantex personnel are currently performing this mission, whereas similar operations for assembly of nuclear test devices at NTS have historically been performed by laboratory personnel. Specific program and alternative costs are not part of the PEIS analysis. Stockpile management alternative costs have been analyzed in two supplementary documents provided by the DOE Albuquerque Operations Office. These reports, the Analysis of Stockpile Management Alternatives report, and the Stockpile Management Preferred Alternatives Report, are available for public review at the DOE Public Reading Rooms near each site.

### **30.03**

Several commentors express support for NTS and for moving the A/D mission to NTS. Commentors state that NTS has the established infrastructure, trained workforce, and ideal location to accept such

a mission. Commentors also state that even with the past nuclear activities conducted at the site, tourism and area growth was not affected. Some commentors suggest that NTS has not been properly represented in the Draft PEIS.

- Response: For the weapons A/D mission, only Pantex and NTS were considered as reasonable alternatives because no other DOE sites possess the experience and infrastructure to perform this mission. The preferred alternative is to downsize at Pantex because analysis discussed in the Analysis of Stockpile Management Alternatives report and the Stockpile Management Preferred Alternatives Report shows that Pantex is a lower cost and lower technical and schedule risk alternative than NTS. The preferred alternatives were developed by DOE using data and studies on such factors as cost, technical feasibility, technical risk and schedule, ES&H, and national security. Retaining the weapons A/D mission at Pantex presents less cost and technical risk than relocating to NTS because Pantex personnel are currently performing this mission, whereas similar operations for assembly of nuclear test devices at NTS have historically been performed by laboratory personnel. Hence, additional risk is added to the NTS alternative due to: the support that would be required from the laboratories to assist in the qualification of production operations, the uncertainty of laboratory personnel availability, the significant amount of construction required on a very aggressive schedule, and the 1-year gap in operations which would result from transition of the mission to NTS. The two stockpile management alternatives reports are available for public review at the DOE Public Reading Rooms near each site.

### 30.04

The commentor cites section 3.7.1, Stockpile Management, and thinks the last sentence of the last paragraph should read "in the unlikely event ... of an accident instead of "... in the event of an accident."

- Response: The sentence in question is correct as stated since it refers to the consequences of a postulated accident, not the probability that it would occur. The PEIS analysis, as detailed in appendix F and as discussed in section 4.1.9.2, Facility Accidents, includes both the probability and the consequences of selected representative accidents. These accidents include both beyond design basis (high-consequence, low-probability) and design basis (low-consequence, high-probability) accidents.

### 30.05

The commentor cites appendix table A.3.1.1-1, states that the table should include the Burning Ground, and inquires about the location of the sanitization and demilitarization facilities and the waste treatment facilities.

- Response: The Burning Ground is not considered part of the A/D operation, but is covered separately in the HE fabrication function (see appendix table A.3.5.1-2). There is some uncertainty associated with the time period for the elimination of projected inventories of HE from weapon dismantlement, and consequently there is currently no approved schedule for this activity. A completion date of fiscal year 2000 is assumed in the PEIS and is considered conservative, as it allows for 2 additional years to complete the disposition of HE that would be generated at Pantex through 1998. In other words, the HE waste produced during dismantlements should be disposed of prior to the implementation of the downsized facility at

Pantex. Appendix table A.3.1.1-1 is not intended to include all of the facilities needed to support A/D operations, only "key" facilities. Although some sanitization and demilitarization actions are conducted at Pantex, there are no facilities dedicated solely to these activities. Parts resulting from the A/D operations may be recertified and staged for reassembly, shipped to the originating site for evaluation or disposition, or processed as residual material in the waste management process. Waste management affected environment and environmental consequences of proposed stockpile stewardship and management actions at Pantex are discussed in sections 4.5.2.10 and 4.5.3.10, respectively, and appendix section H.2.4.

### 30.06

The commentor wants to know what DOE means by stating they would like to keep the stockpile as young as possible and asks if A/D will continue in order to keep the stockpile fresh. In addition, the commentor asks what happens to pits that come out of the disassembled weapons.

- Response: Weapons would be refurbished, modified, and retrofitted as needed for components that have, or are expected to be, degraded due to age. In many cases, the A/D site would be involved in fixing those components. The pits from disassembled weapons are either used in rebuilt weapons or are surplus and disposed of by the DOE Office of Fissile Materials Disposition.

### 30.07

The commentor thinks that there is no recognition throughout the PEIS that the Device Assembly Facility is a backup to Pantex, which could be critical to the successful implementation of treaty requirements. The Device Assembly Facility could act as a backup facility should Pantex be shut down as a result of a natural disaster or a safety violation. The commentor states that the PEIS process has analyzed two options: (1) to keep A/D operations at Pantex and (2) to transfer those operations to NTS. The commentor believes that the option to combine operations in a way that more completely protects the national options of the President has been completely disregarded.

- Response: The design of the Device Assembly Facility is identical to the facilities at Pantex and was recently built to support the underground testing program at NTS. It does not, however, have the space and capacity to serve as a complete backup to Pantex without significant construction that would take many years to accomplish. In addition, many of the existing bays and cells at Pantex would not be utilized by A/D operations but could be rapidly put to that use if some of the other facilities become inoperable.

At one time there was another site performing A/D work, but the need for a redundant operation was not considered necessary; therefore, that site was closed. Given that the need for a backup facility was considered unnecessary during the Cold War, it is not reasonable to plan to have this capability at NTS at this time.

### 30.08

Referencing page 7-17 of the *Analysis of Stockpile Management Alternatives* report, the commentor believes a stockpile of 1,000 weapons was analyzed in order to increase the chance that production work would be moved to the laboratories. The 1,000 level favors lower production capability at the laboratories and makes Pantex look extremely large in cost, according to the commentor.



- Response: DOE established the baseline workload based on the best estimate of the future size and composition of the stockpile. In addition to the base case, two other workload levels were established as a means of providing a sensitivity analysis among the various alternatives. As such, the 1,000 weapon stockpile was considered to be a reasonable lower stockpile level and was used by all sites for all missions. It was not devised as a means to make one site appear more favorable than another.

## **31 Management--Nonnuclear Components**

### **31.01**

Several commentors express support for KCP and the Secretary of Energy's decision to downsize the nonnuclear fabrication mission at KCP rather than transfer this mission to an alternative site; however, they are concerned about the loss of expertise and skill base. One commentor wants to know what level of flexibility is built into decisions should things change in the future, and one suggests an expansion of KCP's role in providing nonnuclear fabrication support.

- Response: As the commentors noted, the preferred alternative for the nonnuclear fabrication mission is to downsize KCP. The preferred alternatives were developed by DOE, using data and studies on such factors as cost, technical feasibility, technical risk and schedule, ES&H, and national security. The PEIS does not analyze how well the preferred alternative meets operational needs. This analysis can be found in the Stockpile Management Preferred Alternatives Report and the Analysis of Stockpile Management Alternatives report, which show that the KCP alternative is lower in cost and has less technical risk than relocation to the laboratories. Technical risk is greater for the laboratory alternatives because KCP currently has an existing production infrastructure to support scheduled work, whereas the laboratories currently do not possess the required production capacity, and their production capability and infrastructure are less mature than that of KCP. The design of the downsized production alternative at KCP provides the technical capability, production capacity, and flexibility necessary to allow KCP to support scheduled nonnuclear production and a wide range of unanticipated production requirements. The two stockpile management alternatives reports are available for public review at the DOE Public Reading Rooms near each site.

## **32 Management--Pits**

### **32.01**

Several commentors are concerned that reestablishing pit production would lead to either increased weapons production, larger scale pit production capacity, or new designs of weapons. The commentors want clarification of proposed pit production capacities at LANL, historical pit production capacities at Rocky Flats, and the relationship between replacement pit production and the possibility of pit processing leading to new or improved weapons design. One commentor opposes continued production of plutonium pits and is of the opinion that the nuclear industry is the greatest threat to life on this planet.

- Response: The mission of the pit fabrication facility would be to reestablish the national security capability required to provide replacement pits for any stockpile weapon. Safety

improvements to existing weapons pit designs could be incorporated if necessary and if directed by the President. Although there are presently no plans to develop any new weapons, the facility would be capable of fabricating new pit designs, should the President so direct in the national interest. DOE does not propose to establish higher manufacturing capacities than are inherent with the basic manufacturing capability. As discussed in section 3.1.1.1, stockpile management facilities analyzed in the PEIS are sized to support a base case stockpile size consistent with the Strategic Arms Reduction Treaty (START) II protocol and are therefore consistent with U.S. arms control policy. The capacity of the LANL pit fabrication facility is discussed in appendix section A.3.3.1, and is shown as a maximum of 80 pits per year, assuming surge (multiple-shift) operation, and use of equipment at full capacity. The capacity of Rocky Flats for pit production was about 2,000 per year. Actual production numbers are classified. With regards to larger-scale pit production, in sizing pit fabrication for the foreseeable future, consideration was given to establishing a larger fabrication capacity in line with the capacity planned for other portions of the Complex. However, after review of historical pit surveillance data, larger capacity was rejected because of the expected small demand for the fabrication of new replacement pits for the foreseeable future covered in this PEIS. Section 3.6 of this PEIS explains this in greater detail.

## 32.02

A few commentors question specific historical and proposed pit processing technologies. Specifically, commentors ask if the fissile materials will be melted and purified before being remanufactured and wonder if DOE would replace the pits with a different alloy or use the same alloy if a pit metal problem developed. If a different alloy is used, the commentors question whether DOE currently has the technology to change the plutonium alloy mix if a problem develops. One commentor states that the complex metallurgical structure of plutonium limits the processing possibilities and as an example gave the perceived failure of the near-net shape casting process employed at Rocky Flats. In the commentor's opinion, better computer modeling will not change the problem.

- Response: The mission of the pit fabrication facility would be to provide replacement pits for any stockpile weapon. Thus, the pit design and alloys would remain the same. New alloys or designs would relate to new weapon designs which are presently not planned, but may be implemented, should the President direct it in the interest of national security. The facility would have the capability to develop and fabricate new pit designs in that case. This capability would include testing and analysis to address the complexities inherent in plutonium processing.

## 32.03

The commentors oppose or express concern about reestablishing pit production at LANL and the oversight of ES&H issues by site management and personnel. Some commentors feel that a sound ES&H culture does not exist at LANL and that LANL has failed to implement "Conduct of Operations" successfully. These commentors also suggest that DOE institute a separate "chain of authority" for ES&H personnel to eliminate a conflict of interest that can currently occur when such personnel report to line management. Other commentors express concern about LANL's security and relationship with DOE, personnel management, plutonium handling, and waste management.

- Response: As stated in section 3.1.1, Planning Assumptions and Basis for Analysis, DOE will

emphasize compliance with applicable laws and regulations and accepted practices regarding industrial and weapons safety, safeguarding the health of workers and the general public, and protecting the environment. Section 4.14 describes the regulations and requirements under which all DOE sites conduct their operations during the normal course of their work activities, including potential accidents and associated human health and environmental consequences of an accident. Although the commentor correctly points out that operations at LANL have occasionally been found to be out of compliance with various environmental laws, DOE and LANL management have made good faith efforts to bring laboratory facilities into compliance in a timely fashion. DOE expects its management and operating contractors operate its facilities in compliance with all Federal, state, and local laws. As explained in section 3.1.1.1, No Action Alternative Assumptions, conservative estimates were purposely used in the PEIS to provide a bounding analysis for the environmental impacts. New or better processes as described in section 3.5, Emerging Technologies, can reduce waste streams and lower the environmental impacts. Analyses discussed in the Analysis of Stockpile Management Alternatives report show that the LANL alternative is lower in cost and has less technical risk than the SRS alternative. Technical risk is lower for LANL because of recent experience in providing pits for nuclear explosive testing. The Analysis of Stockpile Management Alternatives report is available for public review at the DOE Public Reading Rooms near each site.

### 32.04

The commentor asks how often a flaw in a pit applies to an entire weapon type.

- Response: Whether or not a flaw in a pit applies to an entire weapon type depends on whether the flaw is a result of a design shortcoming or the manufacturing process. In the case of either a design or manufacturing shortcoming resulting in a flaw, the entire weapons type may well be affected, but these shortcomings could make only some units, subject to a particular history, susceptible. Similarly aging defects can affect a few weapons or many, depending on whether they uniformly affect the system or whether individual history of some of the units, is a factor in how the system ages or responds to an aging-related defect. A more detailed unclassified discussion of weapon defect history can be found in the tri-laboratory report Stockpile Surveillance: Past and Future (SAND95-2751, January 1996).

### 32.05

The commentor asks what the economic impacts associated with pit production would be at LANL. The commentor also inquires about the budget for the pit fabrication facility.

- Response: The economic effects of pit production at LANL on regional economy and employment, population and housing, and public finance are discussed in section 4.6.3.8. The budget for the pit fabrication facility is not part of the PEIS. However, estimates of the operating costs for stockpile management alternatives at the various stockpile levels can be found in the Analysis of Stockpile Management Alternatives report, prepared by the DOE Albuquerque Operations Office. This report is available in the DOE Public Reading Rooms near each site.

### 32.06

Several commentors express support for SRS and its continued operation in support of existing and

new DOE missions. One commentor asks if pit fabrication at SRS would be shut down. Another asks if Pantex or other sites would conduct pit fabrication. Several commentors express specific support for SRS to conduct pit fabrication activities.

- Response: SRS currently has no pit fabrication capability. SRS does maintain a major role in tritium recycling and is the preferred alternative site for tritium supply if accelerator production of tritium is ultimately chosen, as discussed in the Tritium Supply and Recycling ROD. As discussed in section 3.2.1, Site Selection, only those sites with existing infrastructure or facilities capable of supporting a given stockpile stewardship or stockpile management mission were considered reasonable site alternatives for detailed study in the PEIS. DOE analyzed only two sites as reasonable alternatives for pit fabrication and intrusive modification pit reuse: LANL and SRS. SRS was considered a reasonable alternative for only the pit fabrication mission because of its plutonium processing infrastructure. Although the final decision as to where this specific mission would be located will not occur until the ROD, the preferred alternative site for the mission is LANL.

The analysis discussed in the Analysis of Stockpile Management Alternatives report shows that the LANL alternative is lower cost and has less technical risk than the SRS alternative. Technical risk is greater for the SRS alternative because LANL has recent experience in providing pits for nuclear explosive testing, whereas SRS has no experience with the kind of capabilities required for precision nuclear component manufacturing. Additionally, the LANL capability could be in place 2 years earlier than the SRS capability. The Analysis of Stockpile Management Alternatives report is available for public review at the DOE Public Reading Rooms near each site. As discussed in section 2.4.2, the Rocky Flats Plant formerly produced pits, and is no longer available for this mission. Therefore, DOE currently has no pit fabrication capability except for the limited R&D capabilities at LANL and LLNL.

The weapons A/D mission, for which Pantex is the preferred alternative, includes provisions for nonintrusive modification pit reuse. This is not pit fabrication. As discussed in section 3.4.1 and appendix section A.3.4 of the PEIS, nonintrusive modification pit reuse does not involve plutonium processing or disassembly of the pit. The modifications would be to external features of the pit and would not result in handling exposed plutonium. After modification and inspection, the pit would be mated to main charge HE, which is a function of the A/D mission. Since the nonintrusive modification function is essentially a step between receipt of the pit and assembly with HE, DOE considers it reasonable and prudent to perform this function at the A/D facility.

### 32.07

The commentor notes that the stated objective in the PEIS is to preserve "core competency," but the Program fails to address this issue with regard to pit manufacturing. The commentor feels that a pseudo-manufacturing capability in an R&D laboratory is not the same. Another commentor believes that the No Action alternative description for pit fabrication was inadequate.

- Response: Currently, there is an R&D plutonium capability at LANL. The No Action alternative discussed in section 3.4.3.1 of the PEIS would maintain only a limited plutonium component fabrication capability at LANL and a less extensive capability at LLNL, and therefore would not provide sufficient pit fabrication capability to meet the requirements stated in section 3.1. Reestablishing pit fabrication at LANL would allow for the entire pit-related

workload to be accomplished at the laboratory, which would preserve core competency better than having less work at each of two sites, the laboratory and the fabrication site. Analysis discussed in the Analysis of Stockpile Management Alternatives report shows that the LANL alternative is lower in cost and has less technical risk than the SRS alternative. Technical risk is lower for LANL because of recent experience in providing pits for nuclear explosive testing. The Analysis of Stockpile Management Alternatives report is available for public review at the DOE Public Reading Rooms near each site.

### 32.08

The commentor questions where pit components and beryllium components will be manufactured. The commentor believes that Y-12 has the experience and capability for recycling chips.

- Response: The manufacturing of pit components is an integral part of the pit fabrication mission and would be included with that mission which, in the preferred alternative, is LANL. The mission of fabrication of beryllium components that was formerly assigned to the Rocky Flats Plant was reassigned to LANL as a result of the Nonnuclear Consolidation Program in 1993. The Y-12 Plant would continue its historical role of manufacturing HEU parts for pits.

### 32.09

The commentor believes that SRS should close down and operations be transferred to another DOE site, preferably ORR or Pantex. Other commentors wonder what impact their comments on closing SRS have on the decisionmaking process, and what the best way is to do this.

- Response: Closing of SRS was not an alternative under consideration in the PEIS. The only alternative relating to SRS was for reestablishing pit fabrication and LANL was identified as the preferred alternative site for that mission. Over the past several years, some DP missions at SRS have been terminated and the majority of facilities turned over to Environmental Management. The remaining DP activities are associated with tritium, and are primarily located in H-Area, a small portion of the entire site.

### 32.10

The commentor notes that the environmental impacts per pit produced would be reduced by using advancements such as new welding techniques, dry machining, and the reduction of oils and organic solvent usage. The commentor also points out that the actual environmental impacts may be less than the impacts outlined in the document since conservative estimates were used in the analysis of the impacts.

- Response: New or better processes can reduce waste streams and lower the environmental impacts. Section 3.5 describes the emerging technologies for the stockpile management processes. The baseline flow sheet for plutonium fabrication did assume dry machining as suggested by the commentor, consequently a waste stream consisting of cutting oils is not analyzed in this PEIS. As explained in section 3.1.1.1, No Action Alternative Assumptions, conservative estimates were purposely used in the PEIS to provide a bounding analysis for the environmental impacts.

### 32.11

The commentor asks if the need for pit production outweighs the additional risks to the citizens of Los Alamos. The commentor asks what the citizens of Los Alamos will gain from bringing pit production to LANL.

- Response: Section 4.6.3.9, Radiation and Hazardous Chemical Environment, presents the incremental risk to members of the public in the LANL vicinity. Table 4.6.9.3-1 shows the annual exposure to the maximally exposed member of the public would be 8.7 mrem, which is 2.6 percent of the natural background radiation exposure of 340 mrem to the average individual. The total dose to the public within 80 km (50 mi) of LANL would be 1.4 person-rem, which is approximately 0.15 percent of the natural background total dose. Hazardous chemical exposures are also presented in section 4.6.3.9. For the pit fabrication alternative, the incremental hazard index (HI) for the maximally exposed member of the public would be  $2.18 \times 10^{-4}$  which is approximately 0.16 percent of the No Action HI of 0.0135. This increase in HI corresponds to essentially a 0-percent increase in cancer risk. Benefits to the community are largely socioeconomic in nature. Section 4.6.3.8, Socioeconomics, provides information concerning jobs to be generated by the pit fabrication alternative. Facility modification activities would generate approximately 140 direct and 90 indirect jobs during the peak year of construction. Operation of the facility would generate about 260 direct jobs.

### 32.12

The commentor wants to know the pit production capacity at TA-55 in LANL. The commentor also wants to know how easily the pit production capacity at TA-55 could be expanded. Another commentor states that there should not be any further capital investment above maintenance or steady state costs.

- Response: The TA-55 facility currently has the ability to make a few pits per year as part of the stockpile surveillance and rebuild program, but it is not a production facility or program. The expansion of TA-55 is discussed in section 3.4.3.2. Stockpile management facilities analyzed in the PEIS are sized to support a base case stockpile size consistent with the START II protocol, and are therefore consistent with U.S. nonproliferation policy. The capacity of the proposed LANL pit fabrication facility is discussed in appendix section A.3.3.1, of the PEIS, and is shown as a maximum of 80 pits per year, assuming surge (multiple-shift) operation, and use of equipment at full capacity. For information on cost and schedule for modification of the TA-55 plutonium facility, the commentor is referred to the Analysis of Stockpile Management Alternatives report which is available at the DOE Public Reading Rooms near each site.

### 32.13

The commentor asks how long pits can remain in the stockpile before buildup of decay products become a design or handling concern.

- Response: Modern nuclear weapons were designed with a minimum design life of 20 to 25 years. Based on existing surveillance data, DOE expects the pits to last at least this long, and probably considerably longer. However, very little historical and applicable data exists beyond 30 years. With regard to the buildup of decay products alone, DOE does not currently believe this will become a problem in less than 50 years. Other combined effects (radioactive and chemical) are not as well understood. Science-based stockpile stewardship, and enhanced

surveillance technology in particular, will focus on improved predictive capability in this area.

### 32.14

The commentor points out a disparity in the amount of chemicals being used for fabricating pits at LANL and SRS. According to the commentor, SRS proposes to use 3,420 kg (7,536 lb) and LANL 32,886 kg (72,461 lb) which is a difference of a factor of about 10.

- Response: The processes at both SRS and LANL are the same. These numbers show only annual make-up after recycling of nitric acid (annual usage after the first year of surge production). The LANL number shows the first year requirement for surge production (e.g., 32,886 kg [72,461 lb] the first year with 3,420 kg (7,536 lb) of make-up each following year). Usage in subsequent years would be comparable to the SRS figure. Appendix tables A.3.3.1-4 and A.3.3.2-4 have been changed to reflect this fact in the Final PEIS.

### 32.15

The commentor wants to know if there will be waste management associated with the pit fabrication mission at LANL.

- Response: Waste generated from the pit fabrication mission would be managed within the existing and planned waste management infrastructure at LANL. No new waste management facilities would be needed to support the pit fabrication mission.

### 32.16

The commentor asks, if laboratory facilities are so capable, why are we investing in new facilities at LANL and why postulate that it will be another 5 years before LANL can make a production pit.

- Response: The laboratories are indeed capable, but are presently established as R&D facilities, not as production facilities. The assumed 5-year timeframe includes necessary equipment and facility modifications and establishment of appropriate quality and process control measures to ensure quality requirements would be met. The TA-55 plutonium facility is approaching 20 years of service, and many components of the facility need replacement or upgrading in order to sustain the R&D mission of the laboratory. This refurbishment constitutes the major portion of the DOE investment at the TA-55 plutonium facility. Reconfiguration of the internal arrangements of one of the wings of the building to provide for pit fabrication is a relatively minor part of the total task.

### 32.17

The commentor wants to know, for the pit production mission at LANL, if DOE will focus its attention on the greater hazards of processing and handling of plutonium and the eventual disposal of the waste or on simply the shipment of the finished product.

- Response: As stated in section 3.1.1, Planning Assumptions and Basis for Analysis, DOE will emphasize compliance with applicable laws and regulations and accepted practices regarding industrial and weapons safety, safeguarding the health of workers and the general public, and protecting the environment. Section 4.14 describes the regulations and requirements under

which all of the DOE sites conduct their operations during the normal course of their work activities. This also includes potential accidents and associated human health and environmental consequences of an accident.

### 32.18

One commentor questions whether waste volumes include nonintrusive pit reuse operations, and whether the pit fabrication and nonintrusive pit reuse can be carried out simultaneously.

- Response: Waste volumes are analyzed for three-shift pit fabrication operations. This analysis is designed to bound the environmental impacts for any reasonably foreseeable workload. As discussed in section 3.4.1 and appendix section A.3.4 of the PEIS, nonintrusive modification pit reuse does not involve plutonium processing or disassembly of the pit. The modifications would be to external features of the pit and would not result in handling exposed plutonium. Estimated waste volumes from nonintrusive modification pit reuse are included in the weapons A/D estimates.

## 33 Management--Secondaries and Cases

### 33.01

Several commentors express support for continued operation of Y-12 and for retaining the secondary and case fabrication mission there. Reasons cited include past frequent upgrades of the facilities and processes at Y-12, historical expertise, and the exceptional troubleshooting and problem-solving experience of Y-12 personnel. Commentors suggest laboratory personnel are not experienced in manufacturing processes and cannot replace the experience of Y-12 personnel, and were concerned that the PEIS implied the Y-12 processes were out-of-date.

- Response: As noted by the commentors, the preferred alternative for the secondary and case fabrication mission is to downsize at Y-12. In addition to the No Action alternative at Y-12, DOE considered three alternative sites for the future secondary and case fabrication mission: Y-12, LANL, and LLNL. DOE considered the weapons laboratories at LANL and LLNL for secondary and case manufacturing as reasonable alternative sites to be evaluated as part of the NEPA process because of their design and existing limited R&D manufacturing capabilities. In appendix section A.3.2.1, the PEIS does state that Y-12 has performed the secondary fabrication mission in the Complex for over 40 years. This was not intended to imply that the production facilities are old and use old processes. In this section, the PEIS recognizes that during the past 12 years major restoration projects have brought the infrastructure support of this facility (Y-12) up to current standards and should allow the use of these facilities for up to an additional 40 years.

Analyses discussed in the Analysis of Stockpile Management Alternatives report show that the Y-12 alternative is lower in cost and has less technical risk than either of the laboratory alternatives. DOE considers the existing infrastructure and personnel resources at Y-12 as important and valuable Complex assets in implementing Program requirements. The existing facilities and worker skills at Y-12 were taken into account in the ranking system used by DOE in the Analysis of Stockpile Management Alternatives report. In this analysis, Y-12 received a much higher score in "Basic Production Capability" and in "Capability of Production



Infrastructure" than either LANL or LLNL. These scores were important in the selection of Y-12 as the preferred alternative site for performing future secondary and case component production. Technical risk is lower for the Y-12 alternative because it is the current secondary and case fabrication facility for DOE and has produced components for all weapons in the current stockpile. Although some process development would be required to fully satisfy this mission at Y-12, the risk is low. Both the LANL and LLNL alternatives would involve modifications to Y-12 processes or a new process, which would require additional process development, qualification, and prove-in, and thus the technical risks are higher. The Analysis of Stockpile Management Alternatives report is available for public review at the DOE Public Reading Rooms near each site.

### 33.02

The commentor would like the PEIS to provide specific examples of the HEU recycling purification or processing technology as well as lithium processing technology that exists to a comparable extent with either of the design agencies as well as Y-12.

- Response: As stated in the PEIS Summary, Y-12 produces the secondary and case components and uniquely possesses the complex technological capability for processing HEU and lithium materials. The design agencies, LANL and LLNL, do not have in place the HEU and lithium processing facilities or infrastructure to any extent comparable to Y-12. These design laboratories have a uranium technology base and facility infrastructure which are only capable of supporting a very limited R&D fabrication capability.

### 33.03

One commentor states that the A/D activities at ORR/Y-12 should be moved to SRS because there is more acreage to provide an environmental impact buffer zone.

- Response: In referring to "the A/D activities at ORR/Y-12," DOE assumes that the commentor means the secondary and case fabrication mission. SRS was not considered a reasonable alternative for this mission for several reasons. Although SRS has processed uranium fuel, it does not have the necessary equipment and facilities for large scale machining and processing of HEU and other special materials needed for secondaries and cases. Y-12 and both of the laboratories have existing facilities which could, with some modifications, fulfill the secondary and case fabrication mission. The Analysis of Stockpile Management Alternatives report discusses the secondary and case fabrication alternative in more detail and is available for public review at the DOE Public Reading Rooms near each site.

### 33.04

The commentor wonders what will happen to the buildings and infrastructure if downsizing of Y-12 occurs.

- Response: Downsizing of Y-12 would result in the plant being multi-program sponsored. Seventy-six percent of the building floor area and associated infrastructure would be transferred to Environmental Management; 14 percent would belong to DP departments engaged in conducting the stockpile management mission; and the remaining 10 percent would belong to other programs such as Materials Disposition, Nuclear Energy, and Work for Others.

After transfer to Environmental Management, a transition plan is developed, detailing the cleanup plans, disposition of equipment, and ultimate disposition. There is an established process for including the adjacent communities in this process and DOE's Office of Economic Assistance has grants and other support services to assist in the retraining and out-placement of all adversely affected employees.

### 33.05

The commentor is of the opinion that the proposals of LANL and LLNL in the Summary suggest some lack of appreciation for what is involved. According to the commentor, LANL and LLNL claim to do the downsize secondary and cases fabrication mission with 321 and 290 workers, respectively. The commentor points out that Y-12 will require 1,080 workers for the mission which is 3 to 4 times, as many workers as the laboratories proposals. The commentor wants to know if DOE believes the laboratories proposals and is concerned that at some time in the future DOE or some oversight group may be misled (by the apparently large savings) into assuming the laboratories can do the job as well as Y-12, and subsequently transfer the mission. The commentor believes this would be a major loss to the Nation in abandoned stretch capacity, overall cost, safety, and quality.

- Response: For the secondary and case fabrication mission, the data supplied by Y-12, LANL, and LLNL differ in many factors such as surge capacity, facility designs, processes, work plans, floor plans, and the utilization of in-house production versus vendor supplied materials. These factors account for the large differences in the workers requirements at Y-12 versus those presented for the weapons laboratories. These considerations were reflected in the evaluation performed by DOE and documented in the Analysis of Stockpile Management Alternatives report. Data for the PEIS were developed by working groups for each stockpile management mission. These working groups consisted of experts from each of the potentially affected sites. A review of data for consistency and accuracy was performed at both the working team level and at a senior management level. To bound the potential environmental impacts at each site, the PEIS uses data reflecting "surge," or maximum production scenario. Because it is expected that this workload would be performed in existing facilities, not surprisingly the maximum potential environmental impacts varied somewhat between the sites for this bounding surge case. In addition, however, each alternative was assessed for the same single low and high single shift workloads.

### 33.06

The commentor refers to section 4.6.3 and questions whether anyone really believes that only minimal modification to existing facilities at LANL would be required for the secondary and case fabrication mission. The commentor states that no facilities exist for large lithium hydride fabrication and processing, that only minimal uranium and assembly facilities exist, and that facilities must be adequate to deal with potential surge requirements. In addition, the commentor states that this type of equipment costs tens of millions of dollars.

- Response: Section 4.6.3 addresses the environmental impacts by disciplines (land use, water resources, and site infrastructure) of proposed stockpile stewardship and management alternative actions. Section A.3.2.2 describes in some detail the modifications of existing facilities that would be required at LANL to support the relocation of secondary and case fabrication. The statement in section 4.6.3.1, "Only minimal modifications to existing facilities at LANL would be required," is made in the context of land-use impacts due to the relocation

of the secondary and case fabrication mission. The minimal land-related modification is associated with providing a nominal area for equipment staging, material laydown, and parking during the modification of LANL facilities. As indicated in section 2.4.2, DOE recognizes that the cost of transferring production technologies to the weapons laboratories and the re-creation of capital facilities are major Program considerations. These were important factors in the selection of Y-12 as the preferred site for performing the future stockpile management secondary and case fabrication mission.

### 33.07

The commentor asks, who, by name, are the supposed experts at the laboratories in uranium and lithium hydride, and what are their qualifications.

- Response: There are numerous experts at the laboratories. However, their names have no bearing on the environmental impacts addressed in this PEIS.

### 33.08

The commentor states that the analysis with regard to this study discusses the preproduction of a supply of enriched uranium and lithium hydride sufficient to provide for needs for up to 100 years. The commentor questions if past experience does not indicate that this will guarantee the loss of the associated technology.

- Response: Not providing in-house production capability does not guarantee the loss of the needed supplies of these materials or the requisite technologies to support the weapons program needs. Sufficient supply of enriched uranium and lithium hydride would be removed from existing stocks, processed, and stored during the transition period (in fiscal year 1998) to supply DP needs for greater than 100 years at the current PEIS base case workload, therefore there is little justification for providing in-house production capability. Various contingencies are readily available to justify not providing the capability for lithium hydride/deuteride and enriched uranium purification. These contingencies include: feed material preproduction and storage, increased direct recycle of the materials, commercial procurement of service as a backup, disposition of material to other DOE programs, and placing processing equipment in cold standby for reactivation. If unforeseen stockpile problems or demands increase the secondary workload significantly, contingency plans to reactivate equipment in cold standby or to procure additional processing can be developed. The preferred alternative at Y-12 includes a small capability for lithium salt production.

### 33.09

The commentor points out the differences in the amounts of chemicals being used for the same mission at different sites. One commentor cites table 4.17-4 and asks how LANL is going to use only 1,568,333 kg/yr (3,455,665 lb/yr) of chemicals when Y-12 plans to use 6,488,333 kg/yr (14,296,393 lb/yr) of chemicals (a 76-percent reduction) or whether the LANL chemical use is only an estimated amount. Another commentor questions specified differences in nitric acid and sulfuric acid consumption at Y-12, LLNL, and LANL.

- Response: Table 4.17-4 provides estimates of the irreversible and irretrievable consumption of annual operating resources for the stockpile management alternatives. The differences in the

secondary and case fabrication chemical usage between Y-12 and LANL is a direct result of differences in the proposed processing techniques utilized at Y-12 versus those proposed to be used at LANL. As given in appendix table A.3.2.1-6, the annual chemical requirement for Y-12 is a total of 19,088,334 kg/yr (42,059,235 lb/yr), of which 14,000,000 kg/yr (30,847,600 lb/yr) is argon and 5,000,000 kg/yr (11,017,000 lb/yr) is nitrogen. Of this total quantity, 6,488,333 kg/yr (14,296,393 lb/yr) are estimated to be irretrievably lost. LANL did not propose to duplicate the current processes or work plans in use at Y-12 for the secondary and case fabrication mission, consequently a direct comparison on gaseous chemical consumptive use cannot be made. For example, the Y-12 enriched and depleted uranium processes utilize vacuum induction casting furnaces with leakage rate of approximately 30 microns/minute whereas LANL proposes to utilize furnaces with lower leakage rate (5 microns/minute) eliminating the need to employ an argon purge (Argon Lance). LANL also proposes to utilize commercial and government furnished products to the maximum extent possible and may well incorporate an optimistic view of vendor availability and qualifications. Therefore LANL's quantities are considered estimates based on reasoned judgment. The nitric acid and sulfuric acid figures given in appendix table A.3.2.2-6 for LANL were in error and have been corrected. The values are now the same as for Y-12 (1,000 kg [2,203 lb] of nitric acid and no sulfuric acid). The LLNL values are less than either Y-12 or LANL due to the smaller capacity of the LLNL facility in the surge mode.

### 33.10

The commentor requests an explanation of the impacts on downsizing Y-12 should the secondary and case component fabrication/downsize at Y-12 alternative be chosen. Specifically, explanations are requested regarding the impacts on the D&D program at Y-12, the impact to future continued operation of the facilities, operating systems, and programs.

- Response: The environmental impacts resulting from downsizing Y-12 are discussed in detail in section 4.2.3 of this PEIS.

### 33.11

Commentor recommends that DOE have the funding mechanisms for proposed downsized Y-12 facilities in place prior to the ROD.

- Response: Funding for the downsizing of Y-12 would follow the normal Government budgetary process with a submission to Congress for this project after the ROD is issued.

## 34 Management--High Explosives Components

### 34.01

A large number of commentors believe that HE functions should remain at Pantex. The commentors note that the Draft PEIS states that Pantex must retain HE capabilities to process the inventories already onsite from dismantling. Therefore, the least expensive option is to maintain HE functions at Pantex, according to the commentors. Commentors also indicate their disagreement with the statement in the Draft PEIS that there are no advantages to siting HE at Pantex as opposed to the national laboratories. The commentors cite the capital outlay for such a transfer as being cost

prohibitive and the fact that if the need arises in future for new weapons production, the commentors believe it will be critical to have the HE facilities at the weapons production/assembly site.

- Response: The HE production mission includes HE procurement, formulation, component fabrication, characterization, surveillance, disposal, and storage. As discussed in the Analysis of Stockpile Management Alternatives report, DOE's goal for the HE fabrication mission is to assure core competency maintenance while achieving cost efficiencies. At the time the Draft PEIS was issued, the HE production mission which best achieved the overall objectives was not clear, therefore DOE deferred identification of a preferred alternative for the HE production mission while further analysis was performed. Since that time, DOE has completed the analysis and the preferred alternative for the HE production mission is to downsize the production mission at Pantex. The preferred alternative for HE fabrication was developed by DOE using data and studies on such factors as cost, technical feasibility, technical risk and schedule, ES&H, and national security. The analysis of these factors are presented in the Analysis of Stockpile Management Alternatives report, and the rationale for the preferred alternative is found in the Stockpile Management Preferred Alternatives Report. Both reports are available for public review at the DOE Public Reading Rooms near each site.

### 34.02

Some commentors state that the HE mission be moved from Pantex to another site. Specifically, one commentor believes that the HE mission should be brought to LANL because a synergism exists between the research and design mission and the production of HE. Another commentor believes that the A/D and HE operations currently at Pantex and HE operations at Site 300, LLNL, should be consolidated at NTS.

- Response: NTS was not considered a reasonable alternative for the HE fabrication mission for several reasons. First, unlike the A/D mission, NTS does not have existing facilities designed for HE fabrication. As a result, transfer of the HE fabrication mission to NTS would require construction of a completely new facility. Second, both LANL and LLNL have existing facilities capable of meeting the HE fabrication requirements analyzed in the PEIS. However, in determining reasonable alternatives for these missions, DOE considered that, should weapons A/D be relocated, that it would be reasonable and prudent to use existing HE fabrication facilities at LANL or LLNL, rather than constructing new facilities, which would be required at NTS. The analysis of these factors are presented in the Analysis of Stockpile Management Alternatives report, and the rationale for selecting Pantex as the preferred alternative for A/D and HE fabrication can be found in the Stockpile Management Preferred Alternatives Report. Both reports are available for public review at the DOE Public Reading Rooms near each site.

### 34.03

The commentor states that the HE mission is to be assigned only to facilities with existing infrastructure. The commentor notes that according to the Draft Analysis of Stockpile Management Alternatives report, LANL is currently establishing a production infrastructure for the manufacture of detonators. As late as December 1995, however, no detonators have been produced. Also, the commentor notes that according to the Activity Implementation Plan, LLNL will restructure Site 300 to meet manufacturing requirements.

- Response: Four alternatives for the HE production mission were evaluated according to three ranking criteria. One criteria is capability of production support infrastructure. The Analysis of Stockpile Management Alternatives report provides a summary of all ranking criteria scores and explains the basis for these scores. DOE sought future Complex configurations that simultaneously maintained technical competence, minimized technical risk, and minimized costs. All technologies required for the HE mission have been previously demonstrated at LANL and LLNL. Both have in the recent past produced HE components in numbers greater than and at specifications comparable to those required for future production. The LANL and LLNL formulation, synthesis, and fabrication processes would require production qualification. Establishing the production and control processes necessary for production qualification represents a risk at an R&D laboratory; however, DOE has successfully qualified laboratory processes for production applications in the past.

#### 34.04

The commentor states that in the PEIS, four HE alternatives are proposed and discussed, but in the Draft Stockpile Management Preferred Alternatives Report, only two options are recognized--downsizing of Pantex and the two-laboratory concept.

- Response: As shown in the Stockpile Management Preferred Alternatives Report, four HE production alternatives have been analyzed and ranked: downsize at Pantex, relocate to LANL, relocate to LLNL, and the two-laboratory alternative. DOE is also required by NEPA and CEQ to describe and evaluate the environmental impacts of a No Action alternative. The PEIS does not attempt to quantify or analyze the impacts of the two-laboratory alternative because the environmental impacts at either LLNL or LANL from the two-laboratory HE production alternative would not be greater than the environmental impacts which are analyzed in the PEIS for the entire HE production mission at LANL or at LLNL singularly.

#### 34.05

The commentor believes that the transfer of operations from Rocky Flats to the laboratories was unsuccessful and that the lessons learned from that transfer should carry weight in the decision to site HE operations.

- Response: DOE assigned several missions previously conducted at Rocky Flats to LANL--pit surveillance, pit support, beryllium technology, and joint test assembly support. The transfer of the pit surveillance mission from Rocky Flats has been successfully completed and is currently being conducted at LANL. Transfer of remaining processes are in progress. Lessons learned from the transfer of the processes from donor to the receiver sites in the Nonnuclear Consolidation Program, including those from Rocky Flats to LANL are being recorded. This information would be used to improve the future transfers of operations under the stockpile management program. The technical risk of transferring the HE mission to the laboratories was analyzed in the Analysis of Stockpile Management Alternatives *report*. This report determined the risk of transferring HE operations to be minimal.

#### 34.06

The commentor questions what the operating cost for the HE fabrication mission is in the Laboratory

#### Implementation Plan.

- Response: It is not a straightforward exercise to estimate the annual costs to operate the HE plant. DOE chose to assume that the costs of operating the HE plant at each site would be estimated as increments to the assumed site missions. Pantex was assumed to have the weapons A/D mission, and the HE costs were estimated as incremental to that mission. Likewise, LANL and LLNL were assumed to continue their R&D mission, and the HE costs were estimated as incremental to that mission. The LLNL projected incremental increase in cost for manufacturing HE components is \$560,000 per year; LANL incremental cost increase was estimated at \$2.3 million; and Pantex incremental cost increase was estimated at \$2.25 million. Details for these cost estimates can be found in the Analysis of Stockpile Management Alternatives report which is available for public review at the DOE Public Reading Rooms near each site.

#### 34.07

The commentor wants to know if the HE manufacturing facilities at the weapons laboratories are as new and technologically advanced as the facilities at Pantex.

- Response: The HE facilities at LANL were designed and built for production scale operations, and were in fact, operated as production facilities supplying nuclear weapons HE components for many years. LANL has continually upgraded and modernized processing equipment in these existing facilities to provide prototype HE components to meet hydrodynamic and NTS program requirements. The equipment and processes used at LANL are very similar and in some cases identical to those used at Pantex for production. The HE facilities at Pantex were built during the 1980s, and are newer than LANL or LLNL facilities. The equipment in all three facilities was procured at about the same time (sometimes on the same purchase order).

Similarly, the production scenarios envisioned for LLNL are well within their current capabilities using equipment and processes that are similar if not identical to Pantex. The LLNL High Explosives Application Facility is DOE's most recently activated major HE facility and meets or exceeds all modern ES&H requirements for explosive research, development, and production support.

#### 34.08

In regard to HE fabrication, the commentor asks if the primary work is in the development program as opposed to fabrication.

- Response: For HE fabrication there is a minimum level of effort in both the development program and in the production mission that must be achieved to maintain competence. DOE has sought to address the level of expected future production requirements, and whether this level of work is sufficient to maintain competence. There is also synergy between HE fabrication work required for the development program and for the production mission. The level of effort for either is not steady and can be cyclical. DOE has taken these factors into account in determining its preferred alternative for the HE production mission.

#### 34.09

The commentor states that according to the ranking criteria process, the two-laboratory concept ranks significantly lower than Pantex, which itself received a rating of 100 in all categories. The commentor notes that as the Ranking Criteria Process was applied to each category throughout the Stockpile Stewardship and Management PEIS, the facility which ranked highest received the mission, but HE fabrication is the only category which seems to run contrary to that rule.

- Response: DOE sought future Complex configurations that simultaneously maintained technical competence, minimized technical risk, and minimized costs. In the case of HE fabrication, downsizing operations at Pantex or relocation to one of the weapon laboratories would be the low cost alternative. However, concerns about potential loss of competency in HE at one or both of the laboratories may make the low-cost alternative a higher technical risk alternative. While the ranking criteria process shows the two-laboratory concept lower than Pantex, the decision as to a preferred alternative is not automatic. At the time the Draft PEIS was issued, the HE production mission which best achieved the overall objectives was not clear, therefore DOE deferred identification of a preferred alternative for the HE production mission while further analysis was performed. Since that time, DOE has completed the analysis and the preferred alternative for the HE production mission is to downsize the production mission at Pantex. The preferred alternative for HE fabrication was developed by DOE using data and studies on such factors as cost, technical feasibility, technical risk and schedule, ES&H, and national security. The analysis of these factors is presented in the Analysis of Stockpile Management Alternatives report, and the rationale for selecting the preferred alternative is found in the Stockpile Management Preferred Alternatives Report. Both reports are available for public review at the DOE Public Reading Rooms near each site.

### 34.10

The commentors question why 432 people are required at the weapons laboratories to manufacture explosive components when Pantex has identified about 50 people to perform the operation, and how DOE justifies this additional cost.

- Response: The numbers 432 and 50 cannot be compared. The employment at the laboratories, 200 at LANL (table 3.4.5.3-2) and 232 at LLNL (table 3.4.5.4-2) include both HE workers and various direct support workers, while the employment at Pantex, revised to 37 in the Final PEIS (table 3.4.5.2-2) includes only HE workers, since the A/D support workers would be sufficient to also cover HE fabrication. Each site's employment impacts assume that site takes on the entire HE production mission; therefore, these numbers should not be added. To bound the potential environmental impacts at each site, the PEIS estimates the number of workers that could be used in a "surge," or maximum production scenario. Because it is expected that this workload would be performed in existing facilities (in the case of Pantex they were downsized current facilities), not surprisingly the maximum potential environmental and employment impacts varied somewhat between the sites for this bounding surge case. In addition, however, each alternative was assessed for the same low and high single-shift workloads.

### 34.11

The commentors request the locations of proposed HE fabrication and testing facilities at LANL. One commentor refers to Summary section 5.3.7, Relocate to Los Alamos, and states that the statements that LANL R&D facilities currently possess sufficient (operational) capacity with little or no building



construction/modification was not based totally on fact, as evidenced by the failure to adequately address concerns expressed in the April 22 and 23, 1996, Amarillo public meeting. In addition, the commentor states that further review of the Stockpile Management Preferred Alternatives Report and the *Analysis of Stockpile Management Alternatives* report verified that the DOE requirements for certification of those buildings to current standards was apparently ignored.

- Response: LANL HE fabrication process capability is already established. HE fabrication and storage functions would be supported in existing facilities at LANL TAs -9, -16, and -37. Since LANL HE facilities already exist and have sufficient capacity for stockpile management requirements, no new building construction and no significant modifications would be required. DOE requirements for certification of these buildings to current standards is an ongoing process and would continue as required. To assure that the laboratories would successfully implement HE production on the magnitude necessary to meet national security needs, the LANL formulation, synthesis, and fabrication processes would require production qualification.

### 34.12

The commentor refers to the LANL table 3.4.5.3-1 and states that this table contains insufficient information for analysis. The commentor states that the baseline numerical information contained in table 3.4.5.2-1 cannot be compared reasonably with "minimal" resource requirements. The commentor states that based upon simple comparison between tables 3.4.5.2-2 and 3.4.5.3-2, the missing "baseline" data should have been readily available for insertion in the table.

- Response: The tables in question display consumption requirements for the construction period and for 1 year of operations. Because the LANL HE fabrication process capability is already established, quantifying the minimal consumption requirements for construction/modification at LANL would not be useful to DOE in decisionmaking. HE fabrication and storage functions would be supported in existing facilities at LANL TAs -9, -16, and -37. Since LANL HE facilities already exist and have sufficient capacity for stockpile management requirements, no new building construction and no significant modifications would be required.

### 34.13

Several commentors ask when the preferred alternative for HE fabrication will be identified. One commentor states that the *Stockpile Management Preferred Alternatives Report* gives the impression that the decision has been made to transfer HE work to the laboratories. The commentor asks if this is true. If not, the commentor would like to know on what basis the decision on the preferred alternative for HE fabrication will be made.

- Response: Pantex, LANL, and LLNL were candidate sites for the HE fabrication mission. As discussed in the *Analysis of Stockpile Management Alternatives* report, DOE's goal for the HE fabrication mission is to assure core competency maintenance while achieving cost efficiencies. At the time the Draft PEIS was issued, the HE production mission which best achieved the overall objectives was not clear, therefore DOE deferred selection of a preferred alternative for the HE production mission while further analysis was performed. Since that time, DOE has completed the analysis and has determined that the preferred alternative for the HE production mission is to downsize the production mission at Pantex. The preferred alternative for HE fabrication was developed by DOE using data and studies on such factors as cost, technical

feasibility, technical risk and schedule, ES&H, and national security. The analysis of these factors are presented in the Analysis of Stockpile Management Alternatives report, and the rationale for selecting the preferred alternative is found in the Stockpile Management Preferred Alternatives Report. Both reports are available for public review at the DOE Public Reading Rooms near each site.

#### 34.14

The commentor expresses concern about HE fabrication continuing at Pantex because of existing contamination problems from HE work. The commentor states that the first priority at Pantex should be the protection of the environment and public safety.

- Response: Pantex will continue operations in compliance with all applicable Federal, state, and local ES&H requirements, as well as all DOE-mandated standards that insure the protection of the environment and public safety.

#### 34.15

The commentor believes it is unfair to provide the laboratories the economic benefit of taking over the Pantex HE manufacturing mission while Pantex and the citizens of Amarillo will retain the environmentally problematic mission of disposing of the replaced HE components and suffering economically by losing the environmentally cleaner manufacturing mission.

- Response: DOE's preferred alternative for the HE production mission is to downsize the production mission at Pantex. The preferred alternative for HE fabrication was developed by DOE using data and studies on such factors as cost, technical feasibility, technical risk and schedule, ES&H, and national security. The analysis of these factors are presented in the Analysis of Stockpile Management Alternatives report, and the rationale for selecting the preferred alternative is found in the Stockpile Management Preferred Alternatives Report. Both reports are available for public review at the DOE Public Reading Rooms near each site.

#### 34.16

The commentor points out that there is a disparity in the air emissions data being presented for sites conducting the same missions. According to the commentor, for the HE fabrication mission, Pantex, LLNL, and LANL propose to emit 413, 1,315, and 4,530 kg/yr (910, 2,897, and 9,981 lb/yr) of carbon monoxide; 122, 45, and 4,540 kg/yr (269, 99, and 10,003 lb/yr) for organics; 1,560, 349, and 22,700 kg/yr (3,437, 769, and 50,017 lb/yr) of nitrous oxides; and 0.02, 4.5, and 454 kg/yr (0.044, 9.9, and 1,000 lb/yr) of ammonia, respectively. In addition, the amount of HE powder required is different at each site. The commentor does not understand the reason for the disparity in both inputs and emissions for the same mission at different sites and wants to know where the numbers are coming from.

- Response: To bound the potential environmental impacts at each site, the PEIS estimates the workload that could be performed in a "surge," or maximum production scenario. Because it is expected that this workload would be performed in existing facilities (in the case of Pantex they were downsized current facilities), not surprisingly the maximum potential environmental impacts varied somewhat between the sites for this bounding surge case. The differences in the amounts and types of explosives shown in appendix tables G.3-2 and G.3-3 are due to the

overall differences in work done by the three sites. This work includes at the laboratories both stockpile stewardship and potentially stockpile management workload in addition to reimbursable work for other customers. For Pantex, it includes potential stockpile management work plus an estimate of work for other Federal agencies. In addition, however, each alternative was assessed for the same low and high single-shift workloads.

The differences in air emission numbers relate to inherent differences in the existing facilities and air emission control equipment at the three sites. Each alternative would utilize essentially the same production processes, and few of the criteria pollutant air emissions stem directly from these production processes.

DOE recognized the apparent differences in these numbers between the alternatives during the development of the PEIS source data. Reviews were conducted to assure consistency and comparability by a team of technical experts with representation from each site. The numbers reflected in the PEIS reflect the consensus opinion of this intersite team.

### 34.17

The commentor believes that the HE fabrication mission at Pantex is the root of the excellent safety record at Pantex, and that separating the two missions at Pantex would destroy the synergistic safety benefits. The commentor expresses concern about accidental explosions that might result from A/D activities at Pantex without benefits of the safety expertise generated by the HE fabrication mission.

- Response: DOE has established procedures to ensure the safety of its workers at all sites. The preferred alternative for HE fabrication was developed by DOE using data and studies on such factors as cost, technical feasibility, technical risk and schedule, ES&H, and national security. The analysis of these factors is presented in the Analysis of Stockpile Management Alternatives report, and the rationale for selecting the preferred alternative is found in the Stockpile Management Preferred Alternatives Report. Both reports are available for public review at the DOE Public Reading Rooms near each site.
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## 40 Nuclear Weapons Policies

### 40.01

The commentors suggest that underground testing should be resumed and/or that the capability to resume nuclear testing should be maintained. Commentors state that the proposed stewardship facilities are new and unproven and are skeptical about the future safety and reliability of the Nation's stockpile without underground testing at NTS. Other commentors state that the United States is required by the National Defense Authorization Act to maintain a readiness posture, and that to be without testing capability with the possibility of unanticipated international developments would be unrealistic and perhaps foolhardy. Other commentors feel that the capability and reliability of our nuclear weapons will be greatly reduced without underground testing, and that the effects of changes or modifications to weapons can only be verified through testing.

- Response: As part of the August 1995 announcement to pursue a CTBT, the President stated that he had been assured "that we can meet the challenge of maintaining our nuclear deterrent under a Comprehensive Test Ban Treaty through a science-based stockpile stewardship program without nuclear testing." However, the President cautioned that, "while I am optimistic that the stockpile stewardship program will be successful, as President I cannot dismiss the possibility, however unlikely, that the program will fall short of its objectives." The President went on further to say that, "In the event that I were informed by the Secretary of Defense and Secretary of Energy... that a high level of confidence in the safety or reliability of a nuclear weapons type which the two Secretaries consider to be critical to our nuclear deterrent could no longer be certified, I would be prepared, in consultation with Congress, to exercise our 'supreme national interests' rights under the Comprehensive Test Ban Treaty in order to conduct whatever testing might be required."

Thus, it is possible--although not probable--that under a CTBT, the United States might one day exercise its "supreme national interests" rights to conduct underground nuclear testing to certify the safety and reliability of its nuclear weapons. Consequently, section 4.12 of the PEIS includes a programmatic evaluation of the environmental impacts of underground nuclear testing at NTS.

### 40.02

The commentors question the rationale, timing, purpose, and need for planned subcritical testing at NTS. One commentor believes that the Draft PEIS fails to consider the programmatic decision on whether to proceed with proposed subcritical hydronuclear experiments as part of the Stockpile Stewardship and Management Program and, if so, where to conduct such experiments. The commentor also believes that the proposed subcritical tests are clearly part of DOE's Stockpile Stewardship and Management Program and that there is no justification for failing to analyze the proposed subcritical tests in the Draft PEIS. Specifically, the commentors are concerned about the need for these tests since the stockpile has been certified to be safe and reliable as recently as November 1995. One commentor asks if subcritical tests are included in the NTS Site-Wide EIS. Other commentors express concern that these tests would be seen internationally as nuclear tests, and that they may affect the Russian elections and the CTBT. One commentor states that weapon configurations could result in fission yields that, while small, would nevertheless contradict the express goal of achieving a zero-yield CTBT. Another commentor states that subcritical testing is a

necessary component of the stockpile mission and can only be performed at NTS. Other commentors state that the PEIS does not adequately consider or analyze these tests, that they should be included in the Final PEIS, and that the tests should be postponed if necessary for inclusion. One commentor states that these tests are necessary, but should be carried out at LANL or LLNL, not NTS. Another commentor questions whether the subcritical tests are a legitimate interim action.

- Response: DOE believes subcritical experiments do not constitute a new activity at NTS. In addition, the Lyner Complex is not a new facility. Subcritical experiments have been conducted at
- NTS over many years. Historically, operations at NTS have included tests or experiments that included both HE and special nuclear materials that were intended to produce no nuclear yield or negligible nuclear energy releases. These experiments frequently remained subcritical (i.e., they did not achieve a self-sustaining fission chain reaction). They were often performed as dedicated, stand-alone experiments. Such experiments were described, for example, as one point safety tests and equations of state tests, and, in the prior terminology, were included under the broad umbrella of nuclear testing since testing with nuclear explosive yield was the predominant activity. Some of these earlier subcritical experiments were conducted on the surface while others were conducted underground in shafts, shallow boreholes, and tunnels. However, environmental considerations resulted in a decision to conduct these experiments only underground so that radioactive materials would not be introduced into the surface environment. The environmental impacts of the surface experiments were principally due to dispersal of special nuclear materials, such as plutonium, and other materials, by the detonation of HE. Subcritical experiments were mentioned in environmental statements prepared by the predecessors of DOE in the early 1970s, as well as in the 1977 NTS EIS under the names mentioned above.

DOE is considering conducting the subcritical experiments referenced by the commentor in the Lyner Complex. Initial work on what is now known as the Lyner Complex began in the late 1960s, but it was not used at that time. Further work took place in the 1980s and early 1990s to develop a complex that could be used to perform intentionally designed low-yield tests or experiments, which, among others, would have included some experiments which would be expected to remain subcritical or provide negligible energy release. The Lyner Complex was completed under the 1977 NTS EIS and was subsequently used for testing purposes. With the moratorium on nuclear testing and the anticipated CTBT, Lyner will be dedicated solely to the conduct of dynamic experiments (including subcritical experiments) and hydrodynamic tests.

The term, "subcritical experiments," does not define a new form of activity at NTS. The use of the term is intended to clarify the fact that such experiments could not achieve the condition of criticality and that they would meet current and prospective U.S. commitments to the moratorium on nuclear testing and the anticipated CTBT. Although the specific term "subcritical" was not used in the previous EISs, some tests and experiments conducted over the past four decades, as well as the impacts of those tests and experiments, are substantially the same as those contemplated by the new terminology.

The principal diagnostic tools that DOE currently uses to study nuclear weapons primaries are hydrodynamic tests and dynamic experiments. The PEIS identifies that DOE, under the No Action alternative, would continue to use testing facilities currently available at NTS and the national laboratories. Additionally, section 3.1.2 of the Final PEIS has been expanded to discuss the issue of subcritical testing.

Note that nuclear detonation does not occur with subcritical testing. The environmental impacts of these tests are well within the previous operational impacts at NTS and are bounded by analyses performed in the NTS Site-Wide EIS as well as this PEIS. The remoteness, large size, and infrastructure at NTS make it a logical location to conduct these experiments.

An analysis of subcritical tests is included in the NTS Site-Wide EIS as part of the continue current operations (No Action) alternative. The impacts which result from operation of the Lyner facility are analyzed in chapter 5, and a description of the facility is located in appendix A of the NTS Site-Wide EIS. Further Lyner Complex details are addressed in a classified appendix to the NTS Site-Wide EIS.

Subcritical experiments are a long standing part of NTS's mission and DOE believes that the provisions of CEQ regulations regarding interim actions are inapplicable to a decision by DOE whether to continue conducting these experiments at NTS after completion of the NTS Site-Wide EIS. In the Stockpile Stewardship and Management PEIS, DOE is proposing ways to augment the existing nuclear weapons stockpile stewardship program for the specific purpose of accommodating the lack of underground nuclear testing, rather than reconsidering the entire stewardship program. Ongoing activities, such as the subcritical experiments at NTS, that are not affected by the decisions to be made in the Stockpile Stewardship and Management PEIS process are not interim actions under the regulations. Therefore, if DOE decides to conduct subcritical tests at NTS in the future, that decision will be made after considering the analysis contained in the NTS Site-Wide EIS, and will be documented in an ROD for that EIS.

#### 40.03

Several commentors ask about the circumstances and people responsible for making the recommendations to resume underground nuclear testing under the "supreme national interest" clause of the CTBT. Specifically, who could make the decision to resume testing and how the decision would be implemented if the stockpile were judged to be unreliable. Commentors are specifically concerned about the pressures experienced by laboratory directors while making the certification of reliability, and what other options were available to them instead of resuming underground nuclear testing. Another commentor is concerned that the responsibility for certification of nuclear weapons rests solely in the hands of the weapons laboratories, with no outside review by unbiased parties.

- Response: Every decisionmaker has certain pressures placed upon him or her. The checks and balances designed into the national laboratory system as well as our Nation's system of government help ensure that decisions are made with the best available knowledge and that numerous viewpoints are taken into account. In announcing U.S. plans to pursue a CTBT, the President also announced a decision and coordination process which would require other military and civilian officials (including Congress), in addition to the laboratory directors, to join in any recommendation to resume underground nuclear testing.

#### 40.04

Several commentors state that nuclear deterrence is necessary and must be maintained and that having a nuclear deterrent permitted the nonproliferation process to work and put the United States in a position to promote peace. Commentors state that our safety and national security has been based on our deterrence policy and that our technological advances, particularly those made by LANL and

LLNL, led to the collapse of the Soviet Union. Other commentators state that nuclear deterrence provides for common worldwide security and that a deterrent remains necessary in light of the threats from other nations and terrorist groups.

- Response: The President has declared that the maintenance of a safe and reliable nuclear weapons stockpile will remain a cornerstone of national security policy for the foreseeable future. Changes to U.S. national security policies in the post-Cold War period have placed two significant constraints on the way DOE has traditionally accomplished its statutory nuclear mission: the United States has declared a moratorium on underground nuclear testing and is not producing new-design weapons. In August 1995, the President declared that the United States was seeking ratification of a zero-yield CTBT. Within these constraints, the proposed actions in this PEIS would enable DOE to maintain the core intellectual and technical competencies necessary to ensure the continued safety and reliability of the smaller and aging stockpile under a CTBT.

#### 40.05

The commentators believe that DOE is assuming a nuclear war-fighting posture instead of a deterrence posture, that U.S. policy relies on violence and that this threatens the rest of the world. Other commentators state that the Stockpile Stewardship and Management Program is driven by the Nuclear Posture Review (NPR), which is based on U.S. first-strike capability, and that DOE has coupled the terms "deterrence" and "first-strike" in order to diminish the difference between the two. Another commentator states that the PEIS did not clearly state if the Stockpile Stewardship and Management Program is only intended to maintain nuclear retaliation capability, and how it would compare two strategies based on first-strike capability or retaliation against a non-nuclear adversary. Other commentators believe that the safety of the weapons is not in question and that DOE is orienting the Program towards examining the explosive yield of the weapons or towards designing new and/or improved weapons. The commentator states that the deterrence would be just as effective with a lower yield weapon. A commentator feels that DOE should develop skills of mediation to be used nationally and universally, instead of threats of weapons and military might, where everyone loses and nobody wins. Other commentators express opposition to the Program stating that we need to wage a war of peace and have a Department of Peace in this country. Another commentator wants to stop the connection between technical research and development and war and killing, stating that if our scientists would benefit from the development of a super computer then it should be placed in one of our great universities, hospitals, or at the Peace Institute and not used for new bomb making.

- Response: One benefit of science-based stockpile stewardship is to demonstrate the U.S. commitment to NPT goals; however, the U.S. nuclear posture is not the only factor that might affect whether or not other nations might develop nuclear weapons of their own. Some nations that are not declared nuclear states have the ability to develop nuclear weapons. Many of these nations rely on the U.S. nuclear deterrent for security assurance. The loss of confidence in the safety or reliability of the weapons in the U.S. stockpile could result in a corresponding loss of credibility of the U.S. nuclear deterrent and could provide an incentive to other nations to develop their own nuclear weapons programs. Also see the response to comment summary 40.60 for additional discussion of the stockpile stewardship and management alternatives and arms reduction goals.

#### 40.06

The commentors state that nuclear weapons are not a deterrent; do not maintain peace; are unnecessary, immoral, and unethical; and should be eliminated. Commentors also state that the United States should pursue a policy of complete national and worldwide disarmament and denuclearization, and these options should be considered in the PEIS. The commentors state that these policies would strengthen our national security and our international relations, particularly with respect to our treaty obligations, and that most people worldwide favor the elimination of nuclear weapons. Commentors feel that the United States needs to lead by example and to encourage the rest of the world to follow our lead in disarmament, and that this is the only course of action that will result in nonproliferation. Other commentors state that it is this action that will result in nonproliferation. Other commentors state that the creation and/or maintenance of jobs is not an adequate excuse to continue to build nuclear weapons. One commentor cites the successful disarmament of mustard gas, nerve gas, and antipersonnel weapons as examples for the nuclear weapons industry to follow.

- Response: As a result of the START I Treaty, START II protocol, and NPR, the Nation's nuclear weapons stockpile is being significantly reduced. However, even in the post-Cold War period, international dangers remain, and nuclear deterrence will continue to be a cornerstone of U.S. national security policy for the foreseeable future. Thus, DOE's responsibilities for ensuring the safety and reliability of the U.S. nuclear weapons stockpile will also continue. Stockpile stewardship contributes positively to U.S. arms control and nonproliferation policy goals by allowing the United States to pursue ratification of a zero-yield CTBT and by providing the United States with continued confidence in its weapons to allow for further reductions and to meet its NPT Article VI obligations.

#### 40.07

The commentors state that the proposed Stockpile Stewardship and Management Program, and specifically the proposed stewardship facilities, violate existing and proposed treaties, specifically the CTBT and NPT, and agreements on nonproliferation. The commentors believe that these facilities will lead to new and more powerful weapons designs, continued weapons testing, increased competition among nuclear weapons states, advancement of weapons technology, and provide the impetus and capability to other countries and terrorists to develop nuclear weapons. One commentor states that DOE has decoupled the terms "design" and "development," and "nonproliferation" and "disarmament" and that the United States says there are no plans to produce new weapons but that design activities continue. Commentors also state that the Program will give other nations the impression that the United States is moving forward in its nuclear weapons program (e.g., W-76 recertification, W-88 pit rebuild, and B-61 Modification 11) and is therefore encouraging others to continue with weapons development as well. Commentors state that the long- and short-term nonproliferation impacts have not been fully addressed and analyzed in the PEIS. Other commentors point out that in their view, reestablishing pit fabrication at LANL is against nonproliferation goals and the spirit of the treaties. One commentor states that the nuclear weapons life-extension program is contrary to the NPT. Another commentor feels that the United States should lead the way internationally in START I and II, CTBT, NPT, and all future "nuclear deterrence treaties." International oversight of the stockpile stewardship program could help solve nonproliferation concerns, according to one commentor.

In addition, commentors believe that the PEIS fails to mention that the stewardship program will be used to maintain the expertise of weapons development, research, design, testing, prototyping, and



certification. One commentor states that the rationale for designing new weapons to keep the scientists from getting rusty is not enough to warrant continued design of weapons. Another commentor believes the PEIS should consider a future treaty that may require DOE to disclose whether or not the stewardship program does weapon designing. The commentor believes that DOE should separate the advancement of the science of nuclear weapons from the maintenance work. The commentor also states that we do not need to alter the designs to meet new challenges from other countries.

- Response: The issue of nonproliferation is addressed in section 2.6. As stated in that section, on August 11, 1995, the President announced his commitment to seek a zero-yield CTBT. He also established several safeguards that condition U.S. entry into a CTBT. One of these safeguards is the conduct of science-based stewardship, including the conduct of experimental programs. This safeguard would enable the United States to enter into such a treaty while maintaining a safe and reliable nuclear weapons stockpile consistent with U.S. national security policies.

One benefit of science-based stockpile stewardship is to demonstrate U.S. commitment to NPT goals; however, the U.S. nuclear posture is not the only factor that might affect whether or not other nations might develop nuclear weapons of their own. Some nations that are not declared nuclear states have the ability to develop nuclear weapons. Many of these nations rely on the U.S. nuclear deterrent for security assurance. The loss of confidence in the safety or reliability of the weapons in the U.S. stockpile could result in a corresponding loss of credibility of the U.S. nuclear deterrent and could provide an incentive to other nations to develop their own nuclear weapons programs.

The experimental testing program would continue to be used to assess the safety and reliability of the nuclear weapons in the remaining stockpile. Much of this testing is classified and could not lead to proliferation without a breach of security. Use of classified data from past U.S. nuclear tests is also a vital part of the overall process for validation of new experimental data. Most of the component technology used for the proposed enhanced experimental capability is unclassified and is available in open literature, and many other nations have developed a considerable capability.

Proliferation drivers for other states, such as international competition or the desire to deter conventional armed forces, would remain unchanged regardless of whether or not DOE implemented the proposed action analyzed in the PEIS. In the NPT, the parties agree not to transfer nuclear weapons or other devices, or control over them, and not to assist, encourage, or induce nonnuclear states to acquire nuclear weapons. However, the treaty does not mandate stockpile reductions by nuclear states, and it does not address actions of nuclear states in maintaining their stockpiles. Section 3.1.2 of the Final PEIS has been expanded to address these issues. As explained in that section, the national security policy framework discussed in this PEIS seeks a new balance between U.S. arms control and nonproliferation objectives and U.S. national security requirements for nuclear deterrence while pursuing these objectives (section 2.2). In addition, a discussion is provided on some of the more difficult issues that must be considered in determining the balance, including a discussion of experimental capability (section 2.6). In particular, the issue of nonproliferation and the proposed NIF was studied in detail. The NIF and the Issues of Nonproliferation Draft Study, prepared by the DOE Office of Arms Control and Nonproliferation, has been the subject of extensive public involvement, interagency review, and review by outside experts. The study concluded that the technical proliferation concerns of NIF are manageable and can therefore be made acceptable

and that NIF can contribute positively to U.S. arms control and nonproliferation policy goals (appendix section I.2.1 of Volume III). NIF is a proliferation concern because of its broader scientific applications and expected frequent use by researchers worldwide and, like the other proposed enhanced experimental facilities, because of its possible relevance to the development of new weapon designs. However, the development of new weapon designs requires integrated testing. None of the proposed facilities, either alone or together, could perform such integrated testing of new concepts and, therefore, cannot replace nuclear testing for the development of new weapon designs. The national security policy framework and the technical issues that drive the proposed action for enhanced experimental capability remain the same.

DOE is directed to maintain nuclear weapon capability, including the capability to design, develop, produce, and certify new warheads. In addition, maintenance of the capability to certify weapon safety and reliability provides a limited inherent capability to design and develop new weapons. However, no new-design nuclear weapon production has been directed. DOE has not advanced a rationale of new weapon design "to keep scientists from getting rusty." Instead, DOE has advanced a comprehensive program of stockpile stewardship and management which maintains essential capabilities for stockpile safety and reliability while meeting other legal and policy directives.

Regarding the comment on the Life Extension Program, the Nation is no longer developing new-design weapons to replace existing weapons. Consequently, weapons' lifetimes are expected to extend beyond their original design goal of about 20 years. In accordance with our international treaty obligations, the Nation's nuclear weapons stockpile is being significantly reduced, and the Nuclear Weapons Stockpile Memorandum (NWSM) accounts for these reductions. The Life Extension Program is a term used to describe the planning activities which ensure that the nuclear weapons remaining in the stockpile will continue to be safe and reliable. The Life Extension Program is consistent with the NWSM and our international treaty obligations.

Regarding comments that enhanced experimental capabilities are directed more at the capability to design new weapons in the absence of nuclear testing than at maintaining the safety and reliability of the existing stockpile, this PEIS explains why these capabilities are needed to maintain the safety and reliability of a smaller, aging stockpile in the absence of nuclear testing (chapter 2). The existing U.S. stockpile is highly engineered and technically sophisticated in its design for safety, reliability, and performance. The stewardship capabilities required to make technical judgments about the existing stockpile are likewise technically sophisticated; therefore, it would be unreasonable to say that these stewardship capabilities could not be applied to the design of new weapons, albeit with less confidence than if the weapons could be nuclear tested. The development of new weapon designs requires integrated nuclear testing such as occurs in nuclear explosive tests. Short of nuclear testing, no single stockpile stewardship activity, nor any combination of activities, could confirm that a new-design weapon would work. In fact, a key effect of a zero-yield CTBT would be to prevent the confident development of new-design weapons. National security policy requires DOE to maintain the capability to design and develop new weapons, and it will be a national security policy decision to use or not use that capability. Choosing not to use enhanced experimental capability for new weapon designs would not change the technical issues for the existing stockpile and, therefore, the stewardship alternatives would not change.

- The issue of new-design weapons is separate from DOE's need to perform modifications to existing weapons that require research, design, development, and testing. The phrase used in

this PEIS, "without the development and production of new-design weapons," is meant to convey the fact that the historical continuous cycle of large-scale development and production of new weapons designs replacing older weapon designs has been halted. For example, during the 1980s, about a dozen new-design weapons were in full-scale development or production. Over the decade, production of new-design weapons replaced dismantled weapons nearly one for one. Today, only modifications to parts of existing weapons are being performed or planned; dismantlement has continued. This results in a smaller aging stockpile that must be assessed and certified without nuclear testing. This is now the primary focus of the stewardship program.

#### 40.08

Some commentators believe that there was no willful collusion among laboratories to further their weapons complex activities; however, the commentators question the ability of the proposed plan to get the job done. A number of commentators believe that political and laboratory interests were influencing the Stockpile Stewardship and Management Program plan and alternatives and that the focus should be on national security and not politics. Commentors state that the laboratory scientists and contractors responsible for developing the program were using "inside" and classified knowledge and influence to advise decisionmakers on furthering their weapons program activities while reducing the manufacturing mission at production plants, and that this could have detrimental long-term effects. A commentor states that the PEIS attempts to justify the stewardship facilities which will primarily benefit the western laboratories, which already provide redundant capabilities. Another commentor refers to the statement made by Dr. Smith to the Armed Forces Subcommittee that, "Today, we do not have the capability to manufacture replacements for warheads that comprise our existing stockpile," and questions why DOE was proposing to slash production capabilities while building up basic programs at the weapon laboratories. Other commentators believe that there were others, such as retired scientists and experts, who should be involved in the study and that the focus on the laboratories and their input was a mistake.

- Response: Production and laboratory functions are different, but the difference is reduced as the size of the production requirements becomes smaller. The first atomic weapons were not only designed but also constructed at the weapons laboratories. The laboratories have always had the capability for small lot production principally in order to test out designers' theories. In some respects, this could be considered an advantage by increasing the synergism between the two activities. Based on the environmental, cost, and technical analyses that have been performed, the preferred alternative is to downsize the stockpile management functions at ORR, KCP, and Pantex, and not transfer them to the laboratories and NTS.

In the PEIS preferred alternative, the only "production capability" which is being considered for one of the national weapons laboratories is the reestablishment of pit fabrication. This function does not presently exist within the Complex and has not existed for some time due to the 1991 shutdown and subsequent closing of the Rocky Flats Plant. Two sites were considered as alternatives for the pit fabrication mission: LANL, which already has an active program involving both fabrication and recovery of plutonium and has fabricated pits for nuclear explosive testing, and SRS, which has separated and produced plutonium metal from reactor targets and has recovered plutonium from scrap materials. Analysis discussed in the Analysis of Stockpile Management Alternatives *report* shows that the LANL alternative is lower in cost and has less technical risk than the SRS alternative. Technical risk is greater for the SRS alternative because LANL has recent experience in providing pits for nuclear explosive testing,

whereas SRS has no experience with the kind of capabilities required for precision nuclear component manufacturing. Additionally, the LANL capability could be in place two years earlier than the SRS capability. The Analysis of Stockpile Management Alternatives *report* is available for public review at the DOE Public Reading Rooms near each site.

It is true that projected needs may actually turn out to be higher or lower than the actual needs. This is one reason why the downsize-in-place alternative is the preferred option for most stockpile management missions. The proposed action for stockpile management would downsize facilities over a number of years, but this action can be reversed if necessary.

In the event science-based stewardship proposals could not assure the continued safety and reliability of the nuclear weapons stockpile, the resumption of underground testing at NTS would be considered. On August 11, 1995, the President stated that if he was informed by the Secretaries of Defense and Energy that a high level of confidence in the safety or reliability of a nuclear weapons type considered critical to the nuclear deterrent could no longer be certified that he would be prepared, in consultation with Congress, to exercise our "supreme national interests" rights under the CTBT to conduct whatever testing might be required.

Chapter 2 of the PEIS discusses the national security policy considerations and the role they play in defining the purpose of and need for the Stockpile Stewardship and Management Program. DOE participates regularly in Congressional hearings on defense issues in which the stockpile stewardship and management issues are discussed. Congress determines how funds are allocated, and DOE spends monies consistent with Congressional direction. Therefore, Congress ultimately determines whether the preferred alternatives of the program will be implemented.

The majority of the U.S. core competencies and capabilities in nuclear weapons reside at the weapons laboratories. Proposing to locate new stewardship facilities at the weapons laboratories and NTS would expand existing facilities at sites with an experienced knowledge base and infrastructure and would help maintain the core intellectual and technical competencies of the weapons laboratories. Proposing to locate stewardship facilities at sites without the knowledge base and infrastructure would be counterproductive to the development of science-based stockpile stewardship.

#### 40.09

One commentor refers to an article in the New York Times in February that stated DOE was having trouble verifying that sources of weapon grade materials in Russia were actually coming from the dismantlement of weapons. The commentor suggests that DOE not only look at downsizing, but look at what they are going to do in terms of verifying sources of weapons grade materials in Russia.

- Response: The PEIS does not address actions to secure and dispose of excess fissile materials. A major objective of the programmatic alternatives addressed in the Storage and Disposition Draft PEIS, however, is to demonstrate and encourage bilateral actions on both U.S. and Russian weapons grade plutonium. The commentor is referred to the purpose and need in the Storage and Disposition Draft PEIS for a more complete discussion of this subject.

#### 40.10

The commentor would like DOE to consider site location (proximity to population centers) in the decisionmaking process and urges DOE to perform their missions somewhere else.

- Response: An indepth analysis was conducted to identify the potential environmental impacts associated with the reasonable alternatives. This analysis included proximity to population centers, along with many other factors so that absolute and comparative impact analyses can be made. Specifically, chapter 4 utilizes proximity to population centers in calculating both normal operational exposures and exposures resulting from accident scenarios for each of the alternatives considered.

#### 40.11

Several commentors express concern about the optimism of world peace in the future and that we are not protecting the option that the world might revert to a more hostile place. Commentors state that the laboratories need to maintain a complete understanding of nuclear weapons, particularly in light of the CTBT. Commentors would like the PEIS to consider the possibility of nonratification of START II and noncompliance with the CTBT and discuss the possibility that we may need stockpile levels higher than START I. Other commentors note that even if the United States and Russia honor nonproliferation agreements other nations or groups may not and that the United States should prepare for this eventuality. Another commentor states that the Stockpile Stewardship and Management Program fails to meet its objective of protecting the Nation's ability to respond to changing national security needs.

- Response: The base case analyzed in the PEIS assumes a START II-sized stockpile. The PEIS also analyzes a higher case, which represents a START I-sized stockpile. DOE cannot speculate about the pace of Russian nuclear weapon dismantlement. However, by structuring the Stockpile Stewardship and Management Program consistent with the DOD NPR and associated PDDs, DOE has built flexibility into the Program to respond by maintaining at START I stockpile levels (which Russia has ratified) or making faster and deeper stockpile reductions in response to further arms reduction agreements.

DOE continues to carefully evaluate the size of the weapons complex necessary to support projected stockpile and national security needs. It is true that projected needs may actually turn out to be higher or lower than the assumed needs. This is one reason why the downsize-in-place alternative is the preferred option for most stockpile management missions. The preferred alternatives for stockpile management would downsize facilities over the coming years, but this action can be reversed if necessary. If DOE were to transfer stockpile management missions from a site, those facilities would be less amenable to rapid expansion. Therefore, the downsize-in-place option gives DOE the most flexibility in the next several years to react to changing world events should the need arise.

#### 40.12

Commentors state that the money spent on nuclear weapons and the Stockpile Stewardship and Management Program should be spent on other more needy social programs, and that the jobs created are not worth the negative ramifications of the Program. One commentor believes that enormous amounts of taxpayer money are being wasted on militarily unusable weapons. Other commentors believe that the money should be spent on more useful programs such as medical care, day care,

education, feeding the hungry, housing, infrastructure, conservation, renewable energy, and environmental cleanup. Another commentor feels the United States should invest in peace, trust, and equality. Commentors also believe that the Stockpile Stewardship and Management Program is a pork barrel project for the nuclear military industrial complex and the corporations that serve the complex. A commentor also states that national security is really about having a well-educated, nonviolent, clean, and safe community, and not nuclear weapons. Other commentors ask why the public should feel comfortable with a plan that is very costly and gives us less, not more, nuclear deterrent.

- Response: Since the end of the Cold War, the DOE nuclear weapons program budget has been reduced significantly from its Cold War level. The Stockpile Stewardship and Management Program proposes further facility downsizing to optimize U.S. capabilities to meet future reduced stockpile levels. DOE proposes to the Congress a level of funding each year which meets Administration and Congressional policy directions. DOE is not in a position to make the difficult tradeoffs that may be required between alternative Federal programs.

#### 40.13

Many commentors question the Stockpile Stewardship and Management Program costs and request clarification and more discussion of the details and assumptions used in the cost analysis. Several commentors want to see the cost analysis presented in the PEIS. Specific issues expressed by the commentors include the request for more information on D&D costs, life-cycle costs, transportation costs of moving pits, site transition costs, enhanced experimental program costs, training costs of new workers, remediation and cleanup costs, and program cumulative and annual costs.

Several commentors, concerned with the cost of the stockpile stewardship facilities, ask if current facilities could be used since millions of dollars have been spent on maintaining these capabilities at the Complex sites. Other commentors state that there may be more cost-efficient ways of achieving stockpile stewardship and management goals, such as "piggybacking" onto the current sites rather than transferring these activities elsewhere. One commentor also asks what is the annual cost of the proposed Stockpile Stewardship and Management Program for the next decade and how does this cost compare to the cost of a conventional surveillance program, such as the one that has been used successfully for the last 50 years. Commentors also express concern that with the current cutbacks in the Federal budget, spending money on new facilities is counterproductive. One commentor asks how much money will be saved by rightsizing the weapons complex as proposed. Another commentor states that the cost analysis was faulty in showing the downsizing of Pantex was more cost-effective than relocating the A/D and HE missions to NTS.

- Response: The PEIS provides documentation on the potential environmental impacts associated with the reasonable alternatives. Cost is one of the factors considered in developing the alternatives and identifying the preferred alternatives. Two separate reports have been prepared, the Analysis of Stockpile Management Alternatives *report*, and the Stockpile Management Preferred Alternatives Report which outline the costs of the various alternatives and the role costs play in the rationale for selecting the preferred alternatives. These documents are available for public review at the DOE Public Reading Rooms located near each site.

The downsize-in-place alternatives were chosen for several reasons including the availability of a trained workforce, existing mission site infrastructures, the ability to expand capabilities in the event of a change in world events, as well as other factors. Clearly cost is an important

factor, not only the cost of D&D of surplus facilities but the costs of constructing new facilities and their eventual D&D must also be considered as well.

The cost analysis that DOE has performed to address alternative sites for accomplishment of the stockpile management missions has been performed with participation from all weapons complex sites. To assure peer review of cost estimates, each site was given the opportunity to review and critique the cost estimates provided by the competing sites. In addition, DOE commissioned an independent validation of the cost estimates. Relocation of the HE mission from Pantex to NTS was not considered a reasonable alternative and was not addressed in the PEIS.

In the No Action alternative, the PEIS analyzes the alternative of relying on existing facilities and capabilities to perform the stockpile stewardship mission. However, as explained in section 3.1.4, relying on existing facilities would not ensure DOE's ability to maintain core competencies in nuclear weapons in the long-term while also maintaining a safe and reliable, smaller, aging, U.S. stockpile. Thus, enhanced experimental facilities are proposed and evaluated in the PEIS.

#### 40.14

Commentors state that underground testing should cease, the capability to resume testing should not be maintained, and the NTS testing area should be closed. Commentors state that there is no technological justification for testing, that closing the test site would demonstrate U.S. resolve in ending its weapons programs, and that it would be more fiscally responsible to stop testing. Other commentors state that underground testing contaminates the land and produces more nuclear waste. One commentor compares the Stockpile Stewardship and Management Program to the Safeguard C program, which maintained atmospheric testing readiness but was discontinued when Congress learned of its costs. Another commentor questions the need for funding NTS at such an enormous cost.

- Response: The United States has ceased underground nuclear testing and is pursuing a CTBT. The President also stated that he had been assured "that we can meet the challenge of maintaining our nuclear deterrent under a Comprehensive Test Ban Treaty through a science-based stockpile stewardship program without nuclear testing." However, the President cautioned that, "while I am optimistic that the stockpile stewardship program will be successful, as President I cannot dismiss the possibility, however unlikely, that the program will fall short of its objectives." The President went on further to say that, "In the event that I were informed by the Secretary of Defense and Secretary of Energy... that a high level of confidence in the safety or reliability of a nuclear weapons type which the two Secretaries consider to be critical to our nuclear deterrent could no longer be certified, I would be prepared, in consultation with Congress, to exercise our 'supreme national interests' rights under the Comprehensive Test Ban Treaty in order to conduct whatever testing might be required."

Thus, it is possible--although not probable--that under a CTBT, the United States might one day exercise its "supreme national interests" rights to conduct underground nuclear testing to certify the safety and reliability of its nuclear weapons. Consequently, section 4.12 of the PEIS includes a programmatic evaluation of the environmental impacts of underground nuclear testing at NTS.

## 40.15

Several commentors state that DOE should not spend funds to continue the production and maintenance of nuclear weapons, but instead should divert the funds and technical expertise to developing methods of neutralizing radioactive waste and to clean up from past activities.

Commentors state that legacy waste from past weapons complex activities should be cleaned up first (e.g., the Chemistry and Metallurgy Research building at LANL) before any new projects or programs are started and additional wastes are created. One commentor believes that classification issues are hindering cleanup efforts. Another commentor states that contamination problems at NTS should have been addressed earlier in the process before the Draft PEIS was prepared. Commentors are concerned about the availability of funds for proposed cleanup of excess facilities once turned over to Environmental Management for disposition. One commentor states that the Nation could only afford to maintain a minimal stockpile since we are faced with the immense cost of cleaning up the environmental problems caused by the nuclear weapons industry.

- Response: DOE has a program to decontaminate and make available for other uses its excess facilities. The budget for this activity has increased significantly since the end of the Cold War. DOE has made every effort to prioritize the cleanup of these excess facilities based on risk. Therefore, as the commentor alludes, some low risk facilities may wait a significant time period for decontamination because the higher risk facilities are addressed first. However, DOE has demonstrated a commitment to bring excess facilities to a safe shutdown condition awaiting decontamination, and to maintain these excess facilities in a safe condition until decontamination can proceed. DOE is committed to both the cleanup of its excess facilities, but also to maintain a nuclear weapons stockpile to meet national policy directives.

As stated in section 3.1.1, Planning Assumptions and Basis for Analysis, DOE would emphasize compliance with applicable laws and regulations and accepted practices regarding industrial and weapons safety, safeguarding the health of workers and the general public, protecting the environment, and ensuring the security of nuclear materials, weapons, and weapons components. DOE would also minimize the use of hazardous materials and the number and volume of waste streams consistent with programmatic needs through active pollution prevention programs and waste minimization. The Chemistry and Metallurgy Research building at LANL is an analytical chemistry laboratory that has been in continuous use since 1952. See the response to comment summary 40.90 for further discussion on the Chemistry and Metallurgy Research building.

The LLW disposal facility of NTS has been designed, constructed, and managed in such a way so as to handle safely the materials disposed of in this facility. This facility was sited due to the remoteness of NTS, the depth of the groundwater, and other factors which contribute to assuring the disposal of these materials can be conducted in a safe manner.

## 40.16

The commentor recognizes the significance of downsizing and wants to know if the PEIS discusses a transition funding similar to that at the Mound Plant (e.g., reuse of plants, refitting, and revised missions that could possibly give futures to some displaced workers).

- Response: This is a programmatic document and, as such, does not address detailed site-



specific transition planning. In the event that a decision is made to adopt the preferred alternative, further site-specific review would take place. When DOE closes a facility, a transition plan is developed, detailing the cleanup plans, disposition of equipment, and ultimate disposition of the land. There is an established process for including the adjacent communities in this process and DOE's Office of Economic Assistance has grants and other support services to assist in the retraining and out-placement of all adversely affected employees.

It is DOE policy to reassign employees to new missions whenever possible. As stated in sections 4.2.3.8, 4.4.3.8, and 4.5.3.8., the DOE Office of Worker and Community Transition would

- oversee the workforce restructuring plans for ORR, KCP, and Pantex. This plan would be developed in conjunction with the affected communities, local governments, and elected officials. Factors considered in these plans would include additional professional and vocational training at local schools during the transition period; academic and vocational counseling; help in preparing resumes and preparing for job interviews, financial planning, and job searching techniques; coordination with local businesses and economic development agencies to identify available jobs; and means of informing the business community of skilled personnel in the labor market.

#### 40.17

The commentors raise concerns that the PEIS ignores the significant body of Congressional hearings and testimony that science-based stewardship is not guaranteed to work, or that if it works it will not be ready for at least another 10 years.

- Response: The purpose of the PEIS is to evaluate reasonable alternatives for the future weapons complex in order that we may determine how best to assure the continued safety and reliability of the nuclear weapons stockpile in the absence of underground nuclear testing. Science-based stewardship is the alternative to underground nuclear testing. While DOE recognizes that there is an inherent risk in any surrogate for underground nuclear testing, we are confident that the science-based stewardship program can be successful. Nonetheless, because there can be no absolute guarantee of complete success in the development of enhanced experimental and computational capabilities, the United States will maintain the capability to conduct underground nuclear tests under a "supreme national interest" provision in the anticipated CTBT.

#### 40.18

The commentator states that DOE has focused almost exclusively on preserving the capabilities and core competencies of the national laboratories, while paying little attention to the production plants. The commentator also states that the PEIS does not deal adequately with the production capacity that will be needed to maintain the stockpile over the next 10 or more years, and states that the entire PEIS analysis is based on optimistic assumptions about future arms control agreements.

- Response: The preferred alternatives described in the PEIS would preserve the critical capacity and unique assets that exist in DOE's production plants. Although there would be downsizing of the production plants commensurate with a downsized stockpile, none of the production plants would be closed. The PEIS addresses plant operations to support a range of stockpile sizes consistent with DOD plans, as reflected in the NPR and the NWSM. A "No Action"

alternative is also addressed which essentially preserves the status quo (no downsizing of facility infrastructure).

DOE does not believe that the preferred alternative of downsizing reflects undue optimism about future arms control agreements. The stockpile has already been significantly reduced through dismantlement. Post-Cold War dismantlement to the START I-sized stockpile is already more than 70 percent complete and the remainder is scheduled to be completed within a few years. Regarding the production capacity cases analyzed, they reflect our best estimates based on analysis of historical stockpile problems and the current status of the weapons expected to remain in the future stockpile. The technical and cost analyses for production capability and capacity alternatives were published in two draft reports released in support of the Draft PEIS: the Stockpile Management Preferred Alternatives Report; and the Analysis of Stockpile Management Alternatives report, both dated February 1996. These reports will be released in final form to support the Final PEIS. Our analysis indicates that downsizing, which would occur over a protracted period of time, is the most cost-effective solution, involves the least technical risk, and affords the Nation the most flexible strategy in the event that national security policies change or future stockpile problems are greater than we anticipate.

#### 40.19

Several commentors question the need for new pit manufacturing citing concerns of advancing new nuclear weapons design (e.g., mini nukes) and increasing the pit stockpile when plenty of pits are already available for reuse in weapons. Other commentors express their opposition to pit manufacturing activities at LANL. Another commentor questions the workload associated with the pit fabrication options.

- Response: Because of the small demand for the fabrication of replacement plutonium pits over the next 10 or more years, DOE did not propose a new pit fabrication facility with a capacity equivalent to the capacities required for other portions of the nuclear weapons production complex. However, limited fabrication of new replacement pits would be required to maintain capability and to replace pits lost during weapon surveillance. Section 3.6 discusses DOE's future plans should a life-limiting phenomenon be found in stockpile pits and a larger pit fabrication capacity be required.

The No Action alternative discussed in section 3.4.3.1 would maintain only a limited plutonium R&D component fabrication capability at LANL and a less extensive capability at LLNL, and it would not provide DOE with sufficient pit fabrication capability to meet the requirements stated in section 3.1. DOE does not consider it prudent to pursue an alternative which would prevent it from fulfilling its national security mission. Additionally, DOE is under the direction of the President and Congress, through PDDs and the National Defense Authorization Act of 1994, to support the maintenance of a safe and reliable nuclear weapons stockpile, and to maintain the core intellectual and technical competence of the United States in nuclear weapons. This includes competencies in research, design, development, testing, reliability assessment, certification, manufacturing, and surveillance capabilities. The preferred alternative for the pit fabrication mission is to reestablish production capability with a limited capacity at LANL. The preferred alternatives were developed by DOE using data and studies on such factors as cost, technical feasibility, technical risk and schedule, ES&H, and national security. The Analysis of Stockpile Management Alternatives report which contains the analysis of these factors is available for public review at the DOE Public Reading Rooms near

each site. To bound the potential environmental impacts at each site, the PEIS estimates are based on "surge" or maximum production scenario. Because it is expected that this workload would be performed in existing facilities that would be modified to perform pit fabrication, it is not surprising that the maximum outputs and the maximum potential environmental impacts varied somewhat between LANL and SRS for this bounding surge case. In addition, however, each alternative was assessed for the same low case and high case single-shift workloads.

#### 40.20

The commentor expresses the view that Pantex should continue to store plutonium, and should be the preferred site for any disposition options and related functions.

- Response: These decisions will not be made until the Storage and Disposition Final PEIS is completed. In that PEIS, Pantex is being considered for the long-term storage of strategic and surplus fissile materials, and as a disposition site for surplus fissile materials. Although no preferred alternatives have been identified for the Fissile Materials Disposition Program, preferred alternatives will be identified in the Final PEIS, expected before the end of 1996. Pantex has many valuable attributes which will be considered in that analysis.

#### 40.21

The commentors express both praise and criticism of DOE's safety and environmental monitoring programs and protection, and insist that all future DOE missions must be conducted in a safe and environmentally sound manner. Commentors believe that moving missions would potentially lead to a decline in worker health and safety protection and an increased threat to the environment at the mission's new site. Other commentors state that classification and the shift of safety responsibility from workers to management has weakened the DOE safety program at some sites, and that worker knowledge and training were necessary for safe operations. One commentor states that he did not trust DOE when it came to ES&H monitoring and felt that workers' fear of losing their jobs prevented people from raising safety concerns. The commentor believes that the current system within DOE to shelter whistleblowers is not effective in protecting the whistleblowers. The commentor believes that the people at LANL were not laid off because they were whistleblowers. One commentor believes that if stockpile stewardship and management work came to LANL, employees with jobs related to health and safety would be hindered from truth-telling from fear of management pressure or job loss, since current management implements a subjective and undemocratic system of employee evaluation and control.

A commentor refers to the Tiger Team findings and tracking program at LANL as an example of DOE's lack of commitment to reducing environment, health and safety issues. Another commentor questions DOE's stated priority on safety in light of their cancellation of the NEWNET air monitoring system. Other commentors state that DOE has not conducted or released enough studies on worker and public health effects and on past accidents and their results. A commentor states that the recent forklift accident, the fatality due to an electrocution and the root causes need to be identified in the Accident History section of the PEIS. The commentor also wants an analysis of the effect of the recent reduction-in-force on the occupational safety at LANL. Another commentor feels the workers at LANL are eminently competent to monitor their own safety and environmental concerns.

- Response: As stated in section 3.1.1, Planning Assumptions and Basis for Analysis, DOE would emphasize compliance with all applicable laws and regulations and accepted practices

regarding industrial and weapons safety, safeguarding the health of workers and the general public, protecting the environment, and ensuring the security of nuclear materials, weapons, and weapons components. DOE would also minimize the use of hazardous materials and the number and volume of waste streams consistent with programmatic needs through active pollution prevention programs and waste minimization. The specific stockpile management assumptions are described in section 3.1.1.1, and the stockpile stewardship assumptions are described in section 3.1.1.2. It is unlikely that a change in environmental regulation would result in a modification to the Stockpile Stewardship and Management Program itself; however, changes to the environmental regulatory setting may necessitate the implementation of additional engineering and administrative controls to meet new standards.

The overall subject of "whistleblower protection" is one which DOE has given extremely high priority. DOE is pursuing an open environment at its facilities so that employees can raise concerns without fear; improvement in this difficult area is always possible. DOE believes it is essential that workers at its facilities have the opportunity to raise safety and environmental concerns without fear of retribution. DOE has programs at all of its sites to provide anonymity to workers who wish to raise such concerns. All concerns are investigated thoroughly and necessary corrective actions are directed.

AIRNET and NEWNET are the two air quality monitoring systems employed by LANL. AIRNET data are reported to the public annually in the Environmental Surveillance Report, and NEWNET data are publicly accessible over the Internet computer links as they are collected. Neither AIRNET nor NEWNET stations went offline during the Dome Fire. Over the past 8 months, LANL has eliminated several AIRNET stations that are no longer needed or were redundant with other sampling as part of an overall effort to streamline the sampling networks to ensure their effectiveness. Just prior to the outbreak of the Dome Fire, LANL reprogrammed four of five monitoring stations in the southern part of laboratory to transmit data at longer intervals in order to determine long-clock stability, but returned to the original transmittal intervals during the Dome Fire to provide better coverage.

There have been several serious accidents at LANL within the past 18 months. Both DOE and the University of California conducted investigations and developed recommendations to improve safety awareness at LANL (see Type A Accident Investigation Report, DOE, March 1996, and Final Report of the University of California Fact Finding Team Concerning Recent Accidents at the Los Alamos National Laboratory, University of California, March 19, 1996). In March 1996, the senior vice president of the University of California directed LANL to implement the University's recommendation, including developing an integrated safety management program. There is no indication that the recent downsizing of LANL staff has had any detrimental effect on occupational safety.

#### 40.22

The commentors ask why information from the Sandia Stockpile Study was left out of the PEIS. In particular, information stating that weapons defects decrease over time and the statement that nuclear weapons do not age, do not wear out, and are not allowed to degrade. Commentors are of the opinion that historical defect rates exceed the expected future stockpile defects and that the proposed Stockpile Stewardship and Management Program is not required. One commentor asks about the age of the weapons in the stockpile and how long they will be maintained. Another commentor asks about the design life of the remaining stockpile weapons and indicates that an enhanced surveillance

program above that currently proposed by DOE may be needed. Despite requests in scoping comments, the commentor states that the Draft PEIS does not analyze whether individual stockpile stewardship facilities are needed to diagnose safety problems, on the one hand, and reliability problems on the other.

- Response: Chapter 2 of the PEIS discusses aging impacts. The information in section 2.3 is based on the latest data published in the tri-laboratory study. Section 2.3.3 of the PEIS, Historical Stockpile Data, provides a summary of stockpile defect and aging data that were used as an input for sizing the Stockpile Stewardship and Management Program. This information was extracted from an unclassified report, Stockpile Surveillance: Past and Future, dated September 1995.

As explained in that section, continuous evaluation of the safety and reliability of the stockpile has always been a major part of the U.S. nuclear weapons program. Since the introduction of sealed-pit weapons more than 35 years ago, a formal surveillance program of nonnuclear laboratory and flight testing has been in existence. More than 13,800 weapons have been evaluated in this program. The Stockpile Evaluation Program, with its reliance on functional testing, has provided information that can be used in the statistical analysis of nonnuclear component and subsystem reliability. This program has detected about 75 percent of all problems ultimately detected, and it has been the principal mechanism for discovering defects and initiating subsequent repairs and replacements. However, not all aspects of a nuclear weapon can be statistically assessed this way. Weapons R&D at the three weapons laboratories and nuclear testing have played an important part in assessing the stockpile and in making corrective changes when needed.

Nuclear tests have been a critical part of the nuclear weapons program. They have contributed to a broad range of activities from development of new weapons to stockpile confidence tests to tests that either identified a concern or showed that remedial actions were not needed. However, the United States has not conducted a sufficient number of nuclear tests for any one weapon type to provide a statistical basis of reliability assessment for the nuclear explosive package. This is why the word "performance" instead of "reliability" is used when discussing a nuclear explosive package.

Although nuclear tests were never a part of the formal Stockpile Evaluation Program, they played an important role in maintaining the safety and performance of the weapons in the stockpile. Every advantage was taken of developmental nuclear tests to eliminate potential nuclear explosive problems. In some cases, nuclear testing during development of one weapon type uncovered a problem that was pertinent to a previous design already in the stockpile, which then had to be corrected. Nuclear tests identified certain classes of stockpile problems not observable in the surveillance program. Nuclear tests have been used to resolve issues raised by the Stockpile Evaluation Program, such as whether a particular corrosion problem affected the nuclear yield of a weapon. Nuclear tests have also been used to verify the efficacy of design changes. For example, the adequacy of certain mechanical safing techniques was determined through nuclear testing. In the case of a catastrophic defect, tests have been used to certify totally new designs to replace an existing design. Finally, in some cases, nuclear testing proved that a potential problem did not exist.

Beginning in the late 1970s, DOD and DOE agreed to a formal series of underground nuclear tests of weapons withdrawn from the stockpile. These tests were referred to as Stockpile

Confidence Tests. They differed from developmental nuclear tests because the weapons were from actual production, had experienced stockpile conditions, and had minimal changes made to either nuclear or nonnuclear components prior to the test. There have been 17 such confidence tests since 1972, including 4 tests in the early 1970s that were not officially designated as Stockpile Confidence Tests. Confidence tests have been conducted for each of the weapon types expected to remain in the stockpile well into the next century.

In addition to the 17 confidence tests, at least 51 additional underground nuclear tests have been conducted since 1972 involving nuclear components from the stockpile, components from the actual weapon production line, or components built according to stockpile design specifications and tested after system deployment. The objectives of these tests included weapon effects, weapons R&D, confirmation of a fix, or investigation of safety or performance concerns. Three of these tests (in addition to one confidence test) revealed or confirmed a problem that required corrective action. Four tests (in addition to three confidence tests) confirmed a fix to an identified problem. Additionally, five tests were performed to investigate safety concerns affecting three different weapon types. These five tests verified that a problem did not exist.

The confidence in the performance of the nuclear explosive package has been based on underground nuclear test data, aboveground experiments, computer simulations, surveillance data, and technical judgment. The directors of the three weapons laboratories must certify the nuclear performance of the weapons designed by their laboratory. In a future without additional nuclear testing, the core capabilities of the weapons laboratories that were developed to eliminate potential problems in new weapon designs must now be employed to assess stockpile problems. However, in the absence of nuclear testing, the ability to assess nuclear components is more difficult; new methods of assessment, discussed later, will have to be developed to help compensate for this loss.

The historical stockpile database includes more than 2,400 findings from more than 45 weapon types. Findings are any abnormal conditions pertaining to stockpile weapons, such as out-of-specification data. Findings are then investigated and assessed as to whether or not they are a problem. Actionable findings are those that require some form of corrective action. All major components and subsystems have had problems that required corrective actions. The number of findings for nonnuclear components is much larger than that for nuclear components largely because there are so many more nonnuclear components in a nuclear weapon that require testing more frequently. However, the ratio of actionable findings to distinct findings is much greater for the nuclear components. Thus, when a finding has occurred for a nuclear component, it has generally been a serious one requiring corrective action. Often these corrective actions to nuclear components have required changes to all of the weapons comprising the weapon type affected.

For the nuclear explosive package, there were approximately 110 findings on 39 weapon types requiring some remediation either to the entire build of that design or to all weapons produced after the particular finding. In addition to rebuilds and changes in production procedures, other actions included imposing restrictions on the weapon, accepting a performance decrement, and in several cases, conducting a nuclear test to determine that the finding did not require any physical change. There have been other instances not counted as actionable where a material was chemically changing and the weapon was closely monitored to see if further action was necessary or it was an isolated case that did not require remediation.

The commentators, in referring to the Sandia Stockpile Study, are referring to briefing materials which were made publicly available earlier in 1995 which dealt with only a portion of the nuclear weapons historical defect and aging information. As described in chapter 2 of the PEIS, the Stockpile Stewardship and Management Program has been constructed to support national security policy directions as provided to DOE by the President and the Congress. Though weapon safety and weapon reliability can be driven at times by different phenomena, they are also related in that an essential ingredient of weapon safety is predictable response in all weapon environments, including potential accidents. Each of the proposed stockpile stewardship facilities would enhance the ability to make judgments about the safety and reliability of the nuclear weapons stockpile in the absence of underground nuclear testing. Section 3.1.2 has been expanded in the Final PEIS to provide a more detailed description and justification of DOE plans relative to national security policy and the issue of weapon safety and reliability. As explained in that section, national security policy from the President and Congress requires a safe and reliable stockpile. In order for the nuclear deterrent to be credible within the current national security policy framework, it must be reliable in a militarily effective way. From a PEIS perspective, separating safety and reliability is similar to the issue discussed under stockpile size (section 3.1.2.4, Denuclearization). It would require DOE to speculate on an alternate concept of nuclear deterrence and a national security policy framework to support it.

Commentors have also suggested acceptance of lower standards of reliability as an alternative to enhanced stewardship capabilities. This PEIS explains how the assessment and certification of nuclear performance is carried out and how this differs from the more conventional statistical methods used for assessing reliability of the nonnuclear portion of the weapon. Assessment and certification of nuclear performance is a technical judgment by the weapons laboratories based on scientific theory, experimental data, and computational modeling (sections 2.3 and 2.4.1). The question is not whether to accept a lower standard of nuclear performance (less nuclear explosive yield), but whether or not there is a technical basis to confidently know how well the weapon will perform at all. Enhanced stewardship capability is focused on the technical ability to confidently judge nuclear safety and performance in the absence of nuclear testing.

Aside from being inconsistent with the national security policy, attempting to separate weapon safety and reliability, is more technically complex than it sounds. A modern nuclear weapon is highly integrated in its design for safety, reliability, and performance. It contains electrical energy sources and many explosive energy sources in addition to the main charge HE. The principal safety concern is accidental detonation of the HE causing dispersal of radioactive materials (plutonium and uranium). Modern weapons are designed and system-engineered to provide a predictable response in accident environments (e.g., fire, crush, or drop). However, because of the technical complexity of potential accident scenarios (i.e., combined environments) and the fact that complete nuclear weapons cannot be used for experimental data, assessment of the design and the effect of changes that might be occurring due to stockpile environments must rely on other sources of experimental data and complex computer modeling. Enhanced experimental capability specifically related to the weapon secondary is a nuclear performance concern. Enhanced computational capability in general, and enhanced experimental capability related to the weapon primary in particular, are both nuclear safety and performance concerns.

## 40.23

The commentors express support for maintaining production missions at the production sites, and for maintaining the funding required to continue these activities. Commentors urge DOE to keep production missions at production plants that have the experience and proven safety record to complete assigned tasks. Commentors state that the existing production infrastructure, personnel, and experience at production sites made moving these missions to a laboratory an unreasonable alternative. In the view of many commentors, production and R&D cultures were not compatible and merging them would jeopardize the defense of the Nation. One commentor further states that the quality and integrity of today's stockpile is the result of production people and not the laboratories. Commentors believe that there was no adequate peer review of laboratory recommendations or manufacturing capability claims. Commentors also state that design experts were not production literate, and the weapons design and manufacturing functions should remain separate. Other commentors state that the laboratories will not be able to maintain the required quantities and quality of weapons components if they are given the production missions.

- Response: Production and laboratory functions are different, but the difference is reduced as the size of the production requirements becomes smaller. The first atomic weapons were not only designed but also constructed at the weapons laboratories. The laboratories have always had the capability for small lot production principally in order to test out designers' theories. In some respects, this could be considered an advantage by increasing the synergism between the two activities.

Data for the PEIS were developed by working groups for each stockpile management mission. These working groups consisted of experts from each of the potentially affected sites. A review of data for consistency and accuracy was performed at both the working team level and at a senior management level. The alternative of transferring the stockpile management functions that currently exist at ORR, KCP, and Pantex to the laboratories and NTS are evaluated in the PEIS because they are deemed to be reasonable alternatives. Based on the environmental, cost, and technical analyses that have been performed, the preferred alternative is to downsize the stockpile management functions at ORR, KCP, and Pantex, and not transfer them to the laboratories and NTS.

#### 40.24

The commentors question DOE's commitment to attracting and retaining staff at laboratories and production sites. Some commentors believe that DOE was favoring the design laboratories over the production plants, while others believe that because of the reduced workloads, staff and capabilities are being lost everywhere in the weapons complex. The commentors are also concerned that funding for sites, particularly Y-12, was not adequate in maintaining their mission capabilities let alone sufficient to make necessary upgrades at the site. Other commentors contend that the proposed program reduces the production capabilities and personnel within the complex and shifts most efforts to the R&D laboratories and therefore reduces the long-term success and flexibility of the program to meet national security needs. Commentors also note that all the budget increases are slated for the laboratories, while budget cuts are slated for the production complex.

- Response: Maintenance of competency in critical nuclear weapons technologies is a significant management challenge for DOE at both the production plants and the weapon laboratories. It is for this reason that DOE has proposed actions to promote teamwork and integration of work at the plants and laboratories for unique process and material technologies. DOE plans in this



regard are described in more detail in the Stockpile Management Preferred Alternatives Report. An important objective of this teamwork and integration program is to provide a technologically challenging program which would assist in the attraction and retention of technical personnel.

#### 40.25

The commentors state that the analysis and support studies for the management part of the Stockpile Stewardship and Management Program was much more complete and balanced than that for the stewardship part and urged DOE to prepare the same level of analysis for stewardship.

- Response: The PEIS analyzes the potential consequences to the environment if certain programmatic changes to the Complex are implemented. National security policies in the post-Cold War era require that all the historical capabilities of the weapons laboratories, industrial plants, and NTS be maintained. Those processes and facilities, such as stewardship R&D work, that have no potential for being changed or moved as part of this proposal are not analyzed beyond the No Action alternative. DOE is not proposing to make any changes to these existing weapons R&D activities at the three laboratories or NTS. Rather, DOE is proposing to provide enhanced experimental capabilities (NIF, CFF, and Atlas in appendix I, J, and K, respectively) to augment existing R&D activities and stockpile stewardship capabilities so that the safety and reliability of the stockpile can be maintained in the absence of underground testing. The purpose and need for the full range of laboratory capabilities contained at LANL and LLNL and for continued peer review for weapon assessment and certification are explained in chapter 2 of the PEIS.

#### 40.26

For stockpile management, commentors believe that the approach reveals the extent to which the PEIS is narrowly focused on a single, pre-chosen alternative. The commentors state that there is no separate analysis of the high and low cases in which the impacts of these alternatives can be compared to the base case alternative. According to the commentors it is not clear that the different stockpile cases really represent alternatives in the traditional NEPA sense at all, since they apparently will require construction of the same facilities and will have very similar impacts. The commentors also state that the three cases analyzed by DOE (post-START II, START I plus, 1,000 warheads) have minimal effect on the facilities and configurations proposed by DOE such that there is no true programmatic review.

- Response: Two of the stockpile sizes analyzed in this PEIS, a START I Treaty- and START II protocol-sized stockpile, are the only ones currently defined and directed by national security policy. The PEIS also analyzes a hypothetical 1,000 weapon stockpile for the purpose of a sensitivity analysis for manufacturing capacity decisions. The NWSM specifies the types of weapons and quantities of each weapon type by year (section 1.1). The NWSM is developed based on DOD force structure requirements necessary to maintain nuclear deterrence and comply with existing arms control treaties while pursuing further arms control reductions. The PEIS explains the complexity of this process and why DOE does not believe it reasonable to speculate with a large number of arbitrary assumptions (section 2.2). However, this does not mean DOE has failed to consider that a future national security policy framework could define a path to a smaller stockpile.
- Stockpile stewardship capabilities are currently viewed by the United States as a means to

further U.S. nonproliferation objectives in seeking a zero-yield CTBT. Likewise, it would be reasonable to assume that U.S. confidence in its stewardship capabilities would remain as important, if not more important, in future arms control negotiations to further reduce its stockpile. The path to a very small (10s or 100s) or zero stockpile would require the negotiation of complex international treaties that are also likely to require intrusive verification inspections of nuclear weapons related facilities. Therefore, DOE believes it reasonable to assume that complex treaty negotiations, when coupled with complex implementation provisions, would likely stretch over several decades. On a gradual path to a very small or zero stockpile, stockpile size alone would not change the purpose and need, proposed actions, and alternatives in this PEIS as they relate to stewardship capabilities. The issues of maintaining the core competencies of the United States in nuclear weapons, and the technical problems of a smaller, aging stockpile in the absence of nuclear testing, remain the same.

This PEIS evaluates reasonable approaches to stockpile management capability and capacity that are consistent with a gradual path toward a very small or zero stockpile. At some point on this path further downsizing of existing industrial plants or the alternative of consolidating manufacturing functions at stewardship sites would become more attractive as manufacturing capacity becomes a less important consideration. However, in the near term, the preferred alternative of downsizing the existing industrial plants would still be a reasonable action because the projected downsizing investment pays back within a few years through reduced operating expense; in addition, the downsizing actions are consistent with potential future decisions regarding plant closure. In regard to the proposed action for reestablishing pit manufacturing capability, DOE does not propose to establish higher manufacturing capacities than are inherent in the reestablishment of the basic manufacturing capability of LANL, which is the preferred alternative. In developing the criteria for reasonable stockpile management alternatives, DOE was careful not to propose the introduction of significant new types of environmental hazards to any prospective site. Therefore, on a gradual path to a very small or zero stockpile, stockpile size alone would not change the purpose and need, proposed actions, and alternatives in this PEIS with regard to stockpile management capabilities and capacities.

The PEIS does not analyze stockpile size in the PEIS as traditional alternatives in the NEPA sense. Rather, the PEIS analysis is based on the national security policy considerations discussed in chapter 2 of the PEIS and is consistent with and supportive of those national security policies. The PEIS addresses plant operations to support a range of stockpile sizes consistent with recent DOD plans, as reflected in the NPR. More specifically, the PEIS addresses a base case stockpile consistent with the recently ratified START II protocol with additional data for a larger (START I) or smaller (about 1,000 weapons) stockpile. The DOE Stockpile Management Preferred Alternatives Report, which was released to provide programmatic support to the PEIS, describes the DOE manufacturing capacity strategy in more detail. Given the uncertainties in the world, this strategy retains sufficient manufacturing capacity to support the larger START I, yet is also flexible if the stockpile is reduced below START II levels.

It should be noted that regardless of stockpile size, a goal of the Stockpile Stewardship and Management Program, as directed by national policy, is to maintain the core competencies of the United States in nuclear weapons. Industrial capacity is only indirectly affected by projected variances in stockpile size and composition. Stockpile size must be linked with historical stockpile data to arrive at estimates of average industrial capacity needed to produce components for repair or replacement. Because this cannot be done with mathematical precision, reasonable technical judgment must be applied. The resulting forecast is a smaller

industrial base (with capacities on a scale of hundreds of weapons per year versus the scale of thousands of weapons per year that was the capacity prior to the end of the Cold War).

#### 40.27

Several commentors express opposition to the continued operation of all the major DOE weapons laboratories (LANL, LLNL, and SNL). One commentor states that it is not obvious why we need three R&D laboratories when we are not building any new weapons. Other commentors believe that LLNL is an unjustified costly duplication of LANL. In fact, some commentors referring to the Notice of Intent for the PEIS and the PEIS itself state that descriptions of LANL and LLNL are identical. In light of the duplication of effort and especially the Galvin Committee's recommendation, commentors ask how DOE justifies the continued operation of both LANL and LLNL. Another commentor states that the two laboratory option merits consideration. Other commentors are of the opinion that the national laboratories should cease all related nuclear weapons work and instead the country should divert those technical and monetary resources towards civilian uses. According to the commentors, alternate uses for the laboratories should include research into cleaner sources of energy (e.g., solar, wind, and geothermal), recycling and solving the nuclear waste problem.

- Response: On September 25, 1995, DOE was directed by the President to maintain nuclear weapons responsibilities and capabilities at the three weapons laboratories sufficient to ensure continued confidence in the safety and reliability of the nuclear weapons stockpile in the absence of underground nuclear testing. Consequently, both LANL and LLNL, as well as SNL, are required for the foreseeable future.

Although with the end of the Cold War and changes in the world's political regimes the emphasis of the U.S. nuclear weapons program has shifted dramatically, nuclear weapons continue to be a "cornerstone" of national security policy. As long as the President and Congress maintain a defense policy based on nuclear weapons, DOE will continue to have the responsibilities for ensuring the safety and reliability of the U.S. nuclear weapon stockpile. Congress determines how funds are allotted to ensure the continued maintenance of a safe and reliable nuclear deterrent. The purpose and need for the full range of laboratory capabilities contained at LANL and LLNL and for continued peer review for weapon assessment and certification are explained in chapter 2 of the PEIS.

#### 40.28

The commentor would like to know what plan the PEIS is based on and whether it is still the Stockpile Stewardship and Management Program plan, dated May 1995, and whether this plan has undergone significant revisions.

- Response: The PEIS is still based on the Stockpile Stewardship and Management Program plan dated May 1995. While that plan has not undergone substantive revisions, detailed planning of ongoing and future R&D activities continues to evolve (as is expected of R&D) and to be reflected in, for example, the evolution of DOE budget requests to Congress. As discussed in sections 3.3.4 and 4.11 of this PEIS, some of the new facilities described in the May 1995 plan are not yet at a state of maturity appropriate for formal proposal or analysis in this PEIS, nor can all facilities needed to fully implement the Program over time be fully identified at present.

#### 40.29

The commentors state that they were in favor of DOE's plan to downsize the Complex, but did not see these reductions reflected in the PEIS. Nor did the commentors understand how DOE could severely downsize the production plants but at the same time increase the laboratories' capability, capacity, and staff.

- Response: The No Action alternative assumes staffing reductions at DOE facilities over the next several years as overall (primarily weapon dismantlement) workload decreases. Further reductions in facility size and staffing are anticipated under either the "downsize in place" or relocation alternatives for stockpile management functions. Staffing reductions in the core weapons program have occurred at the laboratories in recent years as overall workload and commensurate funding have decreased. Significant staffing increases at the weapons laboratories are not anticipated with the implementation of the stockpile stewardship program. Modest increases would be associated with the introduction of pit fabrication to LANL and the construction and operation of NIF at LLNL. Personnel for new initiatives are expected to come primarily from existing laboratory staff. Employment for other programs at the laboratories (about 50 percent of total employment) is dependent on priorities and decisions outside the scope of the Stockpile Stewardship and Management Program.

#### **40.30**

The commentors express concerns about the threat of layoffs. Commentors believe that employees at LANL were under pressure to support laboratory activities or be threatened with layoffs. The commentors state that employees at TA-55 were laid off even though the future expansion of this area was known. One commentor points out that TA-55 may be vulnerable to sabotage if the constant threat of layoffs exists.

- Response: DOE is aware of the concerns that have been raised by LANL employees whose employment was recently terminated due to overall laboratory downsizing. DOE is working with the University of California to assure fair and equitable treatment of all current and former LANL employees. Overall reductions to laboratory and plant employment, however, have been necessary as overall workload and commensurate budgets have been reduced. Significant staffing increases at the weapons laboratories are not anticipated in the future with the implementation of the stockpile stewardship program. Modest increases would be associated with the introduction of pit fabrication to LANL and the construction and operation of NIF at LLNL.

#### **40.31**

The commentors believe that information available to the public is increasingly being taken out of the public record. A commentor cites the Operating Experience Summary Report which was recently taken offline, presumably to hide the number of troublesome incidents at TA-55. Other commentors cite the new bomb designs that were on the Internet as proof that DOE is still working on new bomb designs. One commentor requests that this Internet document be made available to the public.

- Response: DOE requires its sites to furnish a daily report to notify it of reportable occurrences in the safety and health arena. The daily report provides initial notification for internal use by DOE and the site. After any necessary investigation, DOE and the site prepare a final report which is made available to the public. The daily reports concerning LANL include incidents at

TA-55, although that facility is not afforded any special treatment. At LANL, both the final occurrence reports and an online summary prepared by the laboratory are referred to as the Operating Experience Summary Report. In the past, LANL put preliminary daily occurrence notification reports on its computer network. LANL discontinued this practice because the initial reports contain preliminary information that in some cases is incomplete or inaccurate, and which is superseded by the final reports. The final occurrence reports are available to the public in many forms, including online.

DOE withdrew its DP Home Page from the World Wide Web on March 20, 1996. This action was in response to the discovery that part of the information from the Office of Research and Inertial Fusion came from a number of sources, some of which were outdated. Much of the material in question was drawn from the Report of the Defense Programs Research and Technology Development Program for Fiscal Year 1993, covering the period from October 1, 1992 to September 30, 1993. This report was issued by the Office of Research and Advanced Technology, a precursor office to the Office of Research and Inertial Fusion. The Office of Research and Inertial Fusion constructed its Home Page in early 1995 from the above-mentioned report with links to other activities and documents in the DP Home Page. The links were regularly updated as the DP Home Page evolved, but the text describing Office of Research and Inertial Fusion activities was not. In particular, the specific information related to the Gulf War was only current in late 1992.

DOE has halted production of new-design weapons and is, therefore, not performing such activities. DOE is charged with maintaining the safety and reliability of existing nuclear weapons in accordance with National Security Policy. An updated DP Home Page has been prepared. DOE apologizes for the confusion caused by the outdated material.

#### 40.32

The commentor questions if DOE considered, under the nonproliferation mantle, which facilities or sites pose the least security risk. The commentor states that security capabilities should be addressed in the infrastructure impact analysis. In fact, the commentor suggests that the number of security breaches over the last 10 years should be used as the key method to evaluate the sites' security capabilities. Commentor asks whether there are not competitions and assessments of each site's security possibilities and feels that sites that are lacking in security should not be considered for more work. The commentor adds, if LANL has a bad record like the apparent security breach that helped the Russians develop their first [nuclear] weapon, why DOE does not consider an alternative site where security is taken seriously. Another commentor questions the selection of LANL as a site for additional pit production and for DARHT's "non-destructive testing" based on reports of security deficiencies at LANL indicating a general laxness in readiness to accept a 5-fold increase in pit production. Other commentors refer to Summary section S.2.4 and the statement "much of the (experimental weapons) testing is classified and could not lead to proliferation without a breach of security," stating that this implies that adequate security classification of this component of the nuclear weapons program will somehow preclude proliferation. Commentors feel that the postulated relation between adequate classification and weapons proliferation is not so simple.

- Response: DOE maintains a rigorous safeguards and security program as appropriate at each of its installations and for each of its operations. Specific provisions for safeguards/inspections are addressed in site-specific studies. DOE expects compliance with its safeguards and security requirements at all of its sites.

## 40.33

A number of commentors state that remanufacturing was a reasonable alternative that should be analyzed in the PEIS. In the view of the commentors, the justification stated in the PEIS for eliminating remanufacturing as an alternative for detailed analysis was inadequate and not supported by appropriate studies. Commentors believe that remanufacturing would be cheaper and more compatible with maintaining the capabilities of production and R&D laboratories than would the proposed stewardship program. Another commentor requests that DOE provide a cost comparison of the remanufacturing alternative as opposed to the proposed science-based approach. Remanufacturing should not be done by design engineers, according to one commentor.

- Response: The remanufacturer's point of view is reflected in this PEIS by the fact that remanufacturing to specification will be attempted when possible and when appropriate to the problem being solved. With more than a half dozen different weapon types projected to remain in the stockpile, and with each weapon type containing thousands of parts, remanufacturing will undoubtedly occur for a significant number of repair and replacement activities. However, remanufacturing is not reasonable as a distinct exclusive alternative to the ongoing stockpile stewardship program or the proposed action of enhanced experimental capability for the technical reasons discussed below. In addition, it would not be a reasonable alternative because it does not fully support national security policies that require the conduct of a science-based stockpile stewardship and maintenance of the capability to design and produce new weapons.

Remanufacturing weapon components to their original specification, or maintaining weapons to their original design specifications, would superficially appear to be a reasonable approach to maintaining the safety and reliability of the stockpile in the absence of nuclear testing. Precise replication, however, is often not possible. Subtle changes in materials, processing, and fabrication techniques are an ever-present problem. In some cases, specialty materials and components become unavailable for com-

- mercial or environmental reasons. Implicit in the remanufacturing assumption is that the design blueprint, manufacturing process, and the materials used are specified in exact detail in every way. However, there is an unwritten element of "know how" that knowledgeable and experienced personnel contribute to any complicated manufacturing process (for this reason, controlling the acquisition of "know how" is a major nuclear weapons nonproliferation objective). Materials and processes are not always specified in important ways because, at the time, they were not known to be important. The problem is illustrated by the following hypothetical example.

A material produced for a critical weld has a specification for a trace impurity; the manufacturing process consistently produced the material with a trace impurity less than the maximum allowed and the welds were satisfactory; the manufacturing process is changed for some reason, such as cost or environmental concerns; the material is now being produced with less trace impurity than before the process was changed; the material is still within specification; however, the welds are no longer satisfactory; it was unknown at the time that the higher level of the trace impurity was necessary to produce a satisfactory weld.

While remanufacturing sounds simple in principle, it is likely in fact to present complex issues of design, manufacturing process, and material variables. A simplified view of remanufacturing cannot serve as a "stand alone" manufacturing approach, let alone an alternative approach to

enhanced stewardship capability. In the absence of underground nuclear testing, nuclear components (pits and secondaries) cannot be functionally tested. Stewardship capabilities provide the analytical tools (experimental and computational) to assess the significance of a problem observed during surveillance and to decide if the problem should be fixed; and if fixed, to certify that the fix will work (section 2.4.1). In the past, the decision to fix or not fix an observed problem could be made with nuclear testing (section 2.3). Stockpile stewardship strategies focus on the basic material science and the enhanced experimental and computational tools necessary to better predict age-related defects and to make sound technical judgments on nuclear safety and performance in the absence of nuclear testing.

The DARHT EIS (DOE/EIS-0228, section 2.3.2) provides an additional discussion of the limitations of a remanufacturing-to-specification approach. It discusses, as an example, the actions taken to evaluate and resolve unanticipated deterioration of HE in the now-retired W68 warhead for a submarine-launched ballistic missile. In that case it was necessary to replace the HE with a more chemically stable formulation. In addition, some other materials were no longer commercially available, requiring changes in the rebuilt weapons. Nuclear testing was ultimately used to verify that the necessary changes were acceptable. DOE does not consider it feasible to maintain all potentially obsolescent commercial sources and processes used for materials in existing weapons; aging would still occur in stored reserves of such materials.

With regard to stockpile management, remanufacturing without enhanced stewardship capability would also have notable drawbacks. DOE plans to maintain the capability to produce secondaries, and proposes to reestablish the capability to produce pits, by producing small quantities (10s) of each annually to maintain capability. This capacity should be sufficient to replace components attrited from the stockpile by surveillance testing. Remanufacturing these components, without the enhanced stewardship analytical capability to determine if and when replacement is necessary, is likely to require higher levels of production than DOE believes necessary to maintain production capability. Also, remanufacturing a nuclear component to the original specifications will not prevent age-related problems related to those specifications from recurring. Since these components use plutonium and uranium, radiation exposure to personnel and generation of radioactive waste would also be higher than necessary. If repeated remanufacturing were required, further unnecessary risks would result from additional weapon A/D operations and additional transport of nuclear components between sites.

From an environmental impact point of view, the remanufacturing concept would have greater impacts for the proposed action of reestablishing pit capability because DOE proposes to use a cleaner, less waste-generating process than was used at the Rocky Flats Plant. All other environmental impacts would not be distinguishable from those described in this PEIS because existing manufacturing processes form the Program baseline.

#### 40.34

Several commentors feel that the document presents several misused terms and euphemisms which are intended to deceive the public. The commentor feels the following terms should be changed or decoupled so that there would be less acceptance of the proposed program:

(1) safety and reliability: the commentor feels this phrase translates into the expected blast of a nuclear weapon must be greater than 90-percent yield. The commentor feels reliable weapons are not required and that the stockpile may be maintained with existing technology. The commentor feels that

greater unreliability may in fact discourage proliferation.

(2) flexibility: the commentor feels this term translates into continued development of new nuclear weapons.

(3) modification: the commentor feels this term applies to the construction of new nuclear weapons.

(4) national security: the commentor believes this euphemism deconstructs "true" national security which is the environment. The commentor feels that the Nation is less secure because the money proposed for stockpile stewardship and management may be used for poverty, education, and waste management.

- Response: DOE has reviewed the commentors' statements and has determined that the terms used in the PEIS are appropriate. As described in chapter 2 of the PEIS, the Stockpile Stewardship and Management Program has been constructed to support national security policy directions as provided to DOE by the President and the Congress. Though weapon safety and weapon reliability can be driven at times by different phenomena, they are also related in that an essential ingredient of weapon safety is predictable response in all weapon environments, including potential accidents. Section 3.1.2 has been expanded in the Final PEIS to provide more detailed description and justification of DOE plans relative to national security policy and the issue of weapon safety and reliability.

#### 40.35

A number of commentors express concern that the proposed Program would not succeed and jeopardizes the defense posture of the country. Commentors state that without underground testing, the proposed stockpile stewardship program is a gamble. A commentor also wants to know what criteria was used by the President, Congress, and DOE in determining the potential success of the program.

- Response: In the event science-based stewardship proposals could not ensure the continued safety and reliability of the nuclear weapons stockpile, the resumption of underground testing at NTS would be considered. On August 11, 1995, the President stated that if he was informed by the Secretaries of Defense and Energy that a high level of confidence in the safety or reliability of a nuclear weapons type considered critical to the nuclear deterrent could no longer be certified that he would be prepared, in consultation with Congress, to exercise our "supreme national interests" rights under the CTBT to conduct whatever testing might be required. The rationale for science based stockpile stewardship is explained in chapter 2 and supported by further discussion in chapter 3 and appendixes I, J, and K.

#### 40.36

The commentors express concern that DOE did not adequately justify the need for new or upgraded facilities to implement the science-based stockpile stewardship program. Some commentors suggest that rather than constructing new facilities at added expense, a passive stewardship and management plan (i.e., curatorship) should be considered. One commentor asks that DOE look at more "small-scale" techniques and facilities to determine the safety and reliability of the enduring stockpile. Another commentor believes that a non-science-based approach should be studied and analyzed in the PEIS.



- Response: DOE believes that the PEIS discusses a full range of alternatives for implementing the Stockpile Stewardship and Management Program, and that it analyzes in detail those reasonable alternatives that are capable of achieving the goals of the Program. DOE also believes that the PEIS adequately assesses the cumulative impacts of proposed new activities and existing activities at the sites where the Stockpile Stewardship and Management Program would be implemented.

It is a well established principle under NEPA that the goals of a proposed action delineate the limits of the reasonable alternatives to that action. That is, an alternative which does not accomplish the agency's goals is not a reasonable alternative. Since its inception, one of the primary goals of the U.S. nuclear weapons program has been to ensure the safety, security, and reliability of the Nation's nuclear weapons stockpile. Numerous facilities have been built over the years at the three weapons laboratories (LANL, LLNL, and SNL) and at NTS to conduct various activities necessary to meet this goal.

As described in chapter 2 of the PEIS, recent developments in national security policy have placed new constraints on the types of activities available to achieve this goal. Specifically, the United States is committed to ceasing both the production of new-design nuclear weapons, and the underground nuclear testing of weapons (see section 2.4). DOE's challenge in developing the stewardship portion of the Stockpile Stewardship and Management Program has been to determine whether, and how, to replace, modify, or augment the existing capabilities of the laboratories and NTS so that the goal of maintaining a safe, secure, and reliable stockpile can be met, even as the enduring stockpile ages and underground testing is no longer available.

DOE has examined from a programmatic perspective various approaches to achieving this goal, and has determined that only an aggressive science-based program that relies on sophisticated simulation and computational technology would allow DOE to continue to ensure the safety, security, and reliability of the stockpile. Alternate approaches which are based on principles other than an aggressive pursuit of the knowledge necessary to predict, detect, and correct problems with the stockpile cannot achieve DOE's goals. Section 3.1.2 has been expanded to examine various other alternatives or approaches (such as maintenance, remanufacturing, and a zero-stockpile) that have been suggested, and to explain why each of them are incapable of ensuring the stockpile's safety, security, and reliability, and thus are not reasonable.

Using simulation and computational technology to better understand the characteristics of nuclear weapons has been an element of DOE's weapons program for many years. It was historically part of the Research, Development, and Testing Program, the predecessor of the proposed stewardship portion of the Stockpile Stewardship and Management Program. In determining, for the reasons noted above, that stewardship must be based on similar principles, DOE effectively eliminated the option of replacing the existing proven capabilities at the laboratories and NTS with a different, untried approach. Accordingly, the PEIS focuses on facilities that could modify or augment the existing capabilities in ways that would achieve DOE's goal. In summary, DOE and its predecessors have been "stewarding" the stockpile, utilizing science-based principles, since the dawn of the nuclear era. DOE believes that recent policy developments require an even more aggressive application of these principles to ensure the safety, security, and reliability of the stockpile.

DOE believes that the PEIS appropriately addresses the role of existing facilities in the stewardship program. They are described as part of the No Action alternative, in broad terms in section 3.1.4 and in more detail in chapter 4 and appendix A. This approach to the No Action alternative (i.e., maintaining the status quo) is consistent with guidance issued by CEQ (46 FR 180426, March 23, 1981). The environmental impacts of continuing the existing activities at each of the sites associated with the Complex are described throughout chapter 4. The cumulative effects that could result when the impacts of the proposed new facilities are added to those of existing activities are described in section 4.13. DOE believes that in this way, the PEIS adequately presents the impacts of the entire stewardship program, while focusing specifically on the proposed new facilities that require a DOE decision, and describing them in context with the existing facilities upon which DOE would continue to rely on to achieve the goal of a safe, secure, and reliable stockpile.

Because DOE intends to use the PEIS as a component in decisionmaking in 1996, only those alternatives that are ripe for decisionmaking are assessed in detail in the PEIS. Alternatives not yet reasonably foreseeable, and which have not matured so as to be ripe for decisionmaking, such as next generation facilities (see section 3.3.4), are not assessed in detail in the PEIS. Nonetheless, they are acknowledged and included to the extent practicable.

DOE does not agree with the assertions that stockpile stewardship could be achieved using passive curatorship. Based on the national security policies discussed in chapter 2, the future nuclear deterrent will be based on a smaller, steadily aging nuclear weapons stockpile. As explained in section 2.3 of the PEIS, historical data would project that there will be actionable findings that will require certified repairs or replacements to be made to the nuclear weapons stockpile. Without underground nuclear testing, which was the proof-positive means of determining whether a potential problem existed or whether a problem was corrected, confidence in the safety and reliability of nuclear weapons must be based more on judgment.

Judgment-based confidence demands more than passive curatorship. For judgment-based confidence, DOE is proposing a robust, science-based stewardship program to obtain accurate scientific and experimental data which can be correlated with past nuclear test data and used to validate computer modeling. The existing experimental tools were used in conjunction with nuclear testing and are inadequate if used alone. Passive curatorship, or other stewardship-based approaches which do not include the enhanced experimental tools that would provide the necessary data to assess and certify a stockpile without underground nuclear testing, would be inadequate and unreasonable.

#### 40.37

The commentors state that DOE has been inconsistent in discussing the timeframe analyzed in the PEIS for stockpile stewardship and management. Related to this, a commentor states that it is not clear whether the period analyzed is for 25 years or an indefinite timeframe.

- Response: The Program purpose and need is defined in chapter 2 of the PEIS to be consistent with currently planned national security policy. That policy includes compliance with the START II protocol, whose effective date is 2003. However, further arms reduction treaties beyond START II are possible, and the PEIS discusses further stockpile reductions. However, it would be speculative to prescribe a timeframe for implementation of treaties whose negotiations have yet to begin. To bound the environmental impacts for actions proposed in the

PEIS, facility design lives were by necessity assumed. Generally those facility lives were assumed to be 25 years.

#### 40.38

The commentors ask about the three-laboratory stockpile evaluation program, which DOE office would be responsible for running the Program, and how many scientists and other skilled technical workers would be needed to maintain the stockpile and/or reactivate the weapons program in the future. One commentor asks if the laboratories will be downsized with the loss of the new weapons design and testing mission.

- Response: DOE has a stockpile evaluation program (sometimes referred to as stockpile surveillance) which includes component tests and evaluations at laboratory and production facilities. The Stockpile Stewardship and Management Program includes enhanced experimental capabilities to improve the laboratory assessment capability as well as enhanced surveillance testing at laboratory and production facilities. The costs for this evaluation program are a substantial portion of the budgets of each site. Day-to-day management of this program is performed by the DOE Albuquerque Operations Office. The stockpile stewardship and management proposal does not include any alternatives that would result in downsizing of the laboratories.

#### 40.39

One commentor requests that DOE release the results of studies related to special nuclear materials that had been set-aside for the express purpose of studying future aging effects.

- Response: A limited number of "shelf life units," such as pit components, were typically produced to act as "control samples" for use in stockpile evaluation activities. The component actually evaluated is the one returned from the weapon that was randomly sampled from the stockpile and, therefore, experienced actual stockpile environments while deployed. The "shelf life units" have not experienced actual stockpile environments. They are sometimes useful for comparison purposes to help distinguish cause and effect for observed anomalies in stockpile units. What can be said unclassified about problems with the stockpile is summarized in chapter 2 and the referenced unclassified portion of the tri-laboratory report. To the extent possible, these results have been factored into future stockpile management plans for components containing special nuclear materials.

#### 40.40

The commentors question the Stockpile Stewardship and Management Program's flexibility to meet changes in stockpile size. Specifically, commentors ask what analysis was done, if any, to indicate the limiting factors for secondaries, pit production, and HE and what is the true surge capabilities for these areas, and DOE's confidence in meeting these capabilities. Regarding the capacity/capability of the Complex to respond to unanticipated needs, one commentor refers to page 8-2 of the Analysis of Stockpile Management Alternatives report, which states that build rates above 100 per year would adversely impact the ability of LANL to perform their surveillance and R&D missions. The commentor asks if this means that there is no way that DOE could truly support a surge.

Other commentors ask how the current Stockpile Stewardship and Management Program ensures the

timely up-sizing of the nuclear weapons system should it become necessary. One commentor states that the proposed action of increasing production from a one-shift to a full-time basis using the same production equipment seems to ignore the fact that the additional training needed by capable machinists to properly and safely engage in the highly demanding efforts of weapons production is about five years. The commentor states that this is an unreasonable delay in response to an urgent threat. Another commentor suggests that the best way to accomplish a rapid scale-up of nuclear weapons production is to establish a sufficient level of comparable machine work at the production site to employ a staff adequate to go to a full scale production. The commentor states that the technical staff including machinists could then be rotated between the weapons work and the equivalent work to maintain their skills at the proper level. The commentor believes that if machine shop capabilities for prototype work were deliberately pursued it should be possible to employ a staff adequate to ensure a rapid scale-up should it become necessary.

- Response: The PEIS addresses several production capacities, each based on a specific potential stockpile level. Each production capacity assumed single shift operations; therefore, a significant sprint capacity was built into the planning assumptions. Because of the small demand for the fabrication of replacement plutonium pits over the next 10 or more years, DOE did not propose a new pit fabrication facility with a capacity equivalent to the capacities required for other portions of the nuclear weapons production complex. However, limited fabrication of new replacement pits would be required due to ongoing pit surveillance activities and to replace pits lost during weapon refurbishment. Section 3.6 discusses DOE future plans should a life-limiting phenomenon be found in stockpile pits, and a larger pit fabrication capacity be required.

#### 40.41

The commentors refer to the cover sheet of the Draft PEIS which states that a classified appendix presents the "purpose of and need for the plutonium-242 to be stabilized at SRS for use in future weapons complex research and development activities." Some commentors question why the classified appendix was referenced, while other commentors believe that unclassified portions of the appendix should be provided as part of the Draft PEIS. One commentor further states that the note on the appendix should have been prominently presented in the body of the Draft PEIS, rather than at the end of the cover sheet. In addition, commentors believe that the role of plutonium-242 in the Program and the nonproliferation implications of separating plutonium-242 and its environmental impacts should be explicitly discussed in the context of this PEIS, even though these may be covered in facility-specific statements. Commentors express concern since plutonium-242 has been linked to serious environmental problems at SRS. One commentor states that the DARHT EIS should have addressed all plutonium isotopes, including those outside of LANL.

- Response: The need for plutonium-242 is not classified. Certain information regarding shipping, storage, and the specific use of plutonium-242 is classified. Section 4.19 discusses the use of plutonium-242 for R&D and the potential environmental impacts of transporting this material to the alternative sites. In the Interim Management of Nuclear Materials Environmental Impact Statement (DOE/EIS 0220) dated October 20, 1995, DOE indicated that certain quantities of plutonium-242 existed at SRS and that this material has properties which make it useful for future R&D activities. In the PEIS, DOE has indicated two alternatives for this material: to stabilize and continue to store the plutonium-242 at SRS, and to stabilize the plutonium-242 at SRS and transport this material to either LANL or LLNL. The preferred alternative is to transport the material from SRS to LANL for storage. Further details

concerning the desirable properties of this material, the actual quantities, or the technical issues associated with its use are classified and are contained in a classified appendix to the PEIS.

The commentor correctly notes that a classified supplement to the Stockpile Stewardship and Management PEIS has been prepared to support DOE decisions needed regarding future R&D use of plutonium-242 and that DOE has prepared a NEPA review of the environmental impacts from stabilizing plutonium-242 now held in solution at the SRS. DOE has left decisions for storing the material to the Stockpile Stewardship and Management Program ROD.

The actions at SRS to stabilize plutonium solutions, including solutions containing plutonium-242, are directed at addressing vulnerabilities identified in DOE's Plutonium Vulnerability Assessment (DOE/EH-0415, November 1994). Correction of these vulnerabilities has been emphasized by the Defense Nuclear Facilities Safety Board. DOE decided to convert the plutonium-242 currently in solution at SRS to oxide which will be placed in storage containers. DOE has determined that as a matter of policy it has programmatic need for this material for DP R&D activities.

The commentor asks about plutonium infrastructure outside of LANL that would be related to DOE's decision to construct and operate DARHT. As noted in the DARHT EIS, LANL was determined to be the only reasonable location for DARHT capability; in part this was due to the existing plutonium infrastructure at LANL that could support dynamic experiments with plutonium (DARHT EIS, Volume I, section 3.10.1, page 3-41). DOE did not determine that any other plutonium facilities, besides the ones at LANL, would be needed to support operation of DARHT. DOE's decision to operate DARHT is unrelated to its decisions regarding stabilizing plutonium solutions at SRS. (See DARHT EIS, Volume II, Comment Response 17-37, page RPC-52.)

#### 40.42

A commentor asks what, if any, consideration has been given to safeguards/inspection provisions in these studies.

- Response: DOE requirements for the safeguarding of accountable quantities of special nuclear materials are assumed in all facility design alternatives for the PEIS. International safeguards and inspection, however, are assumed not to apply to U.S. special nuclear materials reserved for the U.S. nuclear weapons program.

#### 40.43

The commentors believe DOE "arrogantly" decided which alternatives are reasonable and do not agree with the justification for the No Action alternative in the summary as an unreasonable alternative. One commentor wants to know what are the reasonable alternatives to the items on the list entitled "DOE stockpile stewardship costs" and for anything that DOE does. Another commentor would like more discussion about why there is a need for improvement in the current process for a Complex that is not going to be building new weapons. One commentor further notes that DARHT is considered a fait accompli and the No Action alternative actually contains significant programmatic commitment to a next generation hydrodynamic testing facility as well as many other alternatives mentioned and unmentioned and there have been no programmatic analyses of alternatives for retaining knowledge of secondary physics--DOE proposes to build NIF and the Atlas Facility, but

does not mention why this is necessary.

- Response: Reasonable alternatives are those that would accomplish the purposes and needs described in the PEIS. These reasonable alternatives are analyzed in detail in the PEIS. Other alternatives were considered in the PEIS process, but eliminated from detailed study because they were judged to be unreasonable, as described in section 3.1.2 of the PEIS. Section 3.1.4 describes why No Action is not a reasonable alternative. Chapters 2, 3 and appendixes I, J, and K explain the need for and describe enhanced experimental capability.

DOE believes that the PEIS discusses a full range of alternatives for implementing the Stockpile Stewardship and Management Program, and that it analyzes in detail those reasonable alternatives that are capable of achieving the goals of the Program. DOE also believes that the PEIS adequately assesses the cumulative impacts of proposed new activities and existing activities at the sites where the Stockpile Stewardship and Management Program would be implemented.

It is a well established principle under NEPA that the goals of a proposed action delineate the limits of the reasonable alternatives to that action. That is, an alternative which does not accomplish the agency's goals is not a reasonable alternative. Since its inception, one of the primary goals of the U.S. nuclear weapons program has been to ensure the safety, security, and reliability of the Nation's nuclear weapons stockpile. Numerous facilities have been built over the years at the three weapons laboratories (LANL, LLNL, and SNL) and at NTS to conduct various activities necessary to meet this goal.

As described in chapter 2 of the PEIS, recent developments in national security policy have placed new constraints on the types of activities available to achieve this goal. Specifically, the United States is committed to ceasing both the production of new-design nuclear weapons, and the underground testing of weapons (see section 2.4). DOE's challenge in developing the stewardship portion of the Stockpile Stewardship and Management Program has been to determine whether, and how, to replace, modify, or augment the existing capabilities of the laboratories and NTS so that the goal of maintaining a safe, secure, and reliable stockpile can be met, even as the enduring stockpile ages and underground testing is no longer available.

DOE has examined from a programmatic perspective various approaches to achieving this goal, and has determined that only an aggressive science-based program that relies on sophisticated simulation and computational technology would allow DOE to continue to ensure the safety, security, and reliability of the stockpile. Alternate approaches which are based on principles other than an aggressive pursuit of the knowledge necessary to predict, detect, and correct problems with the stockpile cannot achieve DOE's goals. Section 3.1.2 has been expanded to examine various other alternatives or approaches (such as maintenance, remanufacturing, and a zero stockpile) that have been suggested, and to explain why each of them are incapable of ensuring the stockpile's safety, security, and reliability, and thus are not reasonable.

Using simulation and computational technology to better understand the characteristics of nuclear weapons has been an element of DOE's weapons program for many years. It was historically part of the Research, Development, and Testing Program, the predecessor of the proposed stewardship portion of the Stockpile Stewardship and Management Program. In determining, for the reasons noted above, that stewardship must be based on similar principles,

DOE effectively eliminated the option of replacing the existing proven capabilities at the laboratories and NTS with a different, untried approach. Accordingly, the PEIS focuses on facilities that could modify or augment the existing capabilities in ways that would achieve DOE's goal. In summary, DOE and its predecessors have been "stewarding" the stockpile, utilizing science-based principles, since the dawn of the nuclear era. DOE believes that recent policy developments require an even more aggressive application of these principles to ensure the safety, security, and reliability of the stockpile.

DOE believes that the PEIS appropriately addresses the role of existing facilities in the stewardship program. They are described as part of the No Action alternative, in broad terms in section 3.1.4 and in more detail in chapter 4 and appendix A. This approach to the No Action alternative (i.e., maintaining the status quo) is consistent with guidance issued by the CEQ (46 FR 180426, March 23, 1981). The environmental impacts of continuing the existing activities at each of the sites associated with the Complex are described throughout chapter 4. The cumulative effects that could result when the impacts of the proposed new facilities are added to those of existing activities are described in section 4.13. DOE believes that in this way, the PEIS adequately presents the impacts of the entire stewardship program, while focusing specifically on the proposed new facilities that require a DOE decision, and describing them in context with the existing facilities upon which DOE would continue to rely to ensure a safe, secure, and reliable stockpile.

#### 40.44

Commentors feel the Stockpile Stewardship and Management Program is a responsible and necessary program for the U.S. stockpile of nuclear weapons. One commentor states that the NPT and CTBT depend on the Stockpile Stewardship and Management Program, especially NIF. In the absence of underground nuclear testing, other commentors believe that the Stockpile Stewardship and Management Program is absolutely vital for maintaining the basics of nuclear weapons physics and keeping track on the condition of the weapon stockpile. One commentor notes that it is important for the United States to have the leading edge of nuclear weapons know-how, irrespective of the winds of day-to-day politics. Another commentor states that given the requirement for a safe and reliable stockpile, the ban on underground testing, and the shrinking size of the stockpile, downsizing the overall DOE Complex while building new facilities is reasonable. The commentor supports the new facilities proposed because they are necessary to provide missing data for computer modeling which cannot be supplied by underground nuclear testing and can validate fixes for defects discovered during surveillance and testing.

- Response: These comments are reflected in the Stockpile Stewardship and Management Program plan.

#### 40.45

The commentor states that NTS has been part of any number of programs that could possibly come to the site, yet those programs end up going to LANL and LLNL and inquires about the possibility of NIF going to NTS. Another commentor thinks that table 3.3-1, section 3.3, should acknowledge the expertise at NTS in the experimental primaries and secondaries and should also recognize NTS as a potential site for the siting of large experimental facilities to do weapons simulation and effects tests.

- Response: DOE has looked at adding several missions to NTS, given that maintenance of the

test site for nuclear test readiness remains a national policy requirement. To date, all proposed new missions for stockpile stewardship and management have had compelling cost and technical reasons for selecting other sites as the preferred alternative. DOE will continue to look at NTS for potential future siting of new program missions.

The preferred site alternative for NIF is LLNL. The preferred alternative does not represent a decision, however. The ROD for NIF will be made no sooner than 30 days after the filing of the Final PEIS with the EPA. NTS is a reasonable site alternative for NIF, and could be selected in the ROD.

Table 3.3-1 is intended to show a broad view of current capabilities and alternatives considered in the PEIS. As stated in section 3.2.9, Nevada Test Site, DP activities, stockpile stewardship activities at NTS include conventional HE tests, dynamic experiments, and hydrodynamic tests. These types of tests can be used to study the physics of weapons primaries. NTS activities relating to weapons effects and the physics of weapons secondaries have historically been nuclear tests, which are considered as an future option only under the "supreme national interests" provisions of any future CTBT. Additionally, as stated in section 3.3.3, Weapons Effects, DOE is not proposing in this PEIS any new facilities or alternatives solely for the study of weapons effects, and would use existing facilities. A table has also been added to appendix section A.1 further describing major existing DP facilities and activities at these sites.

#### 40.46

The commentor recommends a worldwide multi-national testing program at NTS where all nuclear nations may test their own nuclear devices under close supervision and control of the International Atomic Energy Agency. In the commentor's opinion NTS features all required services, support, maintenance, and insularity in place for such an international venture. Commentor feels that a single world testing site would standardize international testing while lowering the cost per user, would allow the definition of a legitimate nuclear club, and the regime could corral mavericks engaged in unannounced and covert buildup of unproved assets.

- Response: The purpose of the Stockpile Stewardship and Management Program is to ensure the safety and reliability of the U.S. stockpile. Other nations' stockpiles are beyond the scope of this PEIS.

#### 40.47

A commentor wants to know if the sites followed any standards when submitting numbers for the PEIS.

- Response: Cost, technical, and schedule information were provided by senior technical and management personnel from each alternative site. These data underwent peer review and independent validation. ES&H information were provided directly by subject matter experts from each site to DOE. This information also underwent significant comparability and validity reviews before the data was used in the PEIS analysis. Data for the PEIS were developed by working groups for each stockpile management mission. These working groups consisted of experts from each of the potentially affected sites. A review of data for consistency and accuracy was performed at both the working team level and at a senior management level.



#### 40.48

The commentor raises the concern that the Albuquerque Operations Office was censoring DOE contractor employees from participating in the public hearings.

- Response: DOE sites encourage this participation and generally recommend that the contractor employees identify their company affiliation and distinguish between personal and company positions. DOE contractor executives, however, have other avenues to provide company proposals or revise information to DOE, and DOE believes it more appropriate to receive such information by normal business channels.

#### 40.49

The commentor thinks that Summary section S.3.6 should list NTS as an alternative site for all of the large experimental physics machines.

- Response: NTS is listed as an alternative site for NIF. For the remaining facilities, NTS was not considered a reasonable alternative and is not listed. As discussed in section 3.3.1.2, Proposed Contained Firing Facility, and in appendix J, CFF would augment and upgrade the existing Flash X-Ray (FXR) Facility at LLNL, and therefore LLNL is the only reasonable site. Similarly, section 3.3.2.3, Proposed Atlas Facility, and appendix K state that Atlas would build on existing special equipment at LANL such as the 1,430 megavolt-ampere (MA) generator in Building 301, and therefore LANL is the only reasonable site.

#### 40.50

The commentors express opposition to the Stockpile Stewardship and Management Program, including NIF, stating that they are dangerous and morally wrong. Some commentors remark that it is a waste to use "human genius" in this manner since these talents may be used to solve conflicts and the growing inequality of the world. One commentor believes the United States is misinforming people by saying the United States will not be producing and testing nuclear weapons. Another commentor believes that the United States must revise its objectives and should be focusing more on educating the youths of society and finding a cure for cancer. The commentor does not believe the numbers associated with downsizing. The commentor points out that the public knows the truth from a lie, and the lie is the production and expansion of destructive weapons in the society.

- Response: DOE believes it is responsive to national legal and policy directives in the Stockpile Stewardship and Management Program.

#### 40.51

The commentors express the opinion that stewardship of the nuclear stockpile is a function that is best done at LANL. Stewardship is a critical component of the Nation's security and LANL can guarantee the integrity of the Nation's stockpile, according to the commentors. One commentor indicates support for consolidating a portion of the weapons production capability at LANL. Another commentor notes that LANL is developing technologies for recycling, storage, and disposal of plutonium and enriched uranium; technologies to reclaim contaminated sites and safely dispose of waste; technologies to monitor and analyze the storage of nuclear components; technologies to detect

clandestine nuclear tests; and programs to transfer technology to the Soviet Union. Given the state of affairs in the world today with respect to nuclear weapons, the commentor believes that if LANL did not exist, it would have to be invented because this Nation and the world needs LANL and the technologies that it can provide.

- Response: As one of the two nuclear weapons design laboratories, LANL has been, and would remain, a key component in maintaining the safety and reliability of the Nation's nuclear weapons stockpile. However, LLNL and SNL would also remain essential participants for the foreseeable future.

#### 40.52

The commentors state that DOE overlooked the potential for Pantex, to perform new stewardship functions complementary to its current management functions. Some commentors want DOE to designate Pantex as the preferred alternative for all existing and new stockpile management and stewardship functions as well as consolidation of all plutonium storage and disposition and any related functions. According to the commentors, Pantex has the resources, safeguards and security, existing facilities, and proximity to LANL for technological information exchange (Atlas Facility and proposed plutonium pit fabrication site) to downsize and/or consolidate while preserving the integrity of the nuclear stockpile under increasing budgetary constraints. Utilizing facilities already in place at Pantex could eliminate costs of duplicating facilities, related transportation, environmental remediation, and start-up and training, according to the commentors. Several commentors also note that Pantex is perhaps the most cost effective alternative for any of the new construction that is contemplated. While commentors state that there is a strong history of community support, they caution that current and future functions at Pantex must be conducted in a safe and environmentally sound manner and that expansion must be implemented in a way that does not impair the health or safety of area residents or adversely affect the environment.

- Response: The rationale for the various site alternatives are discussed in chapter 2, as well as in various portions of section 3.1 of the PEIS. Pantex is considered as a reasonable site alternative for the A/D mission, strategic reserve storage, and HE fabrication. Pantex does not have an existing infrastructure for plutonium fabrication, secondary fabrication, and nonnuclear component fabrication. Consequently, Pantex was not considered as a reasonable alternative for these missions. Pantex was not considered as a reasonable site alternative for stockpile stewardship facilities as explained in section 3.1.2.1.

Pantex has essential capabilities to support the future stockpile management program. In selecting reasonable alternatives for future stockpile stewardship and management missions, however, DOE found it to be unreasonable to address alternatives for new missions where no core capability for that new mission was present at the site. In addition, DOE sought alternatives that tended to further consolidate and streamline the infrastructure for the Program because of the overall general reductions in work to be performed. For these reasons, it was determined to be unreasonable to consider stewardship experimental capabilities and plutonium pit production at Pantex, just as it was unreasonable to consider relocation of the weapon A/D mission to sites which had no core capability or facility infrastructure to deal with nuclear explosives.

#### 40.53

The commentors ask how the current Stockpile Stewardship and Management Program minimizes the impacts on weapons performance due to inadvertent or unavoidable changes in production methods. One commentor believes that the statement that surrogate testing will be used to keep the weapons database current is misleading. The commentor suggests that one method is to devote a new effort to document the details of the current production methods and to establish procedures which will minimize the changes in weapons performance resulting from inadvertent or unavoidable incremental changes in the weapons stockpile. Some commentors express concern that surrogate testing while useful does not ensure unpredicted changes in performance. In addition, commentors do not believe that the PEIS adequately focuses on resources devoted to surrogate testing, the stabilization and preservation of manufacturing capabilities, and the need for weapons experts to participate in the decisionmaking process.

- Response: Without underground nuclear testing as a confirmation tool, the effects of these changes could go undetected. It is for these reasons that DOE has proposed a robust stockpile stewardship program based on improving U.S. abilities to assess weapon performance absent underground nuclear testing. It is also for these reasons that DOE has proposed to further integrate the material and process technology programs at the production plants with the weapon assessment programs at the laboratories.

#### **40.54**

The commentor feels that the overall policy direction is fatally flawed and leading completely in the wrong direction. The commentor states that the overall policy direction leads the environmental study to worry about such minutiae as one fatal cancer every 5 million years when they are concerned with the nuclear safety of the world involving real weapons of mass destruction, literally tons of plutonium, and an environmental mess.

- Response: In accordance with NEPA, the purpose of the PEIS is to assess the environmental impacts of the proposed action, the reasonable alternatives, and the No Action alternative. DOE believes that the Stockpile Stewardship and Management Program is consistent with the legal and policy framework for the current national security environment.

#### **40.55**

The commentor states one of the fundamental flaws of the Draft PEIS is the outdatedness of all LANL environmental data and feels that referencing the 1992 LANL Environmental Surveillance Report as "LANL 1994b" is deceptive.

- Response: The 1992 Environmental Surveillance Report is correctly referenced as a 1994 publication, since that is when it was published. That data represented the best available data for preparing the Draft PEIS. Data for the Final PEIS was updated to include any significant modifications or improvements.

#### **40.56**

The commentor states that the Draft PEIS fails to describe the only programmatic alternatives actually considered, namely Stockpile Stewardship and Management and No Action alternatives, in a way that allows useful comparison. For stewardship, the only alternative to building the proposed

facilities is a No Action alternative continuing operation of existing facilities with the same function. The commentor states that the Draft PEIS fails to describe the No Action alternative in a comprehensible manner. The commentor contends that the No Action description is poorly written, confusing, and does not provide information sufficient to inform the reader of the actual activities it encompasses. The commentor states that the No Action alternative does not describe currently existing operations and facilities at DOE sites--rather, it is an arbitrarily chosen set of "not stockpile stewardship and management" activities, some of them in fact part of the stockpile stewardship and management programs, which are expected to be in operation almost a decade from now. The commentor believes that the PEIS does not adequately delineate what the No Action set of facilities are at any given site. This renders it virtually useless for comparison with the already too narrow range of alternatives, according to the commentor. The commentor further argues that the deficiency of the No Action alternative alone is sufficient reason to withdraw the PEIS and republish the draft. One commentor stated that the use of a specific date for ground-breaking (i.e., September 1995) was inappropriate to define the No Action alternative.

- Response: In accordance with NEPA, the PEIS assesses the No Action alternative. The No Action alternative is described in broad terms in section 3.1.4, and in more detail in chapter 4 and appendix A of the PEIS. Under No Action, DOE would not take the actions proposed in the PEIS, but would continue with existing operations. For stockpile stewardship, this means continuing the existing activities at LANL, LLNL, SNL, and NTS related to stockpile stewardship. In order to aid the reader's understanding of the major facilities that make-up the No Action alternative for stockpile stewardship, tables have been added to the site descriptions in appendix section A.1 of the PEIS.

During preparation of the Draft PEIS, the September 1995 planning assumption was used as one of the considerations in determining whether a new facility or upgrade would be part of No Action. However, it was not the only consideration. DOE also considered whether a particular facility was addressed in prior NEPA documentation, whether a facility met the requirements of the CEQ for an interim action, and whether a facility or a modification was the continuation of an existing mission. The Final PEIS contains a more appropriate description of the rationale for No Action. As stated in the Final PEIS, the No Action alternative for this PEIS is defined in a way that takes into account the fact that DOE for decades has had in place a program for the stewardship and management of the nuclear weapon stockpile. Consistent with CEQ guidance, the No Action alternative consists of those facilities necessary to maintain the status quo in terms of DOE's current program direction. These consist primarily of existing facilities where DOE conducts weapons activities, including modifications to those facilities necessary to maintain their current mission capabilities. However, the No Action alternative also includes a small number of minor new facilities that will also be needed simply to maintain current mission capabilities at individual sites. Finally, the No Action alternative includes two major new facilities which are proceeding independent of this PEIS, and for which DOE has prepared separate EISs under the interim action provisions of the CEQ regulations. These EISs are the PEIS for Tritium Supply and Recycling (DOE/EIS-0161) and the DARHT EIS (DOE/EIS-0228).

## 40.57

The commentor wants to know what evacuations plans have been developed in the event of a nuclear accident or catastrophic fire at LANL. Because of the limited egress in and out of the Los Alamos region, the lack of well thought out and publicized evacuation plans can have grave consequences.

- Response: LANL and Los Alamos County have developed emergency management programs to govern evacuations. Los Alamos County is responsible for evacuation of county land (including county communities), and, with LANL's input, has prepared the draft Los Alamos County All Hazards Plan which is required by the State of New Mexico. The draft plan has been submitted to the State of New Mexico for review and approval is pending.

The laboratory has implemented two notification systems to alert LANL and county occupants of emergencies:

Community Alert Network. This system includes all of Los Alamos County and is capable of notifying all occupants by telephone, cable TV subcaption, and radio stations in the event of an emergency.

Site-Wide Area Notification. This system has special two-way radios located in LANL facilities and is capable of site specific or LANL-wide notification in the event of an emergency.

#### 40.58

The commentor states that the Stockpile Stewardship and Management Program is not described in a manner which would allow for meaningful comparison with other true program alternatives. The commentor states that major parts of the Program, including facilities and actions which are incomplete or have not been started, have been eliminated from consideration, including for example, DARHT and tritium production facility options. DOE has initiated or completed hundreds of millions of dollars worth of new facilities and facilities upgrades throughout the Complex, apparently implementing portions of the Program which the reconfiguration PEIS was supposed to review and the commentor contends that this refurbishment of the Complex in the absence of programmatic review has substantially narrowed the range of options which DOE conceives as feasible. The commentor believes that the public would have been far better served by using this PEIS for a comprehensive look at the environmental impacts of the full Stockpile Stewardship and Management Program, the Complex of the future as envisioned by DOE, in comparison with other programmatic options (denuclearization, remanufacture, and such) for managing the nuclear arsenal (which citizen groups have been demanding for 5 years). Instead, the commentor states that the end result of 5 years of reconfiguration is the presentation to the public of a fait accompli, with the fundamental policy decisions already made and major program components (e.g., DARHT) already underway.

- Response: The scope of the PEIS is reflective of the national policy considerations described in chapter 2 of the PEIS. The proposed actions and alternatives analyzed are consistent with and supportive of these national policy considerations. The PEIS includes all actions that are within the scope of the Stockpile Stewardship and Management Program. See also the response to comment summary 40.85. Two actions, which DOE has evaluated in separate EISs in accordance with CEQ regulations for interim actions (40 CFR 1506.1), are within the scope of the Stockpile Stewardship and Management PEIS. These are the Tritium Supply and Recycling PEIS and DARHT Facility EIS. These two actions, and their relationship to the Stockpile Stewardship and Management PEIS, are described in section 1.6 of the PEIS. See also the response to comment summary 41.18, which discusses why other new facilities or facility upgrades are not included in the PEIS as action alternatives.

## 40.59

The commentor asks if DOE has integrated the PEIS with the DOD mission.

- Response: A detailed discussion of the planning basis for the PEIS, vis-a-vis DOD mission, is described in chapter 2 of the PEIS. Major policy documents for the PEIS included the NPR, which was approved by the Secretary of Defense and the President, and the annual NWSM, which was jointly prepared with DOD and approved by the Secretaries of Defense and Energy. These policy documents provided assurance that PEIS requirements and assumptions were consistent with DOD missions.

## 40.60

The commentors believe that the Draft PEIS does not analyze a range of reasonable programmatic alternatives to meet the goal of maintaining the stockpile safely in accordance with treaty obligations. The commentors contend that the analysis in the Draft PEIS suggests that the debate over stockpile stewardship and management is over and that the program alternative has already been determined. According to the commentors, these are fundamental problems which prevent meaningful participation by the public and obfuscate informed analysis by decisionmakers. The commentors believe that DOE should withdraw the Draft PEIS and prepare a revised Draft PEIS, while all programmatic decisions and activities are put on hold. The revised Draft PEIS should analyze "maintenance," "remanufacturing," interim stockpile sizes, and a "zero" stockpile case--both with and without the capability to reconstitute the arsenal--which is based upon a scenario of global reduction and elimination of nuclear weapons in compliance with Article VI of the NPT over time periods ranging from 15 years to the projected lifetime of the proposed facilities (on the order of 40 years).

The commentors believe that the PEIS should include alternatives examining the impacts of a policy course of reduction of nuclear weapons, ultimately resulting in their elimination pursuant to U.S. obligations under Article VI of the NPT. The commentors state that the PEIS should analyze the environmental impacts for a stockpile size of less than 1,000 weapons. Several commentors, noting the NPT calls for a move toward disarmament, believe that the 0 to 100 stockpile size is a reasonably foreseeable situation and should be analyzed. Other commentors argue that a zero-level stockpile should be considered because it would satisfy nonproliferation obligations and there is overwhelming public support for such an idea. One commentor questions the rationale for the stockpile sizes assessed in the PEIS. More specifically, the commentor implies that the lower case 1,000 weapons stockpile is not well supported. Another commentor disagrees with DOE's assertion that "stockpile management capabilities are independent of stockpile size."

In one commentor's opinion, the combination of an extremely one-sided analysis of potential effects on the weapons nonproliferation climate, the elimination from detailed analysis of all substantive program alternatives to the proposed action, and technical analysis which conclude that a large complex can be rebuilt and operated with few impacts at facilities with still unsolved waste and contamination problems, leaves little doubt that the purpose of this Draft PEIS is "to justify decisions already made" (40 CFR 1502.5).

- Response: DOE believes that the PEIS discusses a full range of alternatives for implementing the Stockpile Stewardship and Management Program, and that it analyzes in detail those reasonable alternatives that are capable of achieving the goals of the Program while still fully

complying with the treaty and national security policy constraints established independently from the Stockpile Stewardship and Management Program. DOE also believes that the PEIS adequately assesses the cumulative impacts of proposed activities and existing activities at the sites where the Stockpile Stewardship and Management Program would be implemented.

It is a well-established principle under NEPA that the goals of a proposed action delineate the limits of the reasonable alternatives to that action. That is, an alternative which does not accomplish the agency's goals is not a reasonable alternative. Since its inception, one of the primary goals of the U.S. nuclear weapons program has been to ensure the safety, security, and reliability of the Nation's nuclear weapons stockpile. Numerous facilities have been built over the years at the three weapons laboratories (LANL, LLNL, and SNL) and at NTS to conduct various activities necessary to meet this goal.

As described in chapter 2 of the PEIS, recent developments in national security policy have placed new constraints on the types of activities available to achieve this goal. Specifically, the United States is not producing new-design nuclear weapons or conducting underground nuclear testing (see section 2.4). DOE's challenge in developing the stewardship portion of the Stockpile Stewardship and Management Program has been to determine whether, and how, to replace, modify, or augment the existing capabilities of the laboratories and NTS so that the goal of maintaining a safe and reliable stockpile can be met, even as the enduring stockpile ages and underground testing is no longer available.

DOE has examined from a programmatic perspective various approaches to achieving this goal, and has determined that only an aggressive science-based program that relies on sophisticated simulation and computational technology would allow DOE to continue to ensure the safety and reliability of the stockpile. Alternate approaches which are based on principles other than an aggressive pursuit of the knowledge necessary to predict, detect, and correct problems with the stockpile cannot achieve DOE's goals. Section 3.1.2 has been expanded to examine various other alternatives or approaches (such as maintenance, remanufacturing, and a zero stockpile) that have been suggested, and to explain why each of them are incapable of ensuring the stockpile's safety and reliability, and thus are not reasonable.

Since the end of the Cold War, the United States has significantly reduced the size of its nuclear weapons stockpile and the DOE has dismantled more than 8,000 nuclear weapons. At the present time, the United States is further downsizing the nuclear weapons stockpile consistent with the terms of the START I Treaty, and DOE is continuing dismantlement. The United States has recently ratified the START II Treaty and is hopeful that Russia will likewise ratify this treaty. DOE acknowledges that further multilateral negotiated reductions in the United States nuclear weapons stockpile could occur. However, as discussed below, the negotiations required for such reductions are likely to stretch well into the next century. Therefore, DOE believes the three stockpile sizes utilized for the analysis in the Stockpile Stewardship and Management PEIS fully account for future requirements while still being consistent with and fully supportive of the goals of Article VI of the NPT.

Two of the three stockpile sizes analyzed in this PEIS, a START I Treaty- and START II protocol-sized stockpile, are the only ones currently defined and directed by national security policy. The NWSM specifies the types of weapons and quantities of each weapon type by year (section 1.1). The NWSM is developed based on DOD force structure requirements necessary to maintain nuclear deterrence and comply with existing arms control treaties while pursuing further arms control reduc-

- tions. Chapter 2 of the PEIS explains the complexity of this process. DOE does not believe it reasonable to speculate with a large number of arbitrary assumptions (section 2.2), and has selected a range of stockpile sizes appropriate for the analysis and consistent with relevant policy documents. The "low case" 1,000 weapon stockpile represents a hypothetical case used for the purpose of a sensitivity analysis on manufacturing capacity decisions. No specific DOE force structure projection corresponds to the low case assumed stockpile. However, stockpile sizes in this range have been proposed by others (see for example Foreign Affairs, Spring 1993).

Stockpile stewardship capabilities are currently viewed by the United States as a means to further U.S. nonproliferation objectives in seeking a zero-yield CTBT. Likewise, it would be reasonable to assume that U.S. confidence in its stewardship capabilities would remain as important, if not more important, in future arms control negotiations to further reduce its stockpile. The path to a very small (10s or 100s) or zero stockpile would require the negotiation of complex international treaties that are also likely to require intrusive verification inspections of nuclear weapons-related facilities. Therefore, DOE believes it reasonable to assume that complex treaty negotiations, when coupled with complex implementation provisions, would likely stretch over several decades. On a gradual path to a very small or zero stockpile, stockpile size alone would not change the purpose and need, proposed actions, and alternatives in this PEIS as they relate to stewardship capabilities. The issues of maintaining the core competencies of the United States in nuclear weapons, and the technical problems of a smaller aging stockpile in the absence of nuclear testing, remain the same.

This PEIS evaluates reasonable approaches to stockpile management capability and capacity that is consistent with a gradual path toward a very small or zero stockpile. At some point on this path, further downsizing of existing industrial plants or the alternative of consolidating manufacturing functions at stewardship sites would become more attractive as manufacturing capacity becomes a less important consideration. However, in the near term, the preferred alternative of downsizing the existing industrial plant would still be a reasonable action because the projected downsizing investment pays back within a few years through reduced operating expense; in addition, the downsizing actions are consistent with potential future decisions regarding plant closures. In regard to the proposed action for reestablishing pit manufacturing capability, DOE does not propose to establish higher manufacturing capacities than are inherent in the reestablishment of the basic manufacturing capability of LANL, which is the preferred alternative. In developing the criteria for reasonable stockpile management alternatives, DOE was careful not to propose the introduction of significant new types of environmental hazards to any prospective site. Therefore, on a gradual path to a very small or zero stockpile, stockpile size alone would not change the purpose and need, proposed actions, and alternatives in this PEIS with regard to stockpile management capabilities and capacities.

In conclusion, as a result of the START I Treaty, START II protocol, and the NPR, the Nation's nuclear weapons stockpile is being significantly reduced. However, even in the post-Cold War period, international dangers remain, and nuclear deterrence will continue to be a cornerstone of U.S. national security policy for the foreseeable future. Thus, DOE'S responsibilities for ensuring the safety and reliability of the U.S. nuclear weapons stockpile will also continue.

Regarding the comment that DOE should prepare a revised Draft PEIS, DOE believes that the Draft PEIS was adequate. The Draft PEIS assessed the direct, indirect, and cumulative environmental impacts of the reasonable alternatives for the proposed action and the No Action alternative. In response to public comments on the Draft PEIS, DOE has made changes to the



Draft PEIS as described in section 1.8 of the Final PEIS. Additionally, DOE has prepared this Comment Response Document which describes the comments received on the Draft PEIS and DOE's responses to those comments.

#### 40.61

The commentor suggests that DOE provide a definition of hazardous chemicals in the glossary or possibly use the term "hazardous substances."

- Response: A definition of hazardous chemicals has been added to the glossary.

#### 40.62

The commentor states that the most egregious deficiency of the PEIS is the total failure to include current Congressional legislation (National Defense Authorization Act for Fiscal Year 1996, Title XXXI, particularly sections 3137 and 3153) and associated national security policy guidance. The conclusions of the House and Senate markups for fiscal year 1997 must also be considered. The PEIS must be redone based on the full range of national security policies both Congressional and Presidential, according to the commentors.

- Response: Chapter 2 of the PEIS discusses the major national security policy considerations that are most relevant to the PEIS analysis. Included in that discussion are PDDs, Congressional legislation, DOD NPR, the NWSM, and four related treaties. While that list of national security policy considerations is not meant to be exhaustive, it does represent, in DOE's view, the most significant national security policy overlays that define the Stockpile Stewardship and Management Program conditions for the reasonably foreseeable future. Based on our understanding, the Draft PEIS analysis is consistent with the current Congressional legislation (National Defense Authorization Act for Fiscal Year 1996, Title XXXI). The Final PEIS analysis takes into account, as appropriate, any other relevant 1997 legislation.

#### 40.63

The commentor refers to section 3.3.4.2 and asks what are the "prohibitively expensive alternative approaches" to the High Explosives Pulsed-Power Facility (HEPPF).

- Response: HE pulsed-power generators are used to explore higher energy (higher current) frontiers than may be available in existing fixed capacitor-bank facilities without a major capital investment, albeit at a low data rate, while capacitor banks provide repeatable (and indoor) experimental facilities with high data rate for broad experimental use (section 4.11). Given our present understanding, at very high energies far beyond projected Atlas capabilities, a capacitor bank facility would likely be far more expensive than a HEPPF firing site capable of supporting the amount of HE necessary for (less-frequent) HE generator experiments that could provide comparable energy. Conversely, appendix K discusses why reliance on HE generator experiments is not a reasonable alternative to Atlas. The explanation of HEPPF and HE pulsed power has been expanded in sections 3.3.4.2 and 4.11 and the statement referenced by the commentor has been removed.

#### 40.64

The commentor refers to section 3.5 and states, after all the concern expressed about subtle changes in materials and processes, emerging technologies propose continuing work in areas which represent significant changes in processes and materials. The commentor asks if the intent to protect technical capability is to have technologies available in case of a resumption of testing or a breakthrough in experimental technology, or whether there is an expectation that DOE can just go ahead and use them regardless of our previous protestations.

- Response: Emerging technologies are discussed in section 3.5 to indicate to the public that DOE is continuing to assess its manufacturing process technologies with an objective of reducing waste generation and operating hazards. Use of some of these technologies would be straightforward relative to weapon physics concerns because they can be fully assessed in the absence of underground nuclear testing. Incorporation of some of these technologies, however, would only be done after significant assessment and experimentation by weapon physicists to assure they can be incorporated without adversely affecting weapon safety or performance.

#### 40.65

The commentor refers to section 2.3.4, and the different materials that are referred to in this section, whose aging characteristics are not well understood. The commentors question whether these materials could not be replaced without compromising the military objectives of the stockpile.

- Response: Without continued development of science-based stockpile stewardship, some of the "different materials" referred to in this section could not be confidently replaced with other materials.

#### 40.66

The commentor expresses the opinion that Pantex should be the preferred site for future Complex missions.

- Response: One important strategy of the Stockpile Stewardship and Management Program is to maximize the use of existing infrastructure and facilities as we transition to a smaller and more efficient Complex in the 21st century. Consequently, only those sites with an existing infrastructure or facilities capable of supporting a given stockpile stewardship or stockpile management mission are considered reasonable site alternatives. Sites without a technical infrastructure or facilities for a given mission would require significant new construction that would be costly and would create excessive technical risk compared to sites with existing missions. Pantex is only being considered for weapons A/D, HE fabrication, and storage of nuclear materials.

With regard to stockpile stewardship, the majority of the Nation's core competencies in nuclear weapons, as well as the facilities used for stockpile stewardship, reside at the weapons laboratories and NTS. The President has determined that the continued vitality of all three DOE weapons laboratories and NTS remains essential to meet the requirements of stockpile stewardship as the United States enters into a CTBT regime. Accordingly, to locate stewardship activities at sites without the knowledge base and infrastructure would be counterproductive to the development of science-based stockpile stewardship. Further, two of the proposed stockpile stewardship facilities, the Atlas Facility and CFF utilize existing facility

infrastructure at LANL and LLNL, respectively.

#### 40.67

Commentors would like DOE to reconcile a declining budget at Pantex with an increasing workload. The commentors state that the fiscal year 1997 budget as proposed will lead to a reduction in force at Pantex. One commentor, noting that the Stockpile Management Preferred Alternatives Report reveals that Pantex, but not Y-12 or KCP, will undergo this decrease in budget, asks why Pantex is suffering budget cuts if the workload is constant and the other production facilities are not suffering budget cuts.

- Response: It is not possible to compare year-to-year budget changes for different weapon production facilities because each has unique missions and workloads influenced by different factors. The final fiscal year 1997 budgets for all weapons complex sites have not yet been determined. However, the budget for each site would be based on the workload to be performed by that site in fiscal year 1997.

#### 40.68

The commentor states that the enduring stockpile was built from the late 1970s to the early 1990s, approximately a 12-year period. Assuming the stockpile has 8,400 weapons in it and that the life of a weapon is about 30 years, in 2008, we would have to replace the stockpile at a rate of 700 units per year. DOE is sizing the Complex to handle about 300 units per year. The commentor would like DOE to explain this disconnection and what it proposes to do about it.

- Response: The commentor postulates a disconnection between future workload and planned production capacity that DOE does not believe exists. Sections 2.2.2 and 3.1.1.1 describe the rationale for the production capacities assessed in the PEIS. More detailed information is available in the Analysis of Stockpile Management Alternatives report that supports the PEIS. Although DOE proposes to downsize its weapon production capacities, it has the option in the future to run multiple-shift operations or reactivate facilities (with appropriate environmental review and documentation) should unforeseen events dictate larger operating capacities.

#### 40.69

The commentors state that they have no confidence in DOE due to a past history of lies and deceptions in the nuclear program. One commentor states that DOE should address the deceptions in the nuclear program. Another commentor believes that a war crime tribunal should be established to review past mistakes of DOE in order to charge them with first degree murder and hang them.

- Response: DOE believes that the PEIS provides a full and fair evaluation of all reasonable alternatives. Other issues addressed by the commentor are beyond the scope of the PEIS.

#### 40.70

The commentor believes the stated rationale that the proposed Stockpile Stewardship and Management Program is needed to maintain stockpile safety and reliability does not square with available data. The commentor states that without DOE's rationale for the Stockpile Stewardship and Management Program, it would be difficult for DOE to justify operating current facilities, much less

build new ones, since official policy now proclaims that no new weapons will be produced. The commentor references that Sandia Stockpile Life Study which found that with surveillance and repair, U.S. nuclear weapons retain high safety and reliability. Further, defects caused by aging are rare and have not increased over time and the stockpile is not now reaching an advanced age due to scheduled retirements under arms reduction agreements. The commentor opines that weapons are becoming safer as older weapons types are retired. According to the commentor, the study adds weight to previous studies and expert opinion showing that the safety and reliability of the U.S. nuclear weapons stockpile can be maintained under a comprehensive nuclear testing ban. Once corrected for additional weapons systems, the commentors believe that the *1995 Stockpile Surveillance: Past and Future* report essentially validates the 1993 Stockpile Life Study. The commentor states that key implication of the stockpile study--the U.S. arsenal is highly reliable, underground testing has rarely been used to confirm the reliability of stockpiled weapons, and future defects can be fixed with existing surveillance programs and facilities--are highly relevant to the proposed Stockpile Stewardship and Management Program.

- Response: The underlying rationale for the Stockpile Stewardship and Management Program is the need to ensure the continued viability of this Nation's nuclear deterrence. The commentor references the Sandia Stockpile Life Study, for which a set of viewgraphs for a status briefing were prepared by SNL in 1993. However, the data used to develop the interim study arose from a database which was recognized to be incomplete and inadequate in that much data, particularly that relating to problems found through methods outside the DOE's formal Stockpile Evaluation Program, were incompletely or inconsistently documented. In particular, findings and "actionable" findings associated with the nuclear package (including the weapons primary and secondary) were not completely documented. DOE understands that Sandia never completed a stand-alone stockpile life study. Instead, at the request of DOE, the three weapons laboratories (LANL, LLNL, and SNL) subsequently conducted a joint study, *Stockpile Surveillance: Past and Future* (Johnson et al., 1995), which has updated Sandia's preliminary data to provide a more accurate look at the condition of the stockpile. This study was made publicly available in 1995 and was discussed in the PEIS. Sandia's preliminary findings were reassessed, corrected, and incorporated into the tri-laboratory study. DOE does not agree that Sandia's preliminary study "undercuts" the Stockpile Stewardship and Management Program, as suggested by commentor; rather, this preliminary study examined some of the types of problems with the enduring stockpile that led to the development of the Stockpile Stewardship and Management Program.

#### 40.71

The commentor asks what the environmental, social, cultural, and spiritual impacts, of having stockpile stewardship including DARHT, on all the communities near Los Alamos, the people, the air, the flora, the fauna, aquifers, livestock, agriculture, rivers, streams, businesses, and tourism of the states of Arizona, Colorado, New Mexico, Texas, and Utah and on the Nation.

- Response: The PEIS has been prepared in accordance with NEPA and applicable regulations and evaluates direct, indirect, and cumulative environmental impacts. Regarding LANL, the impacts of stockpile stewardship alternatives are discussed in chapter 4 of the PEIS in sections 4.6, 4.7, 4.8, and 4.9. In addition, project- and site-specific analysis is presented in appendix I for NIF, appendix J for CFF, and appendix K for Atlas.

#### 40.72

The commentors express opposition to all current and future nuclear weapons work at LANL including work associated with the Stockpile Stewardship and Management Program. Another commentor questions the selection of LANL based on allegations of sexual harassment at Albuquerque and pornographic Internet "play" at Sandia.

- Response: LANL and SNL have been selected as reasonable sites for some alternatives because of existing missions and infrastructure. Personnel actions such as those mentioned at these sites are outside the scope of the PEIS.

#### 40.73

Commentors believe Pantex is the wrong place for plutonium storage. Another commentor believes DOE has decided that long-term storage in Zone 4 is unsafe. One commentor states that he does not want Pantex to become the next Rocky Flats where the only jobs are for nuclear waste handlers and regulators. Another commentor believes plutonium is too dangerous to transport.

- Response: Pantex currently stores plutonium and is a candidate for long-term storage. DOE did not propose to introduce plutonium missions to any locations which did not already have some plutonium capabilities. The storage of plutonium, if selected, would be performed in accordance with applicable environmental regulations. Decisions on long-term storage of plutonium will be made in the ROD for the Storage and Disposition PEIS. DOE has not decided that long-term storage in Zone 4 is unsafe. The downsizing of the A/D mission at Pantex would result in the availability of facilities in Zone 12 which would no longer be needed to support the reduced workload requirements for A/D operations and could be used for storage. DOE has added a more thorough discussion of smaller stockpile sizes in section 3.1.2.

#### 40.74

Some commentors believe the PEIS should include the new mission of recertifying dispositioned HEU and plutonium in section 2.4, Purpose and Need, and section 3.2, Stockpile Management. One commentor cites section 3.5.4 and questions why explosive materials are disposed of, but plutonium and HEU are dispositioned. The commentor asks if a pit and plutonium/HEU residue are classified, and thus dispositioned, why would HE that is classified be disposed of. Commentor also asks why is classified HE potentially part of "alternative disposal technologies" and not "alternative disposition technologies." Another commentor asks if section 2.4.2, Industrial Base, should include a mission for recertifying non-fissile materials placed into storage and disposition. Another commentor asks what is excess explosive materials and what is the difference between that and surplus plutonium and HEU.

- Response: Disposition of surplus HEU and plutonium is addressed by DOE in the Storage and Disposition PEIS. HE is considered differently than HEU and plutonium because they can be sanitized (their shape declassified) and disposed as hazardous wastes, and because subsequent to sanitization they are not a concern relative to nuclear weapons proliferation. Whether excess materials are "disposed" or "dispositioned" does not relate to their classification, but to whether they are controlled materials relative to nuclear weapons proliferation.

#### 40.75

The commentors refer to appendix section A.3.1, and based on the estimate of 200 weapon parts per weapon, asks the following questions: how many parts are backlogged waiting for sanitization and demilitarization; if a backlog exists, what are the impacts of downsizing, relocating, and no action, on this backlog; who is responsible for sanitization and demilitarization; why isn't this discussed in infrastructure; why aren't the impacts assessed; and what is the through-put capacity of sanitization and demilitarization for each of the 200 estimated parts; are these processes readily available at other sites; and has DOE considered the nonproliferation capability in selecting alternatives.

- Response: DOE routinely deals with sanitization and demilitarization of components and materials from dismantled weapons at Pantex. Some materials and components are demilitarized and sanitized by Pantex, while others are returned to the manufacturer of the materials or components. This activity has been ongoing at a high level since the end of the Cold War. It will subside to a relatively low level in about 3 years after the large dismantlement workload is completed. All of these demilitarization and sanitization activities occur in existing production facilities, and for the PEIS are considered a part of the ongoing No Action alternative. Though this workload is not facility intensive, alternative locations for the stockpile management missions included facilities to deal with this workload.

#### **40.76**

The commentors believe SRS should receive a major role in the programs as determined in the ROD because it has the people, facilities, security, infrastructure, experience, and support from adjacent communities that will assist DOE in accomplishing the desired missions without adversely affecting the environment and saving taxpayers millions of dollars.

- Response: SRS has been and would remain a key component in maintaining the safety and reliability of the Nation's nuclear weapons stockpile. The Stockpile Management Preferred Alternatives Report provides information on the cost of the pit fabrication mission at SRS and LANL.

#### **40.77**

The commentor states that it is impossible to reduce the risk from nuclear weapons accidents to zero; however, and in particular, there will always remain some risk that plutonium will be dispersed by fire or explosion. The commentor believes the simplest and best ways to further minimize this possibility are operational and deployment changes that reduce the chances of an accident and risk to the public and further retirements which lead to a smaller arsenal.

- Response: DOE is committed to minimizing risks to the greatest extent possible consistent with national security requirements.

#### **40.78**

The commentor states that the citizens of Los Alamos are entitled to know the current environmental conditions of LANL before deciding whether the University of California has been good steward of existing hazardous materials. Another commentor believes there is serious mismanagement of the laboratory by the current contractor resulting in continuing non-compliance with environmental laws and NEPA violations.

- Response: DOE is committed to fully complying with all applicable environmental statutes, regulatory requirements, and Executive and internal orders. All DOE facilities comply with the Emergency Planning and Community Right to Know Act (42 USC § 11001), which requires facilities to report the release of extremely hazardous substances and other specified chemicals; to provide material safety data sheets; and to provide estimates of the amounts of hazardous chemicals onsite. The conditions at LANL are described in section 4.6.2 of the PEIS.

In general, contracting is not subject to NEPA review (see 10 CFR 1021, subpart D, appendix A, except regarding procurements for developing new or emerging technology).

- Although the commentor correctly points out that operations at LANL have occasionally been found to be out of compliance with various environmental laws, DOE and LANL management have made good faith efforts to bring laboratory facilities into compliance in a timely manner. DOE expects its management and operating contractors to operate its facilities in compliance with all Federal, state, and local laws, and the University of California, as management and operating contractor for LANL, has pledged to do so. DOE's confidence in the University of California is reflected in DOE's recent decision to extend the University's management and operating contract for LANL, LLNL, and Lawrence Berkeley Laboratory for another 5 years.

The commentor makes a number of allegations, most of which are unrelated to the University's management of the laboratory. While the courts found that an EIS should be prepared for the DARHT facility, DOE is unaware of any other NEPA violations, although DOE's Tiger Team recommended in 1991 that a site-wide EIS be prepared for LANL; regardless, the NEPA process is conducted by DOE, not the University of California. DOE is unaware of any refusal on the part of the university regents to meet with the citizens or legislators of New Mexico, subject to their schedule constraints, and the regents have held several public meetings in New Mexico on the subject of LANL operations. The laboratory conducted both a voluntary separation program and a reduction in force in 1995 to streamline its operations; these were conducted within the University of California personnel procedures as they apply to LANL and with the support and approval of both the University of California and DOE. Statistics compiled by LANL do not indicate that these actions disproportionately affected minorities or ES&H Division personnel. This matter is the subject of current litigation. DOE supports the LANL practice of debating opposing scientific theories in an atmosphere of academic freedom, and does not agree that the integrity of either the laboratory's environmental or scientific programs are under question.

#### 40.79

The commentor believes that the PEIS does not make a realistic distinction between strategic and surplus plutonium. The commentor believes that the effort to maintain two-thirds of the plutonium in the United States is evidence that the country is not serious about disarmament and also gives rise to the suspicion that some effort is being made towards using plutonium for commerce.

- Response: The distinction between strategic and surplus is made in the NWSM, which is classified. The excess is addressed in the Storage and Disposition PEIS, which describes how much is excess and is evaluating alternatives for future disposition.

#### 40.80

The commentor asks where fabrication of enriched uranium primaries will be assigned.

- Response: Some nuclear weapon pits contain components fabricated from HEU. These parts require the identical equipment and fabrication processes used for the manufacture of secondary HEU parts. They have traditionally been fabricated at Y-12 and shipped to the plutonium pit fabrication facility for incorporation into the weapon pit. As such, fabrication of these parts was included as a portion of the secondary and case production mission in the PEIS.

#### 40.81

One commentor requests that economy and safety be the first considerations in Stockpile Stewardship and Management Program. The commentor also expresses concern about the cost of cleanup in the event of a catastrophe. Another commentor does not want decisions concerning the location of operations and activities to fall into the "not in my back yard" syndrome. The commentor believes impacts should be minimized to all workers, families, and communities; and to the environment.

- Response: Safety is a paramount consideration of the Stockpile Stewardship and Management Program. DOE is committed to operating all facilities as safely and cost effectively as possible and in compliance with all applicable regulations.

#### 40.82

The commentor asks, relative to section 3.2.2, what ORR DP assignments are not performed by Y-12.

- Response: Some central site functions, such as facility engineering and computer operations, exist at ORR and support Y-12 as well as other ORR programs.

#### 40.83

The commentors request an explanation from DOE on why LANL and LLNL stockpile management budgets show projected increases from 1996 to 2004 since the United States has terminated the development of new nuclear weapons. Commentors reference the Stockpile Management *Preferred Alternatives Report*, pages 26 and 30. One commentor asks if these projected increases are based on transferring of missions from the production plants.

- Response: The LANL and LLNL stockpile management budgets are projected to grow in the next few years if the preferred alternative is implemented. At LLNL, the total present stockpile management budget is relatively small and its growth is small when compared to the total site budget. At LANL, the budget growth would be primarily associated with the preferred alternative assignment of the plutonium pit manufacturing mission.

#### 40.84

A commentor found the Draft PEIS unclear with respect to the intended aims and plans that are being proposed for the Panhandle area. Other commentors reiterated the community's adamant position that all work performed at Pantex continue to be done in a fashion that protects the environment including national resources such as the Ogallala aquifer and agricultural land.



- Response: Pantex was considered a reasonable alternative site for the weapons A/D mission and the HE fabrication mission. The weapons A/D mission is described in section 3.4.1, and includes provisions for nonintrusive modification pit reuse and strategic storage of plutonium and uranium in the form of pits and secondaries. Secondaries would not be stored at Pantex if Y-12 retains the secondary and case fabrication mission. Additionally, storage of all or a portion of the strategic reserve could be at another site, depending on DOE decisions regarding the Storage and Disposition PEIS. The HE fabrication mission is described in section 3.4.5, and includes HE procurement, formulation, component fabrication, characterization, surveillance, disposal, and storage. Analysis of the water and land-use impacts associated with each Pantex alternative were included in the Draft PEIS. Selection of the preferred alternatives was accomplished with full weight given to the results of this analysis. The Analysis of Stockpile Management Alternatives *report* and the Stockpile Management Preferred Alternatives Report are available for public review at the DOE Public Reading Rooms near each site.

As stated in section 3.1.1, Planning Assumptions and Basis for Analysis, DOE would emphasize compliance with applicable laws and regulations and accepted practices regarding industrial and weapons safety, safeguarding the health of workers and the general public, and protecting the environment. Section 4.14 of the PEIS describes the regulations and requirements under which all DOE sites conduct their operations during the normal course of their work activities, including potential accidents and associated human health and environmental consequences of an accident.

#### 40.85

The commentor believes that the Draft PEIS fails to consider adequately the entire range of current and proposed actions connected with the Stockpile Stewardship and Management Program and reasonable alternatives to such actions. The commentor states that because of substantial changes in the nature and purpose of DOE's atomic energy defense activities, as reflected in the design and implementation of a long-term Stockpile Stewardship and Management Program, the PEIS must consider in a comprehensive manner all related, connected, cumulative, and similar actions designed to achieve the goals of stockpile stewardship and management, including activities asserted to be ongoing, as well as those described as "next generation."

- Response: DOE believes that the PEIS discusses a full range of alternatives for implementing the Stockpile Stewardship and Management Program, and that it analyzes in detail those reasonable alternatives that are capable of achieving the goals of the Program. DOE also believes that the PEIS adequately assesses the cumulative impacts of proposed new activities and existing activities at the sites where the Stockpile Stewardship and Management Program would be implemented.

It is a well-established principle under NEPA that the goals of a proposed action delineate the limits of the reasonable alternatives to that action. That is, an alternative which does not accomplish the agency's goals is not a reasonable alternative. Since its inception, one of the primary goals of the U.S. nuclear weapons program has been to ensure the safety, security, and reliability of the Nation's nuclear weapons stockpile. Numerous facilities have been built over the years at the three weapons laboratories (LANL, LLNL, and SNL) and at NTS to conduct various activities necessary to meet this goal.

As described in chapter 2 of the PEIS, recent developments in national security policy have placed new constraints on the types of activities available to achieve this goal. Specifically, the United States is not producing new-design nuclear weapons or conducting underground nuclear testing (see section 2.4). DOE's challenge in developing the stewardship portion of the Stockpile Stewardship and Management Program has been to determine whether, and how, to replace, modify, or augment the existing capabilities of the laboratories and NTS so that the goal of maintaining a safe, secure, and reliable stockpile can be met, even as the enduring stockpile ages and underground nuclear testing is no longer available.

DOE has examined from a programmatic perspective various approaches to achieving this goal, and has determined that only an aggressive science-based program that relies on sophisticated simulation and computational technology would allow DOE to continue to ensure the safety, security, and reliability of the stockpile. Alternate approaches which are based on principles other than an aggressive pursuit of the knowledge necessary to predict, detect, and correct problems with the stockpile cannot achieve DOE's goals. Section 3.1.2 has been expanded to examine various other alternatives or approaches (such as maintenance, remanufacturing, and a zero stockpile) that have been suggested, and to explain why each of them are incapable of ensuring the stockpile's safety, security, and reliability, and thus are not reasonable.

Using simulation and computational technology to better understand the characteristics of nuclear weapons has been an element of DOE's weapons program for many years. It was historically part of the Research, Development, and Testing Program, the predecessor of the proposed stewardship portion of the Stockpile Stewardship and Management Program. In determining, for the reasons noted above, that stewardship must be based on similar principles, DOE effectively eliminated the option of replacing the existing proven capabilities at the laboratories and NTS with a different, untried approach. Accordingly, the PEIS focuses on facilities that could modify or augment the existing capabilities in ways that would achieve DOE's goal. In summary, DOE and its predecessors have been "stewarding" the stockpile, utilizing science-based principles, since the dawn of the nuclear era. DOE believes that recent policy developments require an even more aggressive application of these principles to ensure the safety, security, and reliability of the stockpile.

DOE believes that the PEIS appropriately addresses the role of existing facilities in the stewardship program. They are described as part of the No Action alternative, in broad terms in section 3.1.4 and in more detail in chapter 4 and appendix A. This approach to the No Action alternative (i.e., maintaining the status quo) is consistent with guidance issued by the CEQ (46 FR 180426, March 23, 1981). The environmental impacts of continuing the existing activities at each of the sites associated with the Complex are described throughout chapter 4. The cumulative effects that could result when the impacts of the proposed new facilities are added to those of existing activities are described in section 4.13. DOE believes that in this way, the PEIS adequately presents the impacts of the entire stewardship program, while focusing specifically on the proposed new facilities that require a DOE decision, and describing them in context with the existing facilities upon which DOE would continue to rely to achieve the goal of a safe, secure, and reliable stockpile.

Because DOE intends to use the PEIS as a component in decisionmaking in 1996, only those alternatives that are ripe for decisionmaking are assessed in detail in the PEIS. Alternatives not yet reasonably foreseeable, and which have not matured so as to be ripe for decisionmaking, such as next generation facilities (see section 3.3.4), are not assessed in detail in the PEIS.

Nonetheless, they are acknowledged and included to the extent practicable.

#### 40.86

The commentor thinks that the NTS table 3.2.9-1, should be modified to include subcritical tests, references to high explosive and dynamic experiments, testing of nuclear weapons, and testing of weapon effects.

- Response: The activities described above are a part of stewardship activities, and it was not considered appropriate to enumerate a long list of specific activities in a summary table for a PEIS. The ongoing consequences of these activities are covered in the NTS Site-Wide EIS. A table detailing the specific DP No Action facilities and activities at NTS has been added to appendix section A.1.

#### 40.87

The commentor states that DOE should not proceed with the stockpile stewardship program until it has prepared and circulated a new Draft PEIS, considered and responded to all comments, and issued a Final PEIS and ROD.

- Response: DOE believes that the Draft PEIS was adequate. In response to public comments on the Draft PEIS, DOE has made changes as described in section 1.8 of the Final PEIS. Additionally, DOE has prepared this Comment Response Document which describes the comments received on the Draft PEIS and DOE's responses to those comments. In accordance with NEPA, DOE will not proceed with any of the proposals described in the Final PEIS until an ROD is announced, which can be no sooner than 30 days after the publication of the EPA Notice of Availability of the Final PEIS.

#### 40.88

Due to its focus away from consolidation, the commentor believes that the Stockpile Stewardship and Management Program is very different from Complex 21.

- Response: The focus of the Stockpile Stewardship and Management Program has not shifted entirely away from consolidation. In fact, although not the preferred alternative, the PEIS evaluates the potential impacts associated with consolidation of weapons production missions at the national laboratories. Based on current policy and directives concerning national security, downsizing of the Complex is the preferred strategy.

#### 40.89

The commentor states that nuclear weapons stockpile stewardship includes storage security, safety, inspection, and maintenance so that the operability of any stored weapons are known and satisfactory. The commentor further suggests that those who devise plans for stockpile stewardship should remain aware of the technological advances in remote drilling control that might make previously secure storage locations less so.

- Response: DOE constantly evaluates and upgrades its security program to respond to advances in technology, including remote drilling control.

## 40.90

The commentor states that the Special Nuclear Materials Research and Development Laboratory proposal is still alive in the form of various proposed upgrades to LANL's Chemistry and Metallurgy Research building and that the relationship of the plutonium processing facility at TA-55 (PF-4), and the Chemistry and Metallurgy Research building is made clear in the quote in the fiscal year 1997 LANL Capital Asset Management Plan, Chemistry and Metallurgy Research Activity Data Sheet, page A-17. The commentor asserts that the Stockpile Stewardship and Management PEIS, with respect to future activities at LANL, is merely rubber stamping what the laboratory has been pursuing for a number of years.

- Response: In the late 1980s, DOE initiated a NEPA review for a proposed facility named the Special Nuclear Materials Laboratory at LANL, and issued its Notice of Intent (NOI) to prepare an EIS for the project (55 FR 1251, January 12, 1990). The new laboratory was proposed to replace the Chemistry and Metallurgy Research building. (Reconfiguration PEIS NOI, 56 FR 5594, February 11, 1991). DOE has since dropped its proposal to construct the Special Nuclear Materials Laboratory, since with a smaller nuclear material requirement the capacity of the Chemistry and Metallurgy Research building, if upgraded, remains adequate.

The Special Nuclear Materials Laboratory was proposed at a time when there were several new weapons systems in various phases of the development and production cycle and DOE was still operating its Rocky Flats Plant. At that time, DOE and LANL believed that a greater analytical chemistry capability was needed at LANL to support those efforts. DOE notes that a great deal of the background information raised by the commentor reflects the evolution that has occurred over the past 7 years as the Nation has made significant changes in its nuclear deterrence policy. At many times since 1990, the nuclear materials support work performed at LANL has been redirected by DOE to reflect the changing national priorities.

The former special nuclear materials proposal is not embodied in the current plans to upgrade the 44-year-old Chemistry and Metallurgy Research building, as the commentor alleges. DOE has prepared an EA for the Chemistry and Metallurgy Research upgrades (DOE/EA-1101), and has issued that EA in draft for public review and comment. The commentor reviewed the draft EA and extensively commented on that document. At this time, DOE proposes to upgrade space in the Chemistry and Metallurgy Research building only as needed to support the existing set of LANL operations. Two complete wings of the Chemistry and Metallurgy Research building are in the process of being placed in a safe standdown mode, and another wing has been converted to office space only. The analytical laboratory space in the wings currently proposed to be upgraded are those wings that support LANL's existing mission in the nuclear weapons program, deep space probes, nuclear material stabilization programs (including waste management) and environmental restoration.

As noted in this PEIS, in the event that DOE should choose to implement an expanded Stockpile Stewardship and Management Program at LANL, further renovations to the Chemistry and Metallurgy Research building would be needed to support pit production or other missions analyzed in this PEIS. If LANL is selected for an expanded production role as a result of the Stockpile Stewardship and Management ROD, then some activities could be moved into the Chemistry and Metallurgy Research building from building PF-4 at TA-55 into currently unused space that would then be renovated for this purpose. The current proposal to

- upgrade the analytical chemistry space in the Chemistry and Metallurgy Research building sufficient for existing needs would also support these future needs with no additional building renovation.

The commentor also references the LANL 1993 Strategic Plan. The sketch of a fully renovated Chemistry and Metallurgy Research building referenced in the 1993 plan included essentially all of the building. However, in 1995 DOE and LANL agreed to pursue only those upgrades needed to support the existing nuclear materials mission assignments at LANL which have resulted in changes from the 1993 plan. For example, since the 1993 plan, two complete wings of the Chemistry and Metallurgy Research building are in the process of being placed in a safe standdown mode, and another wing has been converted to office space only.

The Capital Asset Management Plan is an annual listing, for planning purposes, of potential projects that might be required to support current and future missions. DOE requires an annual Capital Asset Management Plan report from all its weapons complex sites. As such, it is not inappropriate for LANL to use this vehicle to alert DOE to facility improvements or new structures that might be required in the event that an enhanced stockpile stewardship and management mission is assigned to LANL.

It is true that DOE has determined that, under the existing stockpile stewardship and management activities that have been ongoing for many years, facilities at LANL will have to be maintained, and in some cases, repaired or upgraded, to allow LANL to continue to fulfill its existing mission. Far from being a "stunning admission" that future assignments are already being implemented, DOE believes that it is simply good management practice to keep its considerable real property--its buildings and other infrastructure--in safe, sound, and operating order.

#### 40.91

The commentor states that the Stone and Webster document referenced in the Stockpile Stewardship and Management PEIS was not made available to the public.

- Response: The document in question was not referenced in the PEIS but was referenced in the Analysis of Stockpile Management Alternatives report. That Stone and Webster document is available to the public upon request.

#### 40.92

The commentor refers to tables 3.7.1-1 through 3.7.1-5 and asks if anyone has placed these numbers into a common reference frame. According to the commentor, the LANL direct employment numbers, utility requirements, and some of the discharge numbers do not make sense.

- Response: DOE recognized the apparent differences in these numbers between the alternatives during the development of the PEIS source data. Reviews were conducted to assure consistency and comparability by a team of technical experts with representation from each site. The numbers reflected in the PEIS reflect the consensus opinion of this intersite team. DOE has checked the figures presented in all of the tables and charts of the Draft PEIS and has made the appropriate changes as presented in the Final PEIS. The changes were not significant and did not change the environmental impacts.

## 40.93

The commentor refers to Volume I, tables 3.4.4.2-2, 3.4.4.3-2, 3.4.4.4-1, 3.4.4.4-2, 3.4.5.2-2, 3.4.5.3-2, and 3.4.5.4-2 and requests that the term "surge operations" be defined in chapter 9, Glossary.

- Response: "Surge operations" is defined in section 3.1.1.1, No Action Alternative Assumptions, as a three-shift operation, 5 days a week.
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