DOE/EIS-0240

Office of
Fissile Materials Disposition

United States Department of Energy

Disposition of Surplus Highly Enriched Uranium Final Environmental Impact Statement

Volume II

Comment Analysis and Response Document

June 1996

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Disposition of Surplus Highly Enriched Uranium Final Environmental Impact Statement
(DOE/EIS-0240)

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ABSTRACT:

This document assesses the environmental impacts that may result from alternatives for the disposition of U.S.-origin weapons-usable highly enriched uranium (HEU) that has been or may be declared surplus to national defense or defense-related program needs. In addition to the No Action Alternative, it assesses four alternatives that would eliminate the weapons-usability of HEU by blending it with depleted uranium, natural uranium, or low-enriched uranium (LEU) to create LEU, either as commercial reactor fuel feedstock or as low-level radioactive waste. The potential blending sites are DOE's Y–12 Plant at the Oak Ridge Reservation in Oak Ridge, Tennessee; DOE's Savannah River Site in Aiken, South Carolina; the Babcock & Wilcox Naval Nuclear Fuel Division Facility in Lynchburg, Virginia; and the Nuclear Fuel Services Fuel Fabrication Plant in Erwin, Tennessee. Evaluations of impacts at the potential blending sites on site infrastructure, water resources, air quality and noise, socioeconomic resources, waste management, public and occupational health, and environmental justice are included in the assessment. The intersite transportation of nuclear and hazardous materials is also assessed. The Preferred Alternative is blending down as much of the surplus HEU to LEU as possible while gradually selling the commercially usable LEU for use as reactor fuel. DOE plans to continue this over an approximate 15- to 20-year period, with continued storage of the HEU until blend down is completed.

PUBLIC INVOLVEMENT:

The Department of Energy issued a HEU Draft EIS on October 27, 1996, and held a formal public comment period on the HEU Draft EIS through January 12, 1996. In preparing the HEU Final EIS, DOE considered comments received via mail, fax, electronic bulletin board (Internet), and transcribed from messages recorded by telephone. In addition, comments and concerns were recorded by notetakers during interactive public hearings held in Knoxville, Tennessee, on November 14, 1995, and Augusta, Georgia, on November 16, 1995. These comments were also considered during preparation of the HEU Final EIS. Comments received and DOE's responses to those comments are found in Volume II of the EIS.

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Volume II

Comment Analysis and Response Document

United States Department of Energy
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June 1996

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

B&W	Babcock & Wilcox
DOE	Department of Energy
EA	environmental assessment
EIS	environmental impact statement
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FR	*Federal Register*
HEU	highly enriched uranium
HEU EIS	*Disposition of Surplus Highly Enriched Uranium Environmental Impact Statement*
IAEA	International Atomic Energy Agency
INEL	Idaho National Engineering Laboratory
LEU	low-enriched uranium
LLW	low-level waste
MACCS	MELCOR Accident Consequence Code System
NEPA	*National Environmental Policy Act* of 1969
NFS	Nuclear Fuel Services
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NTS	Nevada Test Site
ORR	Oak Ridge Reservation
PEIS	programmatic environmental impact statement
P.L.	Public law
Pu	plutonium
ROD	Record of Decision
SRS	Savannah River Site
USEC	United States Enrichment Corporation

CHEMICALS AND UNITS OF MEASURE

kg	kilogram
km	kilometer
lb	pound
m	meter
mi	mile
t	metric ton
U_3O_8	triuranic octaoxide
UF_6	uranium hexafluoride
UNH	uranyl nitrate hexahydrate

Chapter 1
Issue Bins

1.1 INTRODUCTION

In October 1995, the Department of Energy (DOE) published the *Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement* (HEU EIS). This HEU EIS analyzed the environmental impacts of alternatives for the disposition of U.S.-origin highly enriched uranium (HEU) that has been or may be declared surplus to national defense or national defense-related program needs by the President. The 78-day public comment period for the HEU Draft EIS began on October 27, 1995, and ended on January 12, 1996. However, comments were accepted as late as January 30, 1996.

During the comment period, public meetings were held in Knoxville, TN, on November 14, 1995, and Augusta, GA, on November 16, 1995. Two meetings were held at each location, one in the afternoon and one in the evening. 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 meeting, together with the number of comments recorded and comments received by other means during the comment period, is presented in Table 1.1–1. Attendance numbers are based on the number of participants who completed and returned registration forms but may not include all of those participants present at the meetings. Comments that were received over the telephone were transcribed. Comments submitted via electronic bulletin board were downloaded. All comments received by mail, fax, electronic bulletin board, and telephone were stamped with the date the comment document was received. A total of 72 organizations and 125 individuals submitted comment documents for consideration.

1.2 ORGANIZATION

The *Comment Analysis and Response Document* has been organized into the following sections:

Table 1.1–1. Document and Comment Submission Overview

Method of Submission	Documents Received	Comments
Public Meetings		
Knoxville, TN	101	131
Total attendance–101		
Augusta, GA	33	89
Total attendance–33		
Hand-in at public meeting	3	4
Other		
Mail-in	69	169
Fax	30	123
Telephone	76	160
Electronic Bulletin Board	8	12
Total	320	688

Note: Comments from public meetings are recorded whereas comments from other submissions are identified.

- Chapter 1 describes the comment analysis and response process and lists the issue bins.
- Chapter 2 presents the changes made in the HEU Draft EIS as a result of the public comments received.
- Chapter 3 contains documents received during the public comment period showing the comments identified, comments recorded at the public meetings, and responses to all comments.

Tables are provided at the end of this chapter to assist commentors and other readers in locating comments regarding the HEU Draft EIS. Once comments were identified, they were categorized by issue (for example, emergency response or environmental compliance) and assigned to an issue bin. (An issue bin is the term used for a general topic under which to identify comments for proper response.) Table 1.2–1 lists the issue category and corresponding issue bin numbers. The majority of comments were responded to on a one-to-one basis; however, comments that were similar in content were grouped together and one response addressing that group was provided. Each comment, whether an individual comment or a group of comments, was assigned a five-digit number, starting with the appropriate issue bin number (example: 10.024, 10 being the issue bin number and 024 being the 24th comment in that bin).

Table 1.2–2 identifies the individuals who attended the public meetings and how to locate the comments and responses from those meetings. Commentors interested in locating their comment document and seeing how their comments were binned can use Table 1.2–3. This table lists the individuals, agencies, companies, organizations, and special interest groups who submitted comment documents. Commentors are listed alphabetically by last name or organization name, along with the corresponding page number on which the actual comment document appears. Also listed in this table are the issue numbers assigned to the comments found within each comment document.

As discussed in Section 1.1, comments were received by mail, fax, electronic bulletin board, or telephone in addition to the comments recorded in the public meetings. In some instances, duplicate comments were received from a single commentor. Many individual phone calls were received to support the phone campaign. The scan of only one telephone call transcription representative of the campaign is reproduced in Chapter 3. All individuals who participated in this campaign are referred to the page upon which the scan for the representative transcription is reproduced.

The issue bins identified previously are listed by number in Table 1.2–4. This table provides the number of the issue bin under which comments received on the HEU Draft EIS were grouped, followed by the specific comment number and the page number(s) where the comment(s) can be found. Multiple page numbers indicate several comments on the same issue. Using the appropriate issue number, commentors can use this table to see if their comment was grouped with other comments and how many were grouped together.

Table 1.2–1. Issue Bins

Issue Category	Issue Bin Number	Content
Purpose and Need for Action/Scope		
	1	Highly enriched uranium disposition process
	2	Surplus disposition and its process
	3	Nonproliferation objectives
	4	Economic objectives
	5	Timing of activities
	6	Other purpose, need, or scope comments
Alternatives		
	7	Definition of alternatives
	8	Implementation of alternatives
	9	Need for additional alternatives
	10	"Votes" in favor/opposition to alternative X
	11	Other alternative issues

Table 1.2–1. Issue Bins—Continued

Issue Category	Issue Bin Number	Content
Programmatic Impacts		
	12	Effects on uranium industry
	13	Commercial nuclear power
	14	Spent fuel disposal and low-level waste disposal
	15	Security, including potential terrorism
	16	Costs
	17	Other programmatic impacts
Transportation Impacts		
	18	Emergency response
	19	Accident analysis
	20	Other transportation issues
Site-specific Impacts		
	21	Health and safety
	22	Environmental resources
	23	Environmental compliance
	24	Socioeconomic/environmental justice
	25	Other site-specific issues
Related Actions		
	26	Highly enriched uranium storage
	27	Other related site-specific NEPA issues
	28	Programmatic NEPA related actions
Public Impacts to DOE Decision Process		
	29	Highly enriched uranium disposition decision process
	30	NEPA policy issues
	31	Surplus materials segmentation
	32	Public participation issues
Technical Issues		
	33	Technical issues

Note: NEPA = *National Environmental Policy Act.*

Table 1.2–2. Index of Attendance at Public Meetings

Public Hearing Attendees	Comment/Response Page No.
November 14, 1995 – Knoxville, Tennessee	
Afternoon Session	3–223 to 3–248
Aisha, K., Oak Ridge Environmental Peace Alliance, Knoxville, TN	
Alexander, James, Knoxville, TN	
Arms, Mike, Citizens for National Security, Oak Ridge, TN	
Bailey, Susan, Nashville Peace Action, Nashville, TN	
Berry, Len, Tennessee Department of Energy and Conservation, Oak Ridge, TN	
Beziat, Pam, Nashville Peace and Justice Center, Nashville, TN	

Table 1.2–2. Index of Attendance at Public Meetings—Continued

Public Hearing Attendees	**Comment/Response Page No.**
Blevins, Steve, Nuclear Fuel Services Inc./OCAW, Erwin, TN	
Boardman, Charlie, BAI, Oak Ridge, TN	
Broughton, Jeff, BAI, Oak Ridge, TN	
Bryan, Mary, Knoxville, TN	
Buchanan, Ronald, Lynchburg, VA	
Cator, Richard, TDEC/DOE Oversight, Oak Ridge, TN	
Charuau, Denis, COGEMA Inc., Bethesda, MD	
Chernikow, Georgy, Knoxville, TN	
Coates, Cameron, Knoxville, TN	
Cox, Shirley, Lockheed Martin Energy Systems, Clinton, TN	
Craig, Gina, Nuclear Fuel Services Inc., Johnson City, TN	
Crowe, Rocky, Nuclear Fuel Services Inc., Erwin, TN	
Culberson, David, Nuclear Fuel Services Inc., Erwin, TN	
Davenport, Smith, OCAW, Local 3-677, Hampton, TN	
Dewey, Alexander H., Nashville Peace and Justice Center, Nashville, TN	
Dewey, Kathryn F., Nashville Peace and Justice Center, Nashville, TN	
Dover, H. Kyle, Nuclear Fuel Services Inc., Erwin, TN	
Fitzgerald, Amy S., Oak Ridge Reservation Local Oversight Committee, Oak Ridge, TN	
Forester, William O., DOE/OHER	
Gage, Sherrell B., Nuclear Fuel Services Inc./OCAW, Johnson City, TN	
Hagan, Don, Southern Nuclear Operating Company, Birmingham, AL	
Hagan, Gary, Concord, TN	
Hage, Daniel, Allied Signal, Metropolis, IL	
Haselton, Hal H., Haselwood Enterprises Inc., Oak Ridge, TN	
Helms, Kathy, Nashville, TN	
Honicker, Jeannine, Nashville, TN	
Hopson, David, Nuclear Fuel Services Inc., Erwin, TN	
Hunter, Hayes, Knoxville, TN	
Hunter, Joyce, Knoxville, TN	
Hutchinson, Ralph, Oak Ridge Environmental Peace Alliance, Oak Ridge, TN	
Irwin, Hank, Sandia National Laboratory, Livermore, CA	
Jones Jr., John E., Haselwood Enterprises Inc., Oak Ridge, TN	
Keyes, Marcus, Justice-Peace-Integrity of Creation, Knoxville, TN	
Khan, Mohammad, American Nuclear Society, Alcoa, TN	
Lenhard, Joe, East Tennessee Economic Council, Oak Ridge, TN	
Levinson, Bernard, Automation Consultants Inc., Knoxville, TN	
Lipford, Patrick, Tennessee Department of Health, Knoxville, TN	
Livesay, Mark, DOE/DP-812, Oak Ridge, TN	
Marine, James, ICWU, Kingston, TN	
Medlock, John, DOE/ORO, Oak Ridge, TN	
Modica, Linda, Sierra Club, State of Franklin Group, Jonesborough, TN	
Moore, Marie, Nuclear Fuel Services Inc., Erwin, TN	
Moss, Cheryl, Nuclear Energy Institute, Washington, DC	

Table 1.2–2. Index of Attendance at Public Meetings—Continued

Public Hearing Attendees	Comment/Response Page No.
Murphy, John, Oak Ridge, TN	
Nagy, John, Nuclear Fuel Services Inc., Johnson City, TN	
Nevling, James E., ComEd, Downers Grove, IL	
Perry, Roger, State of Tennessee DRA, Nashville, TN	
Perry, Walter, DOE/ORO, Oak Ridge, TN	
Pielich, G. M., Nuclear Fuel Services Inc., Erwin, TN	
Rice, Dayton, Nuclear Fuel Services Inc., Erwin, TN	
Runion, Rick, Nuclear Fuel Services Inc., Erwin, TN	
Rutledge, Mark, Johnson City Press, Erwin, TN	
Sanford, Steve, S&A, Nashville, TN	
Schlitt, Kerry, Nuclear Fuel Services Inc., Erwin, TN	
Scott, Frank, International Chemical Workers Union - 252, Clinton, TN	
Shackelford, Randy, Nuclear Fuel Services Inc., Erwin, TN	
Shelton, Iris, Lockheed Martin Energy Systems, Oak Ridge, TN	
Shults, Debra, TDEC/DRH, Nashville, TN	
Sisk, Raymond C. L., Nuclear Fuel Services Inc., Erwin, TN	
Smith, Stephen, Oak Ridge Environmental Peace Alliance, Knoxville, TN	
Snider, Dave, Oak Ridge, TN	
Snyder, Nancy, Oak Ridge, TN	
Stephans, Dick, Albuquerque, NM	
Stollberg, Horst, Blountville, TN	
Venkatesen, P., Tennessee Department of Environment and Conservation, Oak Ridge, TN	
Walton, Barbara, Citizens Advisory Panel (LOC), Oak Ridge, TN	
Webb, Gerald, Nuclear Fuel Services Inc., Erwin, TN	
Webb, Jennifer, Lockheed Martin Energy Systems, Clinton, TN	
Wilburn, Bill, Lockheed Martin Energy Systems, Oak Ridge, TN	
Williams, John, OCAW, Johnson City, TN	
Williams, Shelby, Nuclear Fuel Services, Inc., Elizabethtown, TN	
Willis, Harry, Oak Ridge, TN	
Wilson, Carl, Nuclear Fuel Services Inc./OCAW, Erwin, TN	
Wood, Rose, Haselwood Enterprises Inc., Oak Ridge, TN	
Wujciak, Steven, Department of Transportation - Volpe Center, Cambridge, MA	
Wyatt, Steven, DOE - Oak Ridge Operations Office, Oak Ridge, TN	
Yard, Charles, TDEC/DOE Oversight, Oak Ridge, TN	
Evening Session	3–249 to 3–253
Baca, Joel A., DOE - Savannah River, Albuquerque, NM	
Becker, Bob, Knoxville, TN	
Cagle, Gordon, Lockheed Martin Energy Systems	
Deweese, Adam, TDEC/DOE Oversight, Oak Ridge, TN	
Irwin, Hank, Sandia National Laboratory, Livermore, CA	
Mann, Melissa, Edlow International Company, Washington, DC	
Miller, Mary Ellen, Nuclear Fuel Services Inc./The Creative Energy Group, Johnson City, TN	
Monk, Paul, Unicoi County, Erwin, TN	

Table 1.2–2. Index of Attendance at Public Meetings—Continued

Public Hearing Attendees	**Comment/Response Page No.**
Monroe, William E., TDEC/DOE Oversight, Oak Ridge, TN	
North, Debra, Oak Ridge National Laboratory, Knoxville, TN	
Okulczyk, G. M., TDEC/DOE Oversight, Oak Ridge, TN	
Penland, Mark, State of Tennessee, DOE Oversight Division, Oak Ridge, TN	
Webb, Eric, Ux Consulting Company, Marietta, GA	
Zavadowski, Richard, Nuclear Fuel Services Inc./The Creative Energy Group, Washington, DC	
November 16, 1995 – Augusta, Georgia	
Afternoon Session	3–73 to 3–82
Bratcher, de'Lisa, DOE - Savannah River, Aiken, SC	
Burris, Roddie A., The Aiken Standard, Aiken, SC	
Cribb, Sharon, BSHWM, Nuclear Emergency Planning, Columbia, SC	
Crawford, Todd, New Ellenton, SC	
Fernandez, LeVerne P., Fernandez Consulting, North Augusta, SC	
French, P. Mike, Aiken, SC	
Fuszard, Barbara, Augusta, GA	
Geddes, Richard L., North Augusta, SC	
Girard, Guy, DOE - Savannah River, Aiken, SC	
Goff, K. Michael, Argonne National Laboratory, Idaho Falls, ID	
Hill, Marian, Atlanta, GA	
Irwin, Hank, Sandia National Laboratory, Livermore, CA	
Kirkland, James, Transnuclear, Inc., Aiken, SC	
Martin, Donna, Westinghouse Savannah River Company, Aiken, SC	
McFarlane, Harold F., Argonne National Laboratory, Idaho Falls, ID	
McWhorter, Donald, Westinghouse Savannah River Company, North Augusta, SC	
Newman, Bob, Fripp Island, SC	
Orth, Donald, Aiken, SC	
Parker, James V., North Augusta, SC	
Paveglio, John, BNFL, Inc., Aiken, SC	
Weiler, Robert, Babcock & Wilcox, Charlotte, NC	
Evening Session	3–83 to 3–90
Bell, William E., Aiken, SC	
Bilyer, Jay, DOE - Savannah River, Aiken, SC	
Bridges, Donald, DOE - Savannah River, Aiken, SC	
Campbell, R. Bruce, Mason & Hanger, Amarillo, TX	
Goergen, Charles, Aiken, SC	
Irwin, Hank, Sandia National Laboratory, Livermore, CA	
Johnson, Carl, North Augusta, SC	
Knotts Sr., Ronald E., Williston, SC	
McCracken, Tricia, Augusta, GA	
Poe, W. Lee, Aiken, SC	
Sanders, Joseph C., Defense Nuclear Facilities Safety Board, Washington, DC	
Schmitz, Mark, Westinghouse Savannah River Company, Aiken, SC	

Table 1.2–3. Index of Commentors

Commentor	Issue Numbers	Page
Alexander, Peter, Lynchburg, VA	32.001	3–2
American Friends Service Committee, Denver, CO	03.017, 03.020	3–3
Atomic Trades and Labor Council, Oak Ridge, TN	10.003, 10.008	3–4
Bittner, C. Steven, Ph.D, Scaggsville, MD	21.018	3–6
Blombach, Gerhard, Knoxville, TN	03.020, 09.018, 10.023, 10.024	3–8
BNFL, Inc., Washington, DC	10.019	3–9
Bolen, James, Aiken, SC	10.003	3–11
Boniskn, Kate, NC	14.014	3–12
Burkhart, Gordon, Knoxville, TN	10.024	3–13
Case, Diane L., Gaithersburg, MD	21.018	3-14
Chubb, Walston, Murrysville, PA	10.007, 14.001	3–15
Citizens for National Security, Oak Ridge, TN	09.025, 10.008, 20.006	3–16
City of Oak Ridge, Environmental Quality Advisory Board, Oak Ridge, TN	10.003, 24.007	3–18
Cobble, James A., White Rock, NM	10.025, 10.026, 10.027, 15.007	3–19
Coggins, Nathan, Jonesborough, TN	10.003, 14.015	3–22
Coggins, Nathan & Family, Jonesborough, TN	10.011	3–23
Colorado College, Colorado Springs, CO	01.009, 04.012, 04.013, 06.018, 06.021, 09.021, 12.012, 12.013, 14.017, 16.018, 16.019	3–24
ComEd, Downers, IL	01.006, 04.015, 10.003	3–45
Conatser, Ray, Nashville, TN	03.020, 09.018, 10.023, 10.024	3–46
Condon, Gary, Lynchburg, VA	10.006	3–47
Congress of The United States, House of Respresentatives, Washington, DC	12.008	3–48
Converdyn, Denver, CO	12.010, 12.021	3–49
Coops, Melvin S., Livermore, CA	09.011	3–51
Corcoran, Margery, Minneapolis, MN	10.024	3–53
Cox, Lucy, Oak Ridge, TN	10.023	3–54
Cox, Terry, Johnson City, TN	10.008	3–55
Daly, Susan, Nashville, TN	03.020, 09.018, 10.023, 10.024, 16.015	3–56
Davis, Stanley B., Longwood, FL	10.003	3–57
Duke Power Company, Charlotte, NC	04.011, 12.009	3–58
Edlow International Company, Washington, DC	07.011	3–60
Ewald, Linda, Knoxville, TN	10.009, 14.002	3–62
Ewald, Linda, Knoxville, TN	03.020, 09.018, 10.023, 10.024	3–64
Faulkner, Sue A., Erwin, TN	10.003	3–66
Fearey, Kent, Knoxville, TN	26.003	3–67
Fernald Area Office, Cincinnati, OH	11.014	3–68
Fogel, Dan, Lakewood, CO	06.005	3–69
Friends of ORNL, Oak Ridge, TN	10.003, 10.008	3–70
Gardner, Jack A., Erwin, TN	10.003	3–71
Genetta, Susan, Nashville, TN	10.034	3–72
Georgia (Augusta), Afternoon Workshop Plenary Session	01.005, 02.003, 13.005, 16.007, 22.006, 25.001, 30.010, 32.009, 32.010	3–73

Table 1.2–3. Index of Commentors—Continued

Commentor	Issue Numbers	Page
Georgia (Augusta), Afternoon Workshop Discussion/Summary Session	02.006, 03.014, 04.009, 06.031, 06.032, 06.033, 06.034, 06.035, 07.008, 08.005, 08.008, 10.003, 10.016, 11.012, 11.013, 14.010, 16.009, 16.013, 17.008, 17.009, 20.007, 20.008, 22.006, 22.007, 22.008, 22.009, 24.003, 24.004, 30.006, 30.007, 30.008, 31.001	3–75
Georgia (Augusta), Evening Workshop Plenary Session	02.004, 03.013, 04.008, 06.026, 06.027, 06.028, 06.029, 09.007, 09.008, 09.009, 09.010, 14.007, 14.008, 14.009, 16.008, 16.009, 17.010	3–83
Georgia (Augusta), Evening Workshop Discussion/Summary Session	02.005, 03.015, 06.023, 06.030, 07.007, 10.003, 15.002, 15.003, 16.009, 16.010, 16.011, 17.005, 17.006, 17.007, 28.001, 32.011, 33.002	3–87
Giland, Cliff, Erwin, TN	10.003	3–91
Goergen, Charles R., Aiken, SC	10.003, 13.001	3–92
Grants Management and Intergovernmental Affairs, Richmond, VA	20.011, 23.001	3–93
Harris, Teresa, Unicoi County, TN	10.003	3–102
Hawkinson, Jean, Minneapolis, MN	10.024	3–103
Hedgepeth, David, Logan, UT	03.020, 09.018, 10.023, 10.024, 10.032, 16.015	3–104
Heineman, Mary Ellen, Waverly, TN	02.008, 03.020, 10.023, 10.024	3–106
Henry, R.N., Idaho Falls, ID	07.010, 09.016, 16.014, 21.009, 21.010, 21.011, 21.012, 21.013, 21.014, 21.015, 21.016, 21.017, 22.016, 25.003, 28.002, 33.001, 33.002, 33.004, 33.005, 33.006, 33.008	3–107
Hepler, John, Whitleyville, TN	10.031	3–115
Hirsch, Fay, Boca Raton, FL	10.024	3–116
Honicker, Jeannine, Nashville, TN	04.010	3–117
Honicker, Jeannine, Nashville, TN	04.010	3–118
Horton, Linda, Unicoi County, TN	10.002	3–119
Hunter, A. Hayes, Knoxville, TN	07.004	3–120
International Association of Educators for World Peace, Huntsville, AL	03.020, 10.023, 10.024	3–121
International Chemical Workers Union, Oak Ridge, TN	08.006, 10.003, 25.005, 25.006	3–122
Johnson, Erik T., Maryville, TN	03.020, 09.018, 10.023, 10.024	3–124
Johnson, John, Chattanooga, TN	03.020, 09.018, 10.023, 10.024	3–125
Kentucky Resources Council, Inc., Frankfort, KY	09.022	3–126
Kramer, Claudine, Weaverville, NC	10.026	3–127
Lindquist, Katherine, Norris, TN	10.024	3–128
Livermore Conservation Project, Oakland, CA	10.015	3–129
Louisiana Energy Services, Washington, DC	12.016. 05.012	3–130
McCurdy, Wade, Nashville, TN	10.023	3–133
Morgan, Russell, Landridge, TN	03.020, 10.003	3–134

Table 1.2–3. Index of Commentors—Continued

Commentor	Issue Numbers	Page
Nashville Peace Action, Nashville, TN	30.005	3–135
Neatling, Mary, Knoxville, TN	10.024	3–136
No Name Submitted, Lynchburg, VA	10.001	3–137
No Name Submitted, Lynchburg, VA	10.001	3–138
No Name Submitted, Lynchburg, VA	10.001, 10.003	3–139
No Name Submitted, Lynchburg, VA	08.001, 22.001	3–140
No Name Submitted	10.001	3–141
No Name Submitted	10.002	3–142
No Name Submitted	21.001	3–143
No Name Submitted	10.029	3–144
No Name Submitted	10.024	3–145
No Name Submitted	10.024	3–146
No Name Submitted	10.013	3–147
No Name Submitted, Silver Mountain, TN	03.020, 10.024	3–148
North Carolina Wildlife Resources Commission, Raleigh, NC	23.001	3–149
Nuclear Fuel Services, Inc., Norcross, GA	05.011, 09.009	3–150
NUKEM, Inc., Stamford, CT	12.017	3–152
Oak Ridge Environmental Peace Alliance, Oak Ridge, TN	01.007, 03.012, 03.021, 03.022, 04.014, 05.008, 07.009, 09.013, 09.014, 09.015, 11.016, 14.012, 14.013, 17.011	3–157
Oak Ridge Reservation Local Oversight Committee, Oak Ridge, TN	05.007, 05.010, 07.012, 10.008, 11.001, 11.015, 14.016, 14.019, 16.015, 17.013, 21.007, 21.008, 22.011, 22.012	3–162
O'Donohue, Kathleen, Huntsville, AL	03.020, 09.018, 10.023, 10.024	3–165
Oil, Chemical & Atomic Workers Intl. Union, Lakewood, CO	06.014, 06.016, 12.018	3–166
Oil, Chemical & Atomic Workers Intl. Union, Lakewood, CO	09.001, 12.001, 30.002, 32.003, 32.004	3–177
O'Neill, John, Madison, IN	06.001, 06.002	3–179
Parker, James V., North Augusta, SC	06.004	3–180
Phelps, John E., Knoxville, TN	10.020	3–181
Pillay, K.K.S., Los Alamos, NM	06.007, 08.004, 10.003, 12.007, 15.004	3–183
Poe, W. Lee, Jr., Aiken, SC	01.008, 03.018, 03.025, 04.016, 10.003, 12.022, 15.005, 24.006, 28.004	3–186
Proctor, Bernard, Madison Heights, VA	21.002, 22.002, 26.001	3–188
Proctor, Jane, Madison Heights, VA	06.003, 32.002	3–190
Proctor, Katy, Madison Heights, VA	20.001	3–191
Quatman, Vicki, Lake City, TN	09.018, 10.003, 10.024	3–192
Randall, Robert, Brunswick, GA	03.020, 10.023, 10.024	3–193
Rundle, Bob, Knoxville, TN	03.020, 10.023, 10.024	3–194
Sanford, Charles S., Nashville, TN	06.006	3–196
Sanford, Charles S., Nashville, TN	29.002	3–197
Sanford, Charles S., Nashville, TN	04.011, 10.018, 16.006, 32.012	3–198
Scheldorf, Genny and Cindy, Louisville, KY	03.020, 09.018, 10.023, 10.024	3–199
Shackelford, Randy, Johnson City, TN	08.005, 10.003	3–200

Table 1.2–3. Index of Commentors—Continued

Commentor	Issue Numbers	Page
Shearer, Velma M., Englewood, OH	03.024, 07.013, 09.006, 09.020, 14.005, 15.006, 30.009	3–201
Sierra Club, Jonesborough, TN	06.022, 09.023, 21.020, 22.014, 24.008, 25.002, 25.004, 32.013, 32.014, 32.015	3–203
Southern Nuclear Operating Company, Birmingham, AL	12.011	3–207
Sparks, Dennis, Unicoi County, TN	10.003	3–209
State of Missouri Office of Administration, Jefferson City, MO	23.001	3–210
State of New Jersey Department of Environmental Protection, Trenton, NJ	23.001	3–211
State of Tennessee, Department of Environment and Conservation, Oak Ridge, TN	02.007, 10.003, 14.020, 16.015, 20.012, 21.019, 22.013, 22.015, 22.017, 22.018, 25.007, 25.008, 28.003, 33.009	3–212
State of Tennessee, House of Representatives, Nashville, TN	10.003	3–220
State of Tennessee, Johnson City, TN	10.003	3–221
Tennessee (Knoxville), Afternoon Workshop Discussion Group A	01.002, 03.007, 03.008, 04.007, 06.009, 06.010, 06.020, 06.024, 09.004, 09.012, 10.003, 10.008, 10.009, 11.005, 11.006, 11.007, 11.008, 12.004, 14.003, 16.003, 16.004, 20.006, 20.009, 21.006, 22.010, 24.005, 26.005, 29.001, 32.007, 32.008	3–223
Tennessee (Knoxville), Afternoon Workshop Discussion Group B	01.001, 03.001, 03.002, 03.003, 03.004, 03.005, 03.006, 04.002, 04.003, 09.002, 11.003, 11.004, 16.009, 20.005, 21.003, 21.004, 21.005, 22.005, 24.002, 32.006, 33.001	3–231
Tennessee (Knoxville), Afternoon Workshop Discussion Group C	01.004, 02.001, 03.009, 03.010, 03.011, 03.017, 04.006, 05.002, 05.005, 05.006, 05.013, 06.011, 06.015, 06.017, 06.019, 07.002, 07.004, 07.008, 08.003, 10.003, 10.009, 10.014, 11.010, 13.002, 13.003, 13.004, 14.006, 14.011, 17.012, 19.001, 20.002, 20.003, 20.010, 24.001	3–236
Tennessee (Knoxville), Afternoon Workshop Plenary Session	01.003, 04.005, 05.001, 06.012, 09.002, 09.005, 11.009, 14.004, 15.001, 16.005, 22.003, 22.004, 23.002, 26.002, 26.004, 30.004	3–244
Tennessee (Knoxville), Afternoon Workshop Summary Session	08.007, 10.003	3–248
Tennessee (Knoxville), Evening Workshop Plenary Session	04.002, 04.004, 05.002, 05.003, 07.002, 08.002, 09.003, 10.003, 12.003, 17.001, 17.004	3–249
Tennessee (Knoxville), Evening Workshop Discussion/Summary Session	02.002, 05.004, 06.025, 07.005, 12.004, 12.005, 12.006, 17.002, 17.003, 20.004, 29.003, 33.003	3–252
Tennessee Valley Authority, Chattanooga, TN	07.003	3–254
Town of Erwin, Erwin, TN	10.003	3–255
Ulman, Robert, Erwin, TN	10.003	3–256

Table 1.2–3. Index of Commentors—Continued

Commentor	Issue Numbers	Page
Unicoi County Board of Education, Erwin, TN	10.003	3–257
Unicoi County Memorial Hospital Inc., Erwin, TN	10.003	3–259
United States Department of the Interior, Atlanta, GA	20.013, 21.011	3–260
United States Enrichment Corporation, Bethesda, MD	03.026, 04.017, 09.024, 10.003, 11.011, 12.023, 33.007, 33.009, 33.011	3–261
United States Environmental Protection Agency, Washington, DC	07.014, 07.015, 07.016, 33.002, 33.010, 33.012	3–263
Uranium Producers of America, Santa Fe, NM	11.002, 12.002, 16.001, 30.003, 32.003, 32.005	3–267
Uranium Producers of America, Santa Fe, NM	03.023, 07.006, 12.014, 16.015	3–270
U.S. Energy/Crested Corp., Riverton, WY	05.009, 09.019, 12.015	3–282
Utility Resource Associates, Rockville, MD	10.003, 13.006	3–287
Virginia Power, Innsbrook Technical Center, Glen Allen, VA	12.019, 12.020	3–288
Walton, Barbara A., Oak Ridge, TN	05.007, 07.012, 10.008, 11.001, 17.013, 21.007, 21.008, 22.011, 22.012	3–290
Werth, Kenneth F., Arvada, CO	06.008	3–292
Western North Carolina Physicans for Social Responsibility, Asheville, NC	03.016, 03.020, 10.009, 14.002	3–297
Wilcox, Bob, Savannah River, SC	10.003, 21.018, 23.006	3–298
Wilcox, Robert, Martinez, GA	07.001	3–299
Wood, Adelle, Nashville, TN	10.023, 10.024, 14.018	3–300
Young, Faith, Dixon Springs, TN	10.009	3–301
Zars, Peter, Erwin, TN	10.008, 10.021, 32.016	3–302

Table 1.2–4. Index of Issue Bins

Issue Bin	Page
01	
01.001	3–231
01.002	3–223
01.003	3–244
01.004	3–237
01.005	3–73
01.006	3–45
01.007	3–159
01.008	3–187
01.009	3–41
02	
02.001	3–237
02.002	3–253
02.003	3–73
02.004	3–83
02.005	3–88
02.006	3–75
02.007	3–215
02.008	3–106
03	
03.001	3–231
03.002	3–231
03.003	3–231
03.004	3–232
03.005	3–232
03.006	3–232
03.007	3–225
03.008	3–225
03.009	3–236
03.010	3–237
03.011	3–238
03.012	3–157
03.013	3–84
03.014	3–79
03.015	3–88
03.016	3–297
03.017	3–3, 3–238
03.018	3–186
03.020	3–3, 3–8, 3–46, 3–56, 3–65, 3–104, 3–106, 3–121, 3–124, 3–125, 3–134, 3–148, 3–165, 3–193, 3–194, 3–199, 3–297
03.021	3–158
03.022	3–158
03.023	3–273
03.024	3–201
03.025	3–186
03.026	3–262
04	
04.001	3–198
04.002	3–232, 3–249
04.003	3–232
04.004	3–249
04.005	3–244
04.006	3–239
04.007	3–225
04.008	3–84
04.009	3–75
04.010	3–117, 3–118
04.011	3–58
04.012	3–42
04.013	3–32
04.014	3–157
04.015	3–45
04.016	3–186
04.017	3–262
05	
05.001	3–244
05.002	3–236, 3–249
05.003	3–249
05.004	3–253
05.005	3–237
05.006	3–237
05.007	3–162, 3–290
05.008	3–157
05.009	3–286
05.010	3–163
05.011	3–150
05.012	3–131
05.013	3–238
06	
06.001	3–179
06.002	3–179
06.003	3–190
06.004	3–180
06.005	3–69
06.006	3–196
06.007	3–184
06.008	3–292
06.009	3–224
06.010	3–225
06.011	3–236
06.012	3–245
06.014	3–167
06.015	3–238
06.016	3–176
06.017	3–238
06.018	3–24
06.019	3–238
06.020	3–224
06.021	3–31
06.022	3–203
06.023	3–89
06.024	3–224
06.025	3–252
06.026	3–83
06.027	3–84
06.028	3–84
06.029	3–84
06.030	3–87
06.031	3–80
06.032	3–75
06.033	3–77
06.034	3–77
06.035	3–79
07	
07.001	3–299
07.002	3–236, 3–249
07.003	3–254
07.004	3–120, 3–238
07.005	3–253
07.006	3–275
07.007	3–89
07.008	3–79, 3–237
07.009	3–157
07.010	3–109

Table 1.2–4. Index of Issue Bins—Continued

Issue Bin	Page
07.011	3–60
07.012	3–163, 3–290
07.013	3–201
07.014	3–266
07.015	3–265
07.016	3–266
08	
08.001	3–140
08.002	3–249
08.003	3–237
08.004	3–185
08.005	3–79, 3–200
08.006	3–123
08.007	3–248
08.008	3–80
09	
09.001	3–177
09.002	3–232, 3–244
09.003	3–249
09.004	3–223
09.005	3–244
09.006	3–202
09.007	3–83
09.008	3–83
09.009	3–83, 3–151
09.010	3–83
09.011	3–51
09.012	3–223
09.013	3–157
09.014	3–158
09.015	3–158
09.016	3–108
09.018	3–8, 3–46, 3–56, 3–64, 3–104, 3–124, 3–125, 3–165, 3–192, 3–199
09.019	3–286
09.020	3–201
09.021	3–32
09.022	3–126
09.023	3–205
09.024	3–261
09.025	3–17
10	
10.001	3–137, 3–138, 3–139, 3–141
10.002	3–119, 3–142
10.003	3–4, 3–11, 3–18, 3–22, 3–45, 3–57, 3–66, 3–70, 3–71, 3–81, 3–87, 3–91, 3–92, 3–102, 3–122, 3–134, 3–139, 3–183, 3–186, 3–192, 3–200, 3–209, 3–214, 3–220, 3–221, 3–226, 3–238, 3–248, 3–249, 3–255, 3–256, 3–257, 3–259, 3–261, 3–287, 3–298
10.006	3–47
10.007	3–15
10.008	3–4, 3–17, 3–55, 3–70, 3–164, 3–225, 3–290, 3–304
10.009	3–63, 3–225, 3–239, 3–297, 3–301
10.011	3–23
10.013	3–147
10.014	3–238
10.015	3–129
10.016	3–80
10.018	3–198
10.019	3–10
10.020	3–181
10.021	3–302
10.023	3–8, 3–46, 3–54, 3–56, 3–64, 3–104, 3–106, 3–121, 3–124, 3–125, 3–133, 3–165, 3–193, 3–194, 3–199, 3–300
10.024	3–8, 3–13, 3–46, 3–53, 3–56, 3–64, 3–103, 3–104, 3–106, 3–116, 3–121, 3–124, 3–125, 3–128, 3–136, 3–145, 3–146, 3–148, 3–165, 3–192, 3–193, 3–194, 3–199, 3–300
10.025	3–20
10.026	3–19, 3–127
10.027	3–20
10.029	3–144
10.031	3–115
10.032	3–104
10.033	3–45
10.034	3–72
11	
11.001	3–162, 3–290
11.002	3–268
11.003	3–232
11.004	3–232
11.005	3–223
11.006	3–223
11.007	3–224
11.008	3–225
11.009	3–244
11.010	3–236
11.011	3–261
11.012	3–79
11.013	3–79
11.014	3–68
11.015	3–163
11.016	3–159
12	
12.001	3–177
12.002	3–267
12.003	3–249
12.004	3–224, 3–252
12.005	3–252
12.006	3–252
12.007	3–184
12.008	3–48
12.009	3–58

Table 1.2–4. Index of Issue Bins—Continued

Table 1.2–4. Index of Issue Bins—Continued

Issue Bin	Page
22.004	3–245
22.005	3–231
22.006	3–73, 3–75, 3–80
22.007	3–80
22.008	3–80
22.009	3–80
22.010	3–223
22.011	3–163, 3–290
22.012	3–162, 3–290
22.013	3–216
22.014	3–204
22.015	3–216
22.016	3–111
22.017	3–216
22.018	3–216
23	
23.001	3–96, 3–149, 3–210, 3–211
23.002	3–245
23.006	3–298
24	
24.001	3–236
24.002	3–231
24.003	3–80
24.004	3–81
24.005	3–226
24.006	3–187
24.007	3–18
24.008	3–205
25	
25.001	3–73
25.002	3–204
25.003	3–109
25.004	3–205

Issue Bin	Page
25.005	3–123
25.006	3–123
25.007	3–216
25.008	3–217
26	
26.001	3–188
26.002	3–244
26.003	3–67
26.004	3–245
26.005	3–226
28	
28.001	3–88
28.002	3–110
28.003	3–214
28.004	3–186
29	
29.001	3–225
29.002	3–197
29.003	3–253
30	
30.002	3–178
30.003	3–268
30.004	3–245
30.005	3–135
30.006	3–75
30.007	3–75
30.008	3–79
30.009	3–201
30.010	3–73
31	
31.001	3–78

Issue Bin	Page
32	
32.001	3–2
32.002	3–190
32.003	3–177, 3–267
32.004	3–178
32.005	3–268
32.006	3–232
32.007	3–224
32.008	3–224
32.009	3–73
32.010	3–73
32.011	3–88
32.012	3–198
32.013	3–204
32.014	3–203
32.015	3–205
32.016	3–302
33	
33.001	3–108, 3–232
33.002	3–89, 3–110, 3–266
33.003	3–252
33.004	3–108
33.005	3–109
33.006	3–109
33.007	3–261
33.008	3–110
33.009	3–215, 3–262
33.010	3–265
33.011	3–262
33.012	3–265

Chapter 2
Changes in Environmental Impact Statement as a Result of Public Comments

During the 78-day public comment period, DOE received a total of 688 written or recorded comments (Table 1.1–1) on the HEU Draft EIS. All comments were considered and responses prepared. There were several major issues that emerged from public comments on the HEU Draft EIS. Some of these comments necessitated changes in the HEU Draft EIS, which were incorporated into the HEU Final EIS. The major comments received and changes made in response to these comments are summarized below.

There was, among those who submitted comments, overwhelming support for the fundamental objective of transforming surplus HEU to a non-weapons-usable form by blending it down to low-enriched uranium (LEU) (for either fuel or waste). A few commentors, however, argued that surplus HEU should be retained in its present form for possible future use, either in weapons or breeder reactors.

There was substantial opposition to commercial use of surplus HEU in the form of nuclear reactor fuel. The commentors holding this view indicated that such use would increase proliferation risk by creating commercial spent nuclear fuel, which results in the generation of Pu. These commentors generally supported blending surplus HEU to LEU for disposal as waste instead of blending for commercial use.

Some commentors from the uranium fuel cycle industry expressed substantial concern that the entry of LEU fuel derived from surplus HEU from both Russian and U.S. weapons programs would severely depress uranium prices and lead to the closure of U.S. uranium mines, conversion plants, or enrichment plants. There were other comments, however, from several electric utilities that operate nuclear plants and from one uranium supplier indicating that reactor fuel derived from surplus HEU (Russian and U.S.) would enter the market at a time when worldwide production is expected to fall considerably short of demand and prices are expected to be rising substantially, which, in fact, has occurred over the course of completing the HEU Final EIS. These commentors felt that the likely impact of market sales of LEU fuel derived from surplus HEU would be to moderate sharp price escalation.

Several commentors argued that DOE should have evaluated in the HEU Draft EIS blending some or all of the surplus HEU to either 19- or 4-percent LEU and storing it until some later, undefined time. They argued that blending surplus HEU to below 20-percent enrichment and storing it indefinitely would have considerable nonproliferation advantages since it would not generate spent nuclear fuel, which contains Pu, while preserving its economic or beneficial use options.

Many commentors also argued that DOE should have developed a formal economic analysis evaluating the cost of each alternative, as well as benefits anticipated from the sale of LEU fuel derived from surplus HEU in the commercial market. They indicated, in general, that without a comparative cost analysis between various alternatives and the Preferred Alternative, it would not be possible to fully weigh the environmental risks and socioeconomic impacts of the Preferred Alternative against the risks and benefits that could be achieved by implementing other alternatives.

Many commentors expressed support for or opposition to the use of particular facilities for surplus HEU disposition actions. Similarly, several commentors indicated either support or opposition to the Preferred Alternative and/or expressed their Preferred Alternative. A few commentors expressed concern regarding the projected worker latent cancer fatality consequences for facility accidents.

In response to comments received on the HEU Draft EIS, as well as other changes in circumstances and knowledge, the HEU Final EIS has been modified in the following respects:

- The discussion of potential impacts to the uranium mining and nuclear fuel cycle industries (Section 4.8) has been revised to reflect enactment (in April 1996) of the *U.S. Enrichment Corporation (USEC) Privatization Act* (Public Law [P.L] 104-134), and to better reflect cumulative impacts in light of the U.S.-Russian agreement to purchase Russian HEU blended down to LEU. The HEU Final EIS recognizes the possibility that the market may be able to support only one U.S. enrichment plant after the year 2000 (as projected in the *Environmental Assessment for the Purchase of Russian Low Enriched Uranium Derived from the Dismantlement of Nuclear Weapons in the Countries of the Former Soviet Union* [USEC EA]) when Russian shipments of LEU derived from HEU are scheduled to triple. However, decisions regarding the continued operation of the enrichment plants would be made by USEC or its successor and would be based on the prevailing market conditions.

- Revisions were made in Chapters 1 and 2 of Volume I of the HEU Final EIS to modify the discussion of the rates of disposition actions that could result in commercial sales of LEU to better reflect the composition of the surplus inventory, the time required for DOE to make HEU available for disposition, and the new legislative requirement (in the *USEC Privatization Act*) to avoid adverse material impacts on the domestic uranium mining, conversion, or enrichment industries. As a result of the Secretary of Energy's *Openness Initiative* announcement of February 6, 1996, Figure 1.3–1 was included in Volume I of the HEU Final EIS to provide the forms, locations, and quantities of surplus HEU in the United States.

- In response to several comments, a qualitative discussion has been added in Section 2.1.3 of Volume I of the HEU Final EIS regarding the option of blending surplus HEU to 19-percent LEU and storing it. As explained in Section 2.1.3, DOE does not consider this option reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 metric tons [t] or approximately 40 t if a solidification facility is proposed and constructed at or near Savannah River Site [SRS]) of the current surplus inventory.

- The assessment of impacts to noninvolved workers and the public from accidental releases (radiological) was revised to improve realism in the calculation of doses and the results were incorporated into Chapters 2 and 4 of Volume I of the HEU Final EIS. Accidental radiological releases of uranium were remodeled using the MELCOR Accident Consequence Code System (MACCS) computer code with more detailed site-specific information to better estimate noninvolved worker (and public) cancer fatalities at each candidate site. The results revealed substantial reductions in projected cancer fatalities for all the blending alternatives at each site. DOE believes that these results reflect more realistic consequences since MACCS offers better capabilities in terms of modeling accident conditions and uses detailed site-specific information.

- Volume I of the HEU Final EIS has been modified to reflect the fact that SRS has effectively lost the ability to do metal blending and currently lacks the ability to solidify and crystalize material at the 4-percent enrichment level. SRS is now assessed only for uranyl nitrate hexahydrate (UNH) blending, and the fact that other arrangements must be made for oxidation of commercial material is reflected.

- Several changes have been made to the cumulative impacts section (Section 4.6 of Volume I) to reflect changes in the status of other projects and their associated *National Environmental Policy Act* (NEPA) documents (for example, Oak Ridge Reservation [ORR] was not selected as part of the Preferred Alternative in the *Tritium Supply and Recycling Programmatic Environmental Impact Statement* and Record of Decision [ROD]).

- Based on comments received, Section 4.4 of Volume I has been revised to include a discussion and comparison of risks associated with materials handling and transportation for all blending processes at the Y-12 Plant. Section 4.4 has also been revised to include an assessment of impacts for potential transportation of surplus HEU currently located at SRS and Portsmouth directly to blending sites instead of sending it to the Y-12 Plant for interim storage.

- The geology and soils sections for all of the candidate blending sites have been augmented to address a comment requesting a discussion of past earthquakes and potential impacts to facilities that could result from future seismic activity.

- A separate Floodplain Assessment (and Proposed Statement of Findings) has been added to the HEU Final EIS (Section 4.13 of Volume I) pursuant to 10 CFR Part 1022. This assessment is based, in large part, on information that was presented in the water resources sections of the HEU Draft EIS. The discussion of potential flooding at the NFS site has been expanded in response to comments.

- Numerous other minor technical and editorial changes have been made to the document.

Some DOE policy positions have remained unchanged between the HEU Draft and Final EISs notwithstanding comments that counseled a different approach. These comments were associated with keeping surplus HEU in its present form for possible future use, perceived nonproliferation concerns due to plutonium (Pu) in spent nuclear fuel generated as a result of using LEU fuel derived from surplus HEU in commercial reactors, and the request for economic cost/benefit analysis of alternatives in the HEU Draft EIS. (A cost analysis of the alternatives has been prepared and is available for public review.) The unchanged policy positions are explained in detail in Section 1.5.4 of Volume I of the HEU Final EIS.

Chapter 3
Comment Documents and Responses

This chapter presents all documents submitted to DOE on the HEU Draft EIS, comments recorded in public meetings and identified from documents, and DOE's response to each comment. Comments that were identical or similar in nature were grouped together to develop a single response. The responses developed for each group were then repeated in this section for each comment in that group.

ALEXANDER, PETER, LYNCHBURG, VA
PAGE 1 OF 1

Date Received: 11/15/95
Comment ID: P0017
Name: Peter Alexander
Address: Lynchburg, VA

Transcription:

I'm calling from Lynchburg, Virginia, and I don't see here that there's going to be a public workshop in Lynchburg, considering that's one of the two places is one of the two facilities among the candidate sites for this proposed disposition of surplus HEU. I would like to have something local rather that have to take my time to go out to Knoxville, Tennessee, to attend a workshop. I think that would be fair, and I think it's right and that's what I would like to see. I like my phone call returned please My name is Peter Alexander, and my number is 804-845-0145. Thank you. 32.001

32.001: The Department of Energy welcomes your comments on the HEU Draft EIS. DOE must work within the constraints imposed by available funding and resources. Because DOE is trying to reduce the costs of complying with NEPA, and due to the geographical proximity of three of the four candidate sites identified in the HEU EIS, DOE determined that two public meetings (Knoxville, TN and Augusta, GA) would be appropriate for this program.

Date Received: 01/16/96
Comment ID: P0056
Name: Thomas M. Rauch
Address: American Friends Service Committee
1664 Lafayette Street
Denver, Colorado 80218.

Transcription:

I'm calling on January 12th, 1996 to express our organization's concern about the Department of Energy's Environmental Impact Statement on the disposition of surplus highly enriched uranium. A major problem with the current Draft HEU EIS is that it selects the maximum commercial use option as the favored option.. That is, the HEU EIS recommends that 85% of the uranium be down blended to the level of nuclear reactor fuel. This would result in tens of thousands of tons of spent nuclear fuel containing plutonium and highly enriched uranium, both usable for nuclear weapons after reprocessing, but the President's 1993 Nonproliferation and Export Control Policy Statement requires that nonproliferation be a higher priority in determining how to deal with surplus special materials. The creation of weapons-usable materials as an end result of a process motivated by commercial gain from the sale of reactor grade uranium relegates nonproliferation goals to a lower priority. Even without the President's 1993 policy statement, we think it foolish to create more weapons-usable materials when there is another option, that is down blending HEU to less than 1% and disposing of it as low-level waste so that it can't be used in weapons. Nonproliferation should be our major priority. 03.017

Finally, we recommend that the HEU EIS at least begin to deal with the issue of international controls on all nuclear materials in order to lessen weapons proliferation and to better assure environmental protection. The United States should take the lead in assuring that all materials usable for nuclear weapons be controlled by the international community securely and permanently. 03.020

Sincerely yours,
Thomas M. Rauch,
Director, Disarmament and Rocky Flats Program
American Friends Service Committee,
1664 Lafayette Street
Denver, Colorado 80218.
Our phone number is area code (303) 832-4789. Thank you for the opportunity to comment.

03.017: The Department of Energy does not agree that commercial use of LEU fuel derived from surplus HEU increases the proliferation potential. DOE considers alternatives 2 through 5, which represent blending different portions of the surplus HEU to waste or fuel, as roughly equivalent in terms of proliferation potential and much more proliferation resistant than the HEU in its present form. That is, LEU at both 4- and 0.9-percent enrichment and spent fuel are all considered to have low proliferation potential because both enrichment of uranium and reprocessing of spent fuel to separate Pu are difficult and costly. Although fuel derived from U.S. surplus HEU and sold abroad could conceivably be reprocessed in some countries to separate Pu for commercial (non-military) use in mixed oxide fuel, that LEU fuel derived from surplus HEU would simply replace other fuel, so no incremental Pu will be created as a result of this program.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to International Atomic Energy Agency (IAEA) controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

ATOMIC TRADES AND LABOR COUNCIL, OAK RIDGE, TN
PAGE 1 OF 2

ATOMIC TRADES AND LABOR COUNCIL
AFFILIATED WITH METAL TRADES DEPARTMENT AFL CIO
P.O. Box 4068
Oak Ridge, Tennessee 37831-4068

January 11, 1996

U. S. Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P. O. Box 23786
Washington, DC 20026-3786

RE: Draft Environmental Impact Statement (EIS) for disposition of Surplus Highly Enriched Uranium, October 1995.

The Atomic Trades and Labor Council, representing sixteen international unions at the Oak Ridge Y-12 and X-10 plants, would like you to please consider the following comments when making final decisions on the disposition of surplus Highly Enriched Uranium (HEU).

We support the Department of Energy's proposal to blend-down surplus of HEU to Low Enriched Uranium (LEU) The Department of Energy's preferred alternative, (Alternative 5, Variation c) is one that we could support. However, we would prefer Alternative 5, Variation d as our first choice and then Alternative 5, Variations a and c respectively. The blending-down of surplus HEU using any variation of Alternative 5 would allow the United States a means to recover some investments from the Cold War efforts. 10.003

We do not favor Variation b of Alternatives 4 or 5. We feel it would be a terrible disservice to the workers at the Y-12 Plant to send this peacetime mission to the commercial sites and displace Y-12 Defense Program workers.

We feel that the Y-12 Plant and the Oak Ridge Reservation (ORR) should be considered at the top of the list for all processes used to blend HEU. The many advantages that the Y-12 Plant and the ORR have to offer are as follows:

The Y-12 Plant already has facilities that can be utilized for many of the blending operations being considered; 10.008

State-of-the-art systems for treatment and disposal of waste streams generated during blending operations;

More professional, technical, and craft experience and expertise in the safe handling of HEU than any other site;

10.003: Comment noted.

10.008: The Y–12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmaker.

HEU would not have to be shipped off site to be processed since most HEU is already stored at the Y-12 site.

The Y-12 Plant capabilities to blend-down HEU using two processes at the same time, HEU to LEU as metal and HEU to LEU as Uranyl Nitrate Hexahydrate

The community population surrounding the Y-12 Plant and the ORR has a thorough knowledge of and interest in technologies and processes related to HEU. Also, confidence and trust in the facilities and expertise associated with the already current missions which have been ongoing for over 50 years. 10.008 cont.

Also, the Department of Energy could utilize the experience and capable work force from the Cold War effort who's job is now in jeopardy because of the downsizing of Defense Programs.

We also feel the Y-12 Plant or the ORR should be considered as the ideal location for the new uranium hexaflouride blending operation because of the previously listed advantages.

Thank you for your time and consideration of these comments.

Sincerely,

Carl Scarbrough

Carl R. Scarbrough
President, Atomic Trades and Labor Council

BITTNER, C. STEVEN, PH.D, SCAGGSVILLE, MD
PAGE 1 OF 2

Date: Fri, 19 Jan 1996 10:58:33 -0500
To = docmd1-demo@fedix.fie.com
serial_no = 147
MailTitle = COMMENT Form - incoming

name = C Steven Bittner
title =
company =
addr1 = 10620 Hesperian Drive
addr2 =
city = Scaggsville
state = MD
zip = 20732
phone = 3014987580
fax =
email = tattoosr4u.aol.com
subject =

** The following is the text of the Author's Comment.

I find that the analyses presented in the Public and Occupational Health sections of the draft HEU EIS are alarming and question the validity of data used and presented in previous DOE NEPA documents. I am worried that the Department of Energy is trying to bias the selection of sites by presenting such a wide range in the number of fatalities due to accidents in the HEU EIS. It appears to me that either the section was prepared by very junior scientists, by personnel that are insensitive to the public's safety, or we are victims of DOE propaganda. I sincerely hope that the latter is not the case. I have aklways trusted the DOE and hope to continue my confidence. I would like to see an explanation of what kind of modeling was used to calculate these h igh death rates. Why , all of the sudden, do the numbers in this document increase significantly compared to those recently prepared by the DOE for the exact same sites? Are these numbers correct now and were previous numbers used by the DOE in recent D OE NEPA documents for the exact same sites, and in some cases, the previous documents much more radioactive materials? ARE THESE NUMBERS CORRECT NOW AND WERE PREVIOUS NUMBERS USED BY DOE INTENTIONALLY REDUCED IN ORDER TO FOOL THE PUBLIC INTO THINKING IMPACT S WOULD BE LOWER FOR PET PROJECTS OF THE PAST? 21.018

As a scientist, I would certainly would be interested in the methodology used to create these numbers.

Thanks for your attention to this matter.

C. S. Bittner, PhD

21.018: Accident consequences presented in the HEU Draft EIS were estimated using the GENII computer code. GENII is generally used and best suited for modeling impacts of radiological releases under normal operation of facilities because it handles a large number of radiological isotopes and accounts for the ingestion pathway. GENII was used with 50 percent meteorology (average meteorological conditions that would occur 50 percent of the time in any given period) during the accident. It is assumed that the noninvolved worker is placed in the sector that yields the maximum dose calculated by GENII. Latent cancer fatalities were calculated by applying this dose to all workers assuming that they are located 1,000 meters (m) away (or at the site boundary if less than 1,000 m) from the accident due to lack of data on site-specific worker distribution. This was done to compensate for a lack of data regarding onsite worker distribution, but yields highly conservative results. Also, this approach yielded disproportionately higher impacts at Y–12 and SRS because of the larger workforce at those sites compared to commercial sites.

In response to public comments, accidental releases of uranium were re-modeled using the MACCS computer code with more detailed site-specific information to better estimate noninvolved worker cancer fatalities at each candidate site. MACCS is a widely used code and offers better capabilities than GENII in terms of modeling accident conditions. It uses actual (recorded onsite) meteorological conditions and distributes data recorded over a 1-year period. The worker distribution data for each site were also collected and incorporated into MACCS runs to obtain a more realistic estimate of potential worker accident consequences.

The results obtained from MACCS runs have been incorporated into Section 4.3 of the HEU Final EIS. The methodology for the accident analysis has been added as Section 4.1.9. and Appendix E.5 of the HEU Final EIS.

BITTNER, C. STEVEN, PH.D, SCAGGSVILLE, MD
PAGE 2 OF 2

Date: Fri, 19 Jan 1996 15:25:06 -0500
To = doemd1-demo@fedix.fie.com
serial_no = 121
MailTitle = FORUM Form - incoming

name = C. Steven Bittner, PhD
title =
company =
addr1 = 10620 Hesperian Dr
addr2 =
city = Scaggsville
state = MD
zip = 20732
phone = 3014987580
fax =
email = tattosr4u@aol.com
ctype = public
subject = Part II comments

** The following is the text of the Author's Comment.
BEGIN comment =
The numbers in the facility accidents environmental consequences sections concerning the latent cancer fatalities, and the dose to the noninvolved worker alarms me and my family that still reside in both Georgia and South Carolina. I think it is importan t for the DOE to prepare an appendix to the EIS that provides the methodology of analyses in this section, so I could better understand how the number of 39 cancer fatalities and dose of 97,900 person-rems were calculated for an earthquake induced critica lity at Y-12.

As a proud native son of Aiken, SC and the son of a member of the Republican Senatorial Inner Circle, I am deeply concerned and ashamed that the proposed project has calculated 76 fatalities and 188,000 person-rems dose for noninvolved workers at the Sava nnah River Site. Don't you think these numbers are extremely high? Why are these numbers so much lower at commercial sites in the vicinity? I'm certain that the surrounding residents of SRS are VERY CONCERNED AND WORRIED ABOUT THE NUMBERS. I am sure t hat Senator Thurmond would be concerned about this and I am surprised that a public meeting regarding these high fatility estimates has not been held. What would be the impact of all those innocent people killed and what would happen to their children? I am concerned that such fatality estimates will have a VERY negative effect on property values of land around Aiken and Augusta. If these numbers are correct, are we at risk today with the facilities that were previously built using much lower fatality numbers than those in the HEU EIS? Thank you.

21.018
cont.

BLOMBACH, GERHARD, KNOXVILLE, TN
PAGE 1 OF 1

January 10, 1996

DOE / Fissile Materials Disposition FAX # 1-800-820-5156
c/o SAIC/HEU EIS
Washington, DC 20026

Gentlemen:

I'm troubled by reports that you plan to permit the making of nuclear reactor fuel from highly enriched uranium. This is a bad idea and I object because:

- It will create spent fuel, a highly toxic and radioactive waste we have no solution for. 10.024
- It will create plutonium, a violation of our non-proliferation goals.
- other options have not been adequately explored, including storing downblended uranium. 09.018

On the other hand, I do support the following:

- Downblending all highly enriched uranium so it cannot be used in weapons. 10.023
- Developing the capacity to downblend all uranium declared surplus in ten years.
- Having international controls on all nuclear materials. 03.020

I sincerely hope you will give careful thought to the well being of future generations before you take action.

Sincerely yours,

Gerhard Blombach

Gerhard Blombach
4520 Ball Camp Pike
Knoxville, TN 37921
FAX #1-800-522-2409

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

BNFL, INC., WASHINGTON, DC
PAGE 1 OF 2

BNFL
Inc.

Fax Transmission

DATE:	January 15, 1996	No. of Pages 2 (including cover)
TO:	DOE - Office of Materials Disposition c/o SAIC/HEU EIS	
FROM:	RA McMillan 202/785-2635	Washington, D.C. fax:202/785-4037
SUBJECT:	Response to HEU EIS	

Attached for your reference is BNFL's comments on DOE's EIS for the Disposition of HEU. We made an attempt to get this to you on Friday, January 12, but due to the storm, I could not get into the office and my colleagues in the UK tried to fax it from there. However, due to the 1-800 number, they were unable to get it through. My British colleagues spoke with a Kevin Donavan at DOE who advised them that the comments could be submitted by Tuesday, January 16, due to the public holiday (not to mention the delays due to snow).

Therefore, please accept the following comments. Please let me know if there is a problem with its transmission at (202) 785-2635.

Many thanks for your cooperation.

Rachel McMillan

BNFL, INC., WASHINGTON, DC
PAGE 2 OF 2

BNFL Inc.

BNFL Inc.
1776 Eye Street, N.W., Suite 750
Washington, D.C. 20006-3700
Tel. (202) 785-2635
Fax (202) 785-4037

January 12, 1995

DOE- Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, D.C. 20036-3786

Comments on DOE's Draft Environmental Impact Statement for the Disposition of Surplus Highly Enriched Uranium.

BNFL applauds the Department of Energy's efforts to further the goals of nonproliferation and to recognize the energy value of highly enriched uranium (HEU) formerly used for weapons related activities as safe, commercial fuel. Specifically, BNFL strongly supports the Department's proposal to blend down "off-specification" material into low enriched uranium (LEU) that can be fabricated into commercial reactor grade fuel. This option provides an economical and safe method of managing this excess material that would otherwise be considered a waste.

This "off-spec" material is a valuable asset in two ways. The U.S. taxpayer saves the cost of storing and managing this material as a waste and it is utilized as an energy resource that has no additional impact to the environment. No additional spent fuel is created and its use as fuel replaces the need to mine additional uranium, minimizing the wastes created. This HEU will only provide such a benefit in commercial reactors when blended with unirradiated depleted (DU) or slightly enriched uranium (SEU). As other DOE sites possess excess DU and SEU, using them as blend stock would solve another potential waste management problem for the Department.

According to the Draft EIS, there is approximately 40 MT of non-spec HEU at various DOE sites. For many years, BNFL has been fabricating fuel with very similar isotopic content (high U234 and U236 content) for use in UK reactors. The UK has been successfully burning this type of fuel in existing reactors, supplying power to the country for several decades now.

BNFL encourages DOE to move forward stabilizing and blending down this material at a DOE site. DOE has the basic infrastructure and existing facilities for these activities. Such a program is an investment in the US and its expertise. Currently, no existing commercial fuel fabricators can handle this material. By bringing in private investment to assist in the conversion of the material from a blended down form to LEU, expertise can be maintained at a DOE site while supplementing the industry's capabilities in handling recycled material, operating experience and licensing processes. 10.019

Putting this material in the most stable, proliferation-resistant form possible expediently furthers the Administration's nonproliferation policy goals as well as eases their environmental and waste management burden. DOE could move forward more expeditiously with the disposition of this material by implementing a plan to apply the technology that exists in handling "off-spec" LEU fabrication and its use in reactors. Again, BNFL strongly supports DOE's proposal to recognize this material's value as an energy resource and is ready to assist DOE in supporting this goal.

With kindest regards,

Rachel A. McMillan
Program Associate
Fuel Cycle and Materials Processing

10.019: The HEU EIS analyzed environmental impacts of the proposed action at four candidate sites. These candidate sites currently have technically viable uranium blending capabilities and could blend surplus HEU to LEU for commercial fuel or waste. Once environmental, cost, and scheduling studies are completed, DOE will make programmatic decisions as to whether surplus HEU should be blended for commercial use or for waste. Decisions about where specific batches of HEU will be blended are expected to be based largely on business considerations and may involve USEC, other private entities that may act as the Government's marketing agent, or DOE.

READER RESPONSE CARD

The purpose of this card is to encourage communication between readers of the Newsletter and the Office of Fissile Materials Disposition. Your views, comments, and suggestions are appreciated.

☑ Mr. ☐ Ms. ☐ Dr. JAMES (first name) BOLEN (last name)

Title: ENVIRONMENTAL SCIENTIST

Organization: DEPT. OF ENERGY SROO - ECD

Mailing Address: ~~2317 BEAVER CREEK DR~~ (street/post office box) BLDG 703-47A (suite/apartment/mail stop)

AIKEN (city) SC (state)

Please check all that apply:

A Mailing List Request: ☑ Add ☐ Modify ☐ Delete

B. Information Request
- ☐ Highly Enriched Uranium (HEU) EIS Implementation Plan
- ☐ Long-Term Storage & Disposition of Weapons-Usable Fissile Materials PEIS Implementation Plan
- ☑ Draft HEU EIS
- ☐ Other (specify)

Comments: MAXIMUM COMMERCIAL USE IS THE PREFERRED ALTERNATIVE. | 10.003

Please mail response card to U.S. Department of Energy • Office of Fissile Materials Disposition, MD-4 • Newsletter Editor • Forrestal Building • 1000 Independence Ave., S.W. • Washington, D.C. 20585

10.003: Comment noted.

Boniskn, Kate, NC
Page 1 of 1

Date Received: 01/16/96
Comment ID: P0055
Name: Kate Boniskn
Address: North Carolina

Transcription:

Yes, my name is Kate Boniskn. I am calling from North Carolina. I am very concerned about this apparent plan to go ahead and turn highly enriched uranium into nuclear fuel. I think we need to be moving in the direction of down blending and phasing out all nuclear materials because we still don't know what to do with all this waste that's accumulating. And I'd like very much to add my voice to all the other voices that are not in favor of this plan to create more waste and not really solve the problem. Thank you very much. 14.014

14.014: The Department of Energy's Preferred Alternative is to blend down the HEU but minimize the amount of waste generated. Commercial use of the material minimizes the waste generated, because HEU blended to fuel replaces fuel that would be used anyway; HEU blended to waste is additional to the amount that would be otherwise generated.

BURKHART, GORDON, KNOXVILLE, TN
PAGE 1 OF 1

Date Received: 1/11/96
Comment ID: P0030
Name: Gordon Burkhart
Address: Knoxville, Tennessee

Transcription:

Hello, this is Professor Gordon Burkhart. I would like to make comments concerning the enriched uranium transference process. I do not support making the highly enriched uranium into nuclear reactor fuel of any kind for a variety of reasons which I think are obvious to those concerned about the plutonium toxicity of the stuff. I do however support transferring it into non-weapons grade uranium and that this should proceed apace. My name is Gordon Burkhart at 573-7409, that's Knoxville, area code is 423. 10.024

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

CASE, DIANE L., GAITHERSBURG, MD
PAGE 1 OF 1

Diane L. Case, Ph.D.
427 West Side Drive #301
Gaithersburg, MD 20878

U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, D.C. 20026-3786

January 18, 1996

Dear Sir/Madam,

I am writing to comment of the Department of Energy's (DOE) Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (HEU EIS), dated October 1995.

My particular concern regards the analyses presented in the Public and Occupational Health sections of the EIS. In the Facility Accidents environmental consequences sections, statements are made concerning the number of latent cancer fatalities and the dose to the noninvolved workers. I would like to know the methodology employed to create these numbers. Specifically, how are the number of 39 cancer fatalities and dose of 97,900 person-rems calculated for an earthquake induced criticality at Y-12, Oak Ridge Reservation (Table 4.3.3.6-1)? Similarly, how are the number of 76 fatalities and dose of 188,000 person-rems calculated for noninvolved workers at the Savannah River Site (Table 4.3.3.6-2)? These numbers seem extraordinarily high. Why are the numbers so much lower at the two commercial sites? Is the DOE trying to bias the selection of sites by presenting such a wide range in the number of fatalities? What modeling was used to calculate these high death rates? What assumptions concerning worker location and dose went into your calculation? Why is the facility accident methodology absent from the EIS? Are these impacts realistic? If they are realistic, the DOE must surely want to reconsider the location of these blending activities and the safety of involved and noninvolved workers. 21.018

Thank you for the opportunity to comment. I would like to see a more through presentation of the analysis of risks of Facility Accidents presented in the Final HEU EIS.

Sincerely,

Diane L. Case

Diane L. Case, Ph.D.
Health Physicist

21.018: Accident consequences presented in the HEU Draft EIS were estimated using the GENII computer code. GENII is generally used and best suited for modeling impacts of radiological releases under normal operation of facilities because it handles a large number of radiological isotopes and accounts for the ingestion pathway. GENII was used with 50 percent meteorology (average meteorological conditions that would occur 50 percent of the time in any given period) during the accident. It is assumed that the noninvolved worker is placed in the sector that yields the maximum dose calculated by GENII. Latent cancer fatalities were calculated by applying this dose to all workers assuming that they are located 1,000 m away (or at the site boundary if less than 1,000 m) from the accident due to lack of data on site-specific worker distribution. This was done to compensate for a lack of data regarding onsite worker distribution, but yields highly conservative results. Also, this approach yielded disproportionately higher impacts at Y–12 and SRS because of the larger workforce at those sites compared to commercial sites.

In response to public comments, accidental releases of uranium were re-modeled using the MACCS computer code with more detailed site-specific information to better estimate noninvolved worker cancer fatalities at each candidate site. MACCS is a widely used code and offers better capabilities than GENII in terms of modeling accident conditions. It uses actual (recorded onsite) meteorological conditions and distributes data recorded over a 1-year period. The worker distribution data for each site were also collected and incorporated into MACCS runs to obtain a more realistic estimate of potential worker accident consequences.

The results obtained from MACCS runs have been incorporated into Section 4.3 of the HEU Final EIS. The methodology for the accident analysis has been added in Section 4.1.9 and Appendix E.5 of the HEU Final EIS.

CHUBB, WALSTON, MURRYSVILLE, PA

October 28, 1995

U.S. Department of Energy
Office of Fissile Materials Disposition
Forrestal Building
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Sirs,

Since HEU usually costs more to produce than weapons-grade plutonium-239, it appears that 200 metric tons of surplus HEU were produced at a cost of well over $2 trillion, about $10 billion per metric ton. If it has a scrap value of only 2% of its cost, it is still worth much more than gold!

The DOE has asked for advice from the technological community. The four alternatives outlined on page 3 of the Fall, 1995, newsletter do not represent good or even sound advice. The alternative of safeguarding 100% of the surplus, extremely valuable HEU as LEU is not mentioned. This material represents a national treasure which cannot be lightly disposed of as waste. Conservation and safe storage of such a national treasure is not only mandatory; it is also excellent policy, fiscally and environmentally. 10.007

Incidentally, the blending of HEU to produce a "low-level waste" for disposal could easily result in an environmental disaster. Uranium is a heavy metal. It produces heavy metal poisoning in humans. When concentrated as metal or oxide, all fully enriched or depleted uranium is self-shielding to its own radiation. Its radioactivity is so low that it is already "low level". Concentrated forms of uranium are routinely handled without causing any significant exposure to radiation. Diluting HEU to produce an enormous volume of "low level" waste will merely contaminate that volume with this heavy metal poison. Disposing of a large volume of poisoned material could be difficult. Is the DOE disposing of its stores of depleted uranium by diluting it in this way? 14.001

Evidently, the DOE is not aware of the conditions which caused the breakup of the former Soviet Union. The bureaucracy in the U.S.S.R. simply ceased to function efficiently. The bureaucrats didn't have the field experience and technological expertise to understand the functions they were asked to perform. A centralized bureaucratic government fails when bureaucrats are novices.

Under these circumstances, the DOE should select the "No Action" alternative. Leave the disposition of this national treasure to persons who are able to appreciate its value. 10.007 cont.

Sincerely,

Walston Chubb

Walston Chubb
3450 MacArthur Drive
Murrysville, PA 15668

412-327-8592

10.007: The No Action Alternative does not satisfy the purpose and need for the proposed action. It would leave the nuclear proliferation problem unaddressed, continue to incur storage costs, and not recover the economic value of the material. DOE agrees that the surplus HEU material represents a national treasure and therefore does not intend to dispose of it as waste if that can be avoided. DOE's goal is to maximize the economic value of this HEU by blending it to LEU and gradually selling it in the commercial market for use in commercial reactors. See discussion of the Preferred Alternative in Section 1.4.2.

14.001: The HEU disposition program does not propose to "dilute" HEU with non-uranium materials merely for purposes of disposal. Rather, the HEU that must be disposed as waste would be blended with depleted uranium down to LEU primarily to make it non-weapons-usable. The resultant product to be disposed of would be essentially pure uranium oxide, at an enrichment level (about 0.9 percent) that approaches a natural level. It is true that the volume would be greatly increased (by about a factor of 70), and that disposal is not a simple matter, which is one major reason DOE prefers to minimize the quantity that must be disposed of as waste by using as much as possible in commercial fuel.

CITIZENS FOR NATIONAL SECURITY, OAK RIDGE, TN
PAGE 1 OF 2

10/5/96

United States Department of Energy

NAME: (Optional) Michael Arms
ADDRESS: 301 LABORATORY ROAD OAK RIDGE TN 37831
TELEPHONE: 423-481-2819

I am entering the attached comment as Secretary to a non-profit dues paying membership organization "Citizens for National Security." Additional written comments may be also forwarded prior to the comment closing date

Please return your comments to the registration desk or mail to:
U.S. Department of Energy
P.O. Box 23786, Washington, D.C. 20026-3786
Or fax comments to: 1 (800) 820-5156

Citizens for National Security
Comments on Disposition of Surplus Highly Enriched Uranium
Draft Environmental Impact Statement

Independent of the blending process that will be utilized, the Y-12 Plant, and its larger Oak Ridge Reservation, offer the same advantages as the other three sites evaluated in the EIS, plus additional advantages Therefore, the Y-12 Plant and the Oak Ridge Reservation should be considered at the top of the list for all processes used to blend highly enriched uranium. The many advantages that Y-12 and the Oak Ridge Reservation have to offer include:

- The Oak Ridge Reservation has ample and more-than-adequate resources required for blending highly enriched uranium.
  - Its Y-12 Plant already has facilities that can be utilized for many of the blending operations being considered.
  - It has the necessary infrastructure required for any new facilities (for example, electricity, transportation, and other utilities).
  - It has state-of-the-art systems for treatment and disposal of waste streams generated during blending operations. 10.008
  - Many other existing missions located at Y-12, X-10, and K-25 would provide tremendous support for blending operations.
  - It has more professional, technical, and craft experience and expertise in the safe handling of highly enriched uranium than any other site in the world.
  - It offers state-of-the-art security that is second-to-none.
- The civilian population surrounding the Y-12 Plant and the Oak Ridge Reservation in general has a thorough knowledge of and a high level of interest in technologies and processes related to highly enriched uranium. This regional population has a high level of support, confidence, and trust in the facilities and expertise associated with current missions. This regional support has existed now for over 50 years.

The two DOE sites (Y-12 Plant or Savannah River Site) should be considered among the candidate sites for uranium hexafluoride blending operations. In particular, the Oak Ridge Reservation (of which Y-12 is only a small part) should be considered as the ideal location for the new uranium hexafluoride blending facility. There are many important and significant advantages of locating uranium hexafluoride blending at Y-12 or on the Oak Ridge Reservation First, all of the advantages listed previously would be realized, including
- the benefits of existing infrastructure and utility systems
- the benefits of existing systems for waste treatment and disposal
- the support provided by other existing missions on the Oak Ridge Reservation 09.025
- the benefits available by its top-notch professional, technical, and craft work force, and the experience and expertise they bring to this type of operation
- the benefits of existing advanced security systems
- the benefits of the high level of support and trust of the surrounding public

Also, since the highly enriched uranium that will be blended as proposed in the EIS will originate at Y-12, blending it on the Oak Ridge Reservation will save money and significantly reduce risks and environmental impacts associated with transporting the highly enriched uranium over long distances to any other site 20.006

10.008: The Y-12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmakers.

09.025: Uranium hexafluoride (UF_6) blending would only be used to make fuel for the commercial reactor industry. In light of existing UNH and metal blending (at the Y–12 Plant) capabilities of the DOE facilities, DOE believes that it would not be reasonable to add UF_6 blending capability at DOE sites for commercial fuel feed due to the capital investment required and the limited use, if any, of such capability for other DOE misions.

20.006: Assessment of impacts resulting from the proposed action were conducted at sites where facilities for UNH and metal blending processes currently exist and would not require new construction even for a new UF_6 capability at commercial sites. This provides the decisionmaker a reasonable range of site options to consider. However, because environmental and transportation related risks are low for all alternatives, it is anticipated that decisions on blending locations will be a function of other factors, such as material forms, availability of facilities when needed, and business decisions.

Transportation risk assessments showed that risks would be only slightly lower for blending to low-level waste (LLW) at ORR. For blending to fuel feed material as UNH crystals, ORR is not the lowest risk alternative. Two significant factors contributed to these conclusions: (1) onsite material handling represents the greater part of the total risk, and such handling would still be necessary even to blend at ORR, and (2) the highest transportation risk for these scenarios is not in transporting HEU, but in transporting the significantly larger volume of fuel feed material and LLW after blending.

CITY OF OAK RIDGE, ENVIRONMENTAL QUALITY ADVISORY BOARD, OAK RIDGE, TN
PAGE 1 OF 1

CITY OF
OAK RIDGE

ENVIRONMENTAL QUALITY ADVISORY BOARD

POST OFFICE BOX 1 • OAK RIDGE TENNESSEE 37831-0001

January 10, 1996

U.S. Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
PO Box 23786
Washington, DC 20026-3786

Dear Office of Fissile Materials Disposition:

The City of Oak Ridge Environmental Quality Advisory Board (EQAB) has reviewed the Department of Energy Draft Environmental Impact Statement (DEIS) on Disposition of Surplus Highly Enriched Uranium and has made the following observations:

1. Alternative 5, Maximum Commercial Use of surplus highly enriched uranium, appears to be the environmentally preferable alternative. Among the alternatives considered in the EIS, the maximum commercial use alternative would derive the greatest benefit from past efforts to obtain and enrich the uranium that is now considered surplus. This alternative would avoid some new environmental impacts from mining, milling, and enriching new sources of uranium for commercial reactor fuel, and it would minimize the impacts from disposal of material that could be a valuable resource. 10.003

2. Environmental impacts from activities at the Y-12 Plant would not be significant under any alternative; however, socioeconomic impacts at Y-12 analyzed in this DEIS could be significant. Specifically: 24.007

3. Subalternatives involving use of commercial facilities only to blend surplus uranium (such as Alternatives 4B and 5B) give us concern, as they would cause serious adverse socioeconomic impacts in Oak Ridge due to the loss of employment opportunities at the Y-12 Plant.

Should you have questions regarding these comments, please contact Ms. Ellen Smith, Vice-Chair of EQAB, at (423) 574-7396. On behalf of the Board, we appreciate the opportunity to comment on this DEIS.

Sincerely,
For the Board

Gerald Palau, Chairman

cc: Honorable Mayor and Members of Oak Ridge City Council
Amy Fitzgerald, ORR Local Oversight Committee

10.003: Comment noted.

24.007: The types of socioeconomic impacts assessed in an EIS include potential losses in income and employment arising from downsizing or phasing out of facilities. For proposed actions involving large construction projects, potential adverse impacts to public services and municipal finances are also assessed. However, to assess the potential loss in employment opportunities because a project might be located at a site other than ORR is beyond the scope of the HEU EIS. Furthermore, surplus HEU disposition would generate a maximum of 125 direct jobs, which would have an insignificant effect in the region where the work would take place.

Comments on the Options for Disposal of Surplus HEU

Your solicitation of comments on what to do with 200 metric tons of surplus HEU is a two-edged sword. On the one hand, you get good marks for being politically correct and enabling a democratically acceptable resolution of the "problem". On the other hand, it must be recognized that most who participate in this exercise are sufficiently ignorant of the situation that their opinions represent something less valuable than a collection of incoherent fears. It is certainly true that all the cards are not on the table. The number of tons of HEU not declared surplus is a sensitive number that is not available to me or to anyone else in the public domain. Nevertheless, based on what I know, I will proceed with opinions, which is what you profess to want. 10.026

The entire discussion is how to safeguard the material. The options considered here are only three: (1) no action, (2) cut enrichment to a level appropriate for commercial use in a power plant, and (3) cut the HEU into low level waste for disposal at Yucca Mountain or WIPP. Options for incremental cuts to waste and commercial use are clearly not optimal and will not be considered. The conservative view is that (1) is the preferred option because it costs the least and preserves the first two options.

To remind you at DOE of what you already know, 200 metric tons, while it sounds like a lot of stuff, is not! We are dealing here with a total inventory of surplus HEU the volume of which is scarcely 10 cubic meters. That's the mass of uranium divided by the density: 15.007

$$200 \text{ tons} * 1000{,}000 \text{ gm/ton} / (19 \text{ gm/cc} * 1{,}000{,}000 \text{ cc/m}^3) \sim 10 \text{ m}^3.$$

This is less than the volume of a full load of ready-mix concrete. Granted that it cannot be stored in such a small volume because of criticality, but the important point is that there is not a lot of stuff that needs to be safeguarded. Make no mistake. It is important that it not fall into the wrong hands, but with such a small volume, the "problem" is apparently much smaller than the average citizen might suspect.

The second point is the cost of HEU. The value is proportional to the cost to make it. The general public has not seen the race tracks at Y-12 in Oak Ridge where electromagnetic separation began 50 years ago. They are 10.026 cont.

10.026: The President, acting on the advice of the Nuclear Weapons Council, has determined that sufficient quantities have been retained in the strategic stockpile and that the materials declared surplus are not needed to address any credible threat. More HEU could be declared surplus in the future if additional treaties are signed between the United States and other countries that possess nuclear weapons. As the commentor notes, the price paid to make HEU has been quite high. However, DOE believes that the value of surplus HEU is not proportional to the cost of making it. Value is what the surplus HEU could be sold for in the commercial market. DOE had more HEU than it needs and since storing and safeguarding the material would continue to incur cost, DOE intends to sell LEU fuel derived from surplus HEU to recover monetary value and to set an example to other nations.

15.007: Although the volume of surplus HEU is relatively small, it is nonetheless a sufficient quantity to potentially make thousands of nuclear explosives if it gets into the wrong hands. The United States is properly safeguarding the material in its current form, but to reduce costs and set an example for other nations, the United States proposes to make the surplus material permanently non-weapons-usable.

COBBLE, JAMES A., WHITE ROCK, NM
PAGE 2 OF 3

unaware of the miles of barriers in the gaseous diffusion plant at K-25. They don't know that a 1000-MW steam plant had to be built to operate K-25. While they appreciate the movie Star Wars, they have no idea that a laser must be tuned to a resonant frequency within parts per million for efficient atomic vapor laser isotope separation. They never heard a set of turbines in a gas centrifuge fail at a gut-wrenching tens of thousands of rounds per minute. They marvel at the exhaust of a fictitious space ship but are ignorant of the shear power and flux of material required to accumulate a few grams of enriched material an atom at a time. In short, there is no appreciation of the difficulty of the task of separation. The United States worked hard and long and paid dearly to enrich uranium: untold thousands of man years of work and billions upon billions of dollars. One must approach a decision to scrap this investment with religious solemnity.

The value of the surplus lies in two areas. First, as weapons grade material, we either have HEU or we don't. As is known, if we don't have it, a Herculean effort is necessary to obtain it. It is infinitely better to have it and not need it than to need it and not have it. As an example, suppose we needed to fabricate a 100-megaton device to deflect an asteroid, etc. The desired option in this case is the status quo choice. [To assess this argument, the number of tons of HEU not declared surplus is needed You guys know. I don't.] 10.026 cont.

The second value of HEU, should this option be politically unacceptable, is the maximum commercial use option. Reactor fuel is generally enriched above the level of naturally occurring uranium By blending the uranium down to reactor fuel enrichment, we reduce the stockpile of HEU but retain its value as reactor fuel. This is not why it was enriched in the first place, but maximizes its use for our good. Sooner or later, the last lump of coal and the last barrel of oil will be consumed Then is when the ability to breed fissile material from U238 will at last be fully appreciated. 10.027

The "waste for disposal" option, option (3), must be refuted as not being intelligent. Option (3) costs us resources, incurs extra effort, and does not accomplish the unstated goal of making the world a safer place, the apparent point of this whole exercise. The lost resource argument has already been addressed. However, option (3) also makes work for us. The make-work work is the effort to license and locate the "waste" at Carlsbad, for example. Though about as dangerous as the original ore, the waste 10.025

10.027: The No Action Alternative, which preserves the option of continued storage, does not serve the purpose and need for the proposed action because the material would remain in weapons-usable form. DOE agrees that maximum commercial use is the most intelligent option and acknowledges that political considerations (in an international rather than a domestic partisan sense) constitute an important aspect of the purpose and need for HEU disposition actions.

10.025: The Department of Energy agrees that blending for disposal as waste should be minimized, although it will not be possible to avoid it altogether because some of the surplus material would not be economic to develop for commercial use. The blend of all surplus HEU to waste was evaluated in the HEU EIS to provide a comprehensive evaluation of a full range of alternatives. The waste from this program would be disposed of in a LLW repository, not a deep geologic repository for transuranic waste, such as the Waste Isolation Pilot Plant facility near Carlsbad, NM. DOE also agrees that fissile materials in Russia constitute the real proliferation threat, as opposed to U.S. fissile materials. However, we disagree that domestic fissile material disposition actions are merely empty gestures, as the willingness of Russia and other nations to continue to work to address their proliferation problems would be limited in the absence of any reciprocal actions on our part.

would have an enormous impact on the operating budget of the waste disposal site (and for no reason). In cutting the enrichment from 90+% to less than 0.9%, the mass becomes 20,000 metric tons -- 100 times greater. (U238 must be used to prevent chemical re-separation.) We have the cost for the factory for the dilution too. However, the main result would be an enriching of the competing attorneys associated with DOE and whoever is opposing it now. Finally, neither does the "waste" option accomplish its goal of making the world safer. With loads of fissile materials floating around Russia with unknown security in place, the impact of "securing" the US surplus makes no meaningful contribution. There is so much of this stuff available through other channels that it is ridiculous to spend time or money securing what is already secure and safe. The non-proliferation aspects of this showy behavior have no meaning. 10.025 cont.

To restate my suggestion for action: the "no action" option is cost effective, safe, does not contribute to proliferation, and preserves our options. [There will be a different president in five years or less whose political agenda is different.] The "maximum commercial use" option is the only other option which at first glance offers us anything. 10.026 cont. The "waste disposal" options are all summarized as foolishness.

I credit the DOE for their proposal for maximum commercial use as the most intelligent option given the political nature of the "problem" they have been given. Perhaps in a few years, this nonsense will stop -- or at least be different. This is one instance where bureaucratic foot dragging is helpful indeed. 10.027 cont.

James A. Cobble
staff member, Physics Division
Los Alamos National Laboratory

104 Carlsbad
White Rock, NM 87544

phone: 505-667-8290
email: cobble@lanl.gov
Jan. 8, 1996

Coggins, Nathan, Jonesborough, TN
Page 1 of 1

Date Received: 11/13/95
Comment ID: P0011
Name: Nathan Coggins
Address: No Address Given

Transcription:

Hello. My name is Nathan Coggins. I live downstream from the Erwin facility, down the [Nulchucky] River, and I would just like to comment that we appreciate the jobs that it would bring. 10.003

What about waste that's gonna be stored in the area or in Oak Ridge. If there is going to be waste, I would just as soon see it shipped back to Rocky Flats or wherever they're going to bring the uranium in from. The people in Colorado don't want it, you know. Is it that harmful that we need to sacrifice our health for the dollars? I'm not sure. My number is 753-9509. 14.015

10.003: Comment noted.

14.015: Any utility purchaser of nuclear fuel derived from surplus HEU would be responsible for disposal of the resulting waste. Under the *Nuclear Waste Policy Act*, DOE manages the Nation's civilian radioactive waste program in return for fees assessed on nuclear electricity generation, so the waste would eventually be sent to a DOE permanent repository (or possibly an interim storage facility). A location where LLW derived from DOE's down-blending to LEU can be disposed of has not yet been designated. Additionally, Rocky Flats is neither evaluated as a waste disposal site nor considered for any aspect of the HEU EIS.

COGGINS, NATHAN & FAMILY, JONESBOROUGH, TN
PAGE 1 OF 1

Nathan Coggins & Family
255 Taylor Bridge Rd
Jonesborough,TN 37659

November 15, 1995

DOE Office of Fissile Materals Disposition
c/o SAIC-HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

Dear DOE:

If you are truly seeking input from are residents who have no interest pro or con, with nothing to loose or gain financially. Here is one families comments, based on the Summary of and partial and continued examination of the full study,(Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Study).

From these publications, persons I am familiar with at NFS and my own personal experiences and beliefs. I have formed this following opinion of the matter: As I understand the least harmful method would be to blend all HEU down to LLW however this may not be the most cost effective. I from limited information, believe the lowest impact to all areas and residents, and the most feasible if there is a market for LEU, would be to distribute the HEU evenly to all four sites to be blended. My reasoning is; 1st there would be no tran-portation cost or risks at ORR. 2nd Even though the arearound NFS is the most populated of the comercial sites, if the work is to be distributed to all avalible atomic workers in all four locations, this location should recieve it's share one fourth of the work. 3rd Since this is a very hazarous and potentially leathal substance Alternative 5 seems the most sensible way to handle the process if it is profitable. I have no figures as to the feasibility of blending HEU to LEU vs blending HEU to LLW. Although LEU should have a much higher value than LLW. I have seen no figures to indicate this, but I will assume this is so. Distributing the 200t of HEU to all four site would minimize impact on any one site plus finish the job in a timely manner. This would reduce the risk of accidents during transportation and during actual blending to any one site vs one or two sites doing 100% of the work. To use less than all four sites would greatly increase the risks to the other sites and surrounding areas. HEU is a hazardous material that needs to be dealt with swiftly under close Fed Govt scutiny to assure safty and reduce long term effects of this project on the areas involved. 10.011

This is not the type of industry residents, rich or poor, educated or uneducated, are seeking for their area, no matter what industrial recrutors, politicians, or the media may express.

This is a opportunity to change negative for positive, let's get it done as swiftly and safely and with the lowest amount of negative impacts as possible.

Sincerely,

Nathan Coggins & Family

10.011: The HEU EIS analyses showed that blending down the entire stockpile of surplus HEU to LLW would generate the highest environmental impact among other alternatives evaluated in the EIS (Table 2.4–2). Moreover, DOE agrees that the fastest and safest disposition course would be, as described in Section 1.4.2, the Preferred Alternative, to blend down surplus HEU to LEU using a combination of four sites. The goal is to achieve DOE's objectives that would satisfy programmatic, economic, and environmental needs, beginning as soon as possible after the ROD is issued and proceeding, as necessary, until all surplus material is blended down.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 1 OF 21

To DOE for Inclusion in the comments on the HEU DEIS.
I realize this is several days past the deadline, but please include the following in the comments on the Draft Environmental Impact Statement on the Disposition of Highly Enriched Uranium.

THE DISPOSITION OF WEAPON-GRADE PLUTONIUM AND HIGHLY ENRICHED URANIUM: COSTS AND TRADEOFFS

William J. Weida
Economists Allied for Arms Reductions//The Colorado College
Colorado Springs, CO, 80903//719-389-6409
January 16, 1996

Introduction

This paper explores some of the economic issues surrounding a major area of expenditures now facing the US: the disposition of weapon-grade plutonium and highly enriched uranium (HEU) either through 'burning' in nuclear reactors for power generation or by other means.[1] Under the current budgeting philosophy, programs managed by the Department of Energy (DOE) tend to compete with one another for the total funds assigned to that agency. For example, in the FY1995 DOE budget a tradeoff was made between increased funding for nuclear weapons and reduced funding for site cleanup. Thus, no matter which disposition alternative is chosen, if disposition funds are controlled by the DOE, disposition is likely to compete directly or indirectly with other alternatives for energy funding. And if subsidized by the US government, either research into plutonium or HEU as reactor fuel or the operations associated with such use are likely to consume funds that might otherwise be available to support sustainable energy alternatives. 06.018

Over the last three years, the uneconomical aspects of burning plutonium have been made abundantly clear by a number of studies. In spite of this, of all the materials, systems, facilities, and laboratories

[1] For example, see
Chow, Brian G. and Kenneth A. Solomon, Limiting the Spread of Weapon-Usable Fissile Materials, National Defense Research Institute, RAND, Santa Monica, CA, 1993, and Management and Disposition of Excess Weapons Plutonium, Committee on International Security and Arms Control, National Academy of Sciences, National Academy Press, Washington, D.C., 1994.
"Burning" is the techno-slang word for using Pu or HEU in nuclear reactors by down-blending (essentially, diluting) HEU to reactor-strength uranium or mixing Pu with uranium to form a mixed oxide fuel (MOX) that can be burned in light water reactors (LWRs).

06.018: The Department of Energy agrees that there is increasing competition for funds within a declining DOE budget. However, this program would require very little of DOE's diminishing budget for implementation, because it would use either existing DOE facilities or commercial facilities, may involve commercial financing of disposition actions, and would use revenues from sales of LEU to recover blending costs. By providing for disposition of this material, DOE would save storage and safeguards costs.

involved in the design and operation of nuclear weapons, the most readily available assets for reuse are usually identified as being the HEU and plutonium from warheads. Over the last two years, quasi-private consortia have put considerable effort into convincing the US government to embark on such a program. These efforts have either
(1) assumed that there was an economical way to burn plutonium and HEU for power,
(2) proposed the construction and operation of new reactors specifically built to burn plutonium as part of a regional conversion plan for old nuclear weapon sites, or
(3) claimed that even if power generation itself was uneconomical, it would still provide a way to dispose of the large stocks of plutonium and HEU that was economically sound in the long run and was worthy of government support.

At the same time, other "technical fixes" for the plutonium problem have also been proposed. Many of these are transmutation techniques that would require large amounts of federal research and development money to construct facilities to turn plutonium into shorter-lived elements.[2] Others, such as shooting plutonium into the sun, are equally as expensive. With the exception of the Integral Fast Reactor (IFR), which has also been marketed under category (2) above, transmutation has generally been proposed as a pure government research project.

In this paper, comparisons between plutonium and down-blended HEU burning and other forms of nuclear power generation will be made using the general "industry model." In these comparisons, the costs associated with the wastes generated during the creation of nuclear power will not be explored because these costs are approximately identical no matter what kind of nuclear operations are undertaken. However, a full accounting of these costs would be necessary before any form of nuclear power generation is compared to coal, gas, hydroelectric, or solar generation schemes.

As a further issue, it should also be remembered that most nations are currently struggling with nuclear proliferation issues. Recent problems with North Korea have clearly demonstrated that because plutonium is normally produced as a by-product of reactor operations, civilian nuclear power generation is fundamentally at odds with proliferation goals in spite of international safeguards installed at most

[2] Elements with half-lives of 50 to 100 years instead of the 24,000 years possessed by plutonium.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO

plants. Further, actually burning plutonium for power legitimizes the reprocessing of spent fuel and the possession of plutonium, both of which vastly complicate the proliferation issue. When evaluating any disposition option, one should keep firmly in mind that the major obstacle to building a bomb is getting plutonium. When that obstacle is overcome, the rest is much simpler.

The Value of Plutonium and Highly Enriched Uranium

A value for plutonium and HEU has usually been assigned by DOE based on the costs required to manufacture either material. This is not a market-based approach, nor are such costs necessarily rational given the manner in which DOE operations are conducted. DOE's theory appears to be that if something cost a great deal to produce, it must be worth a great deal of money. The fallacy in such an argument is clear, but this remains the standard way of pricing both plutonium and HEU.

Value is normally established through a market mechanism in which a buyer and seller negotiate a price viewed as fair by each. However, the only market for civilian plutonium in recent years has been the one created by Japan's purchase of plutonium from France for future use in its power reactors. Pricing in this market is not public, but Japan's unique lack of alternative energy sources make its determination of the value of plutonium inapplicable to other countries. Further, adverse publicity generated by the 1994 Japanese purchase will undoubtedly prohibit similar purchases by Japan in the future--thus terminating the market. It is probable that there is another, illicit market for plutonium, but prices in this market are surely much higher than the actual value of plutonium because of the risk involved. Hence, neither the Japanese experience nor the illicit market provide much guidance as to the actual worth of plutonium.

Since there is no open, operating market in either plutonium or HEU, and since existing prices for these commodities have in the past been set by governments for political purposes, it is fair to say that no one has established the real market value of either material. This is bound to cause problems in pricing that cascade through all operations that try to use plutonium or HEU because a material with no established market value is being introduced into a commercial power-generating regime where careful market analysis and cost control govern which power sources are exploited.

If all costs of plutonium and HEU were considered, both materials would be some of the most expensive items ever created by man. The true costs of generating plutonium and HEU through dismantlement of nuclear weapons would have to include the following past costs:

The research costs accumulated in developing the materials.
The initial costs to extract uranium, to purify the materials and to make elements such as plutonium in reactors or HEU through gaseous diffusion.
The cost to fabricate the materials into weapons.
The cost to maintain the materials in weapons.
The cost to dismantle the weapons and free the materials for other uses.

And finally, the list of costs would have to include the future costs of disposition.

Accounting for any past costs of plutonium and HEU would make either material too expensive for any alternative use and, whether legitimately or not, these costs are usually counted as the costs of doing business during the Cold War. As a result, alternative uses of these materials are usually considered under the assumption that all past costs are sunk costs and future decisions are based only on the future costs of disposition.

When the alternative of burning is evaluated for disposition, certain physical rules apply: First, reactors using any acceptable material--uranium, plutonium-based MOX, or down-blended HEU--will generate approximately the same amount of power from those materials. And second, the total quantity of material put into a reactor will become the total quantity of spent fuel generated by the reactor. Thus, only two cost comparisons are appropriate to show whether plutonium or HEU can be burned with any economic benefit:

(1) The cost of processing and fabricating reactor fuel--and whether this cost would be higher or lower when plutonium or HEU is used. Lower costs may apply in the case of burning HEU, but this has not been demonstrated.

(2) Whether the cost of disposing of these materials might be lowered by burning them in a reactor, or whether the overall costs of disposition can be reduced by simply disposing of either material without first submitting it to a reactor. Here, there must be counted among the costs those of possible reuse in weapons if the materials are disposed of improperly.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 5 OF 21

The Nature of the Industry

Since its inception, subsidies have been a way of life in the nuclear power industry. A 1992 report found that over the period 1950 to 1990, 20% or $96 billion of the $492 billion (in 1990 dollars) spent to develop and obtain nuclear power was provided by the federal government.[3] According to the DOE, of total subsidies to the energy sector provided by the federal government in 1992, nuclear energy received $899 million of $4.88 billion expended--or about 18%. However, while most other sources of energy (oil, coal, etc.) received either tax subsidies to lower prices or direct subsidies to encourage consumer use--both of which acted to stimulate demand for the product--nuclear energy received almost all of its subsidies ($890 out of $899 million) in Research and Development. In fact, nuclear energy received 44% of all energy R&D subsidies in 1992.[4]

Over the last forty years, funding of nuclear energy research has continued with little actual implementation of the results of this research. As construction of new reactors has stopped, a few large companies have stayed in the reactor research and development business without having to sell economically viable reactors. In such a situation, there has been no need for commercial products--instead, the emphasis has been on selling and maintaining large research and development programs. As reactor construction has ceased, each new R&D project proposal has been further and further removed from the last project private industry and the public was willing to accept and fund. One result of this policy of R&D subsidization has been to create an industry interested in the development of sources of power, not the economics of producing power.

This helps explain the nuclear industry's continuing research into, and attempts to commercialize the use of, plutonium burning reactors in the face of overwhelming evidence that such reactors would be economically unfeasible. As time has passed, the economic viability of even standard nuclear reactors has deteriorated. This is unlikely to improve in the future when plans to generate power from plutonium or HEU burning are proposed to take place. Shearson Lehman reports that:

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[3]These figures significantly understate the current estimates of the costs to bury nuclear wastes and decommission reactors.
Komanoff Energy Associates, Fiscal Fission: The Economic Failure of Nuclear Power, 270 Lafayette, Suite 400, New York, NY, December, 1992.

[4]Federal Energy Subsidies: Direct and Indirect Interventions in Energy Markets, SR/EMEU/92-02, Energy Information Administration, U.S. Department of Energy, Washington, D.C., November, 1992, p. 7.

"Evidence suggests the average operating costs of nuclear power plants are now higher than those of conventional plants and other power supply alternatives."[5] And Moody's has stated that:

> "Given increasing competition from other types of generating facilities and renewed efforts via conservation and demand side management programs to reduce the need for new capacity additions, nuclear power's economics must be comparable with alternative fuel sources and energy efficiency and conservation options. In a deregulating environment, the pressure to maintain competitively low rates will compel utilities to select the most economic option. And given the challenges outlined above, we do not think that nuclear plants are likely to provide such economic benefits."[6]

Among other things, this casts doubt on the future feasibility of using HEU in nuclear reactors--unless down-blending and fuel fabrication can be accomplished at prices significantly lower than the already depressed prices now encountered for normal low enriched uranium (LEU) fuel fabrication.

Burning Plutonium

The use of mixed oxide fuel (MOX) containing plutonium in Light Water Reactors (LWRs) is technically proven. Reactors that use low enriched uranium can have 1/3 of their core in MOX. Three reactors of the System 80 type at the Palo Verde Nuclear Generating Station are pressurized light water reactors (PWRs) that could handle a full core load of MOX. Using these reactors, it would take 30 reactor years--or 10 years for all three reactors--to convert 50 tons of plutonium into spent fuel.[7]

A National Academy of Sciences study estimated that a new MOX fabrication facility would cost between $400 million and $1.2 billion and would take about a decade to complete.[8] Estimates are that the cost of MOX fuel fabrication is over $2000 per kilogram of heavy metal, about six

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[5] Electric Utilities Commentary, "Are Older Nuclear Plants Still Economic?, Insights from a Lehman Brothers Research Conference", vol. 2, no. 21, May 27, 1992, p. l.
[6] Nuclear Power, Moody's Special Comment, Moody's Investors Service, New York, NY, April, 1993, p. 7.
[7] Makhijani, Arjun, and Annie Makhijani, Fissile Materials In A Glass, Darkly, IEER Press, Takoma Park, Maryland, 1995, p. 26-27.
[8] Management and Disposition of Excess Weapons Plutonium, Op. Cit., p. 159-160.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 7 OF 21

times the fabrication cost of low-enriched uranium fuel.[9] At MOX fabrication costs of $1300-$2000 per kilogram, the cost of uranium would have to rise to $123-$245 per kilogram just to equal MOX fabrication costs even if the plutonium used was free.[10]

Cost estimates for geologic repository disposal of spent fuel from commercial power reactors are about $300,000 per ton of heavy metal (in 1988 dollars). However, the cost of disposal of a ton of plutonium would be higher because it must be diluted to make re-extraction difficult. Assuming a cost on the order of several million dollars per metric ton of plutonium, total disposal costs would range from $100 million to $300 million for 50 metric tons of plutonium.[11]

As was previously noted, the economics of plutonium burning have been investigated and rejected. Chow and Solomon looked at five options for the use of plutonium in reactors:[12]

1.Use plutonium as fuel in existing fast reactors without reprocessing. Using weapon-grade plutonium in this manner would cost $18,000/kg.
2. Use LWR's with 1/3 or partial MOX fuel without reprocessing. The cost for this is $7,600/kg with weapon-grade plutonium.
3. Use LWR's with full MOX fuel loads without reprocessing. The cost for this is $5,600/kg with weapon-grade plutonium.
4. Store plutonium for 20 or more years. Cost: $3,800/kg.
5. Mix plutonium with waste and dispose of it as waste. Cost: $1,000/kg in marginal costs over storing the waste alone--which would lead to costs of about $4,800/kg.

None of these options has any commercial value. In the first three, the extra costs of handling plutonium because of its radioactivity, toxicity, and potential weapon use outweigh any benefits. Further, storage sites will not be ready until 2010 at the earliest, and when storage costs are taken into account, they raise the cost of burning plutonium in LWRs by $4000 to $10,000/kg.

Because of this, the use of plutonium in civilian reactors creates no economic benefits and has a large proliferation risk. Chow and Solomon

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[9] Nuclear Fuel, January 26, 1992.
[10] Feiveson, H.A., Plutonium fuel: An Assessment, OECD, Paris, 1989, p. 69.
[11] Makhijani and Makhijani, Op. Cit., p. 66.
[12] Chow and Solomon, Op. Cit., pp. xxi, xxii.

estimated that thermal cycle plutonium use[13] will not be feasible until the price of uranium-bearing yellowcake reaches $100/LB and they estimated that this will not occur for 50 years.[14] They further projected that fast reactors will not be profitable until yellowcake price reaches $220/LB in about 100 years.[15]

Note that the costs of burning plutonium are always compared with the costs of burning HEU or LEU in reactors. Thus, the inherent costs (waste disposal, worker health, contamination, etc.) involved in any nuclear operations--including plutonium burning--are never discussed. The full costs should always be considered when comparing alternative power sources.

Down-blending and Burning HEU

The economics of down-blending HEU for use in reactors may be more favorable than those for plutonium. Weapon-grade HEU typically contains over 90% U-235 that must be diluted to levels of 3-5% to generate the low enriched uranium used in reactors.[16] DOE's October, 1995, Draft Environmental Impact Statement on the Disposition of Highly Enriched Uranium (DEIS) defines HEU as anything enriched above 20% U-235, and assumes an average enrichment of 50% U-235. As of January, 1996, DOE had declared 165 metric tons of HEU "surplus" to the stockpile. Of course, any strategy to down-blend HEU and sell it as reactor fuel will require eventual storage of the highly toxic and radioactive spent fuel--which will still contain both plutonium and HEU.[17] 14.017

To down-blend HEU it is simply blended with natural uranium, depleted uranium (.2-.3 percent U-235), or slightly enriched uranium (.8 to 2 percent U-235). It is possible that this can be done so it is price-competitive with fuel made from uranium and thus, is as commercially viable as standard reactors.[18] A quasi-private corporation, US, Enrichment Corporation (USEC), has been established to purchase the Portsmouth, OH, and Paducah, KY, enrichment plants from the DOE for the 06.021

[13]Reprocessing Pu and U from spent fuel and using Pu-bearing mixed-oxide (MOX) fuel in thermal nuclear power plants.
[14]Chow and Solomon, Op. Cit., pp. xvi, xvii.
[15]Ibid., p. xvii.
[16]Makhijani and Makhijani, Op. Cit., p. 16-17.
[17]Draft Environmental Impact Statement on the Disposition of Highly Enriched Uranium, U.S. Department of Energy, Office of Fissile Materials Disposition, Washington, D.C., October, 1995.
[18]Makhijani and Makhijani, Op. Cit., p. 17.

14.017: Use of HEU blended to LEU as reactor fuel would indeed lead to spent fuel storage. However, spent fuel that results from commercial use of LEU fuel derived from surplus HEU would displace spent fuel that would be generated in any event in the absence of the HEU disposition program. In fact, overall, DOE believes that the environmental consequences of blending down HEU would be considerably less than the consequences of mining, milling, conversion, and enrichment for the displaced natural uranium. The spent fuel would be managed and eventually disposed of together with other domestic commercial spent fuel pursuant to the *Nuclear Waste Policy Act.* Commercial spent fuel contains some Pu but does not contain HEU.

06.021: The blending of surplus HEU to LEU would be done to recover the full economic value of the material at going market prices (it will be "price competitive"). USEC was created by the *Energy Policy Act* of 1992 to take over DOE's uranium enrichment operations. Although USEC may be used to market LEU derived from DOE's surplus HEU, that is not the purpose of USEC; it is strictly an ancillary function. USEC only leases the enrichment plants from DOE. DOE does not agree that commercial use of LEU derived from surplus HEU increases the proliferation potential. Although fuel derived from U.S. surplus HEU and sold abroad could conceivably be reprocessed in some countries to separate Pu for commercial (non-military) use in mixed oxide fuel, that LEU fuel derived from surplus HEU would simply replace other fuel, so no incremental Pu would be created as a result of this program.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 9 OF 21

purpose of pursuing down-blending as a commercial venture. DOE has acknowledged that US Enrichment Corp. (USEC) will market the reactor fuel internationally. The US would not control the spent fuel generated by foreign reactors and this spent fuel would be a candidate for reprocessing to extract the plutonium. No protocols forbid reprocessing or require the return to the US of spent fuel generated from this material.[19] 06.021 cont.

Four down-blending scenarios have been considered by DOE to meet its stated goals of nonproliferation and realizing the "peaceful beneficial use" of HEU in a way that will return money to the US Treasury.[20]

1. Down-blend to less than 1% U-235 and dispose of as low level waste. This would address all proliferation concerns.
2. Limited commercial use-- down-blend 35% of HEU into reactor fuel, the rest to less than 1% U-235.
3. Substantial commercial use-- down-blend 65% into reactor fuel, the rest to less than 1% U-235.
4. Maximum commercial use -- down-blend 85% into reactor fuel, the rest to less than 1% U-235.

DOE's preferred option is maximum commercial use which, DOE claims, will return the most money to the US Treasury. However, the DEIS does not present a credible analysis demonstrating a positive economic return, and the maximum commercial use option would create more than 5 million pounds of spent nuclear fuel (2,380 metric tons, assuming an assay of 50% enrichment for 170 metric tons of material). 04.013

Further, under its fastest down-blending scenario--down-blend to 4% and sell as reactor fuel--DOE's plan would take 10 years to process 200 tons of HEU. During that 10 years, it is likely that more HEU will be declared surplus. DOE argues this will not increase the amount of spent fuel, since reactors will burn something anyway. Further, it will reduce environmental impacts since new uranium will not have to be mined for reactor fuel.[21] For this claim to be true, the use of down-blended HEU will have to be so complete that it replaces the current US uranium mining industry, and if this occurs, it is questionable whether this industry could ever be restarted. 12.012

Another option, down-blending to 4% for storage until economic and reprocessing concerns are addressed, has been rejected by DOE who 09.021

[19] Draft Environmental Impact Statement on the Disposition of Highly Enriched Uranium, Op. Cit.
[20] Ibid.
[21] Ibid.

04.013: Cost estimates for the alternatives analyzed in the HEU EIS have been developed to provide the decisionmaker, DOE, comprehensive information upon which to make decisions. The cost analysis, which is available in a separate document with the HEU Final EIS, supports DOE's position that commercial use of LEU fuel derived from surplus HEU makes the most economic sense and would save considerable money. The spent fuel that would result from commercial use of LEU fuel derived from surplus HEU would supplant spent fuel that would be created in any event in the absence of the program.

12.012: The Department of Energy believes that it is not necessary for domestic uranium production to be completely displaced in order for the quantity of uranium mined to be affected by HEU disposition actions. Rather, the quantity of reactor-grade uranium that enters the market from HEU disposition actions at market prices will displace an equivalent quantity of material that would otherwise have to be mined, milled, converted to UF_6, and enriched to make it suitable for use in reactor fuel. The amount of surplus HEU (103 t) that would eventually be blended over a 10- to 15-year period would provide about 4 percent of current annual domestic needs for LEU fuel.

09.021: The Department of Energy does not consider the option of blending HEU for extended storage reasonable because it would delay recovery of the economic value of the material and incur unnecessary costs in a very tight budget environment as well as environmental impacts due to the need to build additional storage capacity to accommodate the increased volume of the material. Spent commercial nuclear fuel contains some inaccessible Pu, but it does not contain any HEU.

claimed it provides "no proliferation advantage over down-blending and selling." However, blending to 4% and storing retains the fuel option while maintaining security of the material in a relatively stable state which contains neither plutonium or HEU.[22]

09.021 cont.

Conversion as a Rationale for Plutonium Disposition

The Triple Play Reactor, proposed for the Savannah River Site (SRS), and Project Isaiah, proposed for the old Washington Public Power System (WPPS) reactors around the Hanford site, have both been suggested as conversion programs where new or refurbished reactors would burn plutonium. Further, both programs claimed they would be privately financed and, by implication, profit-making.

As a general principle, economic conversion is both site and sector based. On a site basis it preserves the local economic community by changing the base of economic support for the site. In an economic sector, it frees resources to be used in other ways for the benefit of the nation at large. Thus, the purpose of conversion is not to substitute one government-funded program for another, it is to change the economic base (the source of funds) for the region or sector. This cannot be achieved unless conversion generates economic benefits, and the Isaiah and Triple Play options demonstrate how the conversion approach to disposition has tried to adapt to the economic realities of plutonium burning.

The Isaiah Project

Proposed in 1993, this project involved burning plutonium in mixed oxide fuel (MOX) and producing electricity by completing the WPPS #1 reactor at Hanford, WA and the #3 reactor at Satsop, WA. It has been claimed this would create 9,000 direct construction jobs, 2,500 permanent operations jobs and 13,500 secondary jobs in the region. Each plant would produce 1,300 MWe.[23]

In 1993 dollars, completion costs for WNP-1 were $1.7 billion and for WNP-2 they were $1.6 billion. Operating costs were estimated at about $21 million/year, and O&M costs at about $123 million/year including the spent fuel disposal fee. When financing costs were included, the $1.7 billion completion cost for WNP-1 rose to $2.8 billion. However,

[22]Ibid.
[23]Letter from Robert Wages, President, OCAW, to Elmer Chatak, President, Industrial Union Department, November 3, 1993.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 11 OF 21

private financing was supposed to cover all project completion costs and return $4 billion to the Federal government.[24]

While these financial arrangements sound promising, the poor economics surrounding this plutonium burning project were summed up by a clause in the Project Isaiah contract that stated that DOE would "enter into a long term contract......[with] *a federal obligation to make debt service payments if revenues from the sale of steam [power is] not adequate.*"[25] (My italics)

Triple Play Reactor

The "triple play" reactor was proposed by a quasi-private consortium to burn plutonium, produce tritium and generate electricity at the Savannah River Site. Aside from the inherent contradictions in using a new reactor to dispose of plutonium from weapons by producing tritium for weapons, the proposed System 80+ Program Plan also displayed considerable "uncertainty in costs" in MOX fabrication[26] and it proposed that the federal government provide $50 million in up-front financing.[27] The private consortium offered to pay back the $50 million if DOE ultimately decided to proceed with the proposal at the end of the three year study phase.[28]

In addition, the Triple Play reactor required an extensive list of other subsidies:

- The federal government had to provide a site and infrastructure at no cost to the consortium.[29]
- The consortium pays disposal fees for waste, but then passes them through to the government, not to the consumer of the power.[30]

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[24] Letter from John R. Honenkamp, SAIC, to Dr. Matthew Bunn, National Academy of Science, November 9, 1993.

[25] Communication from Lauren Dodd, Battelle Institute, "The Isaiah Project", Pacific Northwest Laboratories, October 1, 1993.

[26] Program Plan for deployment of a System 80+ Multi-purpose Nuclear Facility at Savannah River Site, System 80+ Team, Savannah River Site, Aiken, S.C., March 31, 1994, p.8.

[27] Ibid., p.9.

[28] Personal communication between Brian Costner and George Davis of ABB combustion Engineering in May, 1995.

[29] Program Plan for deployment of a System 80+ Multi-purpose Nuclear Facility at Savannah River Site, Op. Cit., p.68.

[30] Ibid., p.70.

The government supplies plutonium oxide, depleted uranium oxide, and the site lease, all at no charge, and it further agrees to sole-source irradiation services from the plant.
The "annual fees" required from the government were estimated at $78 million for plutonium burning alone--about a 10% subsidy.
An annual fee would also be assessed for tritium production based on revenue losses and other factors.[31]
The government shared liability for any increased costs due to regulatory changes or any other factors over which the consortium had no control.[32]

Similar subsidies are likely to be required by project Isaiah because a majority of the proposed revenues from both projects are from electrical generation. An electricity-producing, plutonium-burning light water reactor is not economically feasible because of the additional facilities and security procedures required for plutonium handling. MOX fabrication will also add hundreds of millions of dollars to normal operating costs. Each of these factors increases the fianancial risk associated with building a new reactor.

Disposition Requirements

Total Quantities of Plutonium

In 1991, the US had about 19,000 nuclear warheads and the Former Soviet Union (FSU) had about 32,000. Under START I and START II, the US and FSU agreed to reduce to 3,500 US and 3,000 FSU strategic warheads by 2003. Numbers of remaining tactical warheads may vary, but a good estimate would be about 1,500 US and 2,000 FSU tactical warheads. Thus, each side will have about 5000 nuclear warheads in 2003. About 2,500 warheads could be dismantled each year in the US, but only about 1,170 will be dismantled if parity is maintained with the FRS's rate of 2,250 per year.[33]

At present, 50 or more metric tons of excess weapon grade plutonium exist on each side.[34] In addition, based on the assumption that there are less than 4 kg of plutonium in each warhead and there are 20

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[31] Ibid., p.75 and personal communication between Brian Costner and George Davis of ABB Combustion Engineering in May, 1995.
[32] Ibid.
[33] Chow and Solomon, Op. Cit., pp. 9,10.
[34] Management and Disposition of Excess Weapons Plutonium, Op. Cit., p. 1.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 13 OF 21

metnc tons of plutonium in the military inventories of other nuclear weapons powers, the global inventory of plutonium is:

Military plutonium	248 metric tons
Separated civilian plutonium	122 metric tons
Unseparated plutonium in civilian spent fuel	532 metric tons[35]

Total Quantities of HEU

To further non-proliferation goals, the United States has also agreed to buy a total of 500 tons of Russian HEU for $11.9 Billion over the next twenty years if certain conditions are met. The US plans to resell this material to fulfill demand for nuclear fuel in domestic and world markets.[36] According to current plans, HEU from the former Soviet Union is to be de-enriched by US Enrichment Corporation (USEC) at its plants in Paducah, Kentucky and Portsmouth, Ohio. USEC is supposed to be a for-profit company, and during these operations a price for HEU may actually be established. However, at this time the actual worth of HEU is unknown and there is no market mechanism for generating its market value. This raises questions about how the $11.9 billion price was determined, whether it can be regarded as a real, market price of HEU and, if not, what price will actually charged for this material. 16.018

As opposed to plutonium, HEU is neither used nor made in reactors. There are about 2300 metric tons of HEU worldwide, almost all of it in the former Soviet Union and the US.[37] Total US HEU production from 1945 to 1992 was 994 metric tons. Of this, 483 metric tons were made at the K-25 facility at the Savannah River Site between 1945 and 1964, and 511 metric tons were made at the Portsmouth, Ohio plant between 1956 and 1992.[38] 12.013

[35]Makhijani and Makhijani, Op. Cit., p. 11.
[36]Management and Disposition of Excess Weapons Plutonium, Op. Cit., p. 5.
[37]Makhijani, and Makhijani, Op. Cit., p. 16-17.
[38]OLeary, Hazel, Remarks Concerning a DOE fact sheet on HEU, DOE, Washington, D.C., June 27, 1994.

16.018: Current plans for the Russian HEU are to have it blended down to LEU oxide in Russia prior to its shipment to the United States. Even if the Russian HEU were to be blended down in the United States, the work could not be done at the Portsmouth or Paducah enrichment plants, because those facilities can only blend HEU in the form of UF_6 (a gas). There is no need to establish a market for HEU—indeed, it is the nonproliferation policy of the United States to avoid the development of such a market. The value of HEU is realized after it is blended down to LEU. There is clearly a need for fuel-grade LEU, to fuel existing reactors, on a global scale.

12.013: The HEU EIS is concerned only with the disposition of up to 200 t of current and expected future surplus HEU. The quantity of HEU that remains in the U.S. strategic stockpile (non-surplus) remains classified. At present, there are 113 to 138 t of domestic surplus HEU (the larger number includes an additional 25 t that may be declared surplus in the future) and 500 t of Russian HEU that are considered likely to become commercialized worldwide (an additional 62 t of surplus U.S. HEU is considered unlikely to be commercialized in the near term due to its forms). There appears to be little point in speculating about the impacts on the uranium market of blending 2,300 t of HEU, as such quantities are well beyond any reasonable expectation of what may be declared surplus.

The US inventory of HEU is located in the following locations:[39]

Metric Tons	Location	Metric Tons	Location
0.6	Hanford,WA	26.2	INEL, ID
0.2	LLNL, CA	6.7	Rocky Flats, CO
3.2	LANL, NM	0.9	SNL, NM
Classified	Pantex, TX	1.6	Knolls, NY
0.2	Brookhaven, IL	23.0	Portsmouth, OH
168.9	Y-12, SRS, SC	1.5	K-25, SRS, SC
1.4	ORNL, TN	24.4	SRS, SC

TOTAL = 258.8 metric tons (not including Pantex)

HEU consumed by the US since 1945 is estimated to be about 105 metric tons including uranium burned in reactors for plutonium production at SRS (about 42 metric tons), uranium burned by the Navy (about 12 metric tons), uranium consumed in research (about 25 metric tons), uranium exported to France and UK (abut 6 metric tons), and uranium consumed in weapons tests (about 20 metric tons). This leaves 630 metric tons [994 - (105 + 259)] unaccounted for in the revealed inventories and this is probably split between the Pantex stockpile and the remaining nuclear arsenal.[40] 12.013 cont.

When the number of nuclear weapons peaked at 32,500, independent experts estimated there were 500-550 metric tons of HEU in warheads, implying about 16 kg per weapon The amount of HEU per weapon is thought to have declined slightly since then due to greater use of plutonium.[41] New estimates suggest that about 50% more HEU was devoted to weapons than previously believed. Thus, either more was used in each bomb than had been estimated--which suggests that about 10 tons more would also have been consumed in tests--or there was considerable overproduction and stockpiling for an arsenal buildup that never occurred.[42]

The amount of blendstock required for final blending down of 500 tons 93.5% HEU can be estimated as follows:[43]

Blend Stock	HEU (m.t.)	Blend (m.t.)	4.4% LEU (m.t.)
Depleted U(0.2% U235)	500	10,600	11,100
Natural U(.711% U235)	500	12,100	12,600
Slightly Enriched U(1.5% U235)	500	15,400	15,900

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[39] Ibid.
[40] Communication from Peter Gray, June 30, 1994.
[41] Ibid.
[42] Ibid.
[43] Makhijani and Makhijani. Op. Cit., p. 76.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 15 OF 21

If all 2300 metric tons of HEU was disposed of by down-blending, the resulting amounts of nuclear fuel are significant enough to alter the US uranium and fuel fabrication industries. In fact, it is easy to imagine a scenario where domestic uranium operations were put entirely out of business if down-blending of HEU can be done in an economical manner. 12.013 cont.

Costs of Transmutation and Other
Non-Burning or Technical Fixes

Complete elimination of plutonium is only possible through two means: first, wait until the natural radioactive decay destroys it--this would take thousands of years. Second, transmute plutonium by using some technique to bombard its nuclei and split them into fission products. Option two can only occur through a nuclear reaction in a reactor or in a particle accelerator.[44] Most elements created by transmutation would have much shorter half-lives than plutonium. Thus, the potential benefits of transmutation could be:

1. A reduced volume of material.
2. Reduced radioactive life of materials.
3. Less risk of human intrusion into storage areas.[45]

Most transmutation techniques require reprocessing and, hence, are likely to be unacceptable on the basis of both proliferation and waste generation concerns.[46] In fact, the GAO has noted that "the reprocessing and separating of the waste are more difficult technical problems than transmuting the long-lived elements from the waste."[47]

Waste transmutation would take many billions to develop and is not possible before 2015.[48] DOE managers believe it is not economically justifiable since a waste repository would still be needed. A complete transmutation system would include a reactor or accelerator to transmute reprocessed fuel, a spent fuel reprocessing and waste separation facility, a fuel fabrication facility, and storage facilities for spent fuel and residual wastes.[49]

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[44] Developing Technology to Reduce Radioactive Waste May Take Decades and Be Costly, GAO/RCED-94-16, United States General Accounting Office, Washington, D.C., December, 1993, p. 11.
[45] Ibid., p. 10.
[46] Makhijani and Makhijani, Op. Cit., p. 98-100.
[47] Developing Technology to Reduce Radioactive Waste May Take Decades and Be Costly, Op. Cit., p. 13.
[48] Ibid., p. 3.
[49] Ibid., p. 4,5.

Potential Transmutation Technologies[50]

Potential Programs	Sponsor	Units & Time Rqd To Destroy 90% Of LWR Actinide Waste Expected in 2010	Schedule/ Cost($1993)	Destroys: Actinides	Destroys: Fission Products
Advanced Liquid Metal/ Integral Fast Reactor (ALMR/IFR)	DOE, GE Argonne	19 Units 200 years	$5b (1 reactor) +4 b/ Unit for remainder Start: 2015 Operate: 200 yr. Ops Cost: $32 b	Yes	No
Accelerator Transmutation Project (ATW)	LANL	19 Units 40 years	Develop: $5b Start: 2016 Total: $120b	Yes	Some Incl. Pu, U
Phoenix Accelerator	Brookhaven National Lab	1 or 2 units 25 years	Develop: $29b Development Time: 15-20 yr.	Yes	Some Not Pu, U
Particle-Bed Reactor (PBR)	Brookhaven National Lab	20-70 Units 40 yr. 150 yr. for Pu	Develop: $1.3b Development Time: 16 yr. No cost estimates	Yes	Yes
Clean Use Of Reactor Program (CURE)	Hanford/ Westinghouse		Rsch: $74-160 m No cost estimates	No	Yes

Some of the other proposals for non-burning disposal of plutonium from warheads are:

1. Monitored Surface Storage

A monitored storage facility for 50 tons of plutonium has an estimated capital cost of $170 million (1990 dollars) with an operating cost of $28 million per year.[51] Preliminary estimates are that storing plutonium would cost about $1 per gram per year. Thus, storing 200 tons would cost roughly $200 million per year for a net present value cost of $2 billion.[52]

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[50]Ibid., p. 10.

[51]Bloomster, C.H., P.L. Hendrickson, M.H. Killinger, and B.J. Jonas, Options and regulatory issues related to disposition of fissile materials from arms reduction, PNL-SA-18728, Pacific Northwest Laboratories, U.S. Department of Energy, Washington, D.C., 1990, pp. 12-13.

[52]Fetter, Steve, Control and Disposition of Nuclear Weapons Materials, Working Papers of the International Symposium on conversion of Nuclear Warheads for Peaceful Purposes, Rome, Italy, June 15,16,17, 1992, pp. 144-148.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO

2. Deep Geologic Disposal/Seabed Disposal

The cost is essentially that for vitrification and for burial in Yucca Mountain--i.e., the cost of both operations. See the vitrification option below.

3. Launching Plutonium Into the Sun

A 1982 NASA study estimated the cost of this option at $200,000 per kilogram of plutonium. Several hundred kg could be handled at a time. This is probably not feasible due to public fears about the potential for a crash and resulting dispersion of plutonium from one of the rockets.[53]

4. Underground Nuclear Detonation

In one Russian proposal, 5000 warheads would be destroyed in a single explosion of a 100-kiloton warhead. A US option proposed using small shafts to destroy 5 warheads at a time (about 3000 detonations would be required.) Even if one destroyed 50 warheads at a time, 300 detonations would be required--almost half of the 730 US underground tests conducted to date.[54]

5. Vitrification

By 1994, the DOE had spent over $1 billion trying to vitrify liquid wastes and had not yet succeeded. However, plutonium may not share these problems and it could be formed into blocks weighing thousands of pounds to make theft more difficult.[55] However, while vitrification of plutonium alone is an option, it doesn't present a sufficient barrier to reuse.[56] For this reason, prior to vitrification, plutonium will most likely be mixed with other materials that would make repurification more difficult.[57]

There are three general vitrification options with potential for plutonium disposition:

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[53]International Physicians for the Prevention of Nuclear War and The Institute for Energy and Environmental Research, Plutonium--Deadly Gold of the Nuclear Age, International Physicians Press, Cambridge, MA, 1992, pp. 130-138.
[54]Ibid., pp. 130-138.
[55]For a discussion of potential problems and benefits associated with vitrification, see comments by Wolfgang Panofsky, Kevin Wenzel et al, and Alex DeVolpi in "Letters", The Bulletin of the Atomic Scientists, vol. 52, no. 1, January/February, 1996.
[56]Makhijani and Makhijani, Op. Cit., p. 4.
[57]Wald, Matthew, "Encase Excess Plutonium in Glass, U.S. Urged", The New York Times, November 17, 1994.

1. Vitrification of plutonium mixed with gamma-emitting fission products so the resulting glass logs meet the spent fuel standard.[58] These fission products have much shorter half-lives than plutonium. For example, the half-life of Cesium 137 is only 30 years as opposed to 24,000 years for plutonium. Thus, the mix would become less resistant to proliferation over time. This is likely to take longer since vitrification plants are not prepared for this task.[59]
2. Vitrification of plutonium with depleted uranium or some other alpha-producing element.
3. Vitrification of plutonium with a non-radioactive element, such as europium, that would render the mixture unsuitable for weapons without reprocessing.[60]

According to one proposal, the US could incorporate high level waste (HLW) like plutonium into 25,000 tons of glass at a rate of about 1000 tons of glass per year. This would allow the disposal of 100 tons of plutonium in five years if the glass contained only 2% plutonium. A recent analysis by Pacific Northwest Laboratories estimates the total additional cost at $100 million to convert 100 tons of plutonium metal to oxide and mix it with other HLW--ten times cheaper than storage, and ten to fifty times cheaper than MOX.[61] One could also place a barrier to misuse by subnational groups by making the canisters in which vitrified plutonium is stored highly radioactive.[62]

Conclusion

Several studies on the alternatives available for disposition of plutonium and HEU have noted that due to potential proliferation problems and the danger these pose for all people, disposition issues should be decided based on expediency and safety, and economic considerations should not play a major role in this process.[63] However, a student of the military budgeting process or the budget considerations surrounding a 01.009

[58]The spent fuel standard proposes to make plutonium as difficult to retrieve as it would be if it was in the form in which it exists in nuclear reactor fuel that has been irradiated (used) to the extent that it can no longer effectively sustain a chain reaction and thus, has been removed from the reactor for disposal. This irradiated fuel contains fission products, uranium, and transuranic isotopes.
[59]Makhijani and Makhijani, Op. Cit., p. 88.
[60]Ibid., p. 4.
[61]Fetter, Steve, Op. Cit., pp. 144-148.
[62]Makhijani and Makhijani, Op. Cit., p. 89.
[63]For example, see Makhijani and Makhijani, Op. Cit.

01.009: The Department of Energy agrees that nonproliferation objectives (particularly in terms of setting an example for other nations) are preeminent; however, cost considerations are also important in the current budgetary climate. DOE deems all of the action alternatives (Alternatives 2 through 5) to be roughly equivalent in terms of serving nonproliferation objectives of the program. On the other hand, the sale of LEU fuel derived from surplus HEU would yield returns on prior investments to the Federal Treasury, offset blending costs, and reduce Government waste disposal costs. Consequently, the nonproliferation and economic objectives are complementary in the surplus HEU disposition program, particularly for the Preferred Alternative since both favor commercial use of the resulting material.

The Colorado College, Colorado Springs, CO
Page 19 of 21

major infectious disease such as AIDS will realize that there is no precedent for real-world decisions--even those that concern threats to large numbers of people--being made in an environment free of economic considerations. In fact, in making such decisions it is not unusual for economic costs and benefits to be considered first, not last. For this reason, it is necessary to identify those factors involved in the disposition area that will create common costs across all options, and to specify those areas where specific factors are likely to be major cost drivers that could discriminate between the various disposition options.

This paper has shown that while HEU can be down-blended and burned by nuclear reactors for power generation, it will face the same economic forces as the nuclear industry in general. As a result, all other issues aside, it is unlikely to be financially successful in the United States in the long run. Current HEU disposition programs appear to be predicated on a positive financial return to the US government. Since this seems to be unrealistic, other goals may have to be developed. For example, the US may have to apply the same standards to HEU disposition as it applies to plutonium. Insistence on judging the success of the HEU program based on economic return is likely to end up generating a large amount of weapon-grade or down-blended HEU for which there is no economically viable reuse program and there are no other planned disposition options. 04.012

It is also clear that burning plutonium in power generating reactors is not economical and, further, it is unlikely to become economical at any time in the near future. As the recent National Academy of Sciences study stated,

> "Exploiting the energy value of plutonium should not be a central criterion for decision making, both because the cost of fabricating and safeguarding plutonium fuels makes them currently uncompetitive with cheap and widely available low-enriched uranium fuels, and because whatever economic value this plutonium might represent now or in the future is small by comparison to the security stakes."[64]

However, even if burning plutonium is not economical, is it still cheaper than other methods of dealing with or disposing of plutonium? This question incorporates both proliferation risk and economics, and the following framework of 'givens' provides a way in which it might be considered:

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[64] Management and Disposition of Excess Weapons Plutonium, Op. Cit., p. 3,4.

04.012: The Department of Energy does not judge the success of the proposed surplus HEU disposition program on economic return. The overall economics of HEU disposition actions from the Government's perspective will be determined more on the basis of avoided waste disposal costs than on any conclusion of positive financial return. In other words, even if the costs of blending exceeded the proceeds from market-price sales of LEU fuel derived from surplus HEU, the Government would still be economically ahead because it would not have to pay to dispose of the material. Any revenues from sales of LEU would help to offset blending costs and thus result in less Government outlays than noncommercial options—including storage over the long term with its attendant costs of storage, safeguards, maintenance, international inspections, etc. An analysis comparing the costs of HEU disposition alternatives has been prepared to aid the Secretary in reaching an ROD in this program. The cost analysis, which is available separately from the HEU EIS, supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU makes the most economic sense and would save considerable money.

First, it is obvious that increased handling of a material like plutonium leads to increased costs and increased proliferation risk.

Second, any proposal to burn plutonium in reactors to reach a spent fuel standard might also be accomplished more simply and cheaply by mixing plutonium with waste to a spent fuel standard to start with.[65] As an isotopically different element, plutonium can always be chemically separated from spent fuel whether it was generated inside a reactor or simply mixed with existing spent fuel, although the difficulty associated with this operation can be increased by adding other elements to the mix.

Third, waste storage costs, irrespective of the method of storage chosen, are based on volume and radioactivity and will be the same for all burning and non-burning options. In any process that requires putting material in a reactor, whether for power generation or simply to dispose of the material, the volume of material will remain constant throughout the process and the radioactivity of the spent fuel will be approximately the same for storage considerations. The only exception to this rule occurs when reprocessing is involved. Then both waste volume and costs rise dramatically.

And fourth, for transmutation, costs are altered because one is handling hotter material for relatively shorter periods of time--but these time periods are still so extensive that discounted cost comparisons between alternatives cannot show significant differences. In addition, transmutation technologies still require reprocessing and they still must absorb the cost of research and development. Other options do not have either of these negatives.

Viewed in this light, final waste disposal costs will be incurred whatever disposal option is taken. These costs could potentially be offset by doing something profitable with the plutonium and HEU prior to final storage, but this paper has shown that finding a profitable use for either material is unlikely. Thus, the more probable case is one where the costs of basic waste storage are increased by whatever costs are associated with the disposition option chosen. The factors most likely to significantly increase costs are the major cost drivers that create

16.019

[65]For a discussion of potential problems and benefits associated with "mix and melt" approaches to plutonium disposition, see comments by Wolfgang Panofsky, Kevin Wenzel et al, and Alex DeVolpi in "Letters", The Bulletin of the Atomic Scientists, vol. 52, no. 1, January/February, 1996.

16.019: The Department of Energy is confident that a profitable use for LEU fuel derived from surplus HEU will be available. The commercial use of HEU will shift the costs of waste disposal from the Government to the commercial user that derives benefit from the use of the fuel, and their costs would not increase beyond what they would have been anyway: (1) DOE does not agree that commercial use of HEU would need to be subsidized. (Revenues would offset blending costs for commercial material.) (2) Reprocessing would not be necessary for HEU disposition actions, although reprocessing of some DOE irradiated fuel for other reasons, such as stabilization for storage or disposal, might result in more separated HEU requiring disposition. (3) Once HEU is blended down to LEU, security costs would be minimal, and once it is sold, they would be zero. (4) No research and development is necessary for HEU disposition actions. Some of the commentor's points may have some validity with respect to Pu, but they do not appear to be valid with respect to HEU.

THE COLORADO COLLEGE, COLORADO SPRINGS, CO
PAGE 21 OF 21

differences among the various options for plutonium and HEU disposition At this point, these major costs appear to arise from four areas:
(1) The level of subsidization in the "profitable" parts of the disposition program.
(2) Those items (such as reprocessing) that increase the volume of waste and thus, the cost of waste disposal.
(3) The cost of security and its direct relationship to the number of times a material is handled or moved.
(4) The cost of research and development of new methods of disposition.
These four costs outweigh all other costs generated by disposition by many orders of magnitude and, as a result, they should be the major determinants when choosing among disposition options.

16.019 cont.

Commonwealth Edison Company
1411 Opus Place
Downers Grove, IL 60515-5701

ComEd

January 11, 1996

DOE - Office of Fissile Materials Disposition
P. O. Box 23786
Washington, D. C. 20026-3786

Subject: Comments on Draft EIS for Disposition of Surplus HEU

Gentlemen:

ComEd wishes to submit the following comments on the Draft Environmental Impact Statement for Disposition of Surplus Highly Enriched Uranium

1. ComEd supports Alternative 5: Maximum Commercial Use (85% Fuel/15% Waste) This alternative minimizes the financial impact on the taxpayer, draws down the excess HEU stockpile in the most expeditious manner, produces the smallest volume of waste and utilizes processes which are well understood | 10.003

2. The ability of fuel fabricators to accept UNH liquid rather than UF_6 is limited. Only one domestic fabricator has even theoretical capability to do so DOE's intent to market this material in a form other than what is in standard commercial usage will limit the value of the material and thus the return to the taxpayer | 04.015

3. Material should be blended down prior to sale. It is not at all clear that our material license will allow us to take possession of or title to highly enriched uranium. | 01.006

Please contact me at (708) 663-5782 should you have any questions on this matter

Sincerely,

James E. Nevling

James E. Nevling
Fuel Buyer

A Unicom Company

10.003: Comment noted.

04.015: The HEU EIS contemplates the shipment of UNH crystals, not liquid, to fuel fabricators. DOE recognizes that the nuclear fuel industry would prefer to deal with UF_6; however, most of the surplus material is in metal and oxide forms and no capability currently exists to convert it to UF_6 form. The analysis of UF_6 blending was added to the alternatives to cover the possibility that some commercial entity may provide this capability in the future. (Both of the commercial firms whose facilities are analyzed in the HEU EIS, Babcock & Wilcox (B&W) and Nuclear Fuel Services (NFS), have indicated that they may install UF_6 blending capability.)

01.006: It is correct that few companies have Nuclear Regulatory Commission (NRC) licenses that would permit them to be in possession of HEU today. However, title to HEU might nonetheless be transferred to commercial entities, who would need to contract with properly licensed facilities (such as the B&W and NFS facilities analyzed in the HEU EIS) or DOE itself to blend the material on their behalf.

CONATSER, RAY, NASHVILLE, TN
PAGE 1 OF 1

405 COVENTRY DR., NASHVILLE, TN 37211-4525 DEC. 9, 1995

Dear Friends,

I do not support making highly enriched uranium into nuclear reactor fuel because
(1) it will create spent fuel;
(2) it will create plutonium; and 10.024
(3) all options have not been adequately explored. 09.018

I do support
(1) Downblending all highly enriched uranium,
(2) Developing the capacity to downblend all uranium declared surplus in ten years, and 10.023
(3) International controls on all nuclear materials. 03.020

Appreciatively,

Ray Conatser

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus in inventory.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

CONDON, GARY, LYNCHBURG, VA
PAGE 1 OF 1

Yes. My name is Gary Condon. I live in Lynchburg, Virginia, and I am very much opposed of the plan to bring uranium into Lynchburg through B&W which will drop the value of our property and also cause an extra added risk that we do not need. Thank you very much. | 10.006

10.006: Comment noted. However, it should be noted that the B&W Naval Nuclear Fuel Division is one of two licensed commercial facilities in the United States capable of processing HEU. B&W has been processing and fabricating HEU material at the Naval Nuclear Fuel Division and has maintained its NRC license for 37 years by adhering to radiological and health physics procedures and NRC license provisions to protect its employees and the environment surrounding the facility. The proposed action in the HEU EIS is well within the skills and experience, and could be implemented consistent with existing NRC license requirements for the B&W facility.

CONGRESS OF THE UNITED STATES, HOUSE OF REPRESENTATIVES, WASHINGTON, DC
PAGE 1 OF 1

ED WHITFIELD

COMMITTEE ON COMMERCE

Congress of the United States
House of Representatives
Washington, DC 20515–1701

December 27, 1995

Honorable Hazel O'Leary
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Madam Secretary:

Since coming to Congress, I have been carefully reviewing the Administration's actions that might impact the operations of the gaseous diffusion plant in Paducah, Kentucky. This plant, which is located in my Congressional District, is one of the largest employers in western Kentucky.

There are many issues which concern me, including: the terms of the United States-Russia HEU Agreement; the Suspension Agreement on uranium relating to Russia's dumping activities; the President's submission of legislation that would give him authority to waive our nation's trade laws and allow the government to ignore anti-dumping restrictions; the use of bypass arrangements by the Russians to sell their uranium in the U.S. marketplace; the legislation currently pending before Congress to allow DOE to sell natural and low enriched uranium in the future and, finally, the Department's Draft Environmental Impact Statement on the Disposition of Surplus Highly Enriched Uranium.

Taken individually, these actions may only have minimal effects on the enrichment industry and the plant in Paducah. However, their combined impact would be devastating. Therefore, I urge your Department to proceed very carefully when decisions are made to dispose of the surplus natural and highly enriched uranium stockpile. 12.008

At a very minimum, I believe the Department should abide by the provision contained in S.755, legislation pending in Congress to privatize the U.S. Enrichment Corporation. That bill states that "the Secretary determines that the sale of the material will not have material adverse impact on the domestic uranium mining, conversion, or enrichment industry, taking into account the sales of uranium under the Russian HEU Agreement and the Suspension Agreement", and that the price paid to the Secretary will not be less than fair market value.

December 27, 1995
Page 2

I respectfully request that my concerns be registered officially in the record of comments on the Department's recent Draft Environmental Impact Statement on the Disposition of Surplus Highly Enriched Uranium.

Thank you for your consideration of my views, and I look forward to hearing from you at your convenience.

Sincerely,

Ed Whitfield

Ed Whitfield
Member of Congress

EW:kfl

12.008: The HEU Final EIS has been revised (Section 4.8) to reflect the enactment of the *USEC Privatization Act* (P.L. 104–134), and to address the prospects for the future operation of the U.S. enrichment plants in greater detail. DOE must adhere to the provisions of P.L. 104–134 that require the Secretary of Energy to avoid adverse material impacts on the domestic uranium industry, taking into account uranium transactions under the U.S.-Russian HEU agreement and the suspension agreement, when making decisions about domestic surplus HEU disposition.

CONVERDYN

January 8, 1996

Mr. J. David Nulton, Director
Office of NEPA Compliance and Outreach
Office of Fissile Materials Disposition
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Nulton:

Re: Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (DOE/EIS-0240-D)

On behalf of ConverDyn, I am pleased to have the opportunity to submit the following comments regarding the referenced draft environmental impact statement ("EIS"). ConverDyn is a joint venture between affiliates of AlliedSignal Inc. (Morristown, New Jersey) and General Atomics (San Diego, California) which markets uranium conversion services worldwide. ConverDyn has exclusive marketing rights for the output of AlliedSignal Inc.'s Metropolis Works, located at Metropolis, Illinois, which represents the sole remaining domestic facility for the conversion of natural uranium concentrates (U_3O_8) to natural uranium hexafluoride (UF_6). More than 380 people are currently employed at the Metropolis Works. ConverDyn's current sales agreement portfolio includes nuclear utilities in the United States, Asia and Europe.

ConverDyn has reviewed the referenced EIS and finds the document, in its draft form, to be significantly deficient in the area of potential market impacts of the proposed actions/alternatives regarding the disposition of surplus highly enriched uranium ("HEU") from the U.S. inventory. 12.010

As you may be aware, the nuclear fuel market (natural uranium concentrates, conversion services and enrichment services) has been chronically depressed for more than 10 years. Although the factors contributing to this period of severe price depression are complex, the nuclear fuel supply industry has only recently begun to recover. In fact, due to depressed conversion market conditions, the uranium conversion facility owned by Sequoyah Fuels Corporation, an affiliate of General Atomics, located at Gore, Oklahoma, was placed on extended standby which will lead to final decommissioning with the attendant loss of hundreds of jobs.

5100 South Quebec Street, Suite 600, Denver, CO 80237-2705 Telephone (303) 770-0957 Fax (303) 771-1625

12.010: The Department of Energy has received conflicting comments from different segments of the industry regarding their expectations for the uranium market in general and the conversion industry in particular. The HEU Final EIS notes that the industry has been oversupplied in recent years, but the conversion market has tightened recently with the departure from the business of one of the domestic suppliers. The *USEC Privatization Act*, enacted in April 1996, requires the Secretary of Energy to determine that any DOE sales of uranium would not have adverse material impacts on the domestic uranium mining, conversion, or enrichment industries. In light of these developments, DOE has modified the HEU Final EIS (Section 4.8) with respect to impacts on the conversion industry, and now concludes that those impacts are unlikely to be significant in the long term.

CONVERDYN, DENVER, CO
PAGE 2 OF 2

Mr. J. David Nulton
Page 2
January 8, 1996

Although the draft EIS explicitly acknowledges the uranium conversion segment of the overall nuclear fuel cycle, there does not appear to have been any rigorous analysis of the potential impact on conversion of the proposed alternatives. Under Section 4.8, "Impacts on Uranium Mining and Nuclear Fuel Cycle Industries," the draft EIS recognizes that "the current price (constant dollars) of the uranium conversion process is less than it was 10 years ago, and competition is strong. Prices are apt to remain depressed until production capacity is reduced. Presently, there is an oversupply of conversion capacity and little growth in demand." (Page 4-182).

Under "Economic Consequences of the Proposed Action," the EIS recognizes the potential market impact of blending down Russian HEU into commercial grade fuel and then concludes that "blending DOE HEU to LEU for commercial use also would have some effects on the conversion industry. The already oversupplied sector of the nuclear fuel cycle would remain depressed for a slightly longer period of time than if this alternative were not implemented." (Page 4-185). Considering the fragile nature of the current market recovery, ConverDyn feels strongly that such an oversimplification is not appropriate for an issue as crucial as disposition of surplus U.S. HEU. 12.010 cont.

The domestic nuclear fuel cycle suppliers have been engaged in a protracted struggle to ensure that disposal of both Russian and U.S. origin HEU is conducted in a responsible manner by the governments involved. The proposed "USEC Privatization Act" contains specific criteria for the market introduction of HEU-derived LEU from both sources. ConverDyn supports the processes and procedures incorporated in that legislation and believes that the EIS addressing disposition of surplus U.S. HEU should fully recognize those provisions. 12.021

Regards,

James J. Graham
President

JJG/sav

cc: Cheryl Moss, NEI

12.021: The future uranium market is uncertain—different industry groups have proffered conflicting projections. Congress has indicated through provisions of the *Energy Policy Act* of 1992 and the *USEC Privatization Act* that DOE's HEU disposition actions should avoid adverse material impacts on the uranium industry. The latter act includes a schedule that limits introduction of LEU into the U.S. market. DOE expects to abide by this requirement to avoid adverse material impacts on the industry, but also intends to satisfy the objectives of the fissile materials disposition program and the President's nonproliferation policy, as reflected in the HEU Final EIS.

December 22, 1995

Mr. Gregory P. Rudy, MD-1
Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, DC 20026-3786

Dear Mr. Rudy:

I wish to offer the following comments concerning the "Disposition of Surplus Highly-Enriched Uranium Draft Environmental Impact Statement" to be issued by DOE/MD-1.

The quantity of surplus highly-enriched uranium-235 that will become available from dismantlement of a significant fraction of the U.S. thermonuclear-weapons stockpile will be quite large, in the order of hundreds of tons. This material represents a huge investment made by U.S. taxpayers over the last four decades, and should be used to a maximum effect for both national defense and public energy generation purposes. The uranium that has been enriched to approximately 93% U^{235} (oralloy) should, without question, be made available to the U.S. Navy nuclear propulsion program for consumption in both the presently operational (and future) nuclear submarines, aircraft carriers, and various types of cruisers.

I believe the U.S. operates 103 submarines of some five different types, 5 cruisers of several types, and 7 aircraft carriers, all of which are powered by differing types of nuclear reactors. Since many of these ships-of-the-line will have lifetimes of 50 years or more, we should provide the Navy with all excess supplies of >92% oralloy for present and future use. the cost of storing this separated uranium isotope is essentially negligible and its use for nuclear propulsion applications is unlimited. Therefore, all supplies of oralloy of U.S. origin should stored for use as naval propulsion fuel, regardless of the small present stockpile of replacement naval reactor cores. Failure to implement such action will be detrimental to the national security interests of this country. Using available data, I calculate a requirement of greater than 5 tons per year for such purposes, so that over the 50-year life span of the current ships that would total some 250 tons of oralloy, reasonably close to the estimates of material that will become available over the next decade. 09.011

The lesser enriched uranium, ranging from 20% to 90% U^{235} could, and should, be used to develop advanced fast-reactor systems that certainly will be needed within the next fifty years. Although the uranium supply for LWR use looks very adequate in the short-term, every study made by industry or government indicates that the easily recovered natural uranium ores will be depleted by world-wide expansion of LWR use by 2040-2050, and the price of uranium ore will escalate rapidly after 2035. In this circumstance, it will become an economic necessity to move on to fast reactors for world electricity production. Our opportunity to develop and demonstrate this needed technology, without the development

09.011: A classified quantity of HEU is being retained in the strategic stockpile for use in the Naval Nuclear Propulsion program. The quantities of HEU declared surplus do not include material that is being retained for naval nuclear propulsion.

Retaining surplus HEU in its current weapons-usable form would not be consistent with the purpose and need for the proposed action. While the National Academy of Sciences has expressed support for the demonstration of advanced fast reactor systems, the National Academy of Sciences also considers it essential to our long-term national security to reduce global stockpiles of weapons-usable fissile materials. It is the current policy of the United States (Presidential Decision Directive 13) to discourage the civilian use of fast reactors due to concerns about their potential for breeding Pu in large quantities.

COOPS, MELVIN S., LIVERMORE, CA
PAGE 2 OF 2

2

of a plutonium fuel cycle, lies in the availability of a reasonably large stock of U^{235} that is enriched to about 45-50%, an ideal fuel for fast-reactor operation.

We have at hand a unique opportunity to perform this development work before our international competitors are forced into the fast reactor arena by the inevitable rise in LWR fuel prices. This is our opportunity to use the leverage we expended during the cold war period to gain back our international competitive edge; we dare not ignore this opportunity. For this compelling reason, I urge you not to recommend diluting down the existing stocks of weapons uranium metal that are enriched to 20-90% but to place them in a special reserve for electrical power generation development. The cost to do this is negligible, the opportunity is currently at hand, and the need is obviously present. 09.011 cont.

The National Academy of Sciences just a few years ago strongly recommended that the top priority development in U.S. electrical power generation should be the demonstration of advanced fast-reactor systems. This effort is currently on "hold" for political reasons related to possible plutonium use in such systems. The availability of this surplus weapons uranium category will enable such work to go forth without any concern of nuclear weapons proliferation. We need to take action to conserve the materials now available to complete this work. This is an issue of our economic survival in the competitive world of the future.

Sincerely,

Melvin S Coops

Melvin S. Coops

:mlm

Date Received: 01/16/96
Comment ID: P0066
Name: Margery Corcoran
Address: Minneapolis, Minnesota

Transcription:

This is Margery Corcoran from Minneapolis, Minnesota, and I am calling to say do not support making highly enriched uranium into nuclear fuel. We don't know what to do with what we have now. We're fighting over that in Minnesota. Please, please. Bye bye | 10.024

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

COX, LUCY, OAK RIDGE, TN
PAGE 1 OF 1

Date Received: 01/16/96
Comment ID: P0072
Name: Lucy Cox
Address: Oak Ridge, Tennessee

Transcription:

My name is Lucy Cox, and I am on the environmental list of Oak Ridge. I have been waiting and being concerned and just sort of watching, and I'm still concerned about our young people, what we're going to do about this highly uranium. I approve of the down blending, blending down of it, and I do hope that it will be blended down enough until it will not bother the life of our young people, the life of our middle-aged people, the life of our older people, so that it won't be used for weapons. In this situation -- I don't know too much about it -- but the way I see it and the way I understand the scripture that if we continue to kill, nobody wins. We all lose. Thank you. 10.023

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

COX, TERRY, JOHNSON CITY, TN
PAGE 1 OF 1

I recommend the Contract go to Oak Ridge, TN. on breaking down Highly enriched Uranium from Nuclear Weapons.
Oak Ridge has the scientist, experience of last 50 plus years in this type of work and personnel.

Thanks
Terry Cox

10.008

10.008: The Y-12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmakers.

DALY, SUSAN, NASHVILLE, TN
PAGE 1 OF 1

Date Received:	01/16/96
Comment ID:	P0057
Name:	Susan Daly
Address:	211 37th Avenue North Nashville, Tennessee 37201

Transcription:

This is Susan Daly from Nashville, Tennessee. I wanted to put comments into the record that I do not support making highly enriched uranium into the nuclear reactor fuel. My objections are that it's going to create spent fuel which is just too toxic and too radioactive and we don't really 10.024
know how to treat it or store it. The other objection is that it creates plutonium which would be a violation of the nonproliferation treaty, and that's something that I've been working on for
several years. Another objection is that I don't feel that all options have been explored, which 09.018
would include storing down blended uranium. The other objection is that there hasn't been a cost analysis that the public's been able to see anyway that shows the true cost to taxpayers if this
HEU is down blended into fuel and then sold to utilities. I'm not sure that the Department of 16.015
Energy would get back all the money that would be needed to transport, store, do the actual down blending, and then selling it at true cost. I'm afraid the taxpayers would get stuck with that deficit, and as we know, there's already too big a deficit right now in the government.

The things that I would support is down blending all the highly enriched uranium down to 0.7% 10.023
so that it cannot be used in weapons. I also support developing the capacity to down blend all uranium declared surplus in the past ten years and also having good controls internationally on
all nuclear materials. Thank you very much. Just in case you need my address, it's 211 37th 03.020
Avenue North, Apartment B-9, Nashville, Tennessee 37201. Thank you.

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

16.015: Cost estimates for the alternatives analyzed in the HEU EIS have been developed to provide the decisionmaker, DOE, comprehensive information upon which to make decisions. The cost analysis, which has been provided to this commentor and all others who have expressed an interest in this subject, is available in a separate document with the HEU Final EIS. It supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

DAVIS, STANLEY B., LONGWOOD, FL
PAGE 1 OF 1

SUITE 737 P.O. BOX 7729
LONGWOOD, FL. 32791-7729
DECEMBER 8, 1995

U.S. DEPARTMENT OF ENERGY
OFFICE OF FISSLE MATERIAL DISPOSITION
P.O. BOX 23786
WASHINGTON, D.C. 20026-3786

DEAR SIR,

I AM WRITING CONCERNING THE SITUATION AT NUCLEAR FUEL SERVICES, INC. IN ERWIN, TN.

I URGE THE D.O.E. TO GIVE N.F.S. THE UTMOST CONSIDERATION WHEN AWARDING THE CONTRACT TO DOWN-BLEND THE SURPLUS HIGH ENRICHED URANIUM TO FUEL FOR NUCLEAR POWER PLANTS.

N.F.S. HAS THE EXPERIENCE, EXPERTISE AND PERSONNEL TO WORK WITH HIGH ENRICHED URANIUM, PLUTONIUM, UF6 AND A VARIETY OF NUCLEAR MATERIALS. 10.003

N.F.S. IS HUNGRY AND YOU SHOULD BE ABLE TO NEGOTIATE A GOOD CONTRACT.

ERWIN & THE AREA NEED THE WORK.

SINCERELY,
Stanley B. Davis
STANLEY B. DAVIS

10.003: Comment noted.

DUKE POWER COMPANY, CHARLOTTE, NC
PAGE 1 OF 2

Date: Tue, 9 Jan 1996 11:15:11 -0500
To = doemd1-demo@fedix.fie.com
serial_no = 118
MailTitle = FORUM Form - incoming

name = Robert Van Namen
title = Manager, Fuel Management
company = Duke Power Company
addr1 = 522 S. Church St
addr2 = PO Box 1006 EC08F
city = Charlotte
state = NC
zip = 28226
phone = 704-382-4524
fax = 704-382-7852
email = rvn8371@xstp.dukepower.com
ctype = public
subject = HEU Disposition

** The following is the text of the Author's Comment.

Rapid disposition of the material through its use as fuel for US commercial reactors is clearly the best course. Final decisions must consider the long term impact of artificially keeping this material off the market. Please consider the following points in your evaluation of alternatives.

1) Utilities will be reluctant to commit to long term contracts with suppliers as long as this material is lingering with the potential of entering the market. The most stabilizing treatment of the material would be an orderly, predictable entry into the free markets at the market price as soon as the material is available. Government overregulation of the process will lead to intervention by special interest groups desiring to protect overpriced supply sources for short term profit. 12.009

2) Entry into the market should be as blended down material meeting all ASTM specifications. This will allow for the most number of competitive bidders and therefore, the highest price to the government. It will also prevent manipulation by parties who can control the blending process and thus the price and entry of the material. Blending should be done by a commercial arrangement and the costs subtracted from the proceeds of the sale. 04.011

3) Equal access to the material should be granted to all market participants through some sort of regular auctioning process. This method will lead to a market price being paid for the material and can provide for the predictibility needed to make long t erm procurement and production decisions.

12.009: The Department of Energy agrees that avoiding adverse material impacts on the uranium market will depend in part on DOE being predictable in its uranium transactions. The *USEC Privatization Act* requires DOE: 1) to determine that its uranium sales would not have adverse material impacts on the domestic uranium mining, conversion, and enrichment industries; and 2) to sell its uranium at not less than market prices.

04.011 : The Department of Energy would seek to meet American Society of Testing Materials fuel specifications for commercial material to the maximum extent possible. However, some of the surplus HEU inventory has isotopic compositions that would prevent the blended down product from meeting current American Society of Testing Materials specs, particularly with regard to the U-234 and U-236 isotopes. Such off-spec material may nonetheless be commercially usable in reactors at slightly higher enrichment levels (to compensate for the fission-poisoning effects of U-236) with NRC license modifications. Recommendations concerning the appropriate commercial arrangements for blended down material are not relevant to environmental (NEPA) issues, but will be considered to the extent appropriate in the ROD(s) for this program.

DUKE POWER COMPANY, CHARLOTTE, NC
PAGE 2 OF 2

4) Any price break to the US utility customers is fully warranted, should it occur, as they are the ones who bore the expense of the production of the HEU or at least the US component to act as a deterrent to the Russian material over the years. The peac e dividend should go to the ratepayers and taxpayers of the US, not to uranium miners, intermediaries, corporations and special interest groups. 04.011 cont.

Thank you for the opportunity to submit these comments.
END comment

EDLOW INTERNATIONAL COMPANY, WASHINGTON, DC
PAGE 1 OF 2

Edlow International Company
1666 Connecticut Ave., N.W., Suite 201
Washington, D.C. 20009 U.S.A.
Tel (202) 483-4959
Fax (202) 483-4840
e-mail. edlowco@aol.com

January 5, 1996

U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, D.C. 20026-3786

REF: *DISPOSITION OF SURPLUS HIGHLY ENRICHED URANIUM DRAFT ENVIRONMENTAL IMPACT STATEMENT*

Dear Office of Fissile Materials Disposition:

Thank you for the opportunity to comment on the *Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement*. We would like to commend your office for providing information on the draft EIS via several avenues; the internet site has been particularly useful in quickly transmitting information on the fissile materials disposition program.

Thank you also for the opportunity to participate in the November 14, 1995 public meeting in Knoxville, Tennessee. As discussed with representatives of your office at that time, I would like to reiterate my concern with a statement contained in the Summary document for the draft EIS. In the section on "Highly Enriched Uranium Disposition Alternatives", footnote 8 (p. S-10) states,

> "Foreign fuel fabricators and foreign commercial electrical power nuclear reactors are not as reasonable or as likely as domestic fabricators and reactors for a number of reasons including transportation and associated environmental concerns that would need to be accommodated." (Emphasis added.)

This statement gives the erroneous impression that there are undue concerns associated with the international transport of low enriched uranium. As you are aware from the Department's lengthy experience in the sale of LEU to foreign customers, the transport of LEU is a routine procedure; nonetheless subject to strict requirements regarding packaging and handling. 07.011

07.011: The HEU Final EIS has been revised to eliminate the cited text.

U.S. Department of Energy
Office of Fissile Materials Disposition

REF: *DISPOSITION OF SURPLUS HIGHLY ENRICHED URANIUM DRAFT ENVIRONMENTAL IMPACT STATEMENT*
Page 2

The commercial nuclear power industry has a tremendous safety record with regard to transports of all radioactive materials. Edlow International Company, which has provided expert transportation management services to the nuclear power industry for over 38 years, can attest to this excellent safety record.

Despite this record, many opponents of commercial nuclear power see fit to attack the lawful transport of LEU and other radioactive materials. It would be unfortunate if the above statement could be taken to reflect DOE's own concern in this regard. Accordingly, we request that the Department clarify the statement to avoid possible confusion or misconceptions.

07.011 cont.

Thank you for your attention in this regard. Please do not hesitate to contact me at (202) 483-4959 should you require additional information in connection with these comments.

Best regards,

Melissa Mann

Melissa Mann
Manager, International Affairs

EWALD, LINDA, KNOXVILLE, TN
PAGE 1 OF 2

Nov 8, 1995

Linda Ewald
949 Ponder Road
Knoxville, TN
37923

DOE - Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

I am writing to comment on the plans for processing Highly Enriched Uranium (HEU) as proposed in the draft Environmental Impact Statement. The prefered plan is to down blend the HEU to make tons of ~~___~~ nuclear reactor fuel. However this is problematic. Spent fuel is deadly, we have no place to dispose of it, costs of storage, transporation and disposal will be huge, and most importantly, it can be processed to extract plutonium, So it is still a weapons threat. 14.002

14.002: It is correct that the use in reactors of nuclear fuel derived from surplus HEU would result in the production of spent fuel. However, this fuel simply supplants nuclear fuel that would be produced from natural uranium anyway, so no additional spent fuel would be generated as a result of this program. Although spent fuel contains Pu, it is extremely hazardous to process and separate the Pu. It is a tenet of U.S. nonproliferation policy, consistent with recommendations of the National Academy of Sciences, that weapons-usable fissile materials be made at least as proliferation resistant as spent fuel.

NOV 13 1995
M0006

I urge the blending down of the HEU to less than 1% and disposing it as low level waste. This is the cheapest, least environmentally hostile, most secure and safest option. It serves our nation's nonproliferation policy and sends a message to other nations that we are down-sizing our nuclear ~~arsen~~ arsenal. Please take this chance to truly make the world a safer and more healthy place. 10.009

Sincerely,
Linda Ewald

10.009: Blending down the entire stockpile of surplus HEU to less than 1 percent and disposing of it as waste was evaluated in the HEU EIS as one of the alternatives. The analyses showed that this alternative would generate the highest environmental impact among other alternatives evaluated in the HEU EIS (Table 2.4–2). DOE has developed cost estimates associated with the alternatives analyzed in the HEU EIS and has made them available in a separate document with the HEU Final EIS. The cost analysis indicates that commercial use of LEU fuel derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste. DOE believes that all of the action alternatives (2 through 5) evaluated in the HEU EIS meet the objective of nonproliferation and will send a positive message to other nations.

EWALD, LINDA, KNOXVILLE, TN
PAGE 1 OF 2

Dec. 30, 1995

Linda Ewald
944 Ponder Road
Knoxville, TN
37923

DOE / Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O Box 23786
Washington, DC 20026-3786

I am concerned about the disposition of highly enriched uranium.
I do not support downblending it into nuclear fuel because it will create spent reactor fuel, which is a highly toxic radioactive waste we have no solution for; it will create plutonium, a violation of our nonproliferation goals; and 10.024
all options have not been adequately explored, including storing down blended uranium. 09.018
I do support and encourge the down blending of highly enriched uranium so it cannot be used in weapons; developing the capacity to down blend all uranium 10.023

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

declared surplus in ten years and international controls on all nuclear materials

10.023 cont.

03.020

Thank-you for your time and attention.

Sincerely,
Linda Ewald.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

FAULKNER, SUE A., ERWIN, TN
PAGE 1 OF 1

1-20-1995

Dear Sir,

I was born and raise in unicoi county. I have seen it as a booming town, go down with lost of jobs at railroad and lay offs at NFS. I am writing you this letter to ask you to please give Nuclear Fuel Service the contract.

If NFS get the contract it would do much to improve the economy of unicoi county where blows have been sustained. The entire area could benefit if Nuclear Fuel Service get the contract. 10.003

again I ask you to give NFS the contract. allot of people will be call back from lay offs.

Thanks for your time
Sue Faulkner
PO Box 445
Erwin, Tenn
37650
&
family

10.003: Comment noted.

FEAREY, KENT, KNOXVILLE, TN
PAGE 1 OF 1

11-20-95
KENT FEAREY
NEW ADDRESS 1243 IREDELL AVE
KNOXVILLE, TENN
37921

U S Dept Energy
Office of Fissile Material Disposition
Box 23786; Wash DC 20026-3786

Gentlemen
I thank you for your: Oct 19, 95
letter.

I should like a copy of "THE DRAFT HEU-EIS.

If available I should like a copy of the oral comments made during the Nov 14 Knoxville Meeting and the Nov 16 meeting in Augusta, Georgia as "summarized" in the "HEU-EIS MEETING-SUMMARY REPORT".

As a retired employee of AEC & ERDA I feel that the storage in Oak Ridge K-25 of HEU is fine; unless there is use for the material or current health physicists recommend its being moved. 26.003

Sincerely, I thank you,
Kent H. Fearey

OLD ADDRESS
106 VALETTA LANE
OAK RIDGE, TENN
37830

NEW = 1243-IREDELL AVE
KNOXVILLE, TENN
37921

26.003: Comment noted.

FERNALD AREA OFFICE, CINCINNATI, OH
PAGE 1 OF 1

Date: January 12, 1996

To: Office of Fissile Materials Disposition
FAX: 1-800-820-5156

Subject: Comments on the Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (EIS)

From: Mary Beth Gareis
Fernald Area Office
7400 Willey Road
Cincinnati, Ohio 45030
phone: 513-648-3181
Fax: 513-648-3076

The possibility exists that some of the low enriched uranium (LEU) blendstock for the proposed blending action will come from the Fernald Environmental Management Project in Fernald, Ohio (350 MTU). However, the Draft EIS document does not clearly indicate this potential Fernald source of LEU blendstock in its discussion. It only notes Fernald as being a source of depleted material.

Recommendations:
1. Add "LEU in metal or oxide form would be shipped from Fernald, Ohio", in fifth bullet paragraph of Section 2.2.1 *Basis for Analysis*.

2. Add text to the paragraphs under the Transportation of Blendstock Materials heading in Section 4.4.3.2 *Surplus Highly Enriched Uranium Disposition Alternatives* that describes the possible transportation of LEU in metal or oxide form from Fernald. Possibly add this alternative to the transportation RADTRAN analysis, although the Hanford analysis may be sufficient since Hanford is being used as a representative site. 11.014

3. Add information where appropriate on the potential Fernald LEU blendstock source to any other sections/diagrams that discuss the blendstock materials to ensure that the environmental impacts of this possibility have been fully assessed.

Thanks for the opportunity to comment. Hope the program is successful.

11.014: The observation that LEU blendstock could originate from the Fernald facility is correct. The HEU Final EIS has been revised to reflect this in Section 2.2.1 and Section 4.4, Intersite Transportation.

FOGEL, DAN, LAKEWOOD, CO
PAGE 1 OF 1

The purpose of this card is to encourage communication between readers of the Newsletter and the Office of Fissile Materials Disposition. Your views, comments, and suggestions are appreciated.

☐ Mr. ☐ Ms. ☐ Dr. MR. DAN FOGEL (first name) (last name) DEL 1/4/95

Title. A Human Individual

Organization: Humanity.

Mailing Address: 1595 Chase St., Lakewood, Colorado. 80214-1703.
(street/post office box) (suite/apartment/mail stop)

(city) (state) (zip code)

Please check all that apply:

A. Mailing List Request: ☐ Add ☐ Modify ☒ Delete

B Information Request
☐ Highly Enriched Uranium (HEU) EIS Implementation Plan
☐ Long-Term Storage & Disposition of Weapons-Usable Fissile Materials PEIS Implementation Plan
☐ Draft HEU EIS
☐ Other (specify) NOTE: Seems to me the ONLY true remedy is to deal with the source of the situation: NO WORLD NUCLEAR TESTING. CEASE ALL RADIO-ACTIVE

Comments: production world-wide. Looking to Peter to pay Paul - looking for a "Safe" disposal site-is a joke. Every contamination on-in the planet affects the WHOLE PLANET. Your present efforts are a waste of time, money and an insult to good sense, and a total lack of humanitarian concern...

Please mail response card to: U.S. Department of Energy • Office of Fissile Materials Disposition, MD-4 • Newsletter Editor • Forrestal Building • 1000 Independence Ave., S.W. • Washington, D.C 20585

06.005

06.005: The Government has formally agreed that there should be no world nuclear testing and is pursuing a *Comprehensive Test Ban Treaty* to that end. The objective of the fissile materials disposition program is to convert surplus weapons-usable fissile materials to forms that are non-weapons-usable; that is, to make nuclear disarmament permanent. It is not to generate additional radioactive materials.

FRIENDS OF ORNL, OAK RIDGE, TN
PAGE 1 OF 1

Friends of Oak Ridge National Laboratory
Post Office Box 6641
Oak Ridge TN 37831-6641
5 December 1995

U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, D.C. 20026-3786

Sirs:

The Friends of Oak Ridge National Laboratory, an organization comprised of former and present staff members of ORNL and of other citizens of the area who are interested in the future welfare of the Laboratory and the community, wishes to comment on the draft *Disposition of Surplus Highly Enriched Uranium Environmental Impact Statement*.

We understand that the alternative preferred by the Department of Energy is dilution of bomb-grade material with uranium of low ^{235}U content to an enrichment suitable for use in power reactors. We support this course, as a sensible route to compliance with arms-control agreements and as a beneficial use of excess weapons material.

We do not agree with the position taken by some that the isotope dilution should be to an enrichment approaching natural uranium, with subsequent burial. The proponents appear to be motivated primarily by antipathy to nuclear power. In any case, their alternative would only waste money without serious effect on power production, in view of the ample supplies of low-enriched uranium from other sources. Their further argument that fissionable material produced in power reactors might be used in proliferation of weapons also is unsubstantial. There are far easier routes for terrorist groups or nations to attain weapons than by power-reactor plutonium. Probably the best way to lower the risk of proliferation is to reduce excess inventory of highly enriched uranium, as DOE is proposing. 10.003

We further have complete confidence in Y-12's capability to perform dilution safely and efficiently. 10.008

Sincerely,

William Fulkerson

William Fulkerson, President

10.003: Comment noted.

10.008: The Y–12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmakers.

GARDNER, JACK A., ERWIN, TN
PAGE 1 OF 1

604 BUCKEYE STREET
ERWIN, TENNESSEE 37650
DECEMBER 1, 1995

Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, D.C. 20026

Dear Sirs:

This letter, on behalf of myself and others in Unicoi County, is to ask that you consider Nuclear Fuel Services of Erwin, Tennessee, as the site for downgrading enriched Uranium from weapons material to fuel. 10.003

The management and the personnel at Nuclear Fuel Services are well qualified to handle this project, and jobs are sorely needed for our county. We are a poor county, and federal ownership of 40% of our land lowers our tax base.

Most people, including my daughter and my son-in-law, who formerly worked at NFS are either unemployed or are working at part-time minimum wage.

Sincerely
Jack A. Gardner (RETIRED)
JACK A GARDNER

(423) 743-6982

10.003: Comment noted.

GENETTA, SUSAN, NASHVILLE, TN
PAGE 1 OF 1

Date Received:	1/11/96
Comment ID:	P0044
Name:	Susan Genetta
Address:	Nashville, Tennessee

Transcription:

Hi, my name is Susan Genetta, and I'm a resident of Nashville, Tennessee, and today is Wednesday, January the tenth, and I'd like to leave just one or two short remarks regarding the enriched uranium being sold in the world market as plutonium. It is my opinion that this is not a good idea. I would like to see no nuclear materials bought and sold in the international market, and I would prefer the United States did not get involved in changing the enriched uranium into plutonium to be used in the market. If you would please take into consideration my comments. That's how I feel. Thank you very much. Bye-bye. 10.034

10.034: The Department of Energy's proposal to blend down surplus HEU to LEU as reactor fuel for commercial use is aimed to eliminate proliferation potential of the weapons-usable HEU. Although LEU used in power reactors would generate spent fuel, since this fuel (derived from surplus HEU) would replace nuclear fuel (created from newly mined uranium without this action), there would be no additional spent fuel generated. Spent nuclear fuel (generated as a result of the use of this fuel in power reactors) contains Pu; however, it is extremely difficult and costly to separate the Pu. In accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel.

HEU EIS PUBLIC MEETING ORAL COMMENTS
AFTERNOON WORKSHOP
Augusta, Georgia
November 16, 1995

SESSION: Plenary

Is DOE weighting the comments that are received on this EIS? | 32.009

What is being done with the 20% of the HEU categorized as off-specification? | 02.003

Is the Savannah River Site presently operating the vitrification facility to vitrify glass? | 25.001

Why did the United States decide to take back foreign fuel? Since the United States is taking back the fuel, why is DOE and/or the government afraid of someone making a bomb? | 01.005

Would someone please tell us about potential water contamination concerns to the areas surrounding the Savannah River Site activities and this project. | 22.006

DOE should let another state take the Savannah River Site over. I would not mind letting someone else have our problems for a while.

I live close to the Savannah River Site and I am not concerned about the drinking water being contaminated.

This is the second time in the last month that DOE has scheduled public meetings at the same time and in locations far enough apart that interested members of the public can not attend both meetings. | 32.010

I commend DOE for identifying the preferred alternative in the document. The final EIS should more closely relate to the requirements of NEPA. For example, fulfilling the requirements of future generations and impacts on resources. | 30.010

Do the utility companies have an interest in the HEU being blended down to metal as the final product. Do any commercial sites have metal blending capabilities? | 13.005

We (the public) are worried about the future, however, in 1000 years the only thing surviving at the Savannah River Site will be owls and buzzards.

How much money was budgeted for this draft EIS? | 16.007

[1]REVISED December 13,1995

[1]Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

32.009: As part of the HEU Final EIS, all comments, along with DOE's responses, will be provided to the decisionmakers for their review and consideration prior to issuance of the ROD. All comments, both written and oral, regardless of the method in which they are submitted, have been given equal attention and consideration by DOE during preparation of the HEU Final EIS.

02.003: Surplus HEU that is off-spec is being stored until all options to utilize it have been exhausted. It appears that a considerable portion of it may be useful as commercial fuel. If no use is found for the material, it will be blended and disposed of as LLW.

25.001: The vitrification facility of the Defense Waste Processing Facility is currently undergoing an operational readiness review. It is expected to become fully operational in the first quarter of 1996.

01.005: The Department of Energy and the Department of State jointly proposed (in the Final EIS for the *Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel*, February 1996) to adopt a policy to manage spent nuclear fuel from foreign research reactors to promote U.S. nuclear weapons nonproliferation policy objectives. The purpose is to remove as much U.S.-origin HEU as possible from international commerce while giving the foreign research reactor operators and their host countries time to convert to operation with LEU fuel and to make their own arrangements for disposition of subsequently generated LEU spent nuclear fuel. The Government does not seek to indefinitely accept or otherwise manage spent nuclear fuel from foreign research reactors. The foreign research reactor spent nuclear fuel program is outside the scope of the HEU EIS. With regard to the fear of nuclear proliferation, the United States and others have determined that growing world stockpiles of excess weapons-usable fissile materials present a significant threat to U.S. and global security. Reducing those stockpiles is the primary objective of the HEU disposition program.

22.006: The potential for water and aquifer contamination from the proposed action around SRS and other candidate sites under normal operations is highly unlikely because, as discussed in Chapter 4 of the HEU EIS, there would be no direct discharge to groundwater. Any wastewater (nonhazardous) released to surface water would be treated prior to being discharged and would comply with its National Pollutant Discharge Elimination System (NPDES) permit.

GEORGIA (AUGUSTA), AFTERNOON WORKSHOP PLENARY SESSION PAGE 2 OF 2

32.010: The Department of Energy supports the public's involvement and is fully committed to giving the public access to information about its activities and opportunities for involvement in DOE's decisionmaking process. DOE makes efforts to coordinate meetings with other offices and agencies to the extent possible consistent with programmatic requirements. Unfortunately, some schedule conflicts are unavoidable.

Because public involvement is critical to the success of the program, other methods for submitting comments were also made available throughout the comment period: toll-free fax and voice recording, electronic bulletin board, and U.S. mail. These methods can also be used to request additional information or to be placed on the Office of Fissile Materials Disposition's mailing list.

30.010: Comment noted.

13.005: Public utilities deal in uranium oxide and UF_6 but not metal. Conversion contractors will need to make oxide or hexafluoride products for sale to the utilities. No commercial contractors have the capability to blend uranium metal.

16.007: Four million dollars are budgeted for both Draft and Final versions of the HEU EIS.

HEU EIS PUBLIC MEETING ORAL COMMENTS
AFTERNOON WORKSHOP
Augusta, Georgia
November 16, 1995

SESSION: Discussion/Summary

OPEN DISCUSSION

What is the potential for contamination of the aquifers around the Savannah River Site and other candidate sites from this project? 22.006

Why is the scope of this EIS limited to 200 tons of HEU; why doesn't it cover disposition of all the HEU? 02.006

DOE should clarify the scope of the transportation impact analysis. It should include impacts of moving the material both from its current location to the blending site and from the blending site to its new location for either fuel fabrication or waste disposal. 20.007

Why doesn't the EIS provide us with information about long-term socioeconomic affects, proliferation, and other analyses required of NEPA documents? 30.006

What storage contingencies are being considered? 06.032

What are the dollar amounts associated with each of the alternatives, both cost and revenue potential? 16.009

What are the criteria for market decisions and what value is being placed on the HEU? 04.009

NEPA

This NEPA document does not seem to cover depletion and conservation of resources; long-term consideration of the resource value for future generations; ways to enhance the quality of depletable resources; or consideration of the value compared to energy value of fossil fuels. DOE has not gone with the spirit and letter of conformance related to NEPA, they need to do that. (The following references were cited regarding these comments) 30.007

National Environmental Policy Act Handbook, United States Department of the Interior, October 1990, Section 4-10

REVISED December 13, 1995
[1]REVISED December 13,1995

22.006: The potential for water and aquifer contamination from the proposed action around SRS and other candidate sites under normal operations is highly unlikely because, as discussed in Chapter 4 of the HEU EIS, there would be no direct discharge to groundwater. Any wastewater (nonhazardous) released to surface water would be treated prior to being discharged and would comply with its NPDES permit.

02.006: The HEU EIS covers the disposition of all HEU that has been or may be declared surplus in the future. To date, 175 t have been declared surplus, and the EIS analyzes also an additional quantity (assumed to be 25 t for purposes of analysis, although no such additional quantity has been identified or proposed) that may be declared surplus in the future. A classified quantity of HEU that remains in the national security reserve is not part of the surplus HEU disposition program.

20.007: The HEU EIS identified all potential transportation routes required for each alternative and evaluated the impacts associated with each. The impact assessments included transporting surplus HEU and the blendstock material from their storage locations to the blending sites and the LEU product from blending sites to either fuel fabricators or a representative LLW disposal site. The scope of the transportation assessment, details of the analysis, and the potential health impacts from transporting materials between sites can be found in Section 4.4 and Appendix G of the HEU Final EIS.

30.006: Socioeconomic impacts for each site are assessed in Section 4.3 of the HEU EIS, and socioeconomic impacts on the uranium and nuclear fuel cycle industries are discussed in Section 4.8. As discussed in Section 1.4.2 of the HEU EIS, DOE considers the nonproliferation implications of all the action alternatives (2 through 5) to be essentially equivalent, that is, LEU is non-weapons-usable whether it is at 4-percent enrichment for commercial use or at 0.9-percent enrichment for disposal. DOE believes the HEU EIS contains all the elements required of NEPA documents.

06.032: It is expected that HEU will continue to be stored as HEU until it can be either blended down for commercial use or blended down and promptly moved to a LLW repository for disposal. Thus, extended storage of LEU fuel derived from surplus HEU is not expected to be necessary. Until the HEU is blended down, it would be stored as HEU at the Y–12 Plant pursuant to the *Environmental Assessment for the Proposed Interim Storage of Enriched Uranium Above the Maximum Historical Storage Level at the Y–12*

GEORGIA (AUGUSTA), AFTERNOON WORKSHOP DISCUSSION/SUMMARY SESSION
PAGE 2 OF 8

F. Energy and Depletable Resources

"Energy requirements, conservation potential, and effects on natural or depletable resources should be a part of the impact analysis."

The National Environmental Policy Act of 1969, as amended (Pub. L. 91-190,42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, and Pub. L. 94-83, August 9, 1975.)

Title 1 - Declaration of National Environmental Policy

Sec. 101. (a) "... fulfill the social, economic, and other requirements of present and future generations of Americans."

Sec. 101. (b) (1) "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;"

Sec. 101. (b) (6) "enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources." 30.007 cont.

Sec. 102. (c)(2)(C) "include ... a detailed statement by the responsible official on —
(iii) Alternatives to the proposed action;
(iv) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and
(v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented."

Sec. 102.(F) "Recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment;"

The HEU should not be made irretrievable. Materials that can be used are needlessly being buried. These materials could be used later. These materials could free the United States dependency on foreign energy sources. (The following references were cited regarding these comments) 17.008

Energy Policy Act - Public Law 94-580-OCT 21, 1976 (Subsequently modified to *Resource Conservation and Recovery Act (Solid Waste Disposal Act)*, 42 U.S.C.§6901 et seq., as amended)

REVISED December 13, 1995

Plant, Oak Ridge (DOE/EA-0920, September 1994), and, as appropriate, at the storage site(s) identified for HEU storage in the ROD for the upcoming *Storage and Disposition of Weapons-Usable Fissile Materials Final Programmatic Environmental Impact Statement.*

16.009: Cost estimates for the alternatives analyzed in the HEU EIS have been developed for inclusion into the ROD(s) and are available in a separate document with the HEU Final EIS. The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

04.009: The Government would be unable to sell uranium at above market prices and has no intention of doing so at below market prices, with the possible exception of off-spec material, which will probably be sold at some discount to compensate for the additional costs attending its use. The ultimate value of surplus HEU will be determined by the market at the time of particular sales.

30.007: The Preferred Alternative in the HEU EIS is to maximize conservation of the resource value of surplus HEU, and to conserve depletable natural uranium resources, by blending surplus HEU down to LEU and making it available for commercial use. The Preferred Alternative would also conserve the depletable resources required to mine, mill, convert, and enrich the virgin uranium that would be displaced by LEU fuel derived from surplus HEU. DOE disagrees that the document disregards these issues—indeed, they constitute a primary basis for the Preferred Alternative.

17.008: The Department of Energy's Preferred Alternative is to maximize commercial use of surplus HEU, and to minimize the portion that must be disposed of as waste. This preferred alternative is thus fully consistent with the spirit and letter of the *Resource Conservation and Recovery Act.*

"Sec. 1002.(c) Materials - The Congress finds with respect to materials, that

(1) millions of tons of recoverable material which could be used are needlessly buried each year;
(2) methods are available to separate usable materials from solid waste; and
(3) the recovery and conservation of such materials can reduce the dependence of the United States on foreign resources and reduce the deficit in its balance of payments."

"Sec. 1004. As used in this Act: . . .

(18) The term 'recoverable' refers to the capability and likelihood of being recovered from solid waste for a commercial or industrial use.

(21) The term 'resource conservation' means reduction of the amounts of solid waste that are generated, reduction of overall resource consumption, and utilization of recovered resources." 17.008 cont.

The EIS does not compare blended down fuel versus other fuel sources such as coal and oil. 06.033

The United States promotes all nuclear technologies in other countries, while the United States is depleting our reserve fuel supply. The United States needs a National Energy Policy. The United States is giving up on nuclear energy when the future generations may have to use nuclear energy as a power source. (The following references were cited regarding these comments)

Protection and Management of Plutonium, American Nuclear Society, Special Panel Report Executive Summary, pgs. 11-13

V.20. Global Energy Demand.
"In a 1993 paper on "Global Energy and Electricity Futures," Dr. Chauncey Starr, President Emeritus of the Electric Power Research Institute, stated:
'By the middle of the next century, global energy demand driven by population and economic growth, will be in the range of 2-4 times the present level, depending on the effectiveness of energy efficiency and conservation globally. Even with maximum realistic conservation the electricity component will be more than 4 times present usage. A massive expansion of non-fossil sources would be needed to slow the future annual increase in carbon dioxide to the atmosphere.' " 06.034

V.22. Environmental Considerations.
". . . The impact of such a drastic step on the global economy would be unprecedented and incalculable.

REVISED December 13, 1995

06.033: Because reactor fuel derived from surplus HEU would simply supplant reactor fuel that would be used anyway, the use of the fuel in reactors would not constitute an incremental impact from this program and is not assessed in the HEU EIS. Thus, alternative fuels are also not assessed.

06.034: The future of nuclear power use in this country is not affected by the HEU disposition program, since LEU fuel derived from surplus HEU would simply supplant fuel derived from natural uranium. The HEU EIS assumes that nuclear power generation will continue in this country and abroad and be able to use the LEU fuel derived from surplus HEU.

31.001: The United States has agreed to purchase LEU derived from Russian HEU (blending is done in Russia) from its weapons stockpile in order to make that material non-weapons-usable and keep it out of general commerce, as well as to provide Russia with hard currency to aid in its economic rebuilding efforts. The U.S.-Russian HEU agreement is covered by an environmental assessment that was prepared by USEC (*Environmental Assessment for the Purchase of Russian Low-Enriched Uranium Derived from the Dismantlement of Nuclear Weapons in the Countries of the Former Soviet Union*, USEC/EA-94001, DOE/EA-0837, January 1994). This EA evaluates potential impacts of transporting Russian HEU which would already be blended to LEU to USEC facilities in the United States. The HEU EIS is concerned only with activities in the United States with regard to the disposition of HEU that has been declared surplus to the U.S. nuclear weapons and energy programs and any additional quantity of HEU that may be declared surplus in the future. Storage of non-surplus weapons-usable HEU is addressed in the Storage and Disposition Programmatic Environmental Impact Statement (PEIS). The transportation and blending of the Project Sapphire material, which is currently being processed at the Babcock & Wilcox site in Lynchburg, VA was evaluated in the *Environmental Assessment for the Disposition of Highly Enriched Uranium Obtained from the Republic of Kazakhstan* (DOE/EA-1063, May 1995). DOE does not currently anticipate receiving additional quantities of HEU from foreign sources except in the form of research reactor spent fuel, which is not weapons-usable material unless it is reprocessed for other reasons. The foreign research reactor spent nuclear fuel program, which is outside the scope of the HEU EIS, is addressed in the *Final Environmental Impact Statement for the Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel* (DOE/EIS-0218F, February 1996). The HEU EIS considers cumulative impacts associated with all these actions in Section 4.6. These related actions are not connected because they have different justifications for implementation, origins, alternatives, transportation scenarios, and impacts.

GEORGIA (AUGUSTA), AFTERNOON WORKSHOP DISCUSSION/SUMMARY SESSION PAGE 4 OF 8

V.32. No Need for Fuel Cycle Uniformity.

"... They also maintain the technological base that is essential to timely development and introduction of plutonium-fueled reactors should these be needed. We, therefore, strongly endorse the stated U.S. policy of the past several years of avoiding interfering in the fuel cycle decisions of our close partners."

V.36. The Need for Permanent Repositories and the Throw-Away Fuel Cycle.

"... The timing for construction of a permanent repository is a matter for national decision. In countries such as the United States, where the continued public acceptability of nuclear power is dependent on the firm adoption andimplementation of a coherent waste management plan ..." 06.034 cont.

Disposition of Surplus Highly Enriched Uranium Environmental Impact Statement Implementation Plan, DOE/EIS-0240-IP, June 1995, p. B-17

"DOE intends to comply fully with the letter and spirit of NEPA, as well as to make considerable efforts which go beyond the basic requirements of the NEPA regulations."

Scope of HEU EIS

The scope of this document may lead to choosing an alternative that would possibly not be chosen if all of the HEU was addressed in one document, not just the surplus HEU. If the EIS is not covering all the HEU, then decisions may be of limited value. Why doesn't this EIS include the foreign reactor fuel and non-surplus HEU? At the least, this EIS should provide specific information as to which DOE documentation is covering other HEU. Will this document also cover the HEU considered to be surplus in the future? Or will this process have to be completed again for additional surplus HEU identified? There should be a government commitment for all of the HEU. This would ensure that the HEU would be taken care of under the NEPA process, even though all of the HEU activities are in separate documents. The document should state that it reflects the present surplus HEU identified and that future identification of surplus HEU quantities will be handled by the same procedure. Does this EIS cover the Project Sapphire material being processed in Lynchburg, VA? DOE is piecemealing the approach to HEU. Is DOE looking at the cumulative impacts of blending down the HEU? 31.001

Why has the United States accepted HEU from Russia and why is that transaction not part of this project? What about considering HEU that may come from other countries in this project?

Transportation

What kind of transportation and accident analysis was performed? Where is the material now? How are the sites selected? What forms of security will be used? 20.008

REVISED December 13, 1995

20.008: The transportation analysis considered factors such as routes traveled, type of packaging, and quantity of material. Radiological impacts were calculated using the RADTRAN computer code (designed for this purpose). The total health effect from transportation is presented for each transportation scenario. The methodology for the transportation analysis is described in Section 4.4 and Appendix G of the HEU Final EIS.

For security, HEU is transported by safe secure trailers and receives continual surveillance and accountability by DOE's Transportation Safeguards System. Shipments by safe secure trailers are accompanied by armed guards and are monitored by a tracking system. All other materials are shipped commercially and protection is in accordance with Department of Transportation regulations.

The HEU material and spent nuclear fuel have different material characteristics and therefore risks are evaluated separately. HEU would be shipped in safe secure trailers under a high level of security. Foreign research reactor spent nuclear fuel contains significantly more radioactivity and is transported commercially in large shielded casks, employing different safety and security measures than required for HEU. Blendstock material would also be transported for which impacts were addressed and included in the HEU Final EIS.

06.035: There is very little commercial sector for HEU. The overwhelming majority of the world's HEU has been used in nuclear weapons programs, with small quantities also used in research or experimental reactors. It is not clear what processes the question refers to.

11.012: The Department of Energy has made no representation that blending at DOE facilities would be safer than blending at commercial facilities.

30.008: Proliferation is not treated as an environmental value and in that sense is not part of the comparison of alternatives in the HEU EIS. However, the nonproliferation objective of making surplus HEU non-weapons-usable is a fundamental part of the purpose and need for the proposed action and was a key criterion used in the screening of alternatives for the HEU EIS.

Is the transport of this HEU different from the transport of foreign research reactor spent nuclear fuel? Would it need to be more secure and would the blend stock need to be transported? | 20.008 cont.

Proliferation

If the commercial sector for HEU is so questionable and we keep the industry from having the same processes as they have overseas, then why don't we stop France and Canada from doing these processes also? | 06.035

Why is it that if DOE blends down to fuel it would be safer than if commercial facilities do it? DOE is not under International Atomic Energy Agency (IAEA) inspections and is self- regulating. | 11.012

I believe that the proliferation issue is beyond the scope of NEPA and does not need to be in this discussion. | 30.008

How does DOE intend to prevent proliferation in other countries? What are the international aspects of this project? What is the International Atomic Energy Agency (IAEA) inspection role? What is the Nuclear Regulatory Commission (NRC) and Defense Nuclear Facility Safety Board (DNFSB) safety monitoring role? | 03.014

Storage Capabilities

What are the storage capabilities at the Savannah River Site? Is there enough storage space at the Savannah River Site for the HEU? When will the ultimate storage decision be made? Is storage of the HEU at the Savannah River Site considered to be temporary?

Does the Savannah River Site have similar capabilities as Oak Ridge? Is site capability an issue of who will be participating in blending down the HEU, storing the HEU, etc.? | 11.013

Choosing Facilities

I do not understand how DOE will choose the facility for blending down. It seems that several facilities would be used for blending down the HEU, not just one facility to perform all of the work. | 08.005

What criteria were used in site selection? Will the Record of Decision deal with specific sites? Will the Record of Decision consider competitive market processes and business decisions for selling the HEU? | 07.008

Market Value and Cost Analysis

We (the public) would like to see cost comparisons and dollar amounts for each of the | 16.009 cont.

REVISED December 13, 1995

03.014: The Department of Energy works to prevent proliferation in other countries by setting an example for them in terms of making surplus HEU non-weapons-usable. Russia has already agreed to sell 500 t of weapons HEU for commercial use, and this action is proposed to be reciprocal to that one. Much of the surplus HEU that remains in storage may eventually be made subject to IAEA inspection. The NRC currently has no role in monitoring of the DOE facilities involved in this program, but it licenses and regulates the two commercial facilities that may be used for surplus HEU disposition actions. The Defense Nuclear Facilities Safety Board monitors the safety of DOE defense nuclear facilities and makes recommendations for improvements to safety.

11.013: Present storage of HEU at SRS (about 20 t of surplus HEU is located there) should be considered temporary; that is, until material is either moved to the Y–12 Plant for storage or disposition actions can be taken. As the primary DOE site for HEU processing and storage, the Y–12 Plant currently has much greater HEU storage capabilities than SRS. However, SRS is a candidate site (along with Y–12 and four other DOE sites) for a possible consolidated Pu/HEU storage facility in the *Storage and Disposition of Weapons-Usable Fissile Materials Draft Programmatic Environmental Impact Statement* (DOE/EIS-0229-D, February 1996). The Storage and Disposition Draft PEIS does not identify a preferred alternative for storage, but the Final PEIS (expected late in 1996) will do so.

08.005: Under the Preferred Alternative, DOE considers it likely that more than one facility will participate in the HEU blending program. It is anticipated that competitive bidding procedures will play an integral role in the selection of blending facilities, and decisions could be made by USEC or other entities, in addition to DOE.

07.008: The sites that are considered in the HEU EIS are the two commercial and two DOE sites that can process significant quantities of HEU today. The Preferred Alternative contemplates the use of all four sites, although some alternatives or processes cannot be performed at all sites, as explained in the EIS. DOE does not expect to select the exact timing or use of the commercial and DOE sites in its ROD. It will make programmatic decisions whether surplus HEU should be blended for commercial use or for waste, and may also include decisions to proceed with disposition of one or more initial discrete batches of HEU. Decisions about where blending will occur will be based on business considerations, facilities being available when needed, transportation considerations, and

GEORGIA (AUGUSTA), AFTERNOON WORKSHOP DISCUSSION/SUMMARY SESSION

Comment	Code
alternatives. Costs should be given for all of the options and the revenues that could be generated for the Federal government. Cost information should be added to the document.	16.009 cont.
How will the commercial facilities bid against the government facilities and how would this work? How can this be a good strategy for the commercial facilities with the government facilities operating tax free, etc.?	08.008
The cost of having the commercial facilities blend down the HEU would be cheaper than the government facilities.	16.013
If avoided costs are calculated to be 7 billion dollars, why doesn't DOE store the fuel as HEU or blended LEU? Store it as HEU for long-term.	10.016
Disposal Contingencies	
What will happen storage-wise if Congress doesn't pass the Yucca Mountain legislation? What is the contingency if there is no Yucca Mountain? Will the low-level waste generated by this project be sent to Yucca Mountain? The spent fuel at Yucca Mountain with 0.9% HEU is being identified as low-level waste. There is nothing stated that the HEU from this program will go to Yucca Mountain. I am confused as to why Yucca Mountain is even mentioned. It does not seem to fall into the categories we are discussing today. The government has not delivered on the Yucca Mountain facility. Hasn't the Federal government already received money from the commercial/utility sector? Also, isn't there already enough commercial fuel to fill the repository?	14.010
Impacts	
What are the socioeconomic issues resulting from contamination of the environment from this project?	24.003
Is there any threat at the Savannah River Site to drinking water or aquifers?	22.006 cont.
In reference to the contamination of the Tuscaloosa aquifer, I have read there has been contamination of the shallow aquifers. What about possible contamination of the deep aquifers?	22.007
Is the extensive contamination that has occurred at the Hanford Site a possibility that could happen at the Savannah River Site?	22.008
Did the document address the possibility of discharges at commercial facilities?	22.009
Socioeconomic Effects	
Does DOE know who wants the fuel that would result from this project or would the fuel be shipped internationally?	06.031

competitive bidding processes. The commentor is correct that the forms and locations of some batches of HEU may militate strongly in favor of particular sites for blending.

08.008: The Department of Energy anticipates that the facilities for blending of specific batches of surplus HEU are likely to be selected on the basis of a competitive bidding process. However, policy and timeliness considerations are expected to favor distributing the blending work among multiple facilities (the preferred site variation in the HEU EIS is to make use of all four analyzed facilities). If the proposal to transfer 50 t of HEU to USEC is carried out pursuant to the ROD following this EIS, that is the process that USEC tentatively plans to use to select blenders. DOE facilities can participate in that bidding process through DOE's "work for others" program. Although, as the comment suggests, the Government facilities may enjoy certain tax advantages over the commercial facilities, it is not correct to assume that the Government can always perform work at lower cost than the private sector.

16.013: The Department of Energy is unable to confirm or deny the commentor's assertion at this time. Another commentor suggested that DOE facilities would have an unfair cost advantage due to their untaxed status. The relative costs of blending at DOE versus commercial facilities would not be known until competitive bidding for blending work takes place. In any event, selecting sites for HEU disposition actions is not expected to be part of the ROD stemming from this action.

10.016: Storage of HEU will leave the nuclear proliferation problem unaddressed and continue to incur costs in the order of $150,000 per t annually for HEU safeguards. However, blending and selling as much of the LEU derived from surplus HEU or surplus HEU for blending to LEU would save the Government additional costs required for storage as either HEU or LEU and disposal as waste. Blending and selling the surplus material would generate income to the Government. An analysis comparing the costs of HEU disposition alternatives has been prepared and made available separately from the EIS. The cost analysis indicates that commercial use of LEU derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

GEORGIA (AUGUSTA), AFTERNOON WORKSHOP DISCUSSION/SUMMARY SESSION PAGE 7 OF 8

What is the priority of concerns of the involved communities -- nuclear proliferation and contamination, or work and jobs? 17.009

A large group of participants at these public meetings are retirees who are not concerned with jobs, but we do want the resource value of the material recognized and not wasted. We know that DOE has the capabilities to deal with the HEU. Waste not, want not. 10.003

Is the marketing of the blended down fuel restricted to the United States market only? 06.031 cont.

Will this process increase the work force? With this material, it seems that it would only decrease the rate at which the jobs are presently being decreased. I often see construction jobs advertised in the paper but I do not see operation jobs for the Savannah River Site advertised. 24.004

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[1]Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

REVISED December 13, 1995

14.010: The proposed Yucca Mountain repository for spent fuel and high-level waste is not intended to be used for disposal of LLW. DOE has long operated a LLW repository at the adjacent NTS, however, and that facility may be used for disposal of LLW from non-commercial HEU. Yucca Mountain is mentioned in the HEU EIS as a possible repository for the spent fuel that would ultimately result from the use of LEU fuel derived from surplus HEU.

24.003: The HEU EIS analyzes environmental impacts of the proposed activities under normal operations and releases to the environment resulting from accidents to determine potential human health effects. In addition, the HEU EIS analyzes environmental justice impacts, taking into account impacts from normal operations and accidents. The HEU EIS also analyzes other socioeconomic impacts, although "contamination" (and any economic issues associated with "contamination") is not anticipated from normal operations.

22.007: The potential for contamination of the deep aquifers at SRS is very low because the deep aquifers (such as Tuscaloosa aquifer) are separated from the shallow and intermediate aquifers by a Paleocene aquitard. The downward flow from the shallow and intermediate aquifers to the deep aquifers (Tuscaloosa) is restricted by the clay-rich sediments of the Paleocene aquitard thus preventing downward contamination.

The Cretaceous (Tuscaloosa) aquifer is the deepest aquifer found on the site. As discussed in Section 3.4.4. of the HEU EIS, the shallow aquifers at SRS have been contaminated by industrial solvents, metals, tritium, and other constituents used or generated on the site. These aquifer are not used for SRS operations or drinking water; however, they do discharge to site streams and eventually the Savannah River. However, most of this contamination is below just a few buildings and reflects past use or is from isolated accidents that occurred in the past.

22.008: Contamination that has occurred at Hanford is the result of past practices which have since been discontinued (direct discharges to the ground and no treatment for hazardous waste streams prior to their being released to the Columbia River). As discussed in Chapter 4, water resource sections of the HEU EIS and in the waste management sections, no hazardous waste will be directly released to the ground which could percolate down to the water table or aquifer. Any liquid hazardous waste stream will be treated down to a nonhazardous level prior to being released to surface water. All discharges will be within the NPDES permit requirements before being released.

GEORGIA (AUGUSTA), AFTERNOON WORKSHOP
DISCUSSION/SUMMARY SESSION

22.009: All discharges from blending processes were evaluated for each site. It was determined that there would be no hazardous liquid waste released to the surface or groundwater. All hazardous waste would be treated prior to being released to the environment. Similarly, nonhazardous sanitary waste would also be treated prior to being released.

06.031: Low-enriched uranium fuel derived from surplus HEU is expected to be marketed on the global uranium market and to be fungible with any other nuclear fuel. It could conceivably be purchased by virtually any nuclear utility in the world. Off-spec material may need special marketing efforts and NRC license amendments for U.S. utilities to use it.

17.009: The Department of Energy has no factual basis for responding to this question. Jobs may well predominate the concerns of DOE host communities, but DOE's experience indicates they are also quite concerned about effects on their environment.

10.003: Comment noted.

24.004: The proposed alternatives would require up to 125 operation workers to implement. These workers would come from the available workforce in the SRS region. If downsizing continues, some of these labor requirements may be filled by the existing workforce. For some labor needs, however, it may be necessary to hire new workers with specialized skills.

HEU EIS PUBLIC MEETING ORAL COMMENTS
EVENING WORKSHOP
Augusta, Georgia
November 16, 1995

SESSION: Plenary

The material that is blended to waste, where would it be disposed? 14.007

If the blending factor is 14%, what is the percentage that DOE is planning to blend to waste? 02.004

Why is DOE not using the HEU as HEU? DOE can get the energy value out of the HEU if they use it as HEU. 09.007

How much of the taxpayer's money was used to enrich the HEU? Now that DOE is classifying it as surplus, the initial enrichment was a waste of my money. 16.008 How much work loss and job separations will result from this blending down project? 17.010 These questions were asked during the scoping meetings and answers have still not been received.

I am upset that the Savannah River Site has become a political football. The United States provided foreign research reactor fuel to foreign countries and now the United States is having to take it back. What is DOE going to do with all of this waste? DOE needs to look at all of the political implications and how this can be solved. How can the United States stop proliferation abroad in foreign countries? Keeping the HEU in the United States is relatively safe, but is costly. 14.008

Why doesn't the EIS address the reprocessing issue? The mind set of, "if the United States does not reprocess, no one else will," is foolish. Just because the United States does not reprocess, does not necessarily mean that other countries will not reprocess. Other countries presently have the capability to reprocess. 09.008

Why doesn't the EIS consider blending down the HEU to 20% and using it in research reactors? 09.009

In reference to the reactors that the United States presently has, how long will they be operational? 06.026

Why doesn't the EIS consider using this material to support the naval nuclear fuel program? How long would the 165 tons of HEU identified support the naval service? Isn't the enrichment of the HEU 93%? Has the HEU been burned in a reactor? Is the amount of HEU that has been burned small? If DOE ignores this amount of HEU, how long would the present stockpile of HEU available to support the naval service last? Does the EIS contain a section on proliferation parity? 09.010

[1]REVISED December 13,1995

14.007: The site for the disposal of LLW from the HEU disposition program has not been selected. Programmatic decisions about DOE management of waste materials, including LLW generated by all programs in DOE, are being made in DOE's PEIS for Waste Management. The HEU EIS analyzes disposal in the LLW facility at the Nevada Test Site (NTS) as a representative site for purposes of transportation analysis.

02.004: Of the current surplus material (175 t), it is estimated that approximately 72 t could not be commercially recovered over the next 10 to 15 years because 10 t is currently under IAEA safeguards and 62 t consists of irradiated fuel and other difficult to retrieve forms from which it may not be economical to recover the HEU. Depending on how much of that material ends up commercially usable and how much ends up being disposed of in its current form without the HEU being separated from it (that is, the irradiated fuel might be directly disposed of in a high-level waste repository), DOE estimates that 15 to 30 percent of the surplus HEU inventory may ultimately need to be blended down for disposal as waste.

09.007: Because of its high proliferation potential, it is part of the nonproliferation policy of the United States to discourage the civil use of HEU, such as in research reactors. There are no commercial reactors that use HEU. Alternative uses for HEU in weapons-usable form would not achieve the purpose and need for this program. The long-term HEU needs of the Naval Nuclear Propulsion program are being supplied from non-surplus stocks of HEU.

16.008: The cost of making nuclear weapons over the past 50 years has been very high but cannot be specified with any degree of precision. We are now reducing our nuclear stockpile, and most of that cost cannot be recovered. However, one of the objectives of the Preferred Alternative in the HEU disposition program is to maximize recovery of the value of the surplus material.

17.010: No job loss is anticipated. The socioeconomic impacts analysis in the HEU EIS suggests that modest job increases (on the order of 125 jobs) could result from the proposed actions at each involved site. At DOE sites, which are already experiencing significant job losses, these impacts are more likely to be counted in terms of "jobs not lost" rather than as new positions.

GEORGIA (AUGUSTA), EVENING WORKSHOP
PLENARY SESSION
PAGE 2 OF 4

I love the idea of working for nonproliferation by setting a good example, but it is useless. If other countries are reprocessing then it is okay in a parity sense. Are the Russians behind our schedule in blending down their HEU? Is the Russian HEU under International Atomic Energy Agency (IAEA) inspection? Does the United States have to pay to move the Russian HEU? It may not be a good decision to declare the Russian HEU to be under IAEA inspection. Why does the United States have to pay for the IAEA inspections, whereas Russia doesn't? 03.013

Why are the 50 tons of Russian HEU being transferred to USEC? Why doesn't the EIS discuss the role being played by USEC, including the fact that they provide a market for LEU obtained from Russia? 06.027

Why doesn't Russia sell their HEU to Russian corporations and further disperse the HEU throughout Russia? 06.028

There is an area in the EIS that ties together blending down and storing the HEU in the future. Is there somewhere in the EIS that ties together cost analysis and storage? DOE needs to provide cost data on continued storage of HEU for various time frames. 16.009

DOE needs to clarify that no additional spent fuel is created as a result of this project. 14.009

Will DOE sell the blended down material at market value? The government has had some strange practices in the past, so I just wanted some clarification on the this issue. Will DOE get a fair full market price on the blended down fuel? DOE needs to further clarify whether all the material that is blended to fuel will be sold at fair market value. 04.008

Why is there no discussion on future shipments of HEU that are coming back to the United States from the foreign research reactors? Why is this project proceeding so rapidly when the foreign research reactor material has been around for years and still nothing is being done about it? 06.029

[1]Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

14.008: Your comment about foreign research reactor spent fuel is being forwarded to the DOE Office of Environmental Management, which recently published a final EIS on a *Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel* (DOE/EIS-0218F, February 1996). The HEU disposition program is part of U.S. efforts to curtail global nuclear proliferation. By making surplus stockpiles of HEU non-weapons-usable, the program seeks to ensure that these materials will never be returned to weapons use.

09.008: Except to the extent that reprocessing of spent fuel from the weapons program or research programs for other reasons might result in the creation of additional separated HEU, it is unnecessary to consider spent fuel reprocessing in the context of disposition of surplus HEU. The prospect for commercial nuclear fuel reprocessing, such as occurs in some other countries, is not related to HEU disposition, since HEU is not used in commercial reactor fuel.

09.009: There is a large market for LEU in the 4- to 5-percent enrichment range, but little or none for 19-percent LEU.

06.026: The length of operation of U.S. reactors is not expected to be affected by the surplus HEU disposition program. Reactors are licensed in the United States for a period of 40 years, with the possibility of license renewal for additional 20-year terms. It is expected that some plants will get their licenses renewed, some will close before their 40-year license expires, and some will close at the end of their 40-year license period. Even without any license renewals, there is expected to be more than sufficient reactor operation to make use of LEU fuel derived from surplus HEU.

09.010: Very little of the inventory of surplus HEU would be suitable for naval nuclear propulsion purposes. The average enrichment of the surplus HEU considered for disposition in the document is 50 percent and very little is in the 93-percent range used for naval fuel. Some of the surplus HEU is contained in irradiated fuel (the total quantity remains classified, although the Secretary's February 1996 *Openness Initiative* announcement revealed that at least 18 t is in this form). Irradiated fuel would not follow the disposition paths described in this EIS unless it were processed to separate the HEU for other reasons outside the HEU disposition program (such as for stabilization for storage or disposal). Information about stockpiles and fuel use rates for naval nuclear propulsion is classified. Proliferation parity is not within the scope of a NEPA EIS.

03.013: The U.S.-Russian HEU agreement is not part of the domestic HEU disposition program that is the subject of this EIS, although it is related in terms of cumulative impacts on the uranium industry and in terms of reciprocity—the proposed U.S. program is reciprocal to the Russian program to sell 500 t of its weapons-usable HEU. The Russian HEU is being managed by USEC acting as executive agent for the United States. The Russian HEU is being blended to LEU in Russia and is under IAEA inspection to ensure that it is not reconverted to weapons use.

06.027: Under the current proposal, if the ROD is published consistent with the Preferred Alternative presented in the HEU Final EIS (to maximize commercial use), it may include a decision to transfer title to the 50 t of surplus (U.S., not Russian) HEU to USEC. This is planned to increase the value of USEC and thus the proceeds to the Federal Treasury from the sale of USEC. As explained in the HEU Final EIS, until recently, USEC was the only marketing agent for the sale of DOE enriched uranium, including that derived from surplus HEU, pursuant to the *Energy Policy Act* of 1992. USEC also acts as the executive agent of the United States with respect to the U.S.-Russian HEU agreement. The *USEC Privatization Act*, signed by the President on April 26, 1996, eliminates the restriction on direct DOE marketing of uranium and authorizes the proposed transfer of 50 t of HEU to USEC (Section 3112(c) of P.L. 104-134).

06.028: The purpose of the U.S.-Russian HEU agreement is to prevent Russian surplus HEU from entering world commerce in weapons-usable form by providing for it to be blended down to non-weapons-usable LEU and then sold in the United States (or other allied nations) for commercial use.

16.009: Cost estimates for the alternatives analyzed in the HEU EIS have been developed for inclusion into the ROD(s) and are available in a separate document with the HEU Final EIS. The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

14.009: The HEU EIS notes in Section 1.4.2 that no additional spent fuel would be generated as a result of this program.

GEORGIA (AUGUSTA), EVENING WORKSHOP
PLENARY SESSION
PAGE 4 OF 4

04.008: The Department of Energy fully expects that commercial grade LEU fuel derived from surplus HEU will be sold at full market value. Off-spec material, to the extent that it can be sold for commercial use, will probably have to be discounted.

06.029: The foreign research reactor spent fuel program is not connected with the domestic HEU disposition program and has its own EIS (*Final Environmental Impact Statement for Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel*, DOE/EIS-0218F, February 1996).

HEU EIS PUBLIC MEETING ORAL COMMENTS
EVENING WORKSHOP
Augusta, Georgia
November 16, 1995

SESSION: Discussion/Summary

OPEN DISCUSSION

I support maximum commercial use of the blended down fuel. The United States will reduce waste and be able to reap the benefits. The advantages to blending down are:
- it solves the nonproliferation problem
- removes weapons-grade material
- provides economic benefits to the United States
- alleviates by-products

The HEU can be blended down safely and DOE has the technology available to perform this operation. I want to express my support to blend down the HEU to LEU. 10.003

What other alternative uses are there for HEU, besides weapons and reactor fuel? Can HEU be used in the triple play reactor, in any of the advanced light water reactors, or by the naval reactors? The advantages of using HEU rather than LEU as a reactor fuel has not been addressed in the EIS. Are the only uses for HEU in the naval fleet or reactors? 06.030

Since the material is being securely stored now, why are we considering moving it around and putting it in the hands of commercial operators where its security could be jeopardized? 15.002

What is the cost of getting the material blended down? Has DOE performed any cost analysis for this project? What are the security costs for the material being stored? What is the cost of working with our HEU and the cost of storage? I think DOE should work with the international HEU first to get it out of their countries. 16.010

The United States needs to keep in mind the problem with international terrorism and bombs. How does the United States plan to keep the Russians from selling the blended down fuel to others countries that could use it against us? How secure is our nation against possible actions of this nature? I understand the United States is trying to set an example. My concern is the example that Congress sets. The countries that were formerly the Soviet Union are putting the HEU out in their private enterprise. With this being the case, how will the United States be secure? DOE needs to look at the potential misuse of the fuel internationally. If Russia has tight control, the United States needs to have tight control. Russia could get more money for the blended down fuel by placing it in the international market. How does the United States deal with the fuel in the foreign markets? I do not see how the example the United States is trying to set 15.003

REVISED December 13, 1995
REVISED December 13,1995

10.003: Comment noted.

06.030: Because of its high proliferation potential, it is part of the nonproliferation policy of the United States to discourage the civil use of HEU such as in research reactors. The Office of Fissile Materials Disposition has been given the job of making weapons-usable fissile materials non-weapons-usable, so the office has not been seeking alternative uses for those materials in their weapons-usable forms. A considerable portion of the high-quality HEU being removed from nuclear weapons is, in fact, being retained in the strategic stockpile for use as a long-term fuel supply for the Naval Nuclear Propulsion program.

15.002: The Department of Energy does not contemplate putting material into the hands of anybody in a manner that would constitute a security threat. The same commercial entities that might take part in the HEU disposition program have securely stored and processed HEU on the Government's behalf to make fuel for the Naval Nuclear Propulsion program for decades.

16.010: Cost estimates for the alternatives analyzed in the HEU EIS have been developed for inclusion into the ROD(s) and are available in a separate document with the HEU Final EIS. The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste. The cost of safeguarding HEU is about $150,000 per t per year.

15.003: Because LEU blended down from HEU is not weapons-usable, it could not be "used against us" militarily. This comment relates to nonproliferation foreign policy issues beyond the scope of the HEU Final EIS. It is being referred to DOE's Office of Nonproliferation and National Security.

GEORGIA (AUGUSTA), EVENING WORKSHOP DISCUSSION/SUMMARY SESSION PAGE 2 OF 4

will help change the future. A good example may not be very good because Russia does not have the controls to safeguard the material as the United States has. The President is treating the HEU issue very light heartedly with the stroke of a pen. The United States needs to realize that Russia could make the HEU a national asset to make more money. The United States needs to place the Central Intelligence Agency (CIA) in Russia to watch the material and see where it is going. The United States needs to get their head out of the clouds and quit thinking that the United States can set an example. 15.003 cont.

DOE should have planned for the foreign research reactor HEU and the HEU returning to the United States. 28.001

The International Atomic Energy Agency (IAEA) is not concerned with the storage of commercial fuel because it is low enriched uranium. 03.015

Is the cost of storing the HEU high? During the discussion tonight, we keep coming back to the cost issue. Can the public get a commitment from DOE to get the cost analysis before preparing the final EIS? Could the comment period for the EIS be prolonged in order to receive this information before the comment period ends? How can citizens get a copy of the cost documentation for this project before the close of the comment period? What would DOE lose if the EIS is delayed? Is the 50 metric tons going to USEC equate to real money? 16.011 16.009 16.011 cont.

The compartmentalization of DOE documents places limits on the scope of public comments. 32.011

There is no evaluation of the impacts of the higher level decisions in the EIS, such as policy decisions, setting a good example, and nonproliferation. Everything we (the public) have talked about tonight is out of the scope of this EIS. 17.005

There is an advantage to having an HEU reactor that does not produce plutonium.

The cost of storing the HEU from now until the end of time does not even approach the blend down costs. Why shouldn't we store the HEU forever? When (timeframe-wise) would the cost of storing equal the cost of blending down? It would be cheaper to store the HEU. DOE can not see into the future to make sure that the United States will not need the HEU later. Also, it is expensive to make HEU. 16.011 cont.

Why shouldn't the United States make some money for the treasury by blending down to fuel and then selling?

The people that made the decision on what should be surplused, are they members of this Administration? 02.005

28.001: The Department of Energy and Department of State jointly proposed (in the *Final Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel,* DOE/EIS-0218F, February 1996) to adopt a policy to manage spent nuclear fuel from foreign research reactors to promote U.S. nuclear weapons nonproliferation policy objectives. The purpose is to remove as much U.S.-origin HEU as possible from international commerce while giving the foreign research reactor operators and their host countries time to convert to operation with LEU fuel and to make their own arrangements for disposition of subsequently generated LEU spent nuclear fuel. Because the foreign research reactor spent nuclear fuel program is outside the scope of the HEU EIS, this comment is being forwarded to DOE's Office of Environmental Management, which manages that program.

03.015: The commentor is correct that the IAEA is generally not concerned with non-weapons-usable materials such as LEU.

16.011: The Department of Energy estimates that the cost of safeguards alone is about $150,000 per t of HEU per year. Storing HEU indefinitely is represented by Alternative 1, the No Action Alternative, in the HEU EIS. Pursuing that course of action would not serve the purpose and need for this action, which is to reduce proliferation potential by making surplus HEU non-weapons-usable and to recover the value of the material to the maximum extent.

16.009: Cost estimates for the alternatives analyzed in the HEU EIS have been developed for inclusion into the ROD(s) and are available in a separate document with the HEU Final EIS. The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

32.011: The Department of Energy recognizes the programmatic relationship of surplus highly enriched uranium disposition to other DOE actions and decisions. The HEU EIS identifies the other NEPA actions that are related to its scope in Section 1.5.3.

In order to adequately assess the potential impacts that could result from proposed DOE actions, it is necessary to narrow the scope of the document to address the specific activi-

GEORGIA (AUGUSTA), EVENING WORKSHOP DISCUSSION/SUMMARY SESSION PAGE 3 OF 4

Why was the specification of 0.9% uranium-235 for waste chosen? If DOE placed controls on the blended down fuel, could a higher percentage be used? What are the current and proposed blend down percentages of the waste stored at the Nevada Test Site? Why didn't DOE use 0.9% HEU as a target for blend down?	33.002
Does the value of USEC, when privatized, represent real money for the treasury?	06.023
How can we (the public) change the direction the nuclear program is going?	
How is the Russian HEU going to be used, once our government purchases it?	17.006
Can fusion reactors use HEU?	06.030 cont.
How could the United States becoming a part of the market be a problem? It seems that the government will be competing with the commercial sector. Is this aspect covered in the EIS? Is the blended down fuel going to be dumped on the market slowly?	17.007
Will this process (blend down) use the cascades as opposed to the centrifuge?	07.007

[1]Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

REVISED December 13, 1995

ties being proposed. However, in Section 4.6 of the HEU EIS the cumulative relationship of impacts resulting from this specific action is assessed considering the wide-ranging view of DOE's programs, environmental management, and other outside interactions.

17.005: The HEU EIS discusses these programmatic issues in Chapter 1, particularly in Section 1.4.2, which describes the Preferred Alternative and the policy reasons it is preferred. Among the alternatives considered, only Alternative 1 does not satisfy the purpose and need for this action, because it leaves the HEU in weapons-usable form and sets a bad example for other nations. DOE considers Alternatives 2 through 5, which represent blending different portions of the surplus HEU to waste or fuel, as roughly equivalent in terms of proliferation potential, and much more proliferation resistant than the HEU in its present form.

02.005: The President of the United States determines what material is reserved for national defense and what is surplus, based on the recommendations of the Nuclear Weapons Council, which includes representatives of the Department of Defense, the Department of Energy, and the Joint Chiefs of Staff.

33.002: The representative enrichment level of 0.9 percent (used for analytical purposes) was selected for material destined for waste disposal based on experience in both the United States and Europe where waste has been disposed of at slightly greater than 1-percent U-235. This enrichment level assures that an inadvertent criticality would not occur. It is possible that uranium at higher enrichment levels could be disposed of (the LLW facility at NTS has accepted 1.25-percent enriched uranium in the past), but the lower level was selected for purposes of conservatism in the HEU EIS analysis. Blending to an enrichment level less than 0.9 percent would substantially increase the amount of waste product and cost of blending (for example, blending to a natural uranium state of 0.7 percent would increase the waste volume by 40 percent) without any incremental criticality protection. The actual percentage of blend down will be determined by the waste acceptance criteria of the selected waste disposal site.

06.023: The proceeds from the sale of USEC to the private sector will be real.

GEORGIA (AUGUSTA), EVENING WORKSHOP
DISCUSSION/SUMMARY SESSION
PAGE 4 OF 4

17.006: The Russian HEU is not part of the domestic HEU disposition program analyzed in the HEU EIS, although the impacts on the uranium industry from that action are considered as cumulative impacts in Section 4.8 of the HEU EIS. The LEU derived from Russian HEU is gradually going to be sold (by USEC) in the global uranium market for use in nuclear reactors.

17.007: The Department of Energy expects to be required to ensure that its sales of uranium will have no adverse material impact on the domestic uranium industry, taking into account the purchases of Russian LEU fuel derived from surplus HEU. This restriction, and the physical ability of DOE to make the material available for blending, will cause the material to be introduced into the market on a gradual basis.

07.007: While the enrichment cascades at the Portsmouth and Paducah Gaseous Diffusion Plants could be used to blend HEU in the form of UF_6, the overwhelming majority of the surplus HEU stockpile is in the form of metal or oxides rather than UF_6. The cascades at Portsmouth are currently being used to blend 13 t of HEU that is in the form of UF_6 and that was transferred to the USEC pursuant to the *Energy Policy Act* of 1992. The cascades are unlikely to be used for other blending activities. None of the analyzed blending facilities (nor any other current U.S. facilities) use centrifuge technology.

GILAND, CLIFF, ERWIN, TX
PAGE 1 OF 1

Date Received:	11/20/95
Comment ID:	P0019
Name:	Cliff Giland
Address:	Erwin, TN

Transcription:

This is Cliff Giland, Erwin, Tennessee. I'd like to comment on the prospects of reopening the nuclear plant here in Erwin, and personally, I think it would be a very good idea. There have been a great many people laid off, lost there jobs. Some of them lost their homes and such, and I think it would be an excellent idea for Nuclear Fuels Services here in Erwin to get the contract to process the uranium coming from those bombs that we're scrapping. Okay. Thank you. 10.003

10.003: Comment noted.

GOERGEN, CHARLES R., AIKEN, SC
PAGE 1 OF 1

November 16, 1995

Disposition of Surplus Highly Enriched Uranium EIS Public Comment
Charles R. Goergen
510 Boardman Road
Aiken, SC 29803

I am providing this comment to support the option of maximum commercial use. I urge the Department to make maximum economic advantage of all surplus Highly Enriched Uranium (HEU) by isotopic dilution to Low Enriched Uranium (LEU) and sale to commercial users. Conversion of the maximum amount of available scrap material will reduce waste of this resource and unnecessary environmental impacts. I see this as a prime method of reaping the economic "peace dividend" from cessation of the Cold War.

Significant advantages to this approach are:

- The HEU will be converted to LEU and is not able to be used directly in a nuclear weapon, thus solving a non-proliferation concern.
- The dilution permanently removes the material from the potential weapons-usable inventory and is an internationally demonstrable action of reducing the weapons stockpile.
- The United States taxpayers will realize the maximum economic benefit of invested separative work units (SWUs) expended to produce this material.
- Isotopic dilution of the material will consume considerable depleted uranium byproduct, converting it also to a usable form and thereby remediating two categories of material concern.
- Security and storage criticality concerns for the material will be concomitantly reduced with the isotopic dilution.

10.003

I disagree with opposing viewpoints that dilution and sale would result in encouragement of the nuclear power industry. Recognize the fact that greater than 20% of the United States electrical power supply is generated by nuclear power. Regardless of the disposition of this material, commercial fuel will be produced to fuel current reactors.

13.001

This material can be utilized to further provide a secure energy source with less environmental impact than fossil fuels. I also consider that conversion of this material to low-level waste for disposal to be a grievous waste of national assets.

I work in a facility that is a candidate for blending of this material. I know that it can be processed in an environmentally safe and sound manner with low risk to the public and workers. The technology, experience, and capacity exists to accomplish this task safely.

10.003
cont

10.003: Comment noted.

13.001: The Department of Energy agrees that the proposed HEU disposition program would have a neutral effect on the nuclear power industry.

COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W Schmidt
Director

P O Box 10009
Richmond, Virginia 23240-0009
(804) 762-4000

January 11, 1996

U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, D.C. 20026-3786

To Whom It May Concern:

This is in response to your request for comments on the Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. The following locality and agencies participated in this review:

Department of Environmental Quality;
Department of Health;
Department of Historic Resources;
Department of Transportation;
Virginia State Police;
Campbell County; and
City of Lynchburg.

In addition, the Department of Game and Inland Fisheries, Department of Emergency Services and the Central Virginia Planning District Commission were invited to comment through the Department of Environmental Quality.

The document assesses the environmental impacts at four sites that may result from alternatives for the disposition of United States-origin weapons-usable highly enriched uranium (HEU) that has been or may be declared surplus to national defense or defense related program needs. In addition to the no action alternative, it assesses four alternatives that would eliminate the weapons usability of HEU by blending it with depleted uranium, natural uranium, or low-enriched uranium (LEU) to create LEU, either as commercial reactor feedstock or as low level radioactive waste. The potential blending sites are the Y-12

629 East Main Street, Richmond, Virginia 23219 - Fax (804) 762-4500 - TDD (804) 762 4021

GRANTS MANAGEMENT AND INTERGOVERNMENTAL AFFAIRS, RICHMOND, VA
PAGE 2 OF 9

HEU EIS
Page Two

Plant in Oak Ridge, Tennessee; the Savannah River site in Aiken, South Carolina; the Babcock & Wilcox Naval Nuclear Fuel Division Facility in Lynchburg, Virginia; and the Fuel Services Fuel Fabrication Plant in Erwin, Tennessee. The preferred alternative is to blend down surplus HEU to LEU for maximum commercial use as reactor fuel feed which would likely be done at a combination of sites.

The Commonwealth offers the following comments:

Any transportation of wastes through Virginia should be preceded with advance notification to the Department of Emergency Services and the affected localities so that adequate safety precautions may be taken. As previously requested, the localities should be notified directly in advance of any notification to the news media. 20.011

The City of Lynchburg and Campbell County have no objections to the proposed project.

The Department of Environmental Quality will coordinate the Commonwealth's review and response on the final environmental impact statement for this proposal. Correspondence should be addressed to: Director, Office of Environmental Impact Review, Department of Environmental Quality, P. O. Box 10009, 629 East Main Street, Richmond, Virginia 23240-0009.

Thank you for this opportunity to comment on the draft document. The comments of the reviewers are attached for your review and consideration. If you need further information, please contact Tom Felvey, (804) 698-4315, of my staff.

Sincerely,

Michael P. Murphy
Director, Grants Management
and Intergovernmental Affairs

cc: Barry K. Martin, City of Lynchburg
R. David Laurrell, Campbell County
Leslie Foldesi, VDH-BRH
Perry C. Cogburn, VDOT
Lt. Herbert Bridges, VSP
David H. Dutton, DHR
Robert Wickline, DEQ-Waste
Brian Iverson, VDES

20.011: Under Federal hazardous material transportation law, prior motification to states is required for shipments of spent nuclear and high-level waste, but not for shipments of LLW (P.L. 101-615).

If you cannot meet the deadline, please notify ELLIE IRONS at 804/762-4325, THOMAS H. FELVEY at 804/762-4315, or R. THOMAS GRIFFIN AT 804/762-4337 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

**DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/762-4319**

Rec'd/Dept. Environmental Quality
DEC 6 1995
Public & Inter-governmental Affairs

Thomas M. Felvey /tf
Environmental Technical Services Administrator

COMMENTS

I have no comments to offer regarding this project.

(signed) Leslie P. Foldesi
Leslie P. Foldesi, M.S., CHP (date) December 4, 1995

(title) Director, Bureau of Radiological Health

(agency) Department of Health

PROJECT #95-137F 8/95

GRANTS MANAGEMENT AND INTERGOVERNMENTAL AFFAIRS, RICHMOND, VA
PAGE 4 OF 9

Rec'd. by Dept. of Environmental Quality

NOV 21 1995

Public & Inter-governmental Affairs

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-1939

DAVID R. GEHR
COMMISSIONER

A. V. BAILEY, II
MAINTENANCE ENGINEER

November 17, 1995

Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219
Attn: Thomas Felvey

RE: Project # 95-137F Disposition of Surplus Highly Enriched Uranium

I have reviewed the "Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement" written by the U. S. Department of Energy for it's potential impact on the transportation infrastructure for the Commonwealth of Virginia. This review only involves transportation related issues and does not determine the merit of the proposed blending of highly enriched uranium(HEU) with uranium-238 to negate the nuclear weapon capability of the HEU.

One of the potential blending sites is the Babcock & Wilcox Company located in Lynchburg, Virginia. The facility currently purifies and recovers approximately 24 tons a year of HEU. According to the draft environmental impact statement, about 10 tons a year of HEU would be blended at this site over the next 20 years to reduce the surplus of HEU from various military installations located across the United States. This equates to between 100 and 150 additional tractor-trailer shipments to the facility a year. These shipments would be made in Department of Energy owned and operated vehicles. There would also be shipments from the facility of the processed low enriched uranium along with a percentage of low level radioactive waste.

Since the Babcock & Wilcox Company is already in the radioactive processing business and the addition of another 150 trucks over a years time should have little impact on the transportation infrastructure in the Lynchburg area, the Virginia Department of Transportation is not opposed to the Babcock & Wilcox Company being a blending site for HEU. 23.001

Should you have any questions concerning this matter, please call me at (804) 786-6824.

Sincerely,

Perry E. Cogburn

Perry E. Cogburn
Environmental Program Planner

cc:
A. V. Bailey, II
S. M. Moodal

23.001: Comment noted.

If you cannot meet the deadline, please notify ELLIE IRONS at 804/762-4325, THOMAS M. FELVEY at 804/762-4315, or R. THOMAS GRIFFIN AT 804/762-4337 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.

Please return your comments to:

DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/762-4319

Rec'd by Dept. of Environmental Quality
NOV 27 1995
Public & Intergovernmental Affairs

Thomas M. Felvey
Environmental Technical Services Administrator

COMMENTS

appears complete and thorough. | 23.001 cont.

(signed) ________ (date) 11-20-95

(title) Lieutenant

(agency) Virginia State Police

PROJECT #95-137F — 8/95

GRANTS MANAGEMENT AND INTERGOVERNMENTAL AFFAIRS, RICHMOND, VA
PAGE 6 OF 9

H. Alexander Wise, Jr., Director

COMMONWEALTH *of* VIRGINIA

Department of Historic Resources

221 Governor Street
Richmond, Virginia 23219

Rec'd. by Dept. of
Environmental Quality

DEC 18 1995

Public & Inter-
Governmental Affairs

13 December 1995

Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, D.C. 20026-3786

Re: Draft Environmental Impact Statement
"Disposition of Surplus Highly Enriched Uranium"
Campbell County, Virginia
DHR file no. 95-2117

Dear Sirs:

Thank you for requesting our comments on the draft EIS "Disposition of Surplus Highly Enriched Uranium." The existing Babcock & Wilcox facility in Campbell County, Virginia, will be used in the process.

Because the undertaking will involve no new construction or ground-disturbing activities, and because the undertaking will use a facility that is already involved in the processing of nuclear fuels, we have determined that the undertaking will have no effect on historic resources.

Thank you for the opportunity to comment on this project. You have met the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended. Please contact Cara H. Metz or John E. Wells at this office if you have questions about our comments.

23.001 cont.

Sincerely,

David H. Dutton

David H. Dutton
Director, Division of Project Review

c: VaDEQ

TELEPHONE: (804) 786-3143 TDD: (804) 786-1934 FAX: (804) 225-4261

An Equal Opportunity Agency

If you cannot meet the deadline, please notify ELLIE IRONS at 804/762-4325, THOMAS M. FELVEY at 804/762-4315, or R. THOMAS GRIFFIN AT 804/762-4337 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

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DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/762-4319

Rec'd. By Environmental
NOV 17 1995
Public & Inter-governmental Affairs

Thomas M. Felvey / [signature]
Environmental Technical Services Administrator

COMMENTS

RECOMMEND APPROVAL

BRINGS NEW BUSINESS AND JOBS TO VA.
PROGRAM IN INTEREST OF INTERNATIONAL PEACE AND MINIMIZATION OF NUCLEAR WEAPONS.
IF THERE IS AN ACCIDENT THERE IS INCREASED HEALTH RISK, BUT CHANCE OF ACCIDENT IS VERY SMALL.
COMPANY IS UNIQUELY QUALIFIED FOR JOB AND A GOOD CITIZEN.

23.001 cont.

(signed) Robert [signature] (date) ~~[illegible]~~ 16-95
(title) ~~[illegible]~~ Office of Technical Assistance
(agency) VDEQ

PROJECT #95-137F 8/95

Grants Management and Intergovernmental Affairs, Richmond, VA
Page 8 of 9

If you cannot meet the deadline, please notify ELLIE IRONS at 804/762-4325, THOMAS M. FELVEY at 804/762-4315, or R. THOMAS GRIFFIN AT 804/762-4337 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

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DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/762-4319

Thomas M. Felvey /lf
Environmental Technical
Services Administrator

COMMENTS

The City of Lynchburg has reviewed the Federal "Environmental Impact Statement" regarding the "Disposition of Surplus Highly Enriched Uranium" and made several inquiries with the Department of Emergency Services for the State of Virginia concerning this matter. As well, Lynchburg has conversed with Babcock and Wilcox (B&W) regarding their possible participation in the "Disposition of Surplus Highly Enriched Uranium" project. Lynchburg has concluded that B&W's involvement with this project offers no apparent additional risk environmentally or otherwise to this area. The City of Lynchburg does not take any exceptions to this project. 23.001 cont.

(signed) Barry K. Martin (date) 11/27/95

(title) Emergency Preparedness Deputy Coordinator

(agency) City of Lynchburg

PROJECT #95-137F 8/95

GRANTS MANAGEMENT AND INTERGOVERNMENTAL AFFAIRS, RICHMOND, VA
PAGE 9 OF 9

If you cannot meet the deadline, please notify ELLIE IRONS at 804/762-4325, THOMAS M. FELVEY at 804/762-4315, or R. THOMAS GRIFFIN AT 804/762-4337 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.

Please return your comments to:

DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/762-4319

Rec'd. by Dept. of
Environmental Quality

NOV 21 1995

Public & Inter-
governmental Affairs

Thomas M. Felvey
Environmental Technical
Services Administrator

COMMENTS

There is no apparent objection to the proposed project.

(signed) ______________________ (date) November 20, 1995

(title) County Administrator

(agency) Campbell County

PROJECT #95-137F   8/95

HARRIS, TERESA, UNICOI COUNTY, TN
PAGE 1 OF 1

Date Received: 11/15/95
Comment ID: P0012
Name: Teresa Harris
Address: No Address Given

Transcription:

This is Teresa Harris. I'm an employee who was laid off at NFS two years ago. My husband Robert also was laid off at the same time. We have three small children and had just built a new home when we were laid off. We're hoping the government will look close and hard at the project for NFS. We know that they can do the work. He had fourteen years in and I had thirteen years in operations. The economy of Unicoi County suffered a whole lot when NFS laid off. Thank you. Teresa Harris. 10.003

10.003: Comment noted.

Date Received: 01/16/96
Comment ID: P0067
Name: Jean Hawkinson
Address: Minneapolis, Minnesota

Transcription:

This is Jean Hawkinson calling from Minneapolis, Minnesota. I'm calling regarding making uranium into reactor fuel. I am much opposed to that. I do not support making the uranium into reactor fuel. 10.024

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

HEDGEPETH, DAVID, LOGAN, UT
PAGE 1 OF 2

TO: Department of Energy
FROM: David Hedgepeth
DATE: January 16, 1996
RE: HEU EIS

I do not support making highly enriched uranium into nuclear reactor fuel for the following reasons:

* it will create spent nuclear fuel for which we have no solution. 10.024
* as part of that waste product, plutonium will be created, a material that jeopardizes our nonproliferation goals.
* all options have not been explored, including storing down blended uranium. 09.018
* the financial analysis is incomplete or nonexistent, despite the fact that citizens have requested one for almost two years. 16.015

I do support:

* down blending all HEU. 10.023
* international controls on HEU. 03.020
* safe storage of HEU prior to its down blending. 10.032

Thank you for your consideration.

David Hedgepeth
1160 Fox Farm Rd
Logan, UT 84321

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

16.015: Cost estimates for the alternatives analyzed in the HEU EIS have been developed to provide the decisionmaker, DOE, comprehensive information upon which to make decisions. The cost analysis, which has been provided to this commentor and all others who have expressed an interest in this subject, is available in a separate document with the HEU Final EIS. It supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

10.032: The Department of Energy is committed to safely storing surplus HEU pending its ultimate disposition.

Heineman, Mary Ellen, Waverly, TN

Page 1 of 1

Honored Sirs: Jan. 2, 1996

Radioactive waste is a huge problem, so ... don't make Highly Enriched Uranium to reactor fuel. It would also create plutonium, one of the most dangerous substances. | 10.024

But

Downblend so it can't be used as fuel or weapons. | 10.023

Then please plan how to down-blend all uranium. | 02.008

Work for international controls and a non-nuclear world. | 03.020

Thank you for your attention. We have had enough cancer and other ills caused by nuclear radiation, so don't exacerbate our problems by turning HEU into reactor fuel.

Yours sincerely,

Mary Ellen Heineman
320 W. Main #17
Waverly, TN 37185

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

02.008: At this time, DOE is authorized only to determine the ultimate disposition of HEU that has been declared surplus to national security needs by the President. To date, 175 t of HEU have been so declared. The HEU Final EIS considers the disposition of that quantity plus an additional 25 t (not yet identified) that may be declared surplus in the future.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

HENRY, R.N., IDAHO FALLS, ID
PAGE 1 OF 8

To: Office of Fissile Materials Disposition

From: R. N. Henry
5665 S. 5th W.
Idaho Falls Idaho 83404

Subject: Comments On HEU PEIS

Attached are my written comments on The Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement. Resolutions to these comments can be sent to the above address.

HENRY, R.N., IDAHO FALLS, ID
PAGE 2 OF 8

	Document Location	Comment/Issue:	Proposed Resolution:	
1	Page 1-2; Section 1.1.1	What types and forms of HEU are included in the 200 MT? Are different types of HEU SNF included in this inventory?	Describe the general contents of the excess inventory by material type e.g., SNF, metal logs, oxide, etc.	33.001
2	Page 1-3; second paragraph	The statement that 15% of the HEU inventory can only be disposed of as waste, appears to be an assumption that is stated as fact. Why is it "waste" If this is an assumption, then other HEU management options are needed	Identify the specific U isotopes that make this 15% inventory unacceptable and discuss why it is "unacceptable"? Is it reactor physics or radiation exposure during fuel fabrication? How unacceptable is "off-spec" post cold war LEU if the price is right?	33.004
			Develop "customer driven" post cold war LEU spec. Evaluate blending all HEU to dilute unwanted isotopes, then dilute unwanted isotopes again via conversion to LEU. Compare results with new "post cold war" LEU spec	
			Since USEC is planning on utilizing AVLIS technology in the near future, evaluate an option to store this 15% HEU until AVLIS experience can be made available to isotopically purify the U-235	
			Evaluate use of this 15% HEU inventory in Pu disposal via MOX fuel fabrication	
			Identify where the 15% non-commercial HEU is located and determine if there is a more optimal dilution location that would avoid shipping HEU to east coast locations and then back across the country to a western waste disposal site (e.g., NTS).	
			Evaluate the possibility of diluting this non-commercial HEU to <20% and trading it to another country (that has the resources to make it useful) for an equal amount of LEU that we can use or simply pay them to process it.	
3	Page 1-4, Section 1.3	It is not clear from this discussion why the western locations/facilities were not evaluated for the dilution missions e.g., INEL Hanford. These sites are "reasonable" and would provide a better envelop for post ROD optimization of blending.	Expand discussion to address use of INEL and Hanford facilities. These newer "second-generation" facilities provide significant safety features that are not available at SRS and OR and also provide additional processing capacity	09.016

33.001: Forms of surplus HEU are mainly metal, compounds, solutions, oxides, irradiated fuel, reactor fuel, UF_6, scrap, and material in weapons that have been retired but have not been transferred to Pantex for disassembly. Surplus HEU is currently located at 10 DOE sites around the country and is shown in Figure 1.3–1 of the HEU Final EIS.

33.004: As described in Chapter 1 of the HEU Final EIS, approximately 62 t of the currently declared surplus HEU (165 t) may not be available for commercial use because it consists of spent fuel and material with very high ratios of undesirable isotopes (U-232, U-234, and U-236) relative to the U-235 isotope. Therefore, this material would need to be disposed of as waste. U-234, which is one of the two main undesirable isotopes, is the major contributor to radiation exposure and the other, U-236, inhibits the nuclear reaction in reactor cores.

The LEU specifications for commercial reactor fuel are currently set by American Society for Testing Materials to meet commercial reactor fuel feed requirements. A portion of the currently declared surplus HEU inventory (about 20 t) is being considered as off-spec material because it would not meet the American Society for Testing Materials standards when blended down. If buyers are found that would accept some portion of the non-commercial HEU inventory despite its isotopic composition then more of the surplus HEU inventory may be used as commercial fuel material or off-spec material. Some of this HEU could be used later for mixed oxide fuel fabrication, but DOE believes that there is no reason to reserve it for that purpose. Once surplus HEU is blended down to commercial-grade LEU, it is fungible with any other commercial-grade LEU. The use of off-spec material for mixed oxide fuel fabrication is unknown at this time.

Evaluation of new technologies and processes were not included within the scope of this EIS. Similarly, conversion and blending down of the non-commercial material for further potential use in the Atomic Vapor Laser Isotope Separation program was also excluded from the scope because the Atomic Vapor Laser Isotope Separation program is not currently funded and, therefore, DOE cannot plan and make decisions on programs or technologies that may never be developed.

Details on the specific location of the surplus non-commercial HEU is partially classified and could not be included in this EIS due to national security reasons. However, DOE evaluated transportation of surplus HEU between existing sites for blending and fuel fabrication, and a representative site for waste disposal (NTS is only a representative site for waste disposal since no LLW disposal site has currently been identified for the material).

HENRY, R.N., IDAHO FALLS, ID

	Document Location	Comment/Issue:	Proposed Resolution:	
			Provide a map of the 11 HEU storage locations and their inventories (current and future) and all candidate dilution sites. Identify impacts of transportation strategies with and without a western dilution locations.	09.016 cont.
			Compare throughputs and operating costs for all (western and those currently identified) candidate sites. At least mention that there are other facilities that may be used to optimize the blending process which would be covered by a supplement to the EIS	
4	Page 1-4, Section 1.3	Evaluate the possibility of converting aqueous LEU to U3-O8 via ICPP resources (fluidized bed denitration)	Conduct a preliminary feasibility study to estimate processing rates and capabilities. Mention this capability as an option in the PEIS suggest it would be covered by a supplement to the EIS if it is selected.	33.005
5	Page 1-4; Section 1.3	Discuss the expected lifetime of the "first generation" (1950's) facilities at SRS and OR continue. Will they operate long enough to support this dilution program and future ones? Can they operate as cost effectively as other smaller DOE facilities?	Provide a discussion of how long the dilution mission is expected to last and compare that with the expected lifetime of the proposed facilities.	25.003
			Provide a comparative discussion of the operational costs, site balance of plant features and safety barriers for each proposed candidate dilution site	
6	Page 1-4, Section 1.3	It is not clear why old first generation facilities are proposed when DOE has newer facilities, at larger sites, located in more remote locations?	Discuss site and facility specific operational safety features that are associated with each candidate dilution site and facility e.g., seismic design criteria, site and facility fire protection system, etc.	07.010
7	Page 1-6; Section 1.4.2	Near surface disposal of HEU diluted to LEU is not likely to be supported by the NRC (chemical toxicity and radiological impacts) and may not provide an acceptable disposal strategy for this PEIS. (see attached letter)	Assess the impact of deep mine disposal of LEU as uranium oxide (U3-O8) Identify the denitration capacity of those sites that are capable of converting non commercial HEU to LEU (U3-O8) and estimate the processing time for this conversion.	33.006

Results of these analyses did not reveal any major risk of transportation. Therefore, it is anticipated that decisions on blending locations will be a function of material forms, availability of facilities when needed, and business decisions.

The possibility of diluting the non-commercial material to less than 20-percent enrichment and trading it to another country is not precluded by this EIS but would be unlikely since DOE is not aware of any interest in this regard. If, in the future, a decision is made to sell LEU derived from surplus HEU to other countries, supplementary NEPA documentation would be needed to evaluate potential impacts associated with that action.

09.016: The HEU Final EIS analyzes as potential blending sites two commercial facilities and two DOE facilities (the Y–12 Plant and SRS) that have existing capability and experience blending HEU to LEU. Idaho National Engineering Laboratory (INEL) and Hanford do not currently have operations or the facilities that might be used to process HEU (such as the Idaho Chemical Processing Plant) because they are permanently closed and are being decommissioned.

33.005: Conversion of aqueous LEU to triuranic-octaoxide (U_3O_8) using the Idaho Chemical Processing Plant was not analyzed since this plant has been shut down and will be decommissioned. There are adequate uranium blending facilities other than the Idaho Chemical Processing Plant and, therefore, there is no programmatic or economic basis to re-start this plant.

25.003: As described in the HEU EIS, there are currently four candidate blending sites, two DOE and two commercial, that are capable of conducting HEU blending operations. Based on currently available information, DOE estimates that blending the commercially usable surplus HEU (103 t) is likely to take 10 to 15 years to complete. DOE considers this a reasonable timeframe and, therefore, anticipates facilities at the four analyzed blending sites are adequate to accommodate required blending operations in compliance with DOE safety orders and/or NRC regulatory requirements. Cost analyses such as cost-benefit analyses or cost effectiveness studies are not required as part of the NEPA environmental impact analysis and thus need not be provided in the EIS (40 CFR 1502.23). However, cost estimates for the alternatives analyzed in the EIS were developed to provide the decisionmaker comprehensive information upon which to make decisions and are available in a separate document with the HEU Final EIS.

HENRY, R.N., IDAHO FALLS, ID
PAGE 4 OF 8

	Document Location	Comment/Issue:	Proposed Resolution:	
8	Page 1-8; Section 1.5.1	It is not clear why disposition decisions for HEU will not impact decisions for Pu. Current policy does not promote different levels of criticality safety risk for each type of fissile materials. Thus, the HEU program will influence Pu.	Discuss the criticality safety policy that is used for disposal of all types and forms of fissile materials. Identify the risk level that must not be exceeded HEU and how this compares to Pu	28.002
9	Page 2-2; Section 2.1	It is not clear why 0.9% was selected as the HEU concentration for waste material?	Discuss the selection of 0.9% vs other possibilities such as 0.7%. Explain why 0.9% is best case for PEIS	33.002
10	Page 2-3, Section 2.1.1	It is not clear why "non-commercial" HEU is "impossible" to use. If customers can be found for the "off spec material", then why can't customers be found for this inventory or why can't the inventory be blended to near "off spec" levels?	Assume ASTM spec is not valid benchmark for post cold war eara. Develop a new "customer driven" LEU spec for post cold war HEU.	33.008
			Evaluate blending all HEU to dilute unwanted isotopes, then dilute unwanted isotopes again via conversion to LEU. Compare results of HEU blending strategy with proposed post cold war LEU spec.	
11	Page 1-11; Section 2.2.1	Disposal of HEU at (0.9% or 0.7%) as LLW may not be a feasible assumption. See comment #5	See proposed resolutions for comment #5.	33.002 cont.
12	Page 2-27; Section 2.2.3.1	No information is provided to support that statement "new facilities would require capital investment and may not be cost effective"	Identify the facilities that were considered. Provide a comparative cost discussion with modifications for other sites and based on those results modify this statement as required.	16.014
13	Page 2-27; Section 2.2.3.1	It is not clear why new construction would produce impacts from normal operations that would be similar to existing impacts from older facilities.	Provide a discussion or referance a report that supports how older facilities can meet release rates from new facilities.	21.017
14	Page 2-72; Table 2.4-1	The information in this table does not agree with the information in the referanced tables in Section 4.3	Identify which values are correct and make them consistent throughout the report.	21.009

07.010: The HEU Final EIS analyzes as potential blending sites the two commercial facilities and two DOE facilities (the Y–12 Plant and SRS) that have extensive facilities for and experience with the processing of HEU. The DOE facilities meet all DOE environment, safety, and health requirements, and the commercial facilities meet all requirements contained in their NRC licenses.

33.006: The Department of Energy will meet whatever the waste acceptance criteria are prior to shipment of the waste material and fully comply with applicable laws and regulations during transfer of the material to its destination.

28.002: Although criticality safety requirements for HEU and Pu are comparable in terms of their objectives, that does not establish a connection between disposition actions for the two materials. DOE does not agree that decisions in the surplus HEU disposition program in any way constrain decisions in the plutonium disposition program.

33.002: The representative enrichment level of 0.9 percent (used for analytical purposes) was selected for material destined for waste disposal based on experience in both the United States and Europe where waste has been disposed of at slightly greater than 1-percent U-235. This enrichment level assures that an inadvertent criticality would not occur. It is possible that uranium at higher enrichment levels could be disposed of (the LLW facility at NTS has accepted 1.25-percent enriched uranium in the past), but the lower level was selected for purposes of conservatism in the HEU EIS analysis. Blending to an enrichment level less than 0.9 percent would substantially increase the amount of waste product and cost of blending (for example, blending to a natural uranium state of 0.7 percent would increase the waste volume by 40 percent) without any incremental criticality protection. The actual percentage of blend down will be determined by the waste acceptance criteria of the selected waste disposal site.

33.008: The potentially non-commercial portion of surplus HEU consists of spent fuel and material containing very high ratios of U-232, U-234, and U-236 relative to the U-235 content. The spent fuel could be reprocessed to separate out the HEU. If this is done, it would be made commercially available for blend down to LEU for reactor fuel.

	Document Location	Comment/Issue:	Proposed Resolution:	
15	Page 3-56; Section 3.4.5	The structural impact of large earthquakes within 180 of the SRS site is not discussed. Similar discussion is missing for the other candidate sites.	Provide an overview discussion of the impacts of a "Charleston" type earthquake on the SRS facilities, balance of plant support systems and site safety related systems e.g., fire protection. Provide similar information for the other candidate sites.	22.016
16	Page 4-68; Section 4.3.3.6	If the material at risk was determined for each facility, why was it normalized to a single value. Each facility is uniquely different and would have different amounts of material at risk. One facility should not be penalized for another's defects.	Establish bounding conditions for each facility and compare impacts. The net result will still present bounding conditions and provide additional insight about the candidate facility features and equipment.	21.010
17	Page 4-68; Section 4.3.3.6	Why are energy sources normalized when they are likely to vary by facility and process equipment?	Defend assumption or modify calculation to reflect facility differences. Failure to evaluate these differences for accident cases make facility selection impossible.	
18	Page 4-68: Section 4.3.3.6	It seems impossible that the protective features of four different facilities could release the same amount of material. Only the protective features of the site size and possibly the local metrological conditions appear to have been considered.	Adjust dose estimates to reflect specific facility protective features. Explain fire filter scenario for SRS sand filters.	21.011
19	Page 4-68; Section 4.3.3.6	It is not clear if the proposed criticality is single event or several within a two hour period	Identify the number of criticalities.	21.012
20	Page 4-68; Section 4.3.3.6	It is not clear if the proposed releases (Kr, Xe and I) result form single criticality or several criticalities within a two hour period.	Identify the number of curies released pre criticality.	
21	Page 4-68; Section 4.3.3.6	Given the energy source of a criticality and the presence of uranium oxide, why aren't particulate releases of fission products and uranium assessed in addition to the Kr, Xe and I?	Assume H&V failure from seismic event and include impacts of particulate releases. Calculate new dose estimates for all candidate site (including western locations e.g., INEL)	21.013

Similarly, if any of the non-commercial material could be processed to make it off-spec, that material will be offered for sale to the commercial industry. However, some of the off-spec material has such high quantities of U-234 and/or U-236, DOE believes that it would be of little interest to the industry. DOE also believes that blending this material with high ratios of U-234 and U-236 to "near off-spec" levels would not be attractive because as U-235 is blended down to 4- to 5-percent range, the high quantity of U-234 and U-236 remain the same at those dilution levels and, in some cases, it may simply be too high for any commercial use.

16.014: It is not necessary to incur the expense of the construction of new facilities, because the existing facilities that are analyzed in the HEU EIS are available, capable of performing the proposed mission in a reasonable timeframe, and meet applicable environmental, safety, and health requirements.

21.017: Existing facilities, at both DOE sites and commercial sites, are available for blending and possess operating expertise and have been in compliance with all environmental release requirements that a new facility would have to meet. Therefore, construction of new facilities, which would likely have some degree of environmental consequences due to land disturbance and construction activities, could not be justified.

21.009: The information in Table 2.4–1 pertaining to facility accidents has been revised to reflect updated results obtained using the MACCS computer code which were presented in Section 4.3 of the HEU Final EIS.

22.016: As discussed in the geology and soils section, the Charleston earthquake of 1886 had an estimated Richter magnitude of 7.5. It has been estimated that at the time of the earthquake, the SRS area experienced an estimated peak horizontal acceleration of 10 percent of gravity (0.10 g) (SR DOE 1995e:3-7). All facilities at SRS are designed to withstand an earthquake of 0.20 g or 20 percent of gravity at the structure base which is estimated to occur once every 5,000 years. Discussions of large earthquakes at other candidate sites have been added to the HEU Final EIS.

21.010: The material at risk was not determined for each facility and site. It is true that each facility is uniquely different and have process design variations as well as different

HENRY, R.N., IDAHO FALLS, ID
PAGE 6 OF 8

	Document Location	Comment/Issue:	Proposed Resolution:	
22	Page 4-68, Section 4.3.3.6	Why doesn't a criticality occur for the EBE? The damage is significantly greater than the earthquake induced criticality.	Assess impact from criticality. Include particulate releases of uranium oxide and fission products and volatile isotopes.	21.014
23	Page 4-68; Section 4.3.3.6	What type of meteorology conditions are assumed for calculating the exposures?	Use class "F" fumigation and site specific meteorological data.	21.015
24	Page 4-68, Section 4.3.3.6	The doses in the text do not agree with the tables (4.3.3.6-1 to 4)	Change text or tables so that they are consistent with one another.	21.016

throughput capacities. However, because details on some site-specific processes were proprietary, one set of representative data were used in the HEU EIS for each blending process with nominal throughput rates that assumed a full-scale operation with bounding values for operational requirements, emissions, waste streams, and other parameters. The data used in the HEU EIS to characterize each blending process, including generic (normalized) accident releases, are considered reasonably representative of the releases that would occur at each site.

21.011: Public and occupational health assessments revealed that the maximum incremental cancer fatalities would not occur at ORR when all four sites were involved in blending. However, estimates showed that ORR would have higher incremental cancer fatalities when blending occurs at two DOE sites.

For a uniform irradiation of the body, the incidence of cancer varies among organs and tissues; the thyroid and skin demonstrate a greater sensitivity than other organs. However, such cancers also produce relatively low mortality rates because they are relatively amenable to medical treatment. Because of the readily available data for cancer mortality rates and the relative scarcity of prospective epidemiologic studies, somatic effects leading to cancer fatalities rather than cancer incidence (nonfatal) are presented in this EIS.

Transportation risk assessments showed that risks would be only slightly lower for blending to LLW at ORR. For blending to fuel feed material as UNH crystals, ORR is not the lowest risk alternative. Two significant factors contributed to these conclusions: (1) onsite material handling represents the greater part of the total risk and such handling would still be necessary even to blend at ORR, and (2) the highest transportation risk for these scenarios is not in transporting HEU, but in transporting the significantly larger volume of fuel feed material and LLW after blending.

21.012: The criticality event discussed in Section 4.3.3.6 is an initial burst of $1x10^{18}$ fissions followed by repeated bursts of $1x10^{17}$ fissions within an 8-hour period after the initial burst. This accident has been approximated (due to model limitations) by a single event of $1x10^{19}$ fissions with the radioactive releases occurring over a 2-hour period after the event.

21.013: The criticality event was assumed to be initiated in the HEU EIS by an evaluation basis earthquake. The energy source of the evaluation basis earthquake is much greater than a criticality, and therefore the energy from the criticality is not included in the impact analysis except to the release of fission products (krypton, xenon, and iodine). These isotopes are consistent with the *Nuclear Regulatory Commission Regulation Guide 3.34* where they are identified as the dominant isotopes for exposure. For the consequences of a combined criticality and evaluation basis earthquake, the results are summed for the release of halogen materials (46,000 curies of krypton isotopes, 65,000 curies of xenon isotopes, and 1,600 curies of iodine isotopes) from the criticality and for uranium (0.076 curies of which 67 percent is U-234 for UNH blending to 4 percent) released during the earthquake.

21.014: As stated in Section 4.3.3.6, it was assumed that all of the accident scenarios considered in the HEU EIS can be initiated by the evaluation basis earthquake with the exception of the filter fire and fluidized bed release. The evaluation basis earthquake is also assumed to initiate the nuclear criticality. The evaluation basis earthquake accident scenario assumes that the building collapses, resulting in ruptured containers, piping, and tanks releasing uranium solutions, water, toxic gases, flammable gases, and toxic and reactive liquids. The nuclear criticality mitigating safety features of the storage racks and facilities are assumed not to be compromised. Therefore, only the consequences from the release of radioactivity and hazardous chemicals into the environment are presented for the evaluation basis earthquake. For the earthquake induced criticality, the incremental consequences of this criticality are presented. To be conservative, both the consequences from the evaluation basis earthquake and earthquake induced criticality were assumed to occur together added to yield the total consequences from both the release of radioactivity and hazardous chemicals into the environment and a criticality.

21.015: For normal operations, the meteorological data used for all four of the sites was site-specific joint frequency data files. A joint frequency data file is a table that lists the following:

-the fraction of time the wind blows in a certain direction

-the fraction of time the wind blows at a certain speed

-the fraction of time the wind blows within a certain stability class

The joint frequency data files for each of the four sites are based on site-specific measurements over a 1-year period to account for seasonal variations. At the two DOE sites (ORR and SRS), the measurements are at several locations and at several heights. At the two commercial sites (B&W and NFS), the measurements are at a single location and several heights. For exposures due to normal operations, average meteorological conditions (averaged over the 1-year period) were used.

For accident conditions, one year of sequential hourly meteorological data was used. This is actual data recorded at each site except B&W for which the best available complete data set was that of the Roanoke, VA airport.

21.016: The doses in Section 4.3.3.6 do agree with the data presented in Tables 4.3.3.6–1 through 4 because the doses in the text are a combination of doses in the tables. For example, the latent cancer fatalities in the population within 80 km (50 mi) is 0.069 at Y–12. Table 4.3.3.6–3 states that at Y–12 the earthquake induced criticality yields (0.0015) latent cancer fatalities and the evaluation basis earthquake scenario yields (0.067) latent cancer fatalities. As the text in Section 4.3.3.6 states, "the combined evaluation basis earthquake and earthquake induced criticality accident release results in the highest consequences." Therefore, for Y–12, the maximum latent cancer fatalities in the population within 80 km (50 mi) is 0.069 (0.0015 + 0.067 = 0.069).

Date Received: 1/11/96
Comment ID: P0038
Name: John Hepler
Address: Hadenburg Road
Whitleyville, Tennessee 38588

Transcription:

Hello, My name is John Hepler. I live on Hadenburg Road, Whitleyville, Tennessee 38588. I am calling because I strongly believe that this highly enriched uranium needs to be decommissioned out of a state in which it can be possibly made into weapons. This would also, if it is down blended properly, turn it into low-level waste, which at least can be disposed of under current law. In addition, this would help us to lead the way in showing by example, international controls on all nuclear materials. I think any other use of this stuff is a very bad idea. Thank you very much. 10.031

10.031: The Department of Energy agrees that blending down surplus HEU to either commercial fuel or waste would move the weapons-usable material out of its current storage and will make the material non-weapons-usable. With this action, the United States will set an example to other nations and encourage international controls on all weapons-usable nuclear materials.

HIRSCH, FAY, BOCA RATON, FL
PAGE 1 OF 1

Date Received 01/22/96
Comment ID P0075
Name Fay Hirsch
Address Boca Raton, Florida

Transcription

I'm very much against you making highly enriched uranium into nuclear reactor fuel, and I hope you won't do it My name is Fay Hirsch, and I live in Boca Raton Florida, and my number is 407 482-3905 Thank you | 10.024

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

HONICKER, JEANNINE, NASHVILLE, TN
PAGE 1 OF 1

```
Author:  Sharon Pietzyk - DOE/MD-1 <pietzyk@fedix.fie.com> at INTERNET
Date:    12/12/95  11:34 AM
Priority: Normal
TO: Dave Hollister at SAIC_LENFANT
Subject: FORUM Form - incoming (fwd)
----------------------------------- Message Contents ---------------------- ---
Forwarded message:
> From httpd Tue Nov 14 14:31:06 1995
> Date: Tue, 14 Nov 1995 14:30:55 -0500
> From: HTTPD Daemon <httpd>
> Message-Id: <199511141930.AA19072@fedix.fie.com>
> Reply-To: doemd1
> Subject: FORUM Form - incoming
> Apparently-To: doemd1-demo@fedix.fie.com
>
> ** To be properly posted to the correct forum area the
> ** reply to this message MUST be mailed to >> doemd1@fedix.fie.com << !
>
> **
> ** This message was generated by the submission of a From Comment
> ** on the Fissile Materials Electronic BBS.  Reply to this message
> ** with the text of this message included in the reply. All "Replied"
> ** are publicly available on the Electronic BBS
>
> ** This is information generated at the time of submission and is
> ** used to track individual comments. It should not be changed!
> #To         = doemd1-demo@fedix.fie.com
> #serial_no = 113
> #MailTitle = FORUM Form - incoming
>
> ** The following information is DATA from the comment form.  The
> ** "ctype" is the Author's Request for a Public or Private comment.
> ** If you do not want this message to be publicly posted to the BBS
> ** do nothing or reply to the author directly.
> #name = Jeannine  Honicker
> #title =
> #company =
> #addr1 = 362 Binkley Dr.
> #addr2 =
> #city = Nashville
> #state = Tn
> #zip = 37211
> #phone =
> #fax = 615-333-2879
> #email =
> #ctype = public
> #subject = HEU  EIS
>
> ** The following is the text of the Author's Comment.
> #BEGIN comment =
> Please include a complete economic analysis of the alternatives.
> Specifically,how does the cost of the blended down reactor fuel compare
> with reactor fuel from virgin uranium.  Who would pay the price, and who     04.010
> would make the profit from the sale of the reactor fuel?
> Please send me the raw data that has been generated on the answers to these
> questions.
> #END comment
>
> ** The folloing is the space reserved for an Offical Reply. If you
> ** do not wish to reply to this comment then do not change it.
```

04.010: A cost analysis for the alternatives analyzed in the HEU EIS have been developed for consideration as part of the ROD(s) and has been made available for comment separately from the HEU Final EIS. (The cost report has been disseminated to this commentor and all others who expressed an interest in this subject.) The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU makes the most economic sense and would save considerable money. It is anticipated that the Government will realize most of the profit from the sale of LEU fuel derived from surplus HEU commercial fuel. Any commercial entities involved in the disposition actions will also expect to realize some profits in compensation for their contributions.

HONICKER, JEANNINE, NASHVILLE, TN
PAGE 1 OF 1

Date Received: 11/20/95
Comment ID: P0018
Name: Jeannine Honicker
Address: 362 Binkley Drive
Nashville, TN 37211

Transcription:

Hi. This is Jeannine Honicker. 362 Binkley Drive, Nashville, Tennessee, 37211. I went to the public meeting that was held on November 14 in Knoxville, Tennessee, and during the meeting I asked about the cost of the blend down and was told that there was no cost available, but however, there were working papers. So, I was told that I would be sent a copy of these working papers, but I was not told when and by whom. So, I wanted to reiterate that I am expecting them shortly, and that it should be all of the costs associated with the proposed blend down, including how much it will totally cost to do the program, and how much the expected revenue will be from whom, and I would like very much to have a response telling me how soon this material will be available. You can fax that to area code 615-333-2879. Thank you. Good-bye. 04.010

04.010: Cost estimates for the alternatives analyzed in the HEU EIS have been developed for inclusion in the ROD(s) and have been made available as a separate document with the HEU Final EIS. The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU makes the most economic sense and would save considerable money. It is anticipated that the Government will realize most of the profit from the sale of LEU fuel derived from surplus HEU commercial fuel. Any commercial entities involved in the disposition actions will also expect to realize some profits in compensation for their contributions.

HORTON, LINDA, UNICOI COUNTY, TN
PAGE 1 OF 1

Hello. My name is Linda Horton. I live in Unicoi County, and I am very distressed to think that there may be hazardous nuclear waste in my county. I do not want it in this county, and there are a lot of people that agree with me. I plan to hopefully come to the workshop in Knoxville, and I will talk to you there. Thank you. Bye. 10.002

10.002: The Nuclear Fuel Services Fuel Fabrication Plant is one of two licensed commercial facilities in the United States capable of providing HEU processing services. NFS has been processing and fabricating special nuclear materials since 1958 while fully complying with the stringent safety and environmental requirements established by NRC, the State of Tennessee, and the Environmental Protection Agency (EPA), as well as its own internal requirements. The proposed action of the HEU EIS is well within the skills and experience of NFS and would neither increase hazardous nuclear waste beyond the permitted limits nor would it alter NFS's waste management operations.

HUNTER, A. HAYES, KNOXVILLE, TN
PAGE 1 OF 1

10/5/95

Comment Form

United States Department of Energy

NAME: (Optional) A. HAYES HUNTER
ADDRESS: 10028 EL PINAR DR KNOXVILLE, TN 37922-4112
TELEPHONE: (423) 966 5175

I attended plenary session Section C during the afternoon meeting on Nov 14, 1995 in Knoxville, Tn. One question asked was not allowed due to time restraints, is one I would like to know more about. The question related to Alternative 5 being listed as the "preferred alternative." Specifically, the question was "what were the criteria used to judge and/or arrive at this preferred rating. For instance, was the criteria economics, waste generation, nonproliferation, available technology for performing the alternative, schedule, example setting for the nuclear powers, etc.? And a second part of question was if all the factors considered given equal weight.

I would appreciate more information concerning the above.

Thanks

Please return your comments to the registration desk or mail to
U.S Department of Energy
P O. Box 23786, Washington, D.C. 20026-3786
Or fax comments to: 1 (800) 820-5156

07.004

07.004: As explained in Section 1.4.2 of the HEU Final EIS, DOE prefers the maximum commercial use alternative because it would best serve the purpose and need for the proposed action, which is to make the surplus HEU non-weapons-usable and, where feasible, recover its economic value. It is self-evident that the economic recovery objective is best served by an alternative that seeks to maximize commercial use of the material, because the alternative of blending the material to waste recovers no value and greatly increases the required blending and disposal costs. DOE believes that the nonproliferation objective is equally satisfied by all the action alternatives (2 through 5).

International Association of Educators For World Peace, Huntsville, AL
Page 1 of 1

ASSOCIATION INTERNATIONALE DES EDUCATEURS POUR LA PAIX DU MONDE
ONG, NATIONS UNIES & UNESCO

国际教育工作者争取世界和平协会
非政府组织，联合国和教科文组织

ASOCIACION INTERNACIONAL DE EDUCADORES PARA LA PAZ MUNDIAL
ONG, NACIONES UNIDAS & UNESCO

الرابطة الدولية للمربين من اجل السلام العالمي
منظمة غير حكومية معتمدة لدى الأمم المتحدة واليونسكو

Международная ассоциация работников просвещения
за мир во всем мире
НПО, Организация Объединенных Наций и ЮНЕСКО

INTERNATIONAL ASSOCIATION OF EDUCATORS FOR WORLD PEACE
NGO, United Nations (ECOSOC), UNDPI, UNICEF, UNCED & UNESCO
Office of the Executive Vice President
P.O. Box 3282, Huntsville, Alabama 35810-0282, U.S.A.

CHARLES MERCIECA, Ph.D.
Executive Vice President
Phone: (205) 534-5501 / 851-5341
Fax: (205) 536-1018 / 851-5226

January 6, 1996

Officers-In-Charge
Department of Energy
Washington, D.C., U.S.A.

Dear Gentlemen:

Members of our Secretariat's Executive Council and officials of our organization who are spread in 98 countries are becoming very highly concerned in seeing members of our government especially favor making highly enriched uranium into nuclear reactor fuel. 10.024

This action is bound to create spent fuel which is a highly toxic and radioactive waste that is disastrous in the long range. Besides, it will create plutonium which is a violation of our nonproliferation objectives. However, in case of necessity, we do support downblending all highly enriched uranium so it cannot be used in weapons. We also support developing the 10.023 *capacity to downblend all uranium declared surplus over the next decade. In addition, we firmly believe in international controls on all nuclear materials.* 03.020

For our nation and, as a matter of fact, for every nation on earth, the health of the people is more important than the financial profits of dangerous industries which include, above all, the weapons industry. The American people want their government to protect their lives not from some imaginary Don Quixote coming from the sky, but from the dangerous toxic wastes that are being produced to satisfy the financial greed of big corporations which nowadays seem to have taken full control over our government.

Thank you very much for your attention.

Sincerely yours,

Dr. Charles Mercieca
Executive Vice President, IAEWP

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y-12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

INTERNATIONAL CHEMICAL WORKERS UNION, OAK RIDGE, TN
PAGE 1 OF 2

International Chemical Workers Union
Local 252
BOX 4154 – OAK RIDGE, TN 37831-4154

1/11/95

DOE-Office of Fissile Materials Disposition
C/O SAIC-HEU EIS
P.O. Box 23786,
Washington, D.C. 20026-3786

To Whom It May Concern:

Please consider the following comments in making final decisions on the Disposition of Surplus Highly Enriched Uranium.

We of Local 252, of the International Chemical Workers Union, at Oak Ridge, TN, fully support the Department of Energy's proposal to blend-down surplus Highly Enriched Uranium (HEU) to Low-Enriched Uranium (LEU).

Although, the Department of Energy's preferred alternative, (Alternative 5, Variation c) is one we could support, we prefer (Alternative 5, Variation d) as our first choice and then Alternative 5, Variations a and c respectively.

We do not favor variation (b), of Alternatives 4 or 5. It would be a terrible disservice to the workers at the Y-12 Plant to send this new peacetime mission to the commercial sites and send Y-12 Defense Program workers looking for a job.

The blending-down of the surplus HEU, using any variation of Alternative 5, would allow the United States a chance to recover some of its investment in the Cold War efforts, by converting surplus HEU to commercial fuel.

Also, the blending-down of surplus HEU using any of the alternatives, rather than the no-action alternative, would demonstrate to the world that the United States is seriously pursuing our nonproliferation objectives. That we walk what we talk. 10.003

Our preferred alternative (Alternative 5, Variation d), is the single-site alternative and, of course, we think the Y-12 plant should be that single site.

The advantages of Y-12 as the (one-site variation) would include:

- HEU would not have to be shipped off site to be processed, since most of it is already at the Y-12 Plant.
- HEU could be blended-down using two processes, HEU to LEU as Uranyl Nitrate Hexahydrate and HEU to LEU as metal, at the same time.
- Y-12 has several large buildings that would be suitable to house a new uranium hexafluoride blending facility, should such a facility be needed as a third process later on.

10.003: Comment noted.

INTERNATIONAL CHEMICAL WORKERS UNION, OAK RIDGE, TN
PAGE 2 OF 2

- Y-12 has existing systems for waste treatment and disposal.
- Y-12 has the support of the surrounding community which believes in the professionalism of the work force.
- Y-12 has already in place a Security Force that is considerd second to no other in the country.
- The Department of Energy could utilize the experienced work force from the Cold War effort who's jobs are in jeopardy because of the downsizing of Defense Programs. This would meet some of the objectives of Section 3161 of the National Defense Authorization Act and allow a trained work force to use their experience performing a new peacetime mission.

10.003 cont.

We strongly feel the Draft Environmental Impact Statement (EIS) on the Disposition of Surplus Highly Enriched Uranium grossly underestimated the processing rate capabilities of the Y-12 Plant, if utilized to the maximum, and that other facilities were overestimated.

We realize the true capabilities could have intentionally been arroneous for National Security reasons, but if not this data certainly needs corrected.

25.005

The EIS also indicates that just a few minor upgrades and modifications would be required to begin metal blending in Building 321-M at the Savannah River Site, but in fact the open top furnaces of Building 321-M would not be acceptable for the blending of HEU.

We have been advised that a lot of money has already been invested in extensive cleanup activities of Building 321-M at Savannah River and some of the buildings at Nuclear Fuel Services. If so, will some areas be recontaminated from these proposed blending activities and was this factored into the EIS ?

25.006

The EIS leads us to believe that a targeted batch of HEU in the form of Uranium Hexafluoride, has already been chosen to be the first of the 200 metric tons to be blended down and the two commercial sites were the only sites considered for that batch. If so, why wasn't the two enrichment facilities considerd as candidate sites for HEU in the form of Uranium Hexafluoride?

08.006

Your consideraion of these comments would be greatly appreciated.

Sincerely,

Frank Scott

Frank Scott
Business Agent
Local 252
International Chemical Workers Union

25.005: The assumed blending rates are based on dilution ratios for blend down and anticipated blending capability and capacity. The rate of 10 t per year analyzed in the HEU EIS for blending to commercial fuel was based on current assessments of annual availability of surplus HEU. Although each candidate blending site has specific processing rate capabilities which are described in Chapter 2 (the Y–12 Plant is described in Section 2.2.3.2) based on the best available information submitted by each site, the principal reason of using a constant throughput rate (amount of LEU produced) at each site and process instead of site-specific rates was to provide a fair comparison of the potential environmental impacts between alternatives.

25.006: Operations at Building 321-M have been terminated and the remaining HEU has been transferred to another location. The building is in the process of being decommissioned and will no longer be available for metal blending. The HEU Final EIS reflects this change at SRS.

08.006: None of the HEU that is the subject of this EIS is in the form of UF_6. The only HEU UF_6 that exists, no longer in DOE's inventory, is 13 t located at the Portsmouth Gaseous Diffusion Plant. That material was transferred to USEC by the *Energy Policy Act* of 1992 and is currently being blended at Portsmouth. DOE does not rule out the potential use of DOE sites for any particular batches of HEU.

JOHNSON, ERIK T., MARYVILLE, TN
PAGE 1 OF 1

January 3, 1996

Department of Energy / Fissile Materials Disposition
c/o SAIC / HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

I am opposed to the spread of nuclear weapons materials.

I do not support making highly enriched uranium into nuclear fuel (reactor) because:

1. it will create spent fuel;
2. it will create plutonium which denies / violates our hope for nonproliferation of nuclear material + weapons;
3. DOE needs to exhaust all options in responsible and ethical manner / uses including storing downblended uranium.

10.024

09.018

We have an urgent and pressing, dangerous time. I want to see my government's agency – DOE / Fissile Materials Disposition unit –

1. downblend all highly enrich uranium so it can't be used in weapons,
2. develop controls / support intern'l controls on all nuclear weapons; and,

10.023

03.020

3. develop the capacity to downblend all uranium declared surplus within ten years.

10.023 cont.

I, the hope for progressive and visionary action that will stop misguided uses and practices of our oversight over nuclear weapons materials.

Sincerely,

Erik T. Johnson

ERIK T. JOHNSON
108 E GODDARD AVE
MARYVILLE, TN
37803
(Tel) 615/983-5142

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 10 to 15 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

JOHNSON, JOHN, CHATTANOOGA, TN
PAGE 1 OF 1

Date Received: 01/16/96
Comment ID: P0059
Name: John Johnson
Address: P.O. Box 281
Chattanooga, Tennessee 37401

Transcription:

Please send me a copy of the Draft Environmental Impact Statement. My name is John Johnson, P.O. Box 281, Chattanooga, Tennessee 37401. I am opposed to making highly enriched uranium into nuclear reactor fuel because nuclear power is inherently unsafe. It will create spent fuel, a highly toxic and radioactive waste that nobody has any kind of solution for. It will create plutonium which is a violation of nonproliferation goals and treaties, and the DOE has obviously not adequately explored all options, including storing down blended uranium in some kind of heavily guarded facility so that international terrorists don't get it. To that end, I do support down blending all the highly enriched uranium so that it cannot be used in weapons. I think the DOE should develop the capacity to down blend all uranium declared surplus within ten years, and very obviously, there needs to be international controls on all nuclear materials because the stuff is very dangerous and we're leaving a very unhealthy and deadly legacy for future generations, and I don't see how you can do that to your children and live with a clean conscience. Thank you very much and have a good day.

10.024
09.018
10.023
03.020

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use o the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

KENTUCKY RESOURCES COUNCIL, INC., FRANKFORT, KY
PAGE 1 OF 1

Kentucky Resources Council, Inc.
Post Office Box 1070
Frankfort, Kentucky 40602
(502) 875-2428
(502) 875-2845 fax
e-mail FitzKRC@aol com

January 10, 1996

DOE Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O Box 23786
Washington, D C. 20026-3786

By fax 1-800-820-5156

To Whom It May Concern

The Kentucky Resources Council, Inc., a non-profit environmental advocacy organization whose membership includes individuals who are concerned with the enrichment of uranium because of historic releases and contamination associated with DOE's Paducah Gaseous Diffusion Plant, is writing to express our concern with the processing of highly enriched uranium into nuclear reactor fuel The Council believes that the EIS should more thoroughly explore the range of reasonable alternatives, including storage of downblended uranium, and the downblending of all highly enriched uranium in order to prevent the use of the material for weapons | 09.022

Thank you for your consideration of these comments.

Sincerely,

Tom FitzGerald

Tom FitzGerald
Director

09.022: The Department of Energy does not consider it reasonable to blend HEU to LEU and then store it for an extended period of time. Such a course would maximize Government expenditures for disposition, because it would necessitate the construction of new storage facilities for the much higher volume of material and would involve no offsetting revenues from sales of commercial material. The proposed action is to blend down all surplus weapons-usable HEU to make it non-weapons-usable.

KRAMER, CLAUDINE, WEAVERVILLE, NC
PAGE 1 OF 1

Date Received:	12/08/95
Comment ID:	P0020
Name:	Claudine Kramer
Address:	Weaverville, NC

Transcription:

Yes. Today is Friday, December 8, and I was calling to comment on the draft document that has been issued for the dispositon of highly enriched uranium. I would like to urge the Department of Energy to accept the "No Action" alternative which is outlined in the draft document. My name is Claudine Kramer. I live in Weaverville, North Carolina, and should you wish to reach me for further comment, my telephone number is 704-658-0294. And again, I would like to urge the Department of Energy to adopt the "No Action" alternative. Thank you. 10.026

10.026: The No Action Alternative does not satisfy the purpose and need for the proposed action. It would leave the nuclear proliferation problem unaddressed, continue to incur storage costs, and not recover the economic value of the material.

LINDQUIST, KATHERINE, NORRIS, TN
PAGE 1 OF 1

1-9-96

Katherine F. Lindquist
P.O. Box 1003
Norris, TN 37828-1003

JAN 16 1996

M0048

USA 32

Photo © James Frany

10.024 I do not support converting highly enriched uranium into nuclear reactor fuel due to my concerns with radioactive waste and the creation of plutonium, thereby violating our non-proliferation goals. Please consider downblending all highly enriched uranium to non-weapons grade.

DOE
Fissile Materials Disposition
c/o SAIC / HEU EIS
Box 23786
Washington DC
20026-3786

Recycled Paper

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

LIVERMORE ~~CONVERSION~~ PROJECT
P. O. BOX ~~20472~~ 31835
OAKLAND CA. 94604-9472

U.S. DEPARTMENT OF ENERGY
OFFICE OF FISSILE MATERIALS DISPOSITION
P.O. BOX 23786
WASHINGTON, D.C. 20026-3786

SUBJECT: Disposition of surplus HEU Environmental Impact Statement:

We, the undersigned, believe that the BEST, and indeed the only logical option, is that of NO COMMERCIAL USE !

We believe that any other option will just help perpetuate the Nuclear cycle. It is time for the world to get off the Nuclear addiction. Blending ALL HEU to low-level waste would be one small but important step. It is time for the United States to show real leadership. 10.015

Sincerely;

Dale Nesbitt
Sherry Larsen-Beville
Paul J. Johnson
[illegible]

10.015: Blending down the entire stockpile of surplus HEU to LLW was evaluated in the HEU EIS as one of the alternatives. The analyses showed that this alternative would generate the highest environmental impact among other alternatives evaluated in the HEU EIS (Table 2.4–2). In addition, additional costs of blend down and storage would be incurred which may or may not be a significant factor in decisionmaking. DOE has developed cost estimates associated with the alternatives analyzed in the HEU EIS and has made them available in a separate document with the HEU Final EIS. The cost analysis indicates that commercial use of LEU fuel derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste. DOE believes that all of the action alternatives (2 through 5) evaluated in the HEU EIS meet the objective of nonproliferation and will send a positive message to other nations.

Louisiana Energy Services, Washington, DC
Page 1 of 3

LOUISIANA ENERGY

Louisiana Energy Services
2000 Virginia Avenue, NW
Suite 608
Washington, DC 20037

(202) 467-5490
(202) 467-5495 Fax

January 24, 1996
L196-2

DOE - Office of Fissile Materials Disposition
c/o SAIC/HEU - EIS
P. O. Box 23786
Washington, DC 20020-3786

Dear Sir or Madam:

Louisiana Energy Services, LP (LES) is a Delaware Limited Partnership that has applied for and is awaiting final action on a U.S. Nuclear Regulatory Commission license to build and operate, in Louisiana, the first privately-owned U.S. uranium enrichment plant. As such, LES has a direct interest in the manner and timing of any introduction into the U.S. market for enrichment services of LEU derived from HEU from any source.

We agree with the conclusion of the Draft EIS that the most appropriate means for disposition of surplus HEU from the U.S. nuclear weapons program is "to blend down to LEU and, where practical, to reuse the resulting LEU in peaceful, beneficial ways that recover its natural value." However, the rate and manner in which this LEU is introduced into the U.S. market for enrichment services is of crucial importance to the market and to current and potential future U.S. suppliers of enrichment services, such as LES. This quantity of material can certainly affect the equilibrium in the market and exacerbate the existing imbalance between an excess of supply and shrinking demand. There has already been an impact on market stability after the fall of the Soviet Union and the increased sales of its considerable stores of uranium and enriched product, initially at below fair market value. Adding significant quantities of U.S. stockpile material in the market place would worsen these circumstances. Congress was mindful of this problem when it enacted the Energy Policy Act of 1992 and required the U.S. Enrichment Corporation to conduct its business as exclusive agent for sales of Russian HEU in a manner that would minimize the impact on domestic industry.

Congress has again expressed a similar concern in recent legislation which would privatize the U.S. Enrichment Corporation. This legislation has been passed by both houses but remains stalled in the ongoing debate over the Budget Reconciliation Legislation of which it is a part. Nonetheless, the bill expressly requires that any sale of U.S. stockpile material, in this case by Department of Energy, be preceded by a determination by the Secretary of Energy that such sale "will not have an adverse impact on the domestic uranium mining, conversion and enrichment industry" and that the price "not be less than the fair market value of the material." Even the tons of natural and enriched uranium being transferred to USEC from the U.S. stockpile are

12.016

12.016: The Department of Energy agrees that the rate at which LEU derived from surplus HEU is introduced into the market is important to the stability of the uranium fuel cycle industry. Due to the forms the material is in and the limited capacity to process it, it will not be possible to make U.S. HEU available for disposition at the high rates suggested by the scenarios assessed in the HEU Draft EIS, which were analyzed to bound the highest impacts that might be experienced. DOE must abide by the stricture in the *USEC Privatization Act* that its HEU disposition actions should avoid adverse material impacts on the domestic uranium industry. Statements in the HEU Draft EIS concerning the blending of 10 t per year refer to the potential blending rate at each site. With multiple sites more than 10 t per year could be blended, but in actuality DOE does not anticipate being able to make more than about 8 t per year available for blending. The schedules in Table 2.1.2–1 have been revised in the HEU Final EIS to reflect these more pragmatic assumptions.

The Department of Energy does not agree with the position that the rate of introduction of LEU fuel derived from surplus HEU into the market is outside the scope of the HEU EIS, for the very reason that Louisiana Energy Services is concerned about the program: the effects on the uranium industry are foreseeable socioeconomic impacts that are required to be considered in an EIS. The EIS notes several times that decisions about marketing, business arrangements, and contracting for sales of LEU fuel derived from surplus HEU do not affect the environmental impacts, other than socioeconomic impacts on the uranium industry.

constrained by the legislation, and can only be delivered for commercial end use on a delayed schedule and within fixed annual quotas.

In our judgment, the Draft EIS fails to recognize the importance of this issue, and its treatment of the matter is both inadequate and confusing. In this regard, we note that the "Preferred Alternative" indicates (page S-6) that up to 170 tons of HEU, (including the 50T already proposed to be transferred to USEC in legislation passed as the privatization bill) would be blended over an approximate eight-year period. The additional 120 tons of HEU so blended would result in the *incremental* introduction into the U.S. market of some 18,000,000 SWU. If this material is introduced over the eight-year period suggested in the Draft EIS, the annual introduction from this source alone would be 2.25M tons annually or some 20% of the U.S. domestic market for enrichment services. The privatization bill itself establishes more conservative schedules for release of stockpile material into the market in order to minimize the impact. It expressly requires as well that decisions of DOE about releases of U.S. stockpile material take account of the sales of uranium under the Russian HEU Agreement and the Suspension Agreement. 12.016 cont.

It is apparent that a reduction in the U.S. market for enrichment services of the magnitude permitted under the Draft EIS could have a serious and adverse impact on the timing of any new enrichment source, including the more energy efficient and environmentally benign enrichment process to be employed by LES. No explanation is required to indicate the adverse environmental impacts of a delay in the introduction of more energy efficient enrichment technology, but these impacts are nowhere mentioned in the Draft EIS. 05.012

Elsewhere, the Draft EIS refers (page S-20) to "The commercial use alternatives involving blending 10T of HEU to 4 percent LEU per year." We are unable to reconcile this statement with the statement cited earlier that up to 170 tons would be blended over an eight-year period, which would result in a rate of more than 21 tons per year, and a correspondingly higher percentage of the U.S. market. In noting this serious discrepancy, however, we are not suggesting that a 10 ton blending and introduction rate is acceptable in terms of its market and environmental impacts. The appropriate rate of introduction of LEU resulting from the blending down of U.S. surplus HEU is an extremely complex issue that, in our judgement, is beyond the scope of this EIS and can be adequately dealt with only through a clear-cut legislative mandate to avoid interference with the domestic market for enrichment services. We strongly urge, therefore, that the Draft EIS be modified to give explicit recognition to the importance of the introduction rate and to propose that the rate of introduction be determined by legislation in a manner and at a rate designed to avoid interference with the domestic market for enrichment services. It should be further noted that this rate would, therefore, be set separately from, and might well be considerably below, the rate at which surplus material is blended. 12.016 cont.

We also wish to comment on the statement (page S-6) that "2) marketing of the fuel may be made by USEC under current law, or by a private corporation, as successor to USEC, or by DOE, depending on subsequent legislative changes." It is apparent that this statement does not

05.012: The HEU EIS does not permit or predict a reduction in the U.S. market for enrichment. Rather, it analyzes the potential impacts as required by NEPA and concludes that disposition of currently declared and commercially usable domestic surplus HEU will have small impacts on the market over a 10- to 15-year period. The cumulative impacts of those programs are considered in Section 4.8 of the HEU Final EIS. DOE intends to abide by legislative guidance that it should avoid adverse material impacts on the domestic uranium industry.

LOUISIANA ENERGY SERVICES, WASHINGTON, DC
PAGE 3 OF 3

define all the possible modes for marketing of the fuel that would result from blending of surplus HEU. For example, some or all of such fuel could be sold by an entity or entities other than USEC, its successor, or DOE; could be marketed through auction to either final users or intermediate purchasers, and so on. We request that any statement in the EIS concerning marketing make it clear that the marketing approach, including prices, quantities, sales agencies and methods for controlling adverse impact on the domestic industry, is outside the scope of the EIS and would be determined by appropriate legislation. 12.016 cont.

Thank you for your consideration of these comments.

Sincerely,

Joseph DiStefano

Joseph DiStefano
Secretary and Counsel

McCurdy, Wade, Nashville, TN
Page 1 of 1

Date Received: 01/16/96
Comment ID: P0069
Name: Wade McCurdy
Address: Nashville, Tennessee

Transcription:

Yes, my name is Wade McCurdy and I'm calling from Nashville, Tennessee to encourage the Department of Energy to down blend all the highly enriched uranium they have so that it can't be used in weapons. 10.023

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

MORGAN, RUSSELL, LANDRIDGE, TN
PAGE 1 OF 1

1541 Highway 139
Landridge, Tenn. 37725
Jan. 3, 1996

DOE/Fissile Materials Disposition
c/o SAIC/HEU EIS
P O Box 23786
Washington, D. C. 20026

Dear Sir:

This letter concerns the policies of disposal of
nuclear reactor fuel. I support the downblending of all 10.003
highly enriched uranium so that it cannot be used for
weapons. The US. government has supported international 03.020
controls on nuclear materials, but has been reluctant
to apply the same standadrds to our own industry. The
DOE needs to put more mphasis on downblending all uranium 10.003
that is supposedly surplus. cont.

In addition, I congratulate the DOE and Hazel O'Leary in the steps taken to clean up the disposal areas and to work toward long-term solutions. Keep it up and do even more in the coming years. Thank you.

Sincerely yours,

Russell R. Morgan

10.003: Comment noted.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

January 8, 1996

U.S.D.O.E.
Office of Fissile Materials Disposition
Washington, D.C. 20515

Re: Freedom of Information Request 9512200002

To: The Office of The Secretary Hazel O'Leary:

Thank you for extending the public comment period for the Disposition of Surplus Highly-Enriched Uranium Draft E.I.S. to January 12, 1996. But, we deem it necessary to reopen the public comment period 30 (thirty) days after the financial cost analysis is made public. The financial costs of the planned disposition should be available for citizens to make informed comments on. this draft E.I.S. The Record of Decision should reflect public comments on the full financial costs of reprocessing. 30.005

Since we have made repeated requests for this financial information, the Record of Decision must reflect why the full financial disclosure was not provided prior to the public comment deadline.

Please respond to this request, at the fax number below, by the end of the current public comment period, January 12, 1996 on the Disposition of Surplus Highly-Enriched Uranium draft E.I.S.

Thank you for your attention to this matter.

Sincerely,

Janis Tilton
Program Director
Nashville Peace Action
POB 121333
Nashville, TN 37212
ph: 615-321-9091
fx: 615-321-9066

cc: Senator Thompson
Senator Frist
Congressman Clement

30.005: The Department of Energy has prepared cost estimates and made them available in a separate document for public comment and consideration prior to the issuance of the ROD(s).

NEATLING, MARY, KNOXVILLE, TN
PAGE 1 OF 1

Date Received:	1/11/96
Comment ID:	P0032
Name:	Mary Neatling
Address:	1319 Doris Street Knoxville, Tennessee

Transcription:

This is Mary Neatling. I live at 1319 Doris Street in Knoxville, Tennessee, and I want to stop the uranium into nuclear reactor fuel. It's going to create spent fuel and plutonium, but I would like some development of down blending uranium. We need to look into down blending, but I don't like nuclear reactor fuel. Okay, bye. 10.024

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

No Name Submitted, Lynchburg, VA
Page 1 of 1

Yes. I'd like to say that B&W I know has the experience and the best of the people and workers' welfare in being able to do this job, and I think that they should be allowed to do it. I know that the Lynchburg facility definitely has the means and the knowhow to do it, and do it safely with no problem. I just want to say that it would be good work for the people, and it can be done properly and safely. Thank you. 10.001

10.001: Decisions about where specific batches of HEU will be blended are expected to be based largely on business considerations and may involve USEC, other private entities that may act as the Government's marketing agent, or DOE. Competitive bidding processes are likely to be key components in site selection.

NO NAME SUBMITTED, LYNCHBURG, VA
PAGE 1 OF 1

Hi. I am a resident of Lynchburg, Virginia, and I am writing to or calling to comment on Babcock and Wilcox. I think they are an excellent corporate citizen of the community, and I believe that they will do a responsible and good job of reprocessing the uranium. I am very much in favor of this activity in my community. My number is 804-832-3511. Good-bye. 10.001

10.001: Decisions about where specific batches of HEU will be blended are expected to be based largely on business considerations and may involve USEC, other private entities that may act as the Government's marketing agent, or DOE. Competitive bidding processes are likely to be key components in site selection.

NO NAME SUBMITTED, LYNCHBURG, VA
PAGE 1 OF 1

Hello. I am a citizen of Lynchburg, Virginia, and I would just like to say that I am completely in favor of this program. I would like to see the uranium diluted into uranium suitable for use in commercial nuclear power plants. I think this nuclear swords-to-plowshare idea is an excellent idea and one that will further benefit mankind. And I'm all in favor of this program, and I think a substantial amount of this work should be awarded to Babcock and Wilcox. They are a proven leader in this area, and they need the employment for this area. They have the capabilities, and they'll do a good job. Thank you.

10.003

10.001

10.003: Comment noted.

10.001: Decisions about where specific batches of HEU will be blended are expected to be based largely on business considerations and may involve USEC, other private entities that may act as the Government's marketing agent, or DOE. Competitive bidding processes are likely to be key components in site selection.

NO NAME SUBMITTED, LYNCHBURG, VA
PAGE 1 OF 1

Yes. I would like to have some information on what is this diluting process. What does it consist of? Does any kind of uranium go into the water in Lynchburg? Where do I get these answers? Thank you. | 08.001 | 22.001

08.001: As explained in Section 2.2.2 of the HEU Draft EIS, there are three potential blending processes that could be used for different portions of the HEU disposition program: UNH liquid blending, which could be used to produce either commercial fuel or waste; molten metal blending, which would only be used for waste material; and UF_6 gas blending, which would only be used for commercial material.

22.001: As discussed in Chapter 4, no direct discharges to groundwater are expected to occur and, as a result, no uranium would be released directly to the water. All industrial, process, and sanitary liquid waste generated from the processes would be treated to comply with NPDES permit levels prior to being released into the environment. However, accidental releases of uranium as discussed in Chapter 4 of the HEU Final EIS could occur.

NO NAME SUBMITTED
PAGE 1 OF 1

Date Received: 11/09/95
Comment ID: P0008
Name: No identification given
Address:

Transcription:

Yes. Just calling in reference to the Babcock and Wilcox Naval Nuclear Fuels Division in Lynchburg, Virginia. I'd just like to say that we are for the work, and anything you could do to help us we'd dearly appreciate it. Thank you for your time and services. 10.001

10.001: Decisions about where specific batches of HEU will be blended are expected to be based largely on business considerations and may involve USEC, other private entities that may act as the Government's marketing agent, or DOE. Competitive bidding processes are likely to be key components in site selection.

NO NAME SUBMITTED
PAGE 1 OF 1

Date Received: 11/09/95
Comment ID: P0009
Name: No identification given
Address:

Transcription:

I'm against bringing in highly enriched uranium into Unicoi County. Thank you. | 10.002

10.002: The Nuclear Fuel Services Fuel Fabrication Plant is one of two licensed commercial facilities in the United States capable of providing HEU processing services. NFS has been processing and fabricating special nuclear materials since 1958 while fully complying with the stringent safety and environmental requirements established by NRC, the State of Tennessee, and EPA, as well as its own internal requirements. The proposed action of the HEU EIS is well within the skills and experience of NFS and would neither increase hazardous nuclear waste beyond the permitted limits nor would it alter NFS's waste management operations.

No Name Submitted
Page 1 of 1

Date Received: 11/15/95
Comment ID: P0015
Name: No Identification Given
Address:

Transcription:

I am concerned about the health and safety of pets and wildlife and farm animals and mostly people. I feel as if were are a part of your facility, since we are so close by and we can hear and see so much of you. I live right across the river from you, and we feel just like we are part of you, so we'd like to know a little bit more about this, and you know the situation that's there. Give us a call. Thank you. 21.001

21.001: The safety and health of pets and farm animals are not explicitly analyzed in the HEU EIS. It is generally assumed that humans are more susceptible to detrimental affects from radiation than animals. In addition, the accident analyses assume that contaminated food and water would be interdicted. Humans and pets would not be allowed to consume contaminated food or water. Contaminated wildlife would be interdicted also. As analyzed in the HEU EIS, normal operations of the proposed alternatives present no adverse health and safety concerns to humans, pets, farm animals, or wildlife.

NO NAME SUBMITTED
PAGE 1 OF 1

Date Received:	1/11/96
Comment ID:	P0040
Name:	No identification given
Address:	

Transcription:

Just don't do it. You people are fools. We don't need any more toxic, radioactive waste and stuff we don't have any solution for and need for. And we don't need nuclear energy, it doesn't work very well. You guys just suck. 10.029

10.029: The Department of Energy's proposal to blend down surplus HEU to LEU as reactor fuel for commercial use is aimed to eliminate proliferation potential of the weapons-usable HEU. Although spent nuclear fuel would be generated as a result of the use of this fuel in power reactors, since the nuclear fuel derived from HEU would displace nuclear fuel that would have been created from newly mined uranium without this action, there would be no additional spent fuel generated. The domestic spent fuel would be stored, and potentially disposed of, in a repository or other alternative, pursuant to the *Nuclear Waste Policy Act*, as amended (42 U.S.C. 10101 et seq.). DOE is in the process of characterizing the Yucca Mountain Site in Nevada as a potential repository. Furthermore, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel.

NO NAME SUBMITTED
PAGE 1 OF 1

Date Received: 1/11/96
Comment ID: P0045
Name: No identification given
Address:

Transcription:

I'd recommend down blending it all. But it's pretty silly to use it for nuclear power plant fuel, because that'll just turn it into nuclear waste which we still don't know what to do with. Plus of course, they could reprocess the plutonium back out of it and you'd have bombs again. It's certainly important to find some safe place to store the stuff that's down blended. I think you'll have a better chance of doing that correctly than finding a place to store lots more high level nuclear waste from the spent fuel. And certainly, you know, let's get rid of the bomb grade stuff. We ain't needing any more bombs. Thank you. 10.024

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

NO NAME SUBMITTED
PAGE 1 OF 1

Date Received: 01/16/96
Comment ID: P0063
Name: No identification given
Address:

Transcription:

Please do not support making highly enriched uranium into nuclear fuel. We have more than enough problems with nuclear waste as it is and why add to the problem with more nuclear waste. Thank you. God help us and preserve us. | 10.024

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

NO NAME SUBMITTED
PAGE 1 OF 1

Date Received: 01/16/96
Comment ID: P0068
Name: No identification given
Address:

Transcription:

I think it's a bad idea to get this uranium back into circulation. We don't need any more plutonium around. We don't need any more highly enriched uranium. We need to blend it all down and get rid of it so it's not usable. It's just craziness to think that we need more destructive plutonium in the world. I hope that you all will decide to just destroy as much of it we can, get it out of circulation, and just reform our whole policy. Thank you. 10.013

10.013: The objective of the HEU disposition program is to eliminate HEU, not make more of it. The HEU disposition program would not make more Pu than would exist without the program.

NO NAME SUBMITTED, SILVER MOUNTAIN, TN
PAGE 1 OF 1

Date Received:	1/4/96
Comment ID.	P0025
Name	No Identification Given
Address:	*Silver Mountain*, Tennessee

Transcription·

Hello, I'm calling from *Silver Mountain*, Tennessee, and I highly oppose the Department of Energy's plan to create highly enriched uranium and make it into nuclear reactor fuel because it will create plutonium which is a weapons grade material and saboteurs could easily steal it and we would be creating a monster in the world. 10.024

And I think the Department of Energy should get out of weapons materials and should emphasize international controls on nuclear materials. And we should actually in the long run get out of nuclear materials completely. That's my opinion. Thank you. 03.020

NOTE FROM TRANSCRIBER: Italicized location indicates that the name given by the caller was unclear and had to be inferred

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

North Carolina Wildlife Resources Commission, Raleigh, NC

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

MEMORANDUM

TO: Melba McGee
Office of Legislative and Intergovernmental Affairs

FROM: Owen F. Anderson, Piedmont Region Coordinator
Habitat Conservation Program

DATE: December 4, 1995

SUBJECT: Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement, October 1995, 96-0357

Staff biologists with the North Carolina Wildlife Resources Commission have reviewed the summary document. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332 (2) (c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d) and the North Carolina Environmental Policy Act (G.S. 113A-1 through 113A-10; 1 NCAC 25). 23.001

The Department of Energy proposes to blend down surplus Highly Enriched Uranium (HEU), weapons useable material, to a Low Enriched Uranium (LEU) that is not weapons useable without a significant amount of costly technology and processing. Three alternatives were presented: no action, conversion of surplus HEU to LEU and 100% disposal as low-level radioactive waste (LLW), and conversion of HEU to LEU and maximizing commercial use. The preferred alternative is to maximize commercial use with a minimal amount of LEU being disposed of as LLW.

None of the alternatives should have significant direct impacts to North Carolina fish and wildlife or habitat, since the blending would take place at facilities outside of North Carolina. There would be some minor risks involved with transportation accidents between sites and to the GE Plant at Wilmington, which would be involved with production of uranium oxide used for blending and fuel fabrication. 23.001 cont.

We believe that the preferred alternative to maximize commercial use of the surplus HEU would not have significant impacts to North Carolina fish and wildlife resources and is the most environmentally sound alternative.

Thank you for the opportunity to review and provide input into the draft environmental impact statement for this project. If we can further assist your office, please contact our office at (919) 528-9886.

cc: Cherry Green, Supervising Biologist, USFWS

23.001: Comment noted.

NUCLEAR FUEL SERVICES, INC., NORCROSS, GA
PAGE 1 OF 2

NFS

Nuclear Fuel Services, Inc.
3945 Holcomb Bridge Road
Suite 202
Norcross, GA 30092
(404) 662-8405
FAX (404) 662-8415

Paul F. Schutt
Chairman

January 11, 1996

Mr. J. David Nulton, Director
Office of NEPA Compliance and Outreach
US Department of Energy
Washington, DC 20585

SUBJECT: PRELIMINARY ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSITION OF 200 METRIC TONS OF HEU

Dear Mr. Nulton:

Nuclear Fuel Services, Inc. supports the federal government's initiatives relative to dispositioning surplus highly enriched uranium (HEU). The following comments are made relative to the preliminary environmental impact statement.

1) The program for dispositioning surplus HEU needs to be substantially accelerated. Not only does the downblending of HEU into low enriched uranium (LEU) ensure non-proliferation of US nuclear weapons materials, it also provides an incentive for the Russians to do likewise. The Russians have already begun their HEU to LEU blenddown efforts. However, senior Russian officials have indicated a reluctance to expand their HEU dispositioning programs until (and unless) the US takes similar definitive actions. Administrative delays in implementing the US program contribute to international delays relative to HEU dispositioning. This subjects the world to a higher risk of nuclear proliferation because of political instability in countries of the former Soviet Union. 05.011

To speed the US dispositioning of HEU, the DOE should:

a. Eliminate further unnecessary delays in the NEPA evaluation process. The public has had ample time and notification to submit comments. There have been no new concepts proposed relative to dispositioning HEU during two years of discussion and review. Comments received should be evaluated in an expeditious manner so that a decision can be made.

05.011: The Department of Energy is making every effort to complete the HEU EIS expeditiously. If the Preferred Alternative is selected by DOE in the ROD, the first HEU to move to disposition would be the proposed 50 t transfer to USEC. Decisions about contracting for blending of that material would be made by USEC, not DOE. The possibility of shipping surplus HEU to commercial vendors in classified form with appropriate security measures is being explored by DOE. Considerations other than contracting, such as DOE's ability to make surplus HEU available for disposition, and avoiding adverse material impacts on the uranium industry, are expected to be the limiting factors in the rate of disposition activities.

Mr. J. David Nulton, Director
January 11, 1996
Page Two

b. Explore creative ways to expedite procurement activities. Since there are only two commercial vendors, it seems possible for the government to offer contracts to both companies based on cost estimates done by DOE personnel to date. The Federal Accounting Regulations and government auditors provide adequate protection to the US taxpayer. Such a program could save a year or more in implementation time. Note that NFS, in conjunction with AlliedSignal, submitted a proposal to the Secretary of Energy in November, 1993. We would be willing to use this document to begin immediate price negotiations. 05.011 cont.

c. Extend security clearances as needed so that the commercial vendors could receive the HEU in its current form. Both vendors already have approved DOE classification and security programs. Delays in preprocessing the HEU at a government site can be significantly reduced if the HEU is shipped directly to the commercial vendors.

d. Initiate procurement activities for HEU other than the 50 metric tons planned to be transferred to the US Enrichment Corporation. The DOE can select an executive agent to administer the programs at a later date. Long-term processing contracts will result in lowest cost, and therefore maximum benefit to the government and the US taxpayer.

2. The environmental impact statement should include an analysis of diluting the HEU to under 20% enrichment. This material can be used for research reactor fuel or other end products. Future NEPA evaluations would be unneeded, thereby providing flexibility relative to HEU dispositioning. 09.009

NFS is prepared to assist the DOE as needed to convert "nuclear swords into plowshares" as expeditiously as possible. This program will reclaim a substantial part of the investment already made by our parents for the benefit of our children.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

Paul F. Schutt
Chief Executive Officer

PFS:kw

09.009: There is a large market for LEU in the 4- to 5-percent enrichment range, but little or none for 19-percent LEU.

NUKEM, INC., STAMFORD, CT
PAGE 1 OF 5

NUKEM, Inc.
300 Atlantic Street
Stamford, CT 06901-3505
Phone 203-359-9797
Fax 203-323-8266

January 11, 1996

Office of Fissile Materials Disposition
U.S. Department of Energy
c/o SAIC - HEU EIS
P.O. Box 23786
Washington DC 20026-3786

RE: **Comments on the October 1995 Disposition Of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (EIS)**

Ladies/Gentlemen:

Because of our experience in the nuclear fuel market, we are writing to your organization to offer our comments on the above mentioned report's Section 4.8, ***Impacts on the Uranium Mining and Nuclear Fuel Cycle Industries.*** NUKEM, Inc. is one of the world's leading suppliers of nuclear fuel. Together with our parent company, NUKEM GmbH of Alzenau, Germany, the NUKEM group has supplied uranium concentrates, conversion, enrichment and other nuclear fuel-related services to utilities since 1978, with annual sales in excess of $400 million.

With regard to the effects on the uranium market from the DOE transfer of 7,000 MT of natural uranium (containing 18,200,000 lbs uranium oxide) and 50 MT of HEU (containing 12,800,00 lbs of uranium oxide) to USEC (DOE Material) and the possible sale of an additional 120 MT of HEU (containing 33,900,000 lbs of uranium oxide), our position in the marketplace has led us to a different conclusion than that reached in the report. The EIS concludes that the introduction of this material into the market would reduce domestic uranium production by 700,000 lbs of uranium oxides annually, with an accompanying reduction of approximately 90 person years in employment.

NUKEM believes that the introduction into the market of the DOE Material as well as up to 120 MT of additional surplus HEU, will not reduce domestic uranium production or employment numbers. The USEC Privatization Legislation dictates that the DOE Material to be transferred to the United States Enrichment Corporation can only be introduced into the domestic market at a rate not to exceed 4 million lbs of uranium oxide or the equivalent contained in UF_6 a year beginning in 1998. An additional restriction not mentioned in the EIS is the availability of existing facilities for the blending of HEU. Based upon the assumed world blending capacity of 10 MTU of HEU a year it would take 17 years to blend down all of the HEU mentioned above (assuming all the uranium from the blended down HEU meets the commercial specifications for use in nuclear reactors,) which equates to 3,800,000 lbs of uranium oxide sold into the market annually or 2.5% of total, annual world reactor demand. 12.017

12.017: The HEU Final EIS does not assume that world blending capacity is limited to 10 t per year. Rather, it is the assumed rate at which each of the analyzed domestic facilities could blend commercial material. However, DOE does not expect to be able to make HEU available for blending at a rate that would assume the use of all four facilities at that rate simultaneously. Thus, DOE agrees that it is not likely to market more than about 3.8 million pounds of uranium oxide from domestic HEU disposition in any given year, and that such quantities represent only about 2.5 percent of total annual world demand. There appears to be substantial disagreement among different segments of the industry as to the future performance of the world uranium market. DOE agrees with this commentor that uranium supply will continue to tighten in the next several years, but it also agrees with other commentors (for example, from the domestic uranium producers) that entry into the market of uranium from Russian and domestic HEU disposition actions together would increase supplies and possibly soften the market. DOE intends to move cautiously and to abide by the requirement in the *USEC Privatization Act* that it avoid adverse material impacts on the domestic uranium industry in undertaking its uranium transactions.

Office of Fissile Materials Disposition
January 11, 1996
Page Two

According to generally accepted market data (see attached graph), world demand for uranium is over 160 million lbs uranium oxide annually, while current world production is less than half of that demand. Uncovered demand for uranium oxide is currently being met through inventory drawdown. If drawdown of inventory continues at its current rate, the amount of material in inventory available for Western reactors is scheduled to be exhausted by 1999.

Assuming that the Russian HEU material and the DOE material enter the market pursuant to the USEC privatization requirements and the limited capacity for the blending of HEU, there remains a supply and demand worldwide gap of between 20 to 30 million lbs of uranium oxide per year. Even with the introduction of the DOE material, the additional surplus HEU, and the uranium resulting from the Russian HEU, the current gap of uncovered demand can only be met with new production. Our review of the market's supply and demand situation illustrates that, on an international and domestic basis, introduction of surplus inventories will not depress the production and sale of domestic uranium product or reduce employment in the domestic uranium mining industry

It is NUKEM's position that the demands of the nuclear fuel market will require world production of uranium oxide to increase.

12.017
cont.

Thank you for the opportunity to submit these comments. Should you have any questions or comments or need additional information on our position, please do not hesitate to contact us immediately. You are forwarding to your office by FedEx, a color copy of the attached graph.

Sincerely yours,

James C. Cornell
Vice President

JCC:jtp

Enclosure

NUKEM, INC., STAMFORD, CT
PAGE 3 OF 5

NOTES: **World Uranium Supply/Demand Chart**

(1) World production assumes to be constant at 1994 levels as follows:

Country	1994 Actual Million lbs U3O8
Canada	25.2
Niger	7.7
Russia	6.8
Australia	5.7
Kazakhstan	5.5
Uzbekistan	5 5
Nambia	5.0
South Africa	4.4
United States	3.5
China	3.1
France	2.7
Subtotal	75.1
Others	7.8
Total	82.9

(2) CIS Utility Inventory Drawdown

Assumes demand to fuel reactions in the CIS is entirely filled by the Russian natural uranium stockpile which is estimated to be up to 560,000,000 lbs or up to 25 years worth of demand

(3) Non-CIS Utility Inventory Drawdown

This is the Drawdown of the following excess inventory:

31.7 Million lbs in Western Europe
16.4 Million lbs in the Far East
30.5 Million lbs in the U.S

(4) Russian HEU

This assumes the blending of 6 MTU of HEU in 1995, 12 MTU in 1996, 10 MTU/yr in 1997-1999, and 30 MTU/yr from 2000-2015. From 93% HEU to 4.4% LEU. This does not include the uranium component of the blending material.

(5) Russia Blending Material

The Russians are enriching depleted uranium (tails) into blending material of 1.5% enrichment This part of the graph is the uranium component of the blending material.

(6) US HEU/Natural

This shows the drawdown of 5 MTU @ 70%, 45 MTU @ 37.5%, and 120 MTU @ 45% of US HEU blending to 4.0% (not including the blending material) and 7,000 MTU of natural uranium

This material represents the following U3O8·

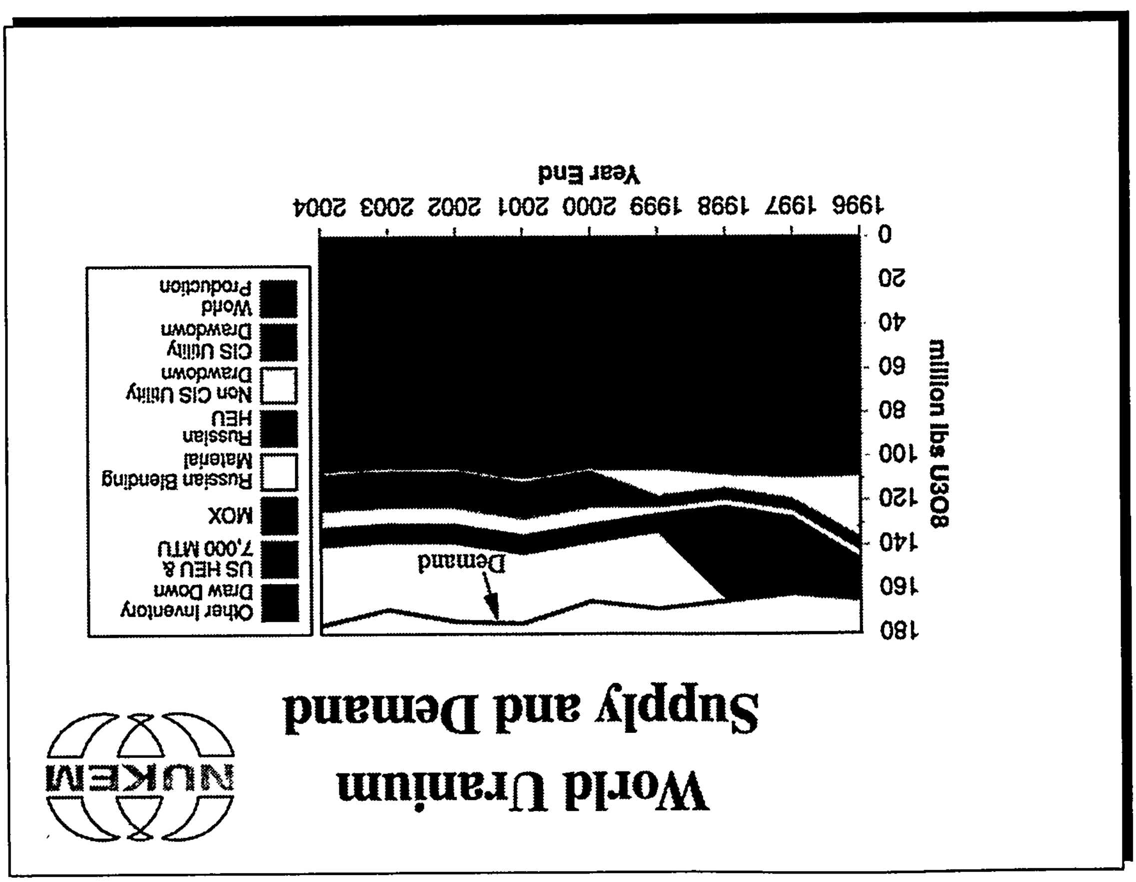
	lbs U3O8
5 MTU @ 70% and 45 MTU @37.5%	12,800,000
120 MTU @ 45%	33,900,000
7,000 MTU Natural	18,200,000
TOTAL	64,900,000

The drawdown of this uranium is limited to 4,000,000 lbs/year starting in 1998 pursuant to the USEC Privatization Bill (S.755) HEU blending capacity of 10 MTU of HEU per year is also a limiting factor At 10 MTU of HEU per year it would take 17 years to blend the HEU mentioned above If the 64,900,000 lbs U3O8 is delivered over 17 years this would represent 3,800,000 U3O8/year

(7) MOX is pursuant estimated MOX production and consumption.

(8) Other inventory Drawdown is an estimate of the Drawdown of 85,700,000 lbs U3O8

NUKEM, INC., STAMFORD, CT
PAGE 5 OF 5



January 12, 1996

VIA FAX: 202 586 4078

Mr. Dave Nulton
Office of Fissile Materials Disposition
U S Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Mr. Nulton:

The Department of Energy's HEU EIS looks at the impacts of decisions on the disposition of 200 metric tons of HEU. DOE states in the HEU EIS that its goal is two fold—to achieve nonproliferation goals and to realize the "peaceful beneficial use" of this material in a way that will bring money back to the federal coffers.

DOE's preferred option is MAXIMUM COMMERCIAL USE of surplus HEU. DOE argues that this will return the most money to the federal coffers. DOE argues that this will not increase the amount of spent fuel, since reactors will burn other fuel anyway. DOE argues that this will reduce environmental impacts, since new uranium will not have to be mined for reactor fuel. DOE does not address proliferation concerns of spent fuel. And DOE says disposal of spent fuel is being considered in another document.

We believe DOE's preferred option is short-sighted and inappropriate for the following reasons.

- DOE acknowledges that reactor fuel derived from downblended HEU will be turned over to the US Enrichment Corporation which will then market it for fuel. DOE stated in its public meetings on the draft HEU EIS that it was likely the fuel would be marketed internationally. It is currently unclear that there will be control over the spent fuel generated to prevent it from being reprocessed to extract the plutonium/HEU in the spent fuel. DOE references no protocols forbidding reprocessing or requiring return to US of spent fuel generated from this material. 14.012

- DOE does not present a credible economic analysis demonstrating a positive economic return. DOE did promise, in November of 1994 and again in November of 1995, to provide such analysis to the public. To date, DOE has been unable or unwilling to do so. Since the driving force behind DOE's preferred option is "commercial use," and since DOE uses this claim of a supposed financial benefit to over-ride more proliferation resistant options under consideration, DOE must provide a clear and credible anaylsis to support its claim. 04.014

- DOE ignores the fact that downblending to <1% removes proliferation concerns for all time and is more in keeping with the US nonproliferation and export control policy which accords nonproliferation a "higher priority." 03.012

- DOE discards the option of downblending to 4% for storage (until reprocessing and economic concerns are addressed) saying it provides "no proliferation advantage over blending and selling"—a statement which is not true. Blending to 4% and storing preserves the use-as-fuel option and maintains security of the material in a relatively stable state which does not contain Pu or HEU. Blend and sell for use as reactor fuel requires eventual storage of a highly toxic and radioactive material which contains Pu and HEU. 09.013

- DOE maintains a double standard, saying it would not begin to downblend to <1% until a disposal site were identified and approved. The same requirement does not apply to downblend-and-use-as-fuel, since no disposal site exists for spent nuclear fuel. 07.009

- DOE skews the time required to complete the various alternative scenarios by limiting the sites 05.008

14.012: Once HEU is blended down to commercial-grade LEU, it is fungible with any other commercial-grade LEU. As the market for uranium and reactor fuel is a global one, it is correct that some LEU fuel derived from surplus HEU could be sold abroad. It is also correct that some foreign nations reprocess spent fuel to extract Pu and uranium for civilian (non-military) use, although it is the policy of the United States to discourage civilian reprocessing. However, as any such LEU fuel derived from surplus HEU would simply replace fuel that would have been used anyway in the foreign reprocessing programs, there would be no additional reprocessing resulting from this program, and inversely, no less reprocessing abroad in the absence of this program. The resultant spent fuel would present no greater proliferation hazard than any other commercial spent fuel (in contrast to HEU-based research reactor spent fuel). Commercial spent fuel does not contain HEU, as the comment suggests. The commentor may be referring to U-235, which is present in spent fuel at a lower enrichment level than fresh fuel due to the fact that some of it is transformed in the reactor by the fission process. The uranium in commercial spent fuel is low enrichment and not weapons-usable.

04.014: Cost analysis is not required as part of an EIS, but one comparing the HEU disposition alternatives has been prepared to aid the Secretary of Energy in reaching an ROD. The cost analysis, which is now available separately from this EIS, which has been provided to interested parties, supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU makes the most economic sense and would save considerable money compared to the alternative of blending HEU for disposal as waste. DOE does not agree that blending for commercial use is less proliferation resistant than blending to waste, because no increase in the generation of spent fuel would result from this program, and spent fuel is not considered proliferation prone.

03.012: The Department of Energy agrees that blending to less than 1 percent removes the proliferation potential of HEU. It is for that reason that the HEU EIS evaluates an alternative (alternative 2) that would blend all of the surplus HEU to waste for disposal. However, DOE disagrees that blending to 4 percent for commercial use is less effective in serving the nonproliferation objective, since spent fuel would be created in any event from reactor operations (that is, no additional spent fuel would be created from this program), and spent fuel is considered to have low proliferation potential. Moreover, while the President's *Nonproliferation and Export Control Policy* (fact sheet included as HEU EIS Appendix A) mentioned by the commentor does focus on nonproliferation, it also explicitly mentions conversion of HEU to peaceful use as reactor fuel (in the context of the purchase of Russian HEU).

OAK RIDGE ENVIRONMENTAL PEACE ALLIANCE, OAK RIDGE, TN
PAGE 2 OF 5

(Portsmouth and Paducah, potential downblending sites, are ignored) and assuming no increase in capacity is possible. Even under its fastest scenario, downblend to 4% and sell as reactor fuel, DOE's plan would take 10 years for the initial 200 tons of HEU. During that 10 years, it is likely that more HEU will be declared surplus. 05.008 cont.

• The preferred option, Maximum Commercial Use, would result in more than 5 million pounds of spent nuclear fuel (2,380 metric tons, assuming an assay of 50% enrichment for 170 metric tons of material). DOE does not analyze the environmental impacts of this spent fuel, claiming the impacts of spent fuel are analyzed in a separate NEPA document. DOE makes no effort to integrate the findings of the two documents. 14.013

We recommend:

The removal of HEU from the weapons cycle once and for all is a priority goal for the US and the world. Downblending HEU is the quickest and surest way currently available for achieving the nation's nonproliferation goal.

DOE must not compromise proliferation goals for money. Selling downblended HEU on the international market absent controls on reprocessing is an unacceptable proliferation risk. 03.022

Absent a credible treatment and disposal plan for spent fuel, DOE should not create more spent fuel. The "spent fuel standard" establishes a minimum level of proliferation resistance against which options are to be measured; it does not require the creation of spent fuel, nor does it establish a goal for the disposition of weapons usable radioactive materials.

DOE must adopt a "cradle to grave" analysis of environmental impacts, as NEPA requires, in the EIS. If spent fuel would be generated as a result of DOE action, spent fuel must be accounted for to the grave.

DOE must develop its disposition plan as a "long-term" plan and may not rely on short-term solutions which leave us with long-term proliferation problems. 14.013 cont.

Disposition decisions may not compromise the health and safety of workers, the public, or the environment. 17.011

DOE must consider a more reasonable range of sites for downblending, including those which could accomodate downblending activities with modifications. 09.014

DOE must consider options which offer considerable proliferation advantages while not shutting off economic or "beneficial use" options such as downblend to 4% and store indefinitely. 09.013 cont.

DOE must provide a credible economic analysis in the EIS to support its "preferred option" since the preferred option is preferred primarily for its commercial value. 04.014 cont.

DOE must balance its rhetoric and include "proliferation risk" with "commercial use" in describing the options—so "Maximum commercial use" becomes "Maximum Proliferation Risk/Commercial Use." 03.022 cont.

DOE should include in its analysis a "blend to 4% and dispose of as unspent fuel" option—this would eliminate proliferation concerns and minimize environmental, health and safety risks. Physically, this might end up looking the same as "blend to 4% and store indefinitely." It offers a significant volume and time advantage over blend to <1% and dispose of as LLW. 09.015

Upon being declared surplus, weapons usable radioactive materials should be placed under international (IAEA) control and, if possible, possession. 03.021

09.013: The Department of Energy does not agree with the contention that commercial use of LEU fuel derived from surplus HEU increases the proliferation potential of the material. DOE does not consider it reasonable to blend HEU to 4-percent LEU and then store it for an extended period of time. Such a course would maximize Government expenditures for disposition, because it would necessitate the construction of new storage facilities for the much higher volume of material that would exist after blending, and would involve no offsetting revenues from sales of commercial material. As the commentor disapproves of the commercial use option, it is not clear why the commentor concedes the utility of preserving that option by storing LEU fuel derived from surplus HEU at the 4-percent enrichment level. Spent nuclear fuel contains about 1-percent Pu (in a highly inaccessible and thus proliferation resistant state), and it retains much of its LEU U-235 content (3 to 4 percent), but it does not contain HEU.

07.009: The Department of Energy does not intend to take actions to commence blending of HEU until there is a clear destination for the resultant material. In the case of waste material, that destination is an approved LLW disposal site. In the case of commercial material, the destination is fabrication into commercial reactor fuel. The normal nuclear fuel cycle in the United States is a "once-through" cycle ending in disposal of spent fuel. The alternative of blending HEU to waste would generate LLW for disposal that would not otherwise exist. In contrast, the spent nuclear fuel that would result from commercial use of blended-down HEU would not represent any increment over that which would exist in the absence of this program, since the LEU fuel derived from surplus HEU will simply supplant natural uranium-derived fuel.

05.008: The Portsmouth and Paducah sites are capable of blending HEU in the form of UF_6 in the enrichment cascades, but they do not have the capability to convert metal or oxide HEU to UF_6. Except for 13 t of HEU in the form of UF_6 at Portsmouth that is already being blended there, none of the surplus HEU is in the form of UF_6, so those two sites are not realistic candidates for future blending. DOE considers a 10- to 15-year period for blending currently declared surplus material (175 t) to be a reasonable timeframe for accomplishing this mission. This timeframe is based on DOE making a total of 8 t per year of surplus HEU available for blending to commercial use. The HEU EIS already contemplates the potential addition of 25 t of HEU to the currently declared surplus. If a total of more than 200 t of HEU are declared surplus, additional NEPA documentation would be required.

Oak Ridge Environmental Peace Alliance, Oak Ridge, TN
Page 3 of 5

All disposition activities should conform to international standards of safeguards and transparency. 03.021 cont.

Ideally, disposition decis ons will have results which are irreversible; weapons-usable materials will be "non-recoverable." 01.007

All disposition decisions should be reflexive—they should mirror what we expect or desire of other nations.

Finally, DOE must develop the capacity to "disposition" all HEU expected to be declared surplus within the decade no matter which option is selected. The current HEU EIS points up the shortcomings of DOE's decision to separate some HEU (declared surplus) from the remaining US HEU, the disposition of which is being considered in a separate and not-integrated Programmatic EIS. Currently, DOE considers what to do with 200 tons of HEU. Presently, only 165 tons is declared surplus. DOE's current decision presumes use of current downblending capacity and projects, under its fastest scenario, nearly ten years for the downblending of the currently declared surplus and an additional 35 tons of HEU. 11.016

If, as is likely, additional HEU is declared surplus within the next decade, DOE will be required to stockpile the surplus HEU or develop new capacity for its downblending. In either case another NEPA document is likely to be required. Should the US determine it is wise to downblend our surplus HEU rapidly—both to increase its proliferation resistance and to demonstrate to other nations that we are practicing what we preach—further capacity for downblending will have to be developed. In an integrated NEPA analysis, we would be able to consider the requirements and impacts of developing additional downblending capacity now and begin to prepare that capacity so it would exist when it is needed.

We appreciate the opportunity to present our concerns to you at this time. We look forward to a your response and to the Department's development of an adequate HEU EIS.

Sincerely,

Ralph Hutchison

Ralph Hutchison, for

Oak Ridge Environmental Peace Alliance
100 Tulsa Road, Suite 4A
Oak Ridge, Tennessee 37830

American Friends Service Committee, Denver
1664 Lafayette Street
Denver, Colorado 80218

Economists Allied for Arms Reduction
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Energy Research Foundation
537 Harden Street
Columbia, South Carolina 29205

Fernald Residents for Environment, Safety and Health, Inc.
P O Box 129
Ross, Ohio 45061-0129

14.013: Because LEU fuel derived from surplus HEU would replace spent fuel that would be created from natural uranium-derived fuel in the absence of this program, there would be no additional spent fuel generated. Thus, the generation of spent fuel is not considered an incremental direct environmental consequence of this program. The resulting spent fuel would be subject to the same disposition decisions as all other domestic commercial spent fuel. Since the spent fuel disposal EIS (in connection with the proposed Yucca Mountain or alternative repository) has not yet been prepared, it is by definition impossible to integrate the findings. DOE does not understand the difference between "a minimum level of proliferation resistance against which options are to be measured" and "a goal for the disposition of weapons-usable radioactive materials," and considers that both of those phrases describe the way DOE is using the spent fuel standard in this program.

03.022: The primary purpose and need for the proposed action is to render HEU unusable in weapons, and down-blending is the approach DOE proposes to accomplish that objective. DOE does not agree that commercial use of LEU derived from surplus HEU increases the proliferation potential. Although fuel derived from U.S. HEU and sold abroad could conceivably be reprocessed in some countries to separate plutonium for commercial (non-military) use in mixed oxide fuel, that LEU fuel derived from surplus HEU would simply replace other fuel, so no incremental plutonium will be created as a result of this program. The nonproliferation and economic recovery objectives of this program are not in conflict; both are best served by the maximum commercial use alternative.

17.011: The Department of Energy agrees that disposition decisions should not compromise the health and safety of workers, the public, or the environment. The results of the analyses in the HEU EIS (Sections 2.4 and 4.3) indicate that any health, safety, or environmental impacts would be low and well within prescribed limits.

09.014: The HEU EIS analyzes potential HEU blending at the four domestic facilities that are equipped and (in the case of the commercial facilities) licensed to process HEU in the requisite quantities. DOE considers that some combination of those four facilities would be adequate to effect disposition of the surplus HEU inventory within a reasonable timeframe. If additional facilities are proposed in the future for HEU disposition activities, additional NEPA documentation, possibly in the context of NRC licensing for commercial facilities, would be necessary.

OAK RIDGE ENVIRONMENTAL PEACE ALLIANCE, OAK RIDGE, TN
PAGE 4 OF 5

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Portsmouth/Piketon Residents for Environmental Safety and Security
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McDermott, Ohio 45652

Rocky Mountain Peace Center
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Boulder, Colordao 80306

Snake River Alliance
P O Box 1731
Boise, ID 83701

Southwest Research and Information Center
P O Box 4524
Albuquerque, New Mexico 87106

09.015: The Department of Energy agrees that the ability to dispose of 4-percent material as waste would offer a significant volume and time advantage. However, we are unaware of any LLW disposal facility acceptance criteria that would accept 4-percent enriched uranium as a waste form. In order to ensure against a potential criticality and meet waste acceptance criteria, the material needs to be near or below 1-percent enrichment.

03.021: The Department of Energy expects to make its surplus HEU subject to IAEA safeguards to the maximum extent possible. IAEA does not take "possession" of materials; however, all disposition will conform to all international safeguards and transparency requirements.

01.007: Once it is blended down to LEU, the surplus HEU would be as irreversibly non-weapons-usable as any other LEU. The spent fuel that would result from commercial use of LEU fuel derived from surplus HEU would be as irreversibly non-weapons-usable as any other spent fuel. It is possible to re-enrich LEU to make it HEU again, and it is possible to reprocess spent fuel to separate Pu, but both of those endeavors are very difficult and costly. Thus, LEU and spent fuel are both considered non-weapons-usable in as permanent a way as it is feasible to achieve. The blending of HEU to LEU would serve as an example to Russia and hopefully other nations to also blend their weapons-usable HEU to nonproliferation-prone forms.

11.016: Because of the forms the material is in, DOE does not expect to be able to make surplus HEU available for disposition at a rate that makes completing the program in less than 10 years possible, and does not consider it necessary to develop additional capacity. The decision to declare only part of the Nation's inventory of HEU surplus to defense needs was made by the President on the recommendation of the Nuclear Weapons Council, not by DOE, and simply reflects the fact that the United States has not decided to eliminate its entire nuclear arsenal nor to discontinue the use of naval nuclear propulsion systems. A classified quantity of HEU remains in the national security stockpile for those purposes and is not surplus. The *Storage and Disposition of Surplus Weapons-Usable Fissile Materials Draft Programmatic Environmental Impact Statement* (DOE/EIS-0229-D, February 1996) does not consider the disposition of non-surplus HEU, since that material is being retained in the stockpile and is not subject to disposition. The Storage and Disposition PEIS does consider the long-term storage of non-surplus HEU in conjunction with the storage of non-surplus Pu. Since existing capacity appears to be adequate to effect the disposition of the current surplus inventory plus a nominal additional 25 t in a reasonable timeframe, a decision to build new facilities is not warranted at this time. The commentor is correct that if more than 200 t is eventually declared surplus, additional NEPA analysis will probably be necessary, but DOE believes it has adequately bounded the surplus material for the foreseeable future.

OAK RIDGE RESERVATION LOCAL OVERSIGHT COMMITTEE, OAK RIDGE, TN
PAGE 1 OF 3

LOC INC
Oak Ridge Reservation
Local Oversight Committee

U.S. Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

January 9, 1996

RE: **Draft Environmental Impact Statement for Disposition of Surplus Highly Enriched Uranium, DOE/EIS-0240-D, October 1995**

The Oak Ridge Reservation Local Oversight Committee (LOC) is an independent, non-profit organization established under the terms of the Tennessee Oversight Agreement; it is comprised of elected officials and citizens who reside in the vicinity of the Oak Ridge Reservation. The LOC has reviewed and discussed the above-referenced document, and submits the following comments for consideration:

Technical Adequacy of the Document

1. The timeframes given in Table 2.1.2-1, p. 2-6 & 2-7 (Table S-1 in the Summary document) require further explanation, particularly the assumption of 10t/y. There is no reason to delay use of the metal process for waste until after USEC fuel and "additional fuel" are processed. The table gives the impression that all four sites are needed to get the job done in a reasonable timeframe. In addition, p. 4-187 states that the U.S. Enrichment Corporation (USEC) material "is in the form of uranium hexafluoride" at Portsmouth and Paducah plants being leased to USEC. The timeframe for this part of the HEU, therefore, should be independent of the rest of the material. 05.007

2. There is not a discussion of impacts related to the use of the GE conversion plant at Wilmington, NC. 11.001

3. There is no discussion of accidents in the summary. These are covered on p. 4-13 & 14 for the No Action Alternative, which includes serious chemical risk, and on p. 4-31 thru 4-40, 4-55 thru 4-60, 4-68 thru 4-73, and 4-87 thru 4-90 for facility accidents. 21.008

4. Pages 4-162 and 4-163 need to be updated since the Oak Ridge Reservation is not the selected site in the Tritium Supply and Recycling Record of Decision, and the Savannah River Site is the selected site. 22.012

Anderson • Meigs • Rhea • Roane • City of Oak Ridge • Knox • Loudon

05.007: The timeframes presented in the cited table have been substantially revised in the HEU Final EIS to reflect more realistic assumptions about commercial considerations, availability of material, and other factors (such as legislative restrictions concerning impacts on the uranium industry) in addition to processing rates. DOE expects that a realistic estimate of the time needed to blend material for commercial use (out of 200 t) will be 15 to 20 years. The cited discussion concerning UF_6 at Portsmouth on page 4–187 of the HEU Draft EIS pertains not to the 50 t of HEU that are proposed to be transferred to USEC, but rather to 7,000 t of natural uranium that are proposed to be transferred to USEC as part of the same transaction. The 50 t of HEU that is proposed to be transferred to USEC is in the form of metal and oxides, not UF_6.

11.001: The GE Wilmington Fuel Fabrication Plant is used in the HEU EIS as a representative site where conversion of natural UF_6 blendstock to U_3O_8 for use in UNH blending might occur. This step is not likely to be necessary since DOE has plentiful supplies of natural uranium metal and oxide that can be used as blendstock for the UNH process. In the event that limited conversion of UF_6 blendstock is necessary, the impacts at the conversion facility would be negligible relative to the existing activities at the facility as discussed in Section 4.3.5 of the HEU Final EIS.

21.008: Results of accident analyses are summarized in the Environmental Justice in Minority and Low-Income Populations section of the Summary in the HEU Final EIS. In addition, Tables S–2 and S–3 in the Summary present a comparison of the potential incremental impacts from accidents for all the alternatives evaluated in the HEU EIS.

22.012: The cumulative impact sections have been revised to eliminate ORR as a candidate site for the Tritium Supply and Recycling program.

Oak Ridge Reservation Local Oversight Committee, Oak Ridge, TN

5. Any distinction between alternatives 4 and 5 depends on better characterization of the "off-spec " material. 07.012

6. While the near-term environmental impacts associated with the preferred alternative (maximum commercial use) appear to be less severe than those from fuel production using raw materials, the fact that no disposal site for commercial spent fuel currently exists may pose long-term environmental consequences that are not factored into the EIS analysis. 14.019

7. The EIS states that the proposed action would "maximize proceeds to the Federal Treasury," yet provides no economic analysis to support the conclusion. A recent General Accounting Office report estimates an excess U.S. Enrichment Corporation (USEC) inventory worth over $ 300 million dollars. The final EIS should provide evidence that the proposed action will result in a net gain or loss. 16.015

8. On June 30, 1995, the USEC submitted its privatization plan and notified Congress of its intent to implement the plan. The plan assumes, among other things, that the government will ensure the USEC's ability to dispose of low-level waste. The final EIS should be very explicit regarding the potential impacts on Oak Ridge of low-level radioactive waste disposal associated with the proposed alternatives. 14.016 Because of the uncertainties regarding the privatization of the USEC, it may be prudent to delay the proposed action until the USEC privatization is complete in 1996. The delay should not adversely impact the non-proliferation goals as described in the document. 05.010

9. The DOE contends that economic analyses are not required by NEPA. Given the current budgetary situation, the DOE should include estimates of the costs of each alternative. These costs should be included in the socioeconomic impact section. Neither of the two proposed private sites have total capabilities; thus an analysis may show that conducting more of the work at Y-12 is cost-effective. 16.015 cont.

10. Given that the State of Nevada is currently in litigation with the DOE, and is seeking to prohibit the disposal of low-level waste at the Nevada Test Site, the final EIS must have a contingency plan for LLW disposal. The final EIS should describe in detail what role the ORR might play if the NTS is not a viable option. 14.016 cont.

11. Section 2.1.2.3, p. 2-8 describes that only commercial sites will be considered by USEC for blending their 50t of HEU, regardless of the Commercial Use alternative selected. Without an evaluation of risks, impacts and costs associated with transportation and facility upgrades, it is unclear why existing DOE sites should not be considered for these activities. 11.015

12. Tables E.2.3-1 and E.2.3-2 do not have units given. 21.007

13. The second column printed on p. 3-17 belongs after the text printed on p. 3-18. 22.011

14. The chemical risk for the uranium hexafluoride process is high in the case of an accident. Thus, no more than one such site should be added to the nation's capability. 17.013

07.012: The Department of Energy agrees that the ultimate determination of the proportion of surplus HEU that can eventually be sold for commercial use will depend on more detailed characterization of the surplus inventory.

14.019: The amount of spent fuel that results from commercial use of surplus HEU will be no greater than spent fuel that would be generated from fuel derived from mined uranium in the absence of the HEU disposition program. LEU fuel derived from surplus HEU will merely displace that which would have been provided from newly mined uranium. It will be managed and eventually disposed of together with other domestic commercial spent fuel pursuant to the *Nuclear Waste Policy Act.*

16.015: Cost estimates for the alternatives analyzed in the HEU EIS have been developed to provide the decisionmaker, DOE, comprehensive information upon which to make decisions. The cost analysis, which has been provided to this commentor and all others who have expressed an interest in this subject, is available to the public for comment in a separate document with the HEU Final EIS. It supports the conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

14.016: Management of DOS's LLW is the subject of DOE's Draft Waste Management PEIS, a tiered or site-specific documentation. The possibility of LLW disposal at ORR is included within some of the alternatives in the Draft Waste Management PEIS document.

05.010: Although the HEU EIS contemplates the proposed privatization of USEC and the proposed transfer of 50 t of surplus HEU to USEC as part of that privatization (as authorized by P.L. 104–134), the environmental analyses in the document are not conditional on those events. Although the 50 t transfer is mentioned separately in the HEU EIS, the impacts resulting from it are not expected to be different from any other HEU that is blended down for commercial use. However, if an ROD from this EIS includes the transfer of this material to USEC, that action will increase USEC's assets and thus the proceeds to the Government from the sale of USEC.

Oak Ridge Reservation Local Oversight Committee, Oak Ridge, TN
Page 3 of 3

Due to the adverse impact of federal budget cuts, Committee members believe that preference should be given to DOE sites. The Committee supports an alternative that emphasizes a substantial role for Y-12, and includes the potential for commercial treatment, if cost competitive. Relative costs for processing material already located at Y-12 should mean that most should be processed there. 10.008

Thank you for your consideration of these comments. If you have any questions, you can contact me at (423) 483-1333.

Sincerely,

Amy S. Fitzgerald

Amy S. Fitzgerald, Ph.D.
Executive Director

cc: Tennessee Department of Environment and Conservation, DOE-Oversight Division

11.015: Alternative 3, Limited Commercial Use, represents the case where only the 50 t of HEU that is proposed to be transferred to USEC is commercialized and all the rest is blended for disposal as waste. For this alternative only, DOE made the simplifying assumption that only the two commercial sites would be used for blending of the 50 t of commercial material. This is due to the fact that DOE sites currently in a stand-down condition are not expected to be available during the next couple of years, when blending of the USEC material may begin. For the other commercial use alternatives, 4 and 5, DOE made no such simplifying assumption, and the DOE sites are considered candidates for any or all of the blending activities in the site variations.

21.007: Table E.2.3–1 includes the unit "curies" in its title which is consistent with the style chosen for the HEU EIS. Table E.2.3–2 inadvertently omits curies from the title. This has been corrected in the HEU Final EIS.

22.011: The HEU Final EIS has been revised to correct this discrepancy.

17.013: The HEU Draft EIS reflects the potentially significant consequences associated with a postulated UF_6 release accident, as well as the low probability of such an accident. See, for example, Tables 4.3.2.6–4 and 4.3.2.6–5. Whether any UF_6 and related blending facilities are developed will be decided by commercial entities based on business considerations and subject to licensing and regulation by NRC.

10.008: The Y–12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmakers.

DOE/Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

Greetings for a safe, loving new year!

I am contacting you now concerning the idea of making highly enriched uranium into nuclear reactor fuel. I oppose this strongly: | 10.024

1) it creates plutonium: a violation of our nonproliferation goals
2) it creates spent fuel – a radioactive, toxic waste we have no solution for!
3) all options have not been adequately explored, including storing downblended uranium! | 09.018

I support:

1) international controls on all nuclear materials | 03.020
2) downblending all highly enriched uranium so it can't be used in weapons | 10.023
3) developing the capacity to downblend all uranium declared surplus in 10 years.

We do not need to proliferate nuclear power or weapons. Renewable resources, combined with conservation education and practical application is what will work to satisfy us, the people and protect all of our futures.

Sincerely, Kathleen O'Donohue
Po box 578
Huntsville, AL. 35804

I've lived between the threat of nuclear power at brown's ferry and bellafonte, and redstone arsenal's array of weapons testing + storage.) Please STOP!!

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 1 OF 11

OCAW

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, AFL-CIO

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PRESIDENT

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January 16, 1996

Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P. O. Box 23786
Washington, D. C. 20026-3786

Gentlemen:

Enclosed are the comments of the Oil, Chemical and Atomic Workers International Union and its affiliated locals at the gaseous diffusion plants in Paducah, Kentucky and Portsmouth, Ohio, to the "Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (DOE/EIS-0240-D)".

We have addressed our comments primarily to the "socio-economic" impacts portions of the document and have attempted to lay out our reasons why we believe that the Department of Energy should delay its plans to convert its surplus HEU and sell it into the commercial uranium fuel market. The effect of even a small amount, relatively speaking, of additional commercial grade LEU in the market along with large amounts of Russian HEU converted to LEU will, we believe, lead to the closure of gaseous diffusion plants in the U.S. We believe also that such action is unfair and should be carefully reviewed before any final decision is made.

Thank you for allowing us to comment on the Draft HEU EIS. We appreciate you making our written remarks part of the official record for review.

Sincerely,

Robert E. Wages
President

REW:cdf
Enclosure

COMMENTS of OCAW
on
Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (DOE/EIS-0240-D)

January 12, 1996

The Oil, Chemical and Atomic Workers International Union (OCAW) and its local affiliates at the gaseous diffusion plants in Paducah, Kentucky and Portsmouth, Ohio assert that:

The conversion of Russian Highly Enriched Uranium (HEU) into commercial nuclear fuel under the Russian HEU Agreement with the United States and its sale into the commercial marketplace, as scheduled, will oversupply the market and displace U.S. domestic uranium production, conversion and enrichment. The conversion of surplus Department of Energy HEU and its sale into the commercial marketplace, as scheduled, will increase that oversupply condition in the market. That oversupply will cause material adverse effects in the U.S. uranium industry contrary to existing and proposed law. The most significant adverse effect will be the premature closure of one of the enrichment plants. 12.018

OCAW will address its remarks principally to the socioeconomic sections of the Draft HEU EIS with which we have our greatest concerns.

In analyzing the socio-economic impact of its proposed actions on the enrichment plants in the Draft HEU EIS, the Department of Energy draws extensively from a document prepared by the United States Enrichment Corporation (USEC) entitled: "Environmental Assessment for the Purchase of Russian Low Enriched Uranium from the Dismantlement of Nuclear Weapons in the Countries of the former Soviet Union", dated January 1994. (USEC 1994a.) This document was not listed in the References in the appendix to the HEU EIS although referred to in the relevant parts of the principal document itself. 06.014

1. Starting in 1998, and increasing through the year 2000, the program of the U.S. and Russian governments to convert some of their HEU stockpiles to commercial nuclear fuel will create substantial excess supplies and glut the market. 12.018 cont.

OCAW's continuing concern is that the converted HEU from DOE will add to an already adverse oversupply problem caused by the Russian HEU Agreement. That Agreement will almost certainly force the shutdown of one of the enrichment plants unless USEC gains a comparable amount of market share or the converted HEU is held out of the market in inventory. Our concern about such results is fully justified based upon our review of USEC 1994a.

12.018: Predicting the future of the uranium market is not an exact science, and it is perhaps not surprising DOE has received conflicting comments on the projected uranium supply a few years in the future. The evidence seems to suggest that uranium from Russian and U.S. HEU disposition actions will enter the market at a time when annual production is expected to fall considerably short of demand, and prices are expected to rise substantially. In such an environment, and in light of the modest rates at which DOE expects to be able to make HEU available for blending, it is not expected that HEU disposition will have the severe impacts on uranium markets suggested by this comment.

The potential economic impacts to the enrichment plants should be significantly ameliorated by the provisions in the recently enacted *USEC Privatization Act*. The Act sets numerical limits on the quantities of Russian- and some U.S.-origin material that can be delivered to commercial end users, and requires DOE to determine that its sales of uranium would not have adverse material impacts on the domestic uranium mining, conversion, and enrichment industries. Based on the analyses performed for USEC's 1994 EA and DOE's analysis of the *USEC Privatization Act,* it is estimated that the U.S.-origin HEU would likely have only small marginal impacts on the domestic enrichment industry. The HEU Final EIS has been revised to reflect changes in delivery of the Russian and U.S. material under the provision of the *USEC Privatization Act* and the corresponding reduction in expected impacts.

The Department of Energy anticipates that supplying 50 t of HEU to USEC over a 6-year period will largely exhaust DOE's ability to make HEU available for blending during that period. Although DOE would not foreclose the possibility of making small additional quantities of HEU available during that period, it is expected that the bulk would probably not be available for commercialization until after the transfer of 50 t to USEC is completed. DOE intends to move cautiously and must abide by the requirement in the *USEC Privatization Act* that it avoid adverse material impacts on the domestic uranium industry in undertaking its uranium transactions.

06.014: The USEC *Environmental Assessment for the Purchase of Russian Low-Enriched Uranium Derived from the Dismantlement of Nuclear Weapons in the Countries of the Former Soviet Union* (USEC/EA-94001, DOE/EA-0837, January 1994) was inadvertently missing from the HEU Draft EIS reference list. This document has been added to the HEU Final EIS reference list (see USEC 1994a).

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 3 OF 11

That report establishes that the conversion and sale of the Russian HEU will displace substantial amounts of uranium production, conversion and enrichment in the United States. That displacement would result in significant job losses as a result of the shutdown of at least one of the U.S. enrichment plants in Paducah, KY or Portsmouth, OH. The conversion plant at Metropolis, IL is already running well below capacity and suffering depressed prices. The further reductions in conversion of uranium oxide (U3O8) to uranium hexafluoride (UF6) gas that will be the result of the conversion and sale of the Russian HEU may make that plant wholly uneconomic. These results are inconsistent with the conclusions in the draft HEU EIS that there will be no significant economic impact on the uranium industry.

The HEU EIS states at page 4-185 that, with regard to the economic impact on the enrichment process, "if HEU is blended down, less material would need to be enriched. Although blending would add new jobs, there would be little impact to enrichment-related employment because the cascade operation and maintenance would need to continue (USEC 1994a)." To some extent, any long-term reduction of enrichment at the plants will have an adverse effect on employment. To the extent that production at the two enrichment plants is displaced and reduced to the point that continued production at both plants becomes uneconomic and one plant is shut down, then there will be a very adverse impact on employment, both at the shut down plant and in the surrounding communities. 12.018 cont.

Referring to the Russian HEU levels starting in the year 2000, the USEC report states, "the enrichment work required by the diffusion plants to meet demand would be low enough that either GDP [gaseous diffusion plant] alone could meet the demand." USEC 1994a, p. 6-28.

The Effect on Employment.

The shutdown of one of the U.S. enrichment plants would have a major impact on enrichment-related employment. Prior studies indicated **the shutdown of the Paducah plant is estimated to result in an 11.3 percent increase in unemployment in that region; and if the Portsmouth plant is shut down, it is estimated to result in a 16.7 percent increase in unemployment there.** In the *"Finding of No Significant Impact..."* included in USEC 1994a at page 8 it states, "[p]urchase of the Russian LEU would have no negative impact on USEC's ability to meet customer demand. The possibility exists that total USEC production requirements could be met by one GDP [gaseous diffusion plant], particularly after the first five years when shipments from Russia would triple. Closure of one GDP could result in an increase in unemployment at Paducah by 11.3 percent, or at Portsmouth by 16.7 percent." (Emphasis added.)

The Russian HEU Agreement.

The U.S. government, and USEC as the Executive Agent for the U.S., have entered into an agreement with the Russian Federation and Minatom to purchase low enriched uranium (LEU) useable for commercial nuclear fuel. It is to be converted from highly enriched uranium (HEU), which is to be derived from the dismantlement of nuclear weapons in the countries of the former Soviet Union. USEC will contract for the purchase and delivery of the converted HEU from Russia and resale of it into the private nuclear fuel market, primarily in the U.S. The DOE HEU will have a cumulative effect when added to the Russian HEU and should be considered in that context. At page 4-182 the draft refers to the Russian HEU Agreement as "a recent separate but related action". We agree that the Russian HEU is related and, in fact, is critical.

This agreement was reached in 1993 and will be executed over a period of 20 years. It involves a total of 500 metric tons of HEU with an assay of 90 percent, more or less. It is to be converted and delivered at a rate of 10 m.t. of HEU, or 305 m.t. of LEU, each year for the first five years. This was to begin in 1994, but delays resulted in only 6 m.t. being delivered in 1995. The intent is to convert and deliver 12 m.t. in 1996, with the balance delivered in 1997 - 99 at a rate of 10 - 11 m.t. per year, more or less.

Beginning in the year 2000, the rate triples to 30 m.t. of HEU, or 915 m.t. of LEU, each year for the next 15 years. This compares to current U.S. demand for LEU produced at the two enrichment plants of 1,913 m.t. per year. At these levels, the annual deliveries for the first five years would displace 16 percent of current production at the enrichment plants. Starting in 2000, the annual deliveries will displace 48 percent of enrichment production at the plants.

12.018 cont.

Displacement of SWU.

In order to understand the displacement impact of the Russian and DOE HEU being converted to commercial nuclear fuel, the best way is to look at the reduction on the separative work units (SWU) created in the enrichment process at the enrichment plants. The number of SWU produced measures the amount of work necessary to enrich the U235 content of natural uranium up to 3 - 5 percent. That compares to 90 percent U235, more or less, required for nuclear weapons. Currently, the two enrichment plants operate in tandem with Paducah enriching up to 1.9 percent and Portsmouth taking that and increasing it up to 5 percent.

Because the Russian and DOE HEU content of U235 far exceeds the 3 - 5 percent required for commercial fuel, it must be blended down. When USEC receives delivery it will already be in the form and percent of U235 necessary to fabricate into fuel pellets for electric utility customers. It does not go through the enrichment process at the plants.

The two U.S. enrichment plants now produce around 12 million SWU (MSWU) per year. The Russian HEU will displace just under 2 MSWU per year in the first five years. It will displace almost 6 MSWU per year starting in 2000. USEC calculated that SWU production at the plants would drop from 12 MSWU per year in 1994 to 10.1 MSWU per year in 1995-1999. Starting in 2000, SWU production would drop to 6.3 MSWU. USEC 1994a, Table 6-11, page 6-27.

The crucial determination made was that as long as the enrichment plants continue to run in tandem, it requires an enrichment production level of 7 MSWU per year to economically

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 5 OF 11

justify the operation of both plants. Either plant can operate independently, if licensed to do so. The USEC report states,

> "[a]t levels of 30 MTU/yr of HEU, the enrichment work required by the diffusion plants to meet demand would be low enough that either GDP alone could meet the demand. As a result, even though the minimum demand of about 7 MSWU/yr to keep both GDPs operational from an economic standpoint would be met, there would be sufficient SWU capacity at one plant to meet forecasted demand."USEC 1994a, p. 6-28.

The Russian HEU will reduce enrichment at the plants below the 7 MSWU level. The 50 m.t. of DOE HEU that is to be transferred to USEC under proposed legislation, and that is covered by the draft HEU EIS, will displace up to 800,000 SWU per year starting in 1998. In the year 2000, the cumulative effect of this DOE HEU and the Russian HEU will reduce enrichment at the plants to 5.5 MSWU/yr. Additional SWU from DOE sales of its remaining surplus HEU, if it comes into the market at the same time, would lower enrichment at the plants further, assuring the demise of one of the enrichment plants.

Other SWU from Russia, which is now subject to a dumping case and suspension agreement, or SWU from European enrichers made from Russian, Uzbekistan or Kazakhstan uranium, could reduce SWU production levels at the plants even more. USEC, the government corporation, might have been willing to operate the plants uneconomically, but USEC, the private corporation, will not be so inclined. 12.018 cont.

Overfeeding.

USEC could add some or all of the natural uranium feed displaced to the enrichment process at the plants. That would reduce the adverse impact on uranium production and the conversion plant, but that would further reduce the total SWU produced and result in even more jobs lost at the enrichment plant. (USEC 1994a, Table 6-11, p. 6-27.) Furthermore, Mr. Wm. Timbers, Jr., President and CEO of USEC, testified before the Senate Energy Committee on June 13, 1994 that, "[t]he use of uranium by USEC for overfeeding is impractical under current economic conditions". Additional problems created by overfeeding the surplus uranium or otherwise reducing the oversupply are described at pages 8 - 9 of the *Finding of No Significant Impact* cited above. See also USEC 1994a, pp. 6-28, 6-33 and 6-34.

The Cumulative Effect of the Converted DOE HEU.

The DOE HEU proposed for conversion and sale is not of the same magnitude as the Russian HEU. However, the addition of the DOE HEU to the market will clearly be a factor in the decision to shut down one of the plants. USEC is supposed to be fully privatized this year and will be much more sensitive to cost and profit factors. USEC is required under current law to "minimize the impact" on the enrichment industry, among others, from the sale of converted HEU. Under the proposed USEC privatization bill, the Secretary shall determine that the sale of

DOE HEU will not have a material adverse impact on the domestic industry, taking into account the Russian HEU Agreement and the dumping case suspension agreement. "Energy Policy Act of 1992", P.L. 102-486, Sec. 1408 (d), and proposed "USEC Privatization Act", S.755, Sec. 12 (d). The proposed legislation was also included in the Budget Reconciliation bill. Neither has yet been enacted.

2. USEC concluded that if it could not increase its market share enough to cover the increase from the Russian HEU, it would have to shut down one of the enrichment plants. USEC faces formidable obstacles to increasing its market share.

The USEC report states, "[i]ncremental impacts on the economic status of the communities surrounding the Portsmouth and Paducah GDPs [gaseous diffusion plants] are briefly discussed in that the Russian LEU would involve sufficient enriched uranium that it might become economically attractive to close one of the GDPs unless the anticipated increase in the market demand for USEC-enriched uranium occurs." Executive Summary, page xi, USEC 1994a. (Emphasis added.)

USEC outlines two scenarios in which it analyzes the effect on its business of the Russian HEU. One scenario is based on the Russians not converting the HEU. That minimizes the effect on the SWU and uranium markets, but has negative national security implications. The second scenario is based on the Russians converting the 500 metric tons of HEU, but selling it on the open world market rather than to USEC. This is the most relevant scenario and it is compared to the effects on the uranium, conversion and enrichment industries in the U.S. if USEC purchases all of the converted HEU as scheduled in the Agreement. Under scenario 2, USEC would lose market share, revenues and profits. Under the Russian HEU Agreement as scheduled, at least one of the plants will shut down unless USEC gains additional market share. USEC 1994a, pp. 6-32 through 6-37. 12.018 cont.

USEC states in its 1994 Annual Report that the world market for SWU is essentially in balance between demand and enrichment at 33 million SWU. There are now 10 enrichment plants operating throughout the world (not counting small facilities in South Africa and Japan). Two are in the U.S., four are in the Russian Federation, and four are in Europe. In the 1970s the U.S. accounted for 100 percent of the commercial enrichment in the world. By 1991, the U.S. had been reduced to just under half of world demand. USEC 1994a, p. 5-16. In 1994, USEC held around 34 percent of that market. USEC Annual Report 1994. However, USEC also reports that the supply of enrichment will exceed demand by 50 percent over the next decade. Id.

The market for enrichment services is undergoing rapid changes. With the end of the Cold War, governments are no longer intent on controlling the enrichment process for commercial nuclear fuel. Over the past two decades, uranium enrichment was "dominated by government-owned or supported suppliers with strong national security interests". Virtually all governments are now refocusing the enrichment plants on the commercial nuclear fuel market. In the future, there will be a gradual "transition to commercially oriented suppliers operating in a

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 7 OF 11

highly competitive market". [Longenecker, 1991] cited in USEC 1994a, p.5-16 and References, p. 9-2. But for now, a few governments still control the process. Some disruption in the market is inevitable with these changes.

The fundamental problem is that there is excess enrichment capacity, particularly with the entry of Russia into the market.[Longenecker, 1991] USEC 1994a, p. 5-16. This excess capacity is producing an oversupply of enrichment, which is trying to force its way into a regulated and restricted marketplace. Furthermore, this "competition" for market share is taking place between what are essentially still government-owned or controlled producers. USEC 1994a, p. 5-20. USEC is to be privatized soon, but it will have to compete head-to-head with Minatom for market share.

The underlying problem of oversupply, excess capacity and government regulation of the market is now being exacerbated by the U.S. and Russian governments. The decision of the U.S. and Russian governments to convert substantial amounts of their bomb-grade uranium into commercial nuclear fuel will cause tremendous uncertainty and disruption in this emerging competitive market because they have such vast amounts of enrichment available from their nuclear arsenals relative to demand. The currently proposed volumes of Russian and DOE HEU converted to LEU is going to substantially oversupply the market for at least the next decade and probably beyond. That will drive down prices, possibly to unprofitable levels, unless something is done to cut supply or increase demand. 12.018 cont.

There will be no increase in demand for commercial nuclear fuel in the U.S. and, in fact, U.S. demand will start declining over the next ten years. With the addition of the DOE HEU, the supply of enriched uranium fuel will exceed demand by 50 percent or more over the next ten years. (See Quality of Operations Plan 1995 - 1997, page 3, prepared by USEC and Lockheed Martin.) The USEC 1994a report states, "[d]emand for nuclear fuel cycle goods and services in the United States will, at best, remain constant for the next 20 years and may even decrease." USEC 1994a, p. 5-17. (Emphasis added.)

There will probably not be enough new demand in other parts of the world to make up the difference. That means that USEC must take market share away from the European enrichment companies or from Russia.

3. USEC has restricted access to Europe for sale of enrichment services and cannot feasibly market enrichment services in Russia or other CIS countries. European enrichment capacity is fully operating and the U.S. cannot send uranium to Russia to be enriched. Both Russia and Europe restrict access to each others' market. This is in sharp contrast to the open SWU market in the U.S.

The U.S., Europe and the Russian Federation are all trying to gain entry into each others' market while restricting access to their own. USEC 1994a, p. 5-19. The Europeans restrict their market through EURATOM with what amounts to an informal quota on natural and enriched

**OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION,
LAKEWOOD, CO
PAGE 8 OF 11**

uranium from the CIS countries. USEC 1994a, p. 5-19. Even the U.S. will have only limited access to this market under the recently renegotiated EURATOM agreement in which the U.S. will finally allow the Europeans to reprocess spent nuclear fuel of U.S. origin without prior specific approval.

The U.S. has, generally, banned the reprocessing of spent nuclear fuel for non-proliferation purposes and sharply restricts such reprocessing for customers of U.S. origin nuclear fuel. The U.S. requires prior approval for subsequent reprocessing. This has led many enrichment customers in reprocessing countries to forego U.S. product, while the U.S. market is open to uranium from virtually all foreign sources. USEC 1994a, p. 5-20. This presents another obstacle to USEC efforts to gain market share.

There is a further problem with the Europeans and the CIS countries in the U.S. uranium market. Under the U.S. industry dumping case and suspension agreement, uranium imports from Russia, Uzbekistan and Kazakhstan were restricted. The industry thought, at the time, there would be little problem with SWU in enriched uranium since the Europeans were operating at capacity.

However, one of the European producers purchased Russian enriched uranium with the approval of EURATOM and delivered it to its utility customers. That freed up capacity at the European enrichment plants. The producer then purchased natural uranium from the CIS countries, which was bought at well below market price because it was restricted from the U.S. market. That producer then had it enriched in Europe which transformed its origin from CIS to European; and the enriched uranium was then sold to U.S. utilities at very competitive prices. 12.018 cont.

These utilities were warned by the Commerce Department that this arrangement could result in entry being denied for these imports of enriched uranium because of circumvention of the dumping laws here in the U.S. These imports of enriched uranium have been held up, but may be permitted in by the Commerce Department under a grandfathering agreement for some past purchases. This could add another 4 - 5 million SWU to the market over the next three or four years. This has been referred to as the "bypass" problem.

There are additional differences between the U.S. and other markets that will make USEC's task to gain market share formidable. The U.S. market has a much greater proportion of its contracts on a short-term or spot basis than in other countries. USEC 1994a, p. 5-19. This not only makes USEC more vulnerable to competition, it has a much smaller number of foreign customers or bids for which it can compete.

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 9 OF 11

4. Thus, if demand is not going to grow sufficiently to absorb all of the Russian and DOE converted HEU; and if USEC is not able to capture enough market share from other enrichers; then the only remaining option is to reduce supply.

If USEC buys all of the converted Russian HEU and most of the DOE's, it must either hold it in inventory or cut back on enrichment at the plants. If USEC holds the converted HEU in inventory, it can keep prices up, hold market share and maintain production. That will result in fewer negative effects on the uranium producers, the conversion plant and the workers at the enrichment plants. USEC 1994a, pp. 6-32 through 6-37.

If USEC resells all of the converted HEU back into the market, it must shut down at least one plant or prices will collapse. By shutting down one plant USEC may be able to save its profits, though the jobs will be lost. USEC concedes that it may be required to cancel the leases on one or both of the enrichment plants and cutback or terminate some of the electric power contracts for the plants. USEC 1994a, p. 6-36.

USEC sees these alternatives as much more desirable than not buying all of the converted Russian HEU and most of the DOE HEU. If USEC, or the U.S. government, does not buy the converted Russian HEU, the Russians have the right to sell it to anyone else under the Agreement. If those supplies come into the U.S. or world market on a competitive basis, prices would drop and USEC would lose profits, revenues and market share. USEC would probably still have to shut down a plant and suffer a loss as well. At least if USEC controls all of the converted HEU, it argues that it can maintain prices, profits and its customer base, even if it cannot gain market share and has to shut down one or both of the plants. These options are presented by USEC in two scenarios in its environmental assessment. USEC 1994a, pp. 6-32 and 6-37. 12.018 cont.

These are some of the conditions that USEC and the Secretary are required to take into account with regard to sales of converted Russian HEU, and sales of DOE HEU, taking into account the Russian HEU Agreement and the suspension agreement in the Russian dumping case. In any sale of converted HEU by DOE it will be difficult to avoid adding to the material adverse effects that will already be happening to the uranium production, conversion and enrichment industries as a result of the sales of the Russian HEU.

The problem is the massive and abrupt injection of excess supply by two governments into a market, already plagued by excess capacity and change. The solution is to phase in the additional supplies and open foreign markets to it. In either event, DOE must consider sale of its converted HEU in this excess supply context.

Proposed Changes to the Draft HEU EIS.

OCAW's initial concerns, as stated in Mr. Wages letter of November 14, 1995 to Mr. J. David Nulton, were based on the proposal to convert and sell 170 m.t. of HEU. Under the "maximum commercial use" option, that could have been accomplished by 2002. There was no statement of the U235 assay of the HEU so we could not calculate how much enriched uranium fuel would be produced and displace U.S. uranium production, conversion and enrichment. In addition, the reference materials on which the HEU EIS based its conclusion about the socioeconomic impacts were not identified, so we were unable to evaluate the conclusions stated in the draft HEU EIS.

The conclusions were that the DOE HEU would displace two percent of world uranium production and seven percent of U.S. production, but because imports now represent 70 percent of U.S. demand the impact would be greater on foreign suppliers. The conversion industry is already depressed and this will make it worse and extend the time in which it might recover. Finally, there would be little impact on enrichment-related employment because the cascade operations and maintenance would be continued. That conclusion of little impact on enrichment-related employment was inconsistent with everything OCAW knows about the prospects for the enrichment industry in the U.S., particularly with regard to the impact of the Russian HEU Agreement.

Mr. Nulton and the staff of the Office of Fissile Materials Disposition have been very helpful and forthcoming in defining the scope of the actual amount of HEU material that will be made available and the timing of that availability. Based on our meeting with the staff on December 13, 1995 and Mr. Nulton's letter response to Mr. Wages of December 14, we have a much better understanding of the proposal. 12.018 cont.

That understanding is that a total of 175 metric tons of HEU material is covered by this proposal. However, only 103 metric tons will be converted to commercial nuclear fuel and sold into the market. Of that, 13 m.t. has already been transferred to USEC pursuant to the Energy Policy Act of 1992; and 50 m.t. will be transferred to USEC pursuant to pending legislation. The other 40 m.t. will be converted by DOE and sold into the market. Out of the balance of 72 m.t., ten tons will be reserved for other government program uses and the remainder will be converted to waste or some other unusable form.

The 50 m.t. to be delivered to USEC has an assay of 40 percent U235. The final HEU EIS will specify deliveries, on a fiscal year basis, of 2 m.t. in 1996; 5 m.t. in 1997; 10 m.t. in 1998; and 11 m.t. in 1999 - 2001. The 7 m.t. is currently available, but the balance depends on bringing facilities back on line at Oak Ridge to recover and process the HEU. It is equivalent to 3.3 million separative work units (MSWU) or 12.48 million lbs. of U3O8 equivalent. Under the proposed legislation, USEC could not deliver any of that material to end users before 1998 and then at no more than 800,000 SWU per year. That would presumably take four to five years. Currently USEC is not licensed to hold HEU. USEC wants the HEU converted to UF6 but there are currently no facilities in the U.S. to convert metallic uranium to that form. USEC believes those facilities could be made available in about 18 months.

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 11 OF 11

The 40 m.t. that will be converted by DOE to commercial fuel has an assay of 50 percent U235. It will yield 3.4 MSWU or 12.58 million lbs. U3O8 equivalent. However, the staff indicated that it will take until FY1998 to bring facilities at Oak Ridge back on line to process and recover the HEU. When on line, the capacity at Oak Ridge would be approximately 10 m.t. per year and that would be a constraint on deliveries of HEU which then must be converted to commercial nuclear fuel. The conclusion is, therefore, that the 40 m.t. of HEU could be delivered over a 10 - 15 year period for sale by DOE beginning no earlier than 1998, due to the constraints of bringing the Oak Ridge facilities back on line.

What is not clear is the extent to which the processing and delivery of the USEC material (50 m.t. HEU) will overlap on a year-to-year basis with processing and delivery of the DOE material (40 m.t. HEU). It is important to determine this in the final HEU EIS with as much precision as possible.

This information is necessary to determine the cumulative socioeconomic effects from the combination of the DOE HEU and the Russian HEU. This HEU will displace enrichment at the gaseous diffusion plants (GDP), as well as uranium production throughout the U.S. and from foreign sources, and conversion at the Metropolis, IL plant. It is critical to know how much uranium and SWU will be available <u>each year</u> under this proposal, particularly in the years 1998 - 2003. These are the years that will have the greatest impact on the uranium production, conversion and enrichment industries due to the Russian HEU Agreement and the dumping case suspension agreement with Russia. The Secretary is to take these agreements into account and avoid adverse impact on these domestic industries in this program to convert and sell surplus HEU from the DOE stockpile. . 12.018 cont.

The 170 metric tons of HEU is the total of the material, together with some plutonium, that is covered by the U.S. obligations under Start II. Unless there are further disarmament agreements that require the dismantlement of nuclear weapons, or the President otherwise declares some of DOE's nuclear stockpile HEU as surplus, there will be no further amounts of HEU converted to commercial nuclear fuel and sold into the private market.

We request that, to the extent it is accurate, all of the above information be confirmed and made part of the Record of Decision in the final HEU EIS. 06.016

06.016: The cited information will be incorporated, as appropriate, in the HEU Final EIS and in any ROD(s).

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 1 OF 2

OCAW

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, AFL-CIO

Robert E. Wages
President

Ernest J. Rousselle
Secretary-Treasurer

L. Calvin Moore
Vice President

James K. Phillips, Jr.
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November 20, 1995

Mr. J. David Nulton, Director
Office of NEPA Compliance and Outreach
Office of Fissile Materials Disposition
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D. C. 20585

Dear Mr. Nulton:

The Department has recently published a "Draft Environmental Impact Statement for Disposition of Surplus Highly Enriched Uranium" ("HEU EIS"). The comment period ends on January 10, 1996. We are requesting a 120-day extension of the public comment period for the reasons set out in this letter. 32.003

The issue raised in the draft HEU EIS are complicated, and are of the utmost importance to the workers at the two uranium enrichment plants, the uranium producers and other suppliers and contractors in the uranium enrichment industry. We are vitally concerned about the impact this surplus HEU converted to LEU will have on the enriched uranium market.

A cursory review of the document does raise disturbing issues regarding the disposition options proposed. There appears to be little definitive analysis of the various options in terms of how they would impact the workers and production at the enrichment plants, particularly under the privatization process that is slated to occur starting next year. We are especially concerned about any large amount of HEU being dumped on the market from the DOE's stockpiles. The legislation to complete the privatization of USEC requires that there be no adverse impact on the enrichment industry. That issue needs to be addressed before the Department of Energy (DOE) considers adopting any of the disposition alternatives proposed in the HEU EIS. 12.001 The disposition of the first 50 metric tons is addressed in the legislation, but the additional amounts are not addressed beyond the general requirement that there be no adverse impact. The option to blend the LEU to 19 percent and store it indefinitely appears to have received no consideration in the final options, when that might 09.001

32.003: The Department of Energy originally designated a comment period of 45 days running from October 26 to December 11, 1995. In response to requests from the public from several reviewers, the comment period was extended until January 12, 1996. DOE feels that the total comment period of 78 days provided an adequate period for review and comment based upon the length and content of the document.

12.001: The quantity of materials addressed in the HEU Draft EIS was established to evaluate the environmental impacts associated with the maximum amount and processing rate of HEU that might potentially be made commercially available for use in reactor fuel. The rate at which material would actually be introduced into the market by DOE would be significantly less because of DOE's ability to make the material available for blending and because a portion of the inventory is in forms (such as irradiated fuel) that would not be suitable for commercial use in the near term, if ever. The processing rates in the HEU Final EIS (Section 2.1.2) are revised to reflect more realistic assumptions about the rates at which LEU fuel derived from surplus HEU might be made available for commercial sale. DOE estimates that no more than 8 t per year total would be blended for commercial use.

The rate at which LEU fuel derived from surplus HEU-derived material could be introduced into the commercial market would be determined over time by many factors, including the rate at which the material becomes available from the weapons program, physical infrastructure, legislative guidance, and future market conditions. DOE's physical ability to make surplus HEU available for blending is constrained because much of it is in forms that cannot be used without prior processing and there is limited availability of processing capacity (such as for weapons dismantlement). It is anticipated that delivery of the proposed 50 t of material to USEC over the next 6 years will largely exhaust DOE's delivery capabilities during that period. From the existing surplus, only an additional 40 t of material is likely to be blended and introduced into the market for commercial use over a period of 10 to 15 years. Both the *Energy Policy Act* of 1992 and the *USEC Privatization Act* require the Secretary of Energy to determine that sales of uranium will not have adverse material impacts on the domestic uranium industry. Based on these considerations, DOE does not believe that the rates of disposition of domestic surplus HEU will have significant impacts on the U.S.-Russian HEU agreement. DOE will take these and other factors into account in making its decisions concerning uranium sales.

OIL, CHEMICAL & ATOMIC WORKERS INTL. UNION, LAKEWOOD, CO
PAGE 2 OF 2

Page 2

be the best alternative, including return to the Treasury when the privatization value of the corporation is taken into account. 09.001 cont.

This HEU, if converted to LEU in the form of nuclear fuel and sold on the schedule suggested, added to the LEU being brought into the market as a result of the U.S.-Russia HEU agreement, can only have one effect; the destruction of the U.S. uranium enrichment processing industry. There is absolutely no question that one and probably both of the processing plants will have to curtail operations if the planned disposition of the DOE stockpile proceeds on its present course. It would also appear to undermine the Russian HEU agreement to the extent it suppresses prices to levels unacceptable to the Russians. We believe that the effect that the preferred option would have on that agreement should also be considered. 12.001 cont.

It will be useful to hold the planned workshops in Tennessee and Georgia. Given the direct impact this would have on the enrichment plants, we suggest the hearings be conducted in Paducah, KY and Portsmouth, OH as well. 32.004

We will provide the Department with detailed comments on the HEU EIS after we complete our technical analysis. We also request that DOE provide the supporting documents and analysis on which its conclusions are based, particularly its economic analysis. We are particularly interested in the analysis used to exclude consideration of the option of blending to 19 percent and storing the LEU indefinitely. We would need additional time to consider this information and analysis, and we therefore respectfully request that you extend the time for additional comments. 30.002

Sincerely,

Robert E. Wages
President

09.001: The proposal to transfer 50 t of HEU and 7,000 t of natural uranium to USEC is specifically authorized by section 3112(c) of P.L. 104–134. This law also requires that the delivery of DOE uranium to end users should not have adverse material impacts on the domestic nuclear fuel cycle industry. DOE intends to comply with that requirement. The option to blend HEU to 19-percent LEU and store it indefinitely was not considered a reasonable alternative because it would not provide for recovery of economic value or peaceful, beneficial use of the material, it would necessitate construction of new or expanded storage facilities to accommodate the increased volume of the material (if applied to a substantial quantity of HEU), and it would require additional processing in the future either for commercial use or disposal as waste. If DOE decides to withhold material from the market for an extended period, it is likely to continue to be stored as HEU, possibly with IAEA oversight.

32.004: DOE must work within the constraints imposed by available funding and resources. To reduce costs of complying with NEPA of 1969, as amended, and due to the geographical proximity of three of the four candidate sites identified in the HEU EIS, DOE determined that two public meetings (Knoxville, TN and Augusta, GA) would be appropriate for this program.

Because public involvement is critical to the success of the program, DOE provided toll-free fax and voice recording, and an electronic bulletin board, as other methods for submitting comments throughout the comment period. Comments were also accepted by U.S. mail.

30.002: Technical documents supporting the HEU Final EIS are available for inspection in 12 DOE reading rooms, published in the *Federal Register* (60 FR 54867) on October 26, 1995, announcing the availability of the HEU Draft EIS. The option of blending to 19 percent and storing the LEU indefinitely was eliminated by the screening process for surplus HEU disposition alternatives because it would not recover the economic value of the material or provide for peaceful beneficial use; would necessitate the construction or expansion of storage facilities to accommodate the increase in volume of material; and would require additional processing for either commercial use or disposal. Cost estimates for the alternatives analyzed in the HEU EIS have been developed to provide the decisionmaker, DOE, comprehensive information upon which to make decisions. The cost analysis (which has been provided to this commentor and all others who have expressed an interest in this subject) is available in a separate document with the HEU Final EIS and supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

O'NEILL, JOHN, MADISON, IN
PAGE 1 OF 1

10-29-95

U.S. Dept. of Energy
Office of Fissle Materials Disposition
P.O. Box 23786
Washington, D.C. 20026-3786

REGARDING:

(a) Ltr. 10-19-95, Disposition of Surplus Highly Enriched Uranium EIS (HEU EIS)

COMMENT: EIS (HEU EIS) Regardless of the alternatives for disposition, storage will be required. In view of the Environmental opposition to locations, I wonder: Has former U.S. Army above ground storage areas been considered? Former Army Depot, Igloo S.D. had 801 above ground, isolated storage igloos with few people and large buffer zones.

(b) Fact Sheet, 10-17-95, Reading Room Locations. Storage and Disposition of Weapons-Usable Fissle Materials Programmatic EIS (PEIS)

COMMENT: EIS (PEIS) Same as above.---Has former U.S. Army above ground storage areas been considered? 06.001

(c) Newsletter, Fall 1995, Vol 1, Management of Nuclear Weapons Materials, Management and Disposition of Excess Weapons Plutonium (a report)

COMMENT: Newsletter (Excess Plutonium) Madison Indiana has a large electric power plant (Indiana Kentucky Electric (IKE) that is producing power for Plutonium manufacture at Portsmouth Ohio. Would you comment on the future need for the electric energy? 06.002

Sincerely,

John E. O'Neill

John E. O'Neill
1713 Oak Hill Dr.
Madison, IN 47250

PH: 812-273-1600

06.001: The Department of Energy's current plan is to store most surplus HEU at the Y–12 Plant at ORR pending its disposition. Extended storage is not contemplated after the material is blended down to LEU. Rather, HEU will only be blended down when it can be promptly moved into the pipeline for either commercial use or disposal. Thus, other sites, such as former military sites, are not needed for storage for this program.

06.002: The Portsmouth Gaseous Diffusion Plant in Piketon, OH, a DOE-owned facility that is leased by USEC, consumes large amounts of electricity in the process of enriching uranium for the commercial nuclear industry. The plant formerly produced HEU for the nuclear weapons program but it never produced or handled Pu. To the extent that blending down surplus HEU for commercial use displaces the need to enrich natural uranium, electricity consumption at the Portsmouth facility (and at its sister facility in Paducah, KY) would be reduced.

PARKER, JAMES V., NORTH AUGUSTA, SC
PAGE 1 OF 1

Office of Fissile Material Disposition
Disposition of Surplus Highly Enriched Uranium
Environmental Impact Statement
Comment Form
United States Department of Energy

Tritium

NAME: (Optional) James V. Parker
ADDRESS: 547 [illegible] Circle, N. Augusta, S.C. 29841
TELEPHONE: (803) 278-3515

Sad to say I don't trust our Gov. as I once did it - subjecting people to radiation without their consent

Why did the U.S. consent to accept radioactive [illegible] matter? When we sent food as [illegible] we didn't accept body waste.
Do these European Countries that send their waste here but fear "outlaw" [illegible] in getting the poison waste.

I heard talk from people who worked at the SRS who [illegible] to vitrify that poison five years ago. Has any been put into glass lately?

I am certainly glad that my water does not come from the [illegible] river. It is my belief that as the years go by the river will become more & more contaminated.

I have said before the site in years to come will be inhabited by buzzards, [illegible] and [illegible]. This will go on for thousands of years

Let's share the "goodies" with other states

06.004

06.004 cont.

Please return your comments to the registration desk or mail to.
U.S Department of Energy
P.O Box 23786, Washington, D C 20026-3786
Or fax comments to. 1 (800) 820-5156

06.004: This comment, which appears to pertain to DOE's foreign research reactor spent fuel and Defense Waste Processing Facility programs, has been forwarded to DOE's Office of Environmental Management, which manages those programs.

1-800-820-5766
1-202-586-0754
1-202-676-7644
1-202-456-2461

December 7, 1995 A full moon-see the light

James E. Phelps 423-588-5585
1600 Buttercup Circle
Knoxville, Tn. 37921

Department of Energy
Office of Fissile Materials Dispositions
P.O. Box 23786
Washington, D. C. 20026-3786

SUBJ: Disposition of Enriched Uranium-Fissile Materials

Dear USDOE Person;

I would suggest the following position in regard to the disposition of enriched uranium. I would favor the position that the uranium be stored in its current states, but given to the Treasury at Fort Knox to be stored in safe and secure underground guarded storage out of the hands of the military, the DOE, and the private nuclear fuels sectors.

I believe that blending down would be a mistake because it creates more mass to be stored and secured and additionally burdens the environment and the national budget. I believe that its use in nuclear reactors should be prevented because nuclear reactors are too expensive and unsafe to build at present. Their is a severe problem with nuclear power generation involving the generation and release of fission release heavy gasses like Kryptons and Xenons that don't mix well in the atmosphere, which decay to Strontiums and Cesiums that cause enormous damage to the environment and the health and welfare of the citizens of the United States. Kryptons and Strontiums reside in the same toxic class as Plutonium as a reference, except these are more dangerous because they are water soluable and pick up in the human chains. These problems have been covered up by the Atomic Energy Act that says any and all measures may be persued to insure the production of nuclear weapons and also the USAEC code Chapter 501 that states its OK to treat the illnesses, but not to disclose the causations. So, until the USDOE wants to engage in openness in the discussion and research of these problems associated with the real problems with the fission processes that they and private industry be denied the continuation of such an improper process, because its illegal and has some large liabilities. 10.020

I further believe it sends a positive message to the world to change the disposition of these materials from the DOE, the DOD, or the nuclear industry that the US has seen their is harm associated with these processes that we want to get away from as a country and as a world. I further believe the USDOE has been lax in its treatment of these materials and should not be entrusted with them as a simple message that they did not do their job for the US citizens. Y-12 has never been a proper place to store this stuff. Perhaps you haven't noticed, but the largest US nuclear accident is at the Y-12 burial ground called the walk in pits. Its almost a Chernobly class accident covered-up by Y-12 and DOE and The people Protection Act. The DOE and Y-12 has proven beyond a shadow of a 10.020 cont.

10.020: One of the objectives of DOE's proposed action is to blend down surplus HEU to LEU to eliminate the risk of diversion for nuclear proliferation purposes. This action is aimed to set a nonproliferation example for other nations and encourage them to follow the same path in transforming HEU into other forms for peaceful and beneficial reuse of the material to the extent possible. Russia has already agreed to blend down and sell substantial portions of its HEU inventory. This proposed action would bring the United States into a reciprocal disarmament posture consistent with them. Storage of surplus HEU in its current form in a new facility with state-of-the art protection systems would require substantial capital cost and continued operating costs. However, storage of this material at the Y-12 Plant (where most of the material currently is) until disposition for up to 10 years, would avoid transportation impacts and additional costs for a new facility. An environmental assessment conducted for the storage of HEU at Y-12 facilities concluded that the facilities are adequate for up to 10 years. Any necessary storage beyond the 10-year period would be covered by the Storage and Disposition PEIS or subsequent tiered or supplemental NEPA documents.

PHELPS, JOHN E., KNOXVILLE, TN
PAGE 2 OF 2

doubt that it can't be trusted or store enriched uranium in a safe fashion!

I believe that the enriched uraniums have a great value in their present form as a possible use in futuristic space platforms and space travel. They also posess a contingency value should they be required for future nation defense options, way down the unforseeable road. I believe their is no value to be had in their blending down to be used in nuclear power generations because the costs in health and building is to extreme. The storage of the uranium in its present form, largely metalic metals in sealed stainless steel cans be the most preferred option. That they be stored at a very secure and well protected place/s like Ft. Knox or a relocation of Government facility would also be preferred. That the protections systems be state of the art and provide for international inspection.

10.020 cont.

Their have been enough cover ups of the problems associated with this stuff and it needs to stop. I regard tainting or vitrification of these materials as totally off base because it can be easily reclaimed chemically. I regard the blending down as dangerous too because its us in nuclear power generation is dangerous to humans. Perhaps you have not noticed that when you fission uranium it produces fission gasses sometimes called fallout that is just as harmful as dropping a bomb except for the flash and percussion wave. It results in severly damaged immune system health disorders.

Just store it safely and compactly in a very safe location out of the DOD/DOE and nuclear industry missuses. I believe that if you consider these points carefully you or whoever can only come to the same conclusion and I believe I can systematically and logically sustantiate this conclusion. I'm really tired of being lied to under the auspices of national security.

Sincerely

James E. Phelps

James E. Phelps, Nuclear Weapons System Designer-Retired

cc: The White House
The Defense Nuclear Facilities Safety Board
Greenpeace
Various Real Environmental Groups
AIDS Awareness
Multuple Sclerosis Society
The Democratic Congress Members
The EPA
Borris Yeltsin
The UN, Vienna and NY
Ralph Nader Foundation
League of Women Voters
DNC
DOJ

K. K. S. Pillay
369, Cheryl Avenue
Los Alamos, NM 87544
December 15, 1995

To: DOE Office of Fissile Material Disposition
HEU EIS
P O. Box 23786
Washington, DC20026-3786

Dear Sirs·

Subject: Comments on Disposition of Surplus HEU Draft EIS (DOE/EIS-0240-DS)

Having reviewed the options proposed in the Draft EIS for the surplus HEU disposition, I have the following comments for your consideration. Among the options proposed, there is only one - Maximum Commercial Use - that makes reasonable sense. Recently, there have been numerous examinations of the legacy of the nuclear weapons complex by the NAS, ANS, EPRI, the Rand Corporation, and the Brookings Institution, among others. All of them reveal the enormous cost involved in the production of nuclear materials and the anticipated costs of environmental restoration from materials production. It is therefore reasonable to expect that the well-intentioned arms reduction process also examine alternatives that will minimize additional expenditures to U.S. tax payers in the name of nuclear material disposition. 10.003

While it is obvious that the production of fissile materials for nuclear weapons have been expensive, there are also arguments to substantiate that these materials are extremely valuable and can be put to beneficial uses for the next generation. HEU is indeed a very valuable material and the likelihood of it being stolen from U.S. stockpiles almost nonexistent. However, in order to encourage the Russians to remove materials from their stockpile and to convince the international community that arms reductions proposed by the U.S. is real, we have to remove it from the defense fuel cycle. Irrespective of all the wishful thinking on the U.S. side, the Russians consider the fissile materials as a valuable resource and are determined to use them for energy production or sell them to those who will provide them with hard currency.

HEU removed from defense fuel cycles can be put to use for the tax payers by using it for energy production in the commercial sector under IAEA safeguards. Since systems and technologies for safeguarding this material in the commercial fuel cycles are well established, it would be extremely important to maximize the use of this material for energy production. There are still about 35 research reactors, 110 commercial reactors, and 135 nuclear propulsion reactors in operation in the U S., that can, in time, use up all these HEU and more. Although the cost recovery may not be much to crow about, the only intelligent option is to use the surplus HEU for peaceful purposes under IAEA safeguards.

Page 1 of 3

10.003: Comment noted.

Pillay, K.K.S., Los Alamos, NM
Page 2 of 3

To: DOE Office of Fissile Material Disposition Page 2 of 3
HEU EIS
P.O. Box. 23786
Washington, DC20026-3786

The scenarios for blending discussed in the Draft EIS do not make much economic sense It is appropriate at this time to recognize that the next major disaster waiting to happen within the defense production complex is the deterioration and leakage of some 200,000 m^3 of UF6 stored in open fields. The HEU disposition opportunity could be used to remove about 10,000 tons of the depleted UF6 from its present vulnerable condition. A proper extension of this disposition program could also be used to stabilize and store all hazardous volatile forms of uranium. 06.007

From a process chemistry perspective, it would be prudent to blend the HEU as UNH, which is an intermediate in the preparation of oxides for nuclear fuel. This process, in principle, can be conducted at existing DOE sites or at the two facilities fabricating naval fuels. However, establishing a safeguards regime in existing facilities within the defense complex and facilities manufacturing naval fuels is not the ideal Retro-fitting these facilities to meet IAEA safeguards requirements would be more expensive than building a new facility just to blend the HEU with DU. The Erwin facility and the B&W facilities are some of the most dilapidated and poorly kept facilities in the U.S and they have been hiding behind the smoke screen of naval fuel production The NRC has been somewhat delinquent in the enforcement of safety and safeguards at these two facilities because of the so-called importance of their mission. It would require enormous resources to bring these facilities into an international safeguards regime and considerable amount of information on "materials unaccounted for" at these facilities will have to be released while establishing safeguards for new operations. Unfortunately, no one has yet addressed the issues of establishing IAEA safeguards for a facility and the true costs associated with it. It is imperative that the blending facility be under IAEA safeguards because of the tremendous value in convincing the international community that the U.S. is really removing the excess HEU from the weapons fuel cycle. 15.004

Arguments in the draft document about job losses in uranium mining, milling, conversion, and enrichment are ridiculous if we consider the benefits of not mining uranium, at least for a while, and removing one of the dangerous residues of the weapons program - the depleted uranium hexaflouride - from the environment. I hope we are not going to wait for the next major disaster to erupt when hexafluoride containers by the thousands starts leaking into the environment. 12.007

All uranium resources are valuable and they are part of the finite resources of this planet It is incumbent on us to maximize the use of these resources that are already extracted to benefit mankind rather than burying it in Nevada or elsewhere. The people of Nevada are already objecting to creating plutonium and uranium mines of the future in their backyard through the burial of spent fuels there. If we start another initiative to bury excess uranium in Nevada, there will be a guaranteed postponement of the Yucca Mountain repository for at least another century

06.007: The Department of Energy agrees that it would be advantageous to use its copious stocks of depleted UF_6 for the surplus HEU disposition program if possible. Unfortunately, for technical reasons having to do with the U-235 content of the product material, depleted uranium would generally not be the preferred blendstock for surplus HEU destined for commercial use. Depleted uranium is likely to be used as blendstock for material that must be disposed as waste, but since UF_6 blending would not be used for waste material, and DOE has ample depleted uranium stocks in the form of oxides and metal that are more readily used in the UNH and metal blending processes, the depleted UF_6 at the enrichment plants is once again unlikely to be used.

15.004: The fact that domestic safeguards regimes (pursuant to NRC or DOE rules) are already in place at the four facilities considered for HEU blending in the HEU Final EIS is one of the major advantages of those facilities over a potential "new" one. Moreover, IAEA safeguards have already begun to be implemented for HEU at two of those facilities, Y–12 and B&W. To the extent that those facilities, or either or both of the other two facilities analyzed in this EIS (SRS and NFS), are involved in HEU disposition actions, DOE's intent is to subject such activities to IAEA safeguards to the maximum feasible extent. Although some special expenditures are involved, it does not appear that "enormous resources" would be required to bring these and the other facilities into an adequate international safeguards regime with respect to their HEU disposition activities. As the commentor notes, the safety and safeguard issues with respect to the B&W and NFS facilities are the responsibility of NRC. The operating records of those facilities do not appear to support the suggestion that they have presented serious public safety or safeguard challenges in the past.

12.007: Socioeconomic impacts on the uranium industry are foreseeable consequences of HEU disposition actions involving commercial use of the material and so must be considered pursuant to NEPA. The positive environmental impacts from avoided portions of the uranium fuel cycle are also relevant consequences of the program and so they also are considered. Unfortunately, due to the need for particular isotopic compositions for commercial material, it is unlikely that any significant quantity of depleted UF_6 can be used as blendstock in the HEU disposition program.

To DOE Office of Fissile Material Disposition
HEU EIS
P.O. Box 23786
Washington, DC20026-3786

Page 3 of 3

Considering all the issues of HEU disposition, it seems prudent to remove the excess materials from weapons complex and store them under IAEA safeguards as soon as possible. This will also meet with the President's offer to place 200 tons of fissile materials under IAEA safeguards. For the long-term, the excess materials should be blended and introduced into the market without seriously impacting prices, while maximizing the energy-related and other beneficial uses. The blending operation should be performed in a brand new commercial facility, under IAEA safeguards, with no other mission conflict. The cost for this new facility should be recovered from the sale of fuel materials produced and sold. This initiative should be used not only to reduce, but to eliminate the DU inventory in gaseous form. The DOE's inventory of NU as hexafluoride may be sold to enrichment facilities for cash. 08.004

Sincerely,

K.K.S. Pillay

(K K S. Pillay)

08.004: The Department of Energy agrees that commercial material needs to be introduced to the market at a rate that does not seriously impact prices. DOE does not consider new commercial facilities necessary for this activity but has no objection if commercial entities wish to license and build them. IAEA safeguards will be applied to HEU disposition activities to the maximum feasible extent. For technical reasons, the use of significant amounts of depleted UF_6 as blendstock is considered unlikely.

POE, W. LEE, JR., AIKEN, SC
PAGE 1 OF 2

807 E. Rollingwood Rd
Aiken, S. C. 29801
January 18, 1996

Mr. J. David Nulton
Office of Fissile Materials Disposition, MD-4
U. S. Department of Energy
P. O. Box 23786
Washington, DC 20026-3786

FAX (800) 820-5156

Dear Mr. Nulton:

Re: Comments on "Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement

I appreciate the opportunity to comment on the October 1995 Draft EIS for, surplus HEU disposition. I would like to provide the following comments on the Draft EIS.

- I fully support the DOE position that beneficial use,of the surplus HEU is the preferred alternative. 10.003 We do differ on the constraint that limits the scope of the EIS which are connected to the President's non-proliferation policy of September 1993. The policy doesn't work. The most recent evidence of this is discussed in recent newspaper article associated with the Russian sale of enriched uranium. The alternatives included in the EIS should not be constrained by this policy. 03.025
- The screening process is seriously constrained by accepting the Presidents Nonproliferation Policy. Before this action can be completed, there may be several Presidents, each with different policies. Don't constrain the alternatives analyzed in this EIS by this policy.
- Recognizing the governments commitment to the President's nonproliferation policy, I will confine the remainder of my comments on the EIS as if that was a given. The proposed action should commit to continued evaluation of the nonproliferation commitments and the uncertainties associated with sale of slightly enriched uranium and diluting HEU to LEU only as needed to meet sales commitment. 03.018
- Continued work should be expended to find a buyer for the HEU listed as potentially a waste before committing to discard it as waste. I hope that there is some value for the 20 to 45% of the 200 metric tons of HEU. Sale may not bring top dollars but it should have value. 04.016
- Don't blend down HEU for disposal until the surplus plutonium PEIS ROD has been issued and the final disposal of the similar plutonium materials are made. 28.004

10.003: Comment noted.

03.025: The alternatives considered in an EIS are not necessarily constrained by current legal requirements and policy positions. The President's nonproliferation policy stems from the end of the Cold War, the need to downsize weapons stockpiles, and the need to do something to reduce the threat posed by excess weapons materials. The President's policy constitutes the basis for the proposed action in this case. To give the administration flexibility to choose whatever course it wishes, the HEU EIS covers all possible reasonable alternatives, including continued storage of HEU (the No Action Alternative).

03.018: In general, DOE does not expect that blending actions will be undertaken until either sale of the material for commercial nuclear fuel or transportation to a repository in the case of blend to waste has been arranged.

04.016: The Department of Energy agrees that much of the off-spec material may have commercial value and intends to aggressively seek buyers for it.

28.004: Surplus Pu and surplus HEU disposition actions are not connected to each other. Consequently, it is not necessary to delay surplus HEU disposition actions, which are relatively simple, until more complex and unrelated surplus Pu disposition decisions are made.

POE, W. LEE, JR., AIKEN, SC
PAGE 2 OF 2

- The EIS should include a discussion on the separative work loss associated with blend down. | 12.022
- I fully support safeguarding this HEU and continuing to work to ensure that every country has safeguards to keep this HEU out of the hands of people and countries that would use it for nuclear explosives or sabotage. | 15.005
- The employment figures given in the DEIS (primarily in Chapter 4) should be placed in perspective with other DOE employment changes. Will the added employment be met by DOE and M&O contractor personnel that would have otherwise been let go? | 24.006
- On page S-5 and elsewhere in the EIS the statement is made that "disposition actions (for this HEU) will be made by Department, USEC, or other private entities acting as marketing agents." This type decision rests with DOE alone and USEC and private entities should not be involved. Fix the EIS. | 01.008

Very truly yours

W. Lee Poe, Jr.

W. Lee Poe, Jr.
807 E. Rollingwood Rd.
Aiken, S. C. 29801

12.022: Section 4.8 of the HEU EIS includes a discussion of the expected impacts on the uranium enrichment industry (separative work loss) from HEU disposition. This discussion is enhanced in the HEU Final EIS to better account for the cumulative impacts from Russian HEU purchases and to reflect enactment of the *USEC Privatization Act.*

15.005: The United States is working with Russia and other nations to help improve safeguards of their fissile materials.

24.006: Some of the new jobs generated at the sites would likely be filled with current DOE and contractor employees who might otherwise have been let go, thereby reducing the impacts of planned DOE downsizing. However, some of the jobs may require specially qualified workers not already available at the site.

01.008: Programmatic and policy decisions concerning the disposition of surplus HEU will be made by DOE in consultation with other appropriate agencies. It is only the specifics of commercial, business, and contracting decisions pertaining to HEU disposition actions that might be made in part by USEC or other non-DOE parties.

PROCTOR, BERNARD, MADISON HEIGHTS, VA
PAGE 1 OF 2

Date Received:	11/15/95
Comment ID:	P0014
Name:	Bemard Proctor
Address:	Madison Heights, VA

Transcription:

This is Bemard Proctor. I live in Madison Heights, Virginia, and I live across the James
River in close proximity to the commercial and naval nuclear fuel facility, Babcock and
Wilcox. I have seen the articles in the Lynchburg news conceming the possibility of
distributing uranium for the process of dilution and offer the following questions and
comments. First of all, I'm not real sure or if will be made known what this process of 22.002
dilution actually is, and how it might affect those of us adjoining the facility. Secondly,
we live on a farm and have groundwater sources, and I am not certain what the impact
would be on our soil and water quality. I believe the Environmental Impact Statement
should address these issues, particularly on those areas in close proximity to this facility
that might be contracted to process this material. The Lynchburg news indicated that
the storage of the material would not be lengthy, and it indicated however, that there
would be a certain portion of the material that would not be immediately useable or
could be reused and it would require storage. It would appear to me that the question 26.001
of storage should be addressed definitively in the Environmental Impact Statement to
the extent that how it would be and what the final disposition of this waste product or
byproduct would be until there was a or for long term storage or for some end-user. I
believe safety has always been a concem at B&W and will probably continue to be.
Several years ago, lights were added to provide for physical safety on the plant, and
these have been somewhat of an annoyance to the adjoining property owners. It
concems me that there may be some process of dilution and storage of this highly
enriched uranium which may impact us again, but we need to be fully informed of what
we need to know with respect to safety and other quality issues. With respect to safety,
if there is a release of this material or a release during some process of this material,
then I think anyone living near the facility should be named specifically in some manner 21.002
of an environmental hazard. According to the newspaper, there had been other
releases at the facility, but these were not found to endanger any persons or property. I
would be concemed that any release may be of some damage or be of some concem
to the adjoining property owners and should be able to participate in the decision on
whether such a release is potentially harmful. At least to know after the fact is not
encouraging. I think these are all the concems that should be included in the
Environmental Impact Statement, and I would be happy to comment to anyone at the
local facility to discuss these concems, particularly with respect to the B&W facility here
in Lynchburg My address is Route 5. *[At this point, time ran out on the message.]*

22.002: The process of HEU dilution is discussed in Chapter 2, Section 2.2.2. Potential impacts of these processes on groundwater resources, soil, and water quality are described in Chapter 4 of the HEU EIS. As discussed in Chapter 4, there would be no direct discharges to surface water and groundwater, and, therefore, water quality would not be affected. Any wastewater that is to be discharged to surface waters would be monitored and treated prior to being discharged and would not be released until it meets all local, Federal, and State permit requirements.

26.001: The rate at which surplus HEU could be introduced into the commercial market for blend down to fuel would be determined over time by many factors, including physical infrastructure, legislative guidance, and future market conditions. Currently, DOE has committed to transfer 50 t of surplus HEU to USEC for blend down to LEU in the next six years. The remaining material would continue to be stored at DOE's Y–12 Plant. Based on future market demand and the factors explained above, additional material could be made available for commercial use. Any material that would not be suitable for commercial use would not be moved out of Y–12 and be blended to waste until a LLW disposal site is identified. The interim storage, pending disposition (for up to 10 years) of surplus HEU at the Y–12 Plant (where most of the HEU would be stored), was analyzed in the Y–12 environmental assessment. Should the surplus HEU disposition actions continue beyond 10 years, subsequent storage of surplus HEU pending disposition will be pursuant to and consistent with the ROD associated with the Storage and Disposition PEIS or tiered NEPA documents.

21.002: The HEU EIS analyzed radiological releases from the proposed blending processes during normal operations of the candidate blending sites as well as under a severe accident condition during which the highest atmospheric release of radioactivity and hazardous chemicals would occur. The analyses showed that all resulting doses during normal operations would be within radiological limits and would be well below levels of natural background radiation. In the case of a severe accident, an evaluation basis earthquake which causes equipment failures and a pressurized release of a UF_6 cylinder, 30 percent of a cylinder containing LEU is assumed to be released in the atmosphere. This assumption is consistent with the NRC's guidance presented in the *Nuclear Fuel Cycle Facility Accident Analysis Handbook* (NUREG-1320, May 1988). It was estimated that the maximum latent cancer facilities for the population within 80 kilometers (km) (50 miles [mi]) of the NFS site would be 1.4. Considering the fact that the severe accident scenario used in the analyses is a highly unlikely event because of the geological and seismic characteristics of NFS, any potential releases from uranium blending operations would pose no observable harm to the public within 80 km (50 mi). Nevertheless, all candidate sites have emergency preparedness programs that would deploy necessary measures to protect both workers and the public. Public and occupational health impacts of radiological releases during both normal operations and accident conditions are discussed in Sections 4.3.1.6, 4.3.2.6, 4.3.3.6, and 4.3.4.6 of the HEU Final EIS.

PROCTOR, JANE, MADISON HEIGHTS, VA
PAGE 1 OF 1

Date Received: 11/15/95
Comment ID: P0013
Name: Jane Proctor
Address: Madison Heights, VA

Transcription:

Hello. This is Jane Proctor calling from Madison Heights, Virginia. I live directly across from the B&W Mt. Athos site. I am concerned about the expansion and the dilution of uranium that is suggested in the article dated Lynchburg News Advance Wednesday, October 25, 1995. I want to know 1) Has an Environmental Impact study been done? 2) Have there been any soil or water or air testing in the area near the B&W Mt. Athos site? 3) How long are the materials going to be stored 4) How are the materials going to get here? What transportation? 5) What safety assurances have been made to nearby land owners? 6) Since I live directly across the river from the B&W Mt. Athos site, no one has ever come over here to do any environmental testing at my location. I would be greatly interested to getting answers to these questions. I hope that you will be coming to the Lynchburg area, as I feel many people in this area are uninformed and uneducated about your process and what exactly will be happening and how it will impact the area. My number is 804-845-8421 I would appreciate a response. Thank you.

06.003

32.002

06.003: Chapter 4 of the HEU Final EIS addresses the potential impacts at the B&W facility from this proposed action, (Sections 2.4 and 4.3), as well as transportation of materials to and from the site (Section 4.4 and Appendix G). The safety of all nuclear activities at the site are governed by the facility's NRC license.

32.002: The Department of Energy welcomes your comments on the HEU Draft EIS, which describes actions regarding the disposition of surplus HEU that the President has declared surplus to our national defense needs. DOE considers every comment that is submitted with equal interest in assisting them to evaluate alternatives and make informed decisions.

However, DOE must work within the constraints imposed by available funding and resources. Because DOE is trying to reduce costs of complying with NEPA of 1969, as amended, and due to the geographical proximity of three of the four candidate sites identified in the HEU EIS, DOE determined that two public meetings (Knoxville, TN and Augusta, GA) would be appropriate for this program.

Because public involvement is critical to the success of the program, other methods for submitting comments were also made available throughout the comment period: toll-free fax and voice recording, electronic bulletin board, and U.S. mail. These methods can also be used to request additional information and to be placed on the Office of Fissile Materials Disposition's mailing list.

PROCTOR, KATY, MADISON HEIGHTS, VA
PAGE 1 OF 1

Date Received: 11/15/95
Comment ID: P0016
Name: Katy Proctor
Address: No Address Given

Transcription:

I was just calling about the concerns of the uranium being shipped in, and we are very concerned with that. So call us. I'm Katy Proctor, across the river from you, at 845-8421 area code 804. Thank you. 20.001

20.001: As with all hazardous materials, uranium is regulated to control potential risk. The quantity of uranium that would be shipped to or held at the B&W site would never exceed the safe limits authorized by the Department of Transportation or NRC. As explained in Section 4.4 and Appendix G of the HEU Final EIS, the Department of Transportation-specification packaging used for shipping HEU is specifically designed and tested to withstand transport accidents. DOE's 40-year record without an injury from a radioactive release testifies to the high level of safety demanded in transporting these materials.

QUATMANN, VICKI, LAKE CITY, TN
PAGE 1 OF 1

Vicki Quatmann
506 Old Lake City Hwy
Lake City, Tennessee 37769
Phone and Fax (423)426-9435
Voice Mail (303)754-7524

1/23/96

Dear People at the Department of Energy,

I understand that there is a move afoot to make highly enriched uranium into nuclear reactor fuel. I am writing to register my overwhelming opposition to this intention. Why would anyone want to create any more of the radioactive waste that we have no way of disposal safely!?? We have enough on our hands to keep us busy worrying for the next century. 10.024

Further, making highy enriched uranium into nuclear reactor fuel will, of course, make plutonium-- a violation of our nonproliferation goals.

Finally, my understanding is that the DOE hasn't begun to explore options for storing downblended uranium. 09.018
My own feeling is that we should make serious efforts to downblend all highly enriched uranium that is surplus so that it can't be used in weapons. 10.003

Count me among those who do NOT want any production processes to make the furtherance of nuclear proliferation possible.

Thank you

Vicki Quatmann

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

10.003: Comment noted.

RANDALL, ROBERT, BRUNSWICK, GA
PAGE 1 OF 1

Date Received: 01/16/96
Comment ID: P0051
Name: Robert Randall
Address: Brunswick, Georgia

Transcription:

Yes, hello, this is Robert Randall, I'm calling from Brunswick, Georgia. I just wanted to call and first I want to note that I find it amazing that we now have surplus highly enriched uranium when we were once told that we needed to make more of the stuff, same thing with surplus plutonium. Because we seem to always have surpluses, I think it's a very bad idea to make this highly enriched uranium into nuclear reactor fuel. We simply don't need to do something that's going to create even more plutonium, which we've already got too much of and can't figure out what to do. We need to down blend the highly enriched uranium. Make sure that it cannot ever be used in weapons. We need to do that ourselves unilaterally and work even harder of course, to get an international agreement to do that. It's the only way we're going to be able to stop proliferation. If you follow your plans to turn it into nuclear reactor fuel, proliferation is going to be inevitable. That's my comment. Thank you.

10.024
10.023
03.020
10.024 cont.

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

RUNDLE, BOB, KNOXVILLE, TN
PAGE 1 OF 2

January 4, 1995

DOE/Fissile Materials Disposition
c/o SAIC/HUE EIS
Box 23786
Washington, DC 20026-3786

Greetings:

I strongly object to the idea of making highly enriched uranium into nuclear reactor fuel. It is hard to believe that our government at this time of budget restraints and world peace is considering actions which are costly, have the potential of adding to our already overwhelming lead in nuclear weapons, violate our nonproliferation goals, and add to our unsolved radioactive waste problem. It is hard to imagine a governmental policy that has more negatives attached to it. 10.024

I urge your support for these policies instead:
- international controls on all nuclear materials 03.020
- downblending all highly enriched uranuim so it cannot be used in weapons 10.023
- creating the capacity to downblend all uranium declared surplus in ten years

Enclosed is a copy of a letter I recently sent to our local paper that expands on the nuclear policy issue.

Thank you for your consideration.

Sincerely yours,

Bob Rundle

Bob Rundle
1318 N. Briscoe Cir.
Knoxville, TN 37912

cc President Clinton

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

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10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 10 to 15 years to blend the entire surplus HEU inventory.

December 28, 1995

Editor, News Sentinel
208 W. Church St.
Knoxville, TN 37902

Re: Letters

Greetings:

The headline for the 12-15-95 letter by Mile Stabin, "Anti-nuclear activists putting society at risk", should take a prize for the most ironic and misleading headline of 1995. Mr. Stabin's letter focuses on minor parts of the nuclear debate: risks associated with low level radiation, nuclear power generation and uses in medicine. The critical issue of our time is how to deal with nuclear weapons. The recent demonstrations in France by "nuclear activists" stemming from that country's nuclear tests had little to do with these minor issues and everything to do with this critical one.

Because of its awesome and unimaginable nature, the usual response to the possibility of nuclear war is denial. Hence it is much easier to focus on the fringe issues and continue to rely on such illogical policies as deterrence to keep us "safe". The deterrence approach says if I have enough weapons, I will deter anyone from attacking me. This usually does not work on the personal level. At the nuclear level deterrence is self-destructive. This approach of course grew out of the cold war with the Soviets. Every administration since Hiroshima has endorsed it even though aware of its fundamental flaw: if we are attacked with nuclear bombs, even in a "limited" war, our stockpile of 8000 nuclear arms is useless. The effects from the attack will be enough to destroy us, our attackers as well as everyone else! It is a shame that Washington does not do more to publicize this.

In fact our huge stockpile serves to create more danger for us. We model for the world that one way to be more powerful is to increase or develop nuclear weapons. The danger of atomic weapons increases as all nations seek to be more powerful.

The deterrence policy also contains budetary problems. In this time of efforts to balance the budget, it is hard to believe that the Department of Energy is planning on building more nuclear weapons and the expensive equipment to produce more tritium gas (to replace that which is deteriorating in existing weapons). And we are looking for places to save money!

We should be working much harder toward the only policy about nuclear weapons that makes sense: their reduction and control. If there ever was a time for all nations in the nuclear club to begin releasing their death grip on the policy of deterrence, it is while tensions are lowered. I'm afraid your headline only adds to our denial. Since the United States has an overwhelming lead in nuclear weapons, we have the primary responsibility to lead the world in developing sane policies about them. "Nuclear activists" are the primary group around the world that are trying to reduce the nuclear threat.

Sincerely yours,

Bob Rundle

Bob Rundle
1318 N. Briscoe Cir.
Knoxville, TN 37912
687-9060

SANFORD, CHARLES S., NASHVILLE, TN
PAGE 1 OF 1

> #name = charles s sanford
> #title = mgr
> #company = S&A
> #addr1 = 1803 primrose ave
> #addr2 =
> #city = nashville
> #state = tn
> #zip = 37212
> #phone = (615)383-8428
> #fax =
> #email =
> #subject = HEU EIS

The emphasis here and, apparently, in the EIS is that of co-joint (ignore "non-proliferation") commercial utilization. In contrast, I believe that maximum national economic gain should supercede. For example: short term treasury cashflow is not necessarily worth other economic losses. Commercial versus economic should be carefully analyzed. A commercial operation will not necessarily have the welfare of the state as its highest priority As previously stated - foreign sales. Furthermore, a blend-down to less than 4% with a higher throughput greater the 46 year processing rate (1%) material will yield more jobs. Restricting the use of any commercial grade materials will neutralize imports. And forbidding export will protect US energy production costs while denying (e.g.) Pacific Rim nations access to nuclear power production. Presuming that sales of US manufactured (or US design) reactors is the end result of the "commercial" goal of the selected alternative, then the job loss to the US (in terms of foreign competition in manufacturing) should be considered with full economic impact which is not necessarily commercial impact. One includes the other, but not vice versa. bye

06.006

06.006: There is no connection between the proposed action (blending surplus HEU down to LEU for commercial use or waste disposal) and the sale of reactors. Nuclear fuel derived from surplus HEU would simply displace LEU derived from natural uranium and is expected to have no impact on the economics or operation of nuclear power plants. This program does not propose to entrust the welfare of the State to "commercial operations." Commercial operations are expected to be involved in the blending of surplus HEU, and in the use of the resultant nuclear fuel, but would in no way determine the policy aspects of the surplus HEU disposition program.

SANFORD, CHARLES S., NASHVILLE, TN
PAGE 1 OF 1

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> #name = charles s sanford
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the ratio, volumes and quantities of materials to be processed (down-blended) is "classified". Surely, the environmental impact must, likewise, be classified. Unless production throughputs of materials at sites are factually known, then the "HEU EIS" is a "carte blanche" document to which public comments can only be genericaly given. More specificity would be appreciated for an informed opinion; otherwise, the DOE should wait until the materials are declassified so that more public information is available. One must presume that the driving force for the HEU EIS is the release of materials for the enrichment corporations stock offering in the Spring. It is almost too obvious. Is DOE prepared for the consequences of transferring public assests to a public corporation; especially when the public is denied knowledge of the composition of those assets. Perhaps I am wrong and this is a simple case of DOE not knowing themselves, but being required to submit draft doc for comment. bye

29.002

29.002: The purpose and need for the HEU Final EIS is for the United States to provide leadership in addressing global nonproliferation concerns regarding surplus HEU and to encourage reciprocal actions abroad.

On February 6, 1996, the Secretary of Energy declassified additional information about the forms, locations, and quantities of surplus HEU. That information is provided in Figure 1.3–1, and the relevant data is reflected in several revisions to the HEU Final EIS.

The HEU Final EIS explains that decisions as to where specific batches of HEU will be processed are expected to be based largely on business considerations and may involve USEC, other private entities that may buy surplus HEU for blending, or DOE. While the proposed transfer to USEC of 50 t of HEU is considered as a component of all the commercial use alternatives (3 through 5) in the EIS, the EIS covers the disposition of much more material (up to 200 t).

SANFORD, CHARLES S., NASHVILLE, TN
PAGE 1 OF 1

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\> #fax =
\> #email =
\> #subject = HEU EIS

1. Price constraints on a market will affect foreign sales and disposition. These sales will influence foreign electric costs such that product competition will costs domestic jobs and raise social welfare costs. | 04.001
2. Total life-cycle costs should include final disposition of potential recycled HEU reactor fuels. | 16.006
3. The less than 4% blend-down will position the US on the "moral" high, for what it's worth. | 10.018
4. Are EPA comments to draft EIS available? | 32.012

thank you

04.001: The Department of Energy intends to sell uranium at measured rates to avoid significant effects on market prices.

16.006: Including spent fuel disposal costs in the cost analysis for this program would be justified only if the spent fuel were in addition to that which would be generated in the absence of the program, which is not the case.

10.018: Comment noted.

32.012: Comments submitted by the EPA and DOE's responses to those comments are presented in this *Comment Analysis and Response Document.*

Jan 9, 1996

Dept. of Energy:

We do not support making highly enriched uranium into nuclear reactor fuel because:

1 We have no solution for getting rid of the highly toxic & radioactive waste from it.

2 it will create plutonium, a violation of our non proliferation goals.

3 they have not adequately explored all options, including storing down blended uranium.

10.024

09.018

We do support.

– down blending all highly enriched uranium so that it can't be used in weapons,

– developing the capacity to down blend all uranium declared surplus in 10 years,

– international controls on all nuclear materials

10.023

03.020

Sincerely Genny Schelldorf
and Cindy Schelldorf
9112 Hudson Lane
Louisville, KY 40291

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

09.018: The Department of Energy does not consider the option of blending surplus HEU for extended storage reasonable because it would delay beneficial re-use of the material; delay recovery of the economic value of the material; add storage costs; reduce net revenues in the near term; not meet all aspects of the purpose and need of the proposed action; and be practically applicable without additional construction to only a small portion (20 t or approximately 40 t if a solidification facility is proposed and constructed at or near SRS) of the current surplus inventory.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y-12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

SHACKELFORD, RANDY, JOHNSON CITY, TN
PAGE 1 OF 1

10593

United States Department of Energy

NAME: (Optional) Randy Shackelford
ADDRESS: 501C Pilgrim Court, Johnson City, TN 37601
TELEPHONE: ( ) (423) 929-9107 (Home)/(423) 743-9141

I want to express my full support for the preferred alternative for the disposition of surplus highly enriched uranium (i.e., Alternative 5: Maximum Commercial Use). I believe this option is the most reasonable alternative from a variety of standpoints (i.e., environmental, economical, nonproliferational, etc.). Although I would like to see this material come to the Nuclear Fuel Services Facility in Erwin, Tennessee, Alternative 5 is the only reasonable option regardless of which facility performs the blending. 10.003

I would, however, like more information on exactly how the preferred blending site will be selected (i.e., what will be the basis for selecting the preferred blending facility?). 08.005

Please return your comments to the registration desk or mail to:
U.S. Department of Energy
P.O. Box 23786, Washington, D.C. 20026-3786
Or fax comments to: 1 (800) 820-5156

10.003: Comment noted.

08.005: Under the Preferred Alternative, DOE considers it likely that more than one facility will participate in the HEU blending program. It is anticipated that competitive bidding procedures will play an integral role in the selection of blending facilities, and decisions could be made by USEC or other entities in addition to DOE.

124 Chestnut St., #210
Englewood, OH 45322
December 31, 1995

David Nulton
Office of Fissile Materials Disposition
United States Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear David Nulton:

The Department of Energy's *Environmental Impact Statement* on the *Disposition of Highly Enriched Uranium* has two goals: the first is to achieve nonproliferation of weapons-grade uranium, and the second to realize the peaceful and beneficial use of this radioactive material in a way which will return monies to the federal treasury, i.e., use as commercial nuclear fuel.

The first goal of nonproliferation is questionable since no controls for spent nuclear fuel are indicated (except as these may appear in a separate document). Downblending to nuclear fuel and fuel-rod sales are being turned over to the United States Enrichment Corporation which could, and likely will, market the radioactive fuel internationally. No controls are specified over the reprocessing of the resultant spent fuel or on the return of the spent fuel to the United States. 03.024

The second goal of returned monies to United States coffers, as yet unquantified and not likely to be so, offers only a blind eye to proliferation possibilities.

The time required for downblending at the Portsmouth and Paducah sites to four percent at present capacity would take ten years for the initial 200 tons of highly enriched uranium (HEU). It is likely that more HEU will be declared to be surplus during that ten years. No other potential downblending sites are named as a means of maintaining a reasonable time-frame. 07.013

Also, the preferred option of commercial use of downblended HEU as fuel would result in thousands of tons of spent nuclear fuel. No analysis of the environmental impacts or costs for storage of this spent fuel have been offered or are forthcoming. 14.005

I sincerely believe the following steps would secure the most reasoned results for the disposition of HEU:

1. Downblending the HEU would be the surest way to achieve the nations goal of nonproliferation of nuclear weapons. 09.020

2. Downblended HEU sold on the world market as fuel would compromise nonproliferation unless criteria to prevent reprocessing are required. Nonproliferation should have a higher priority than monies coming into the federal coffers. 03.024 cont.

3. Downblending HEU to four percent and storing indefinitely with full record and inspection procedures in place would allow the best time-frame for removing the HEU from weapons usable radioactive material. 09.020 cont.

4. The HEU disposition plan must be a long-term plan which includes environmental impacts, health, and safety factors (for workers and the public) for all phases from downblending to safe disposal of spent nuclear fuel. 30.009

5. The disposition plan should conform to international standards (IAEA) of control, safeguard, 15.006

03.024: The Department of Energy agrees that nonproliferation is the predominant objective of the HEU disposition program. DOE considers it unnecessary to place controls on the commercial spent fuel that would result from the commercial use of LEU fuel derived from surplus HEU, because that LEU fuel derived from surplus HEU would simply replace fuel that would be used anyway. Consequently, there would be no increase in the generation of spent fuel (and no increase in the possibility of reprocessing of spent fuel abroad for commercial [non-weapons] use) as a consequence of the HEU disposition program.

A study comparing the costs of HEU disposition alternatives has been prepared for DOE separately from this EIS to aid in reaching an ROD concerning HEU disposition. This study (which has been disseminated to this commentor and all others who expressed an interest in this subject) confirms DOE's preliminary conclusion that sale and commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste, and in the best case, would actually yield net revenues of several hundred million dollars to the Federal Treasury. Because blending for commercial use and blending for disposal as waste are deemed equivalent in terms of serving the nonproliferation objective, there is no conflict between that objective and the economic recovery objective of the HEU disposition program.

07.013: Except for 13 t of highly enriched UF_6 that was transferred to USEC in 1994 as part of the transaction that created USEC, which is currently being blended at the Portsmouth Gaseous Diffusion Plant, the HEU Final EIS does not contemplate any HEU blending at the two enrichment plants. Those facilities could blend HEU only in the form of UF_6, and there is no additional surplus HEU in that form. The EIS analyzes HEU blending at four other facilities, two DOE and two commercial. DOE estimates that in light of its ability to make material available for blending and other constraints on its ability to process material, blending up to 200 t of HEU is likely to take 20 to 25 years to complete. DOE considers that a reasonable timeframe for these activities.

14.005: The HEU EIS does not need to explicitly analyze the disposal of spent fuel, since this program would create no incremental spent fuel to dispose of. As explained in Section 1.4.2 of the HEU EIS, spent fuel management and disposal is covered by the *Nuclear Waste Policy Act*, as amended. That program has its own NEPA process which must be fulfilled.

SHEARER, VELMA M., ENGLEWOOD, OH
PAGE 2 OF 2

and transparency. 15.006 cont.

6. Since the downblending capacities of Portsmouth and Paducah are limited, further capacity should be considered in order to accomplish the task within the specified time and to demonstrate to other nations that the United States is serious about nonproliferation. 07.013 cont.

7. An option for the future (the second decade of downblending) would be to downblend to one percent the stored uranium of four percent enrichment, and then to plan for its disposal. 09.006

I sincerely appreciate the opportunity to comment on this document and look forward to your response.

Sincerely,

Velma M. Shearer

Rev. Dr. Velma M. Shearer

09.020: Down-blending the HEU is the objective of all of DOE's action alternatives. DOE does not consider the option of blending HEU for extended storage reasonable because it would delay recovery of the economic value of the material and incur unnecessary costs and environmental impacts due to the need to build additional storage capacity to accommodate the increased volume of the material.

30.009: The disposal of spent fuel does not need to be considered in the HEU EIS because, as discussed in Section 1.4.2 of the HEU Final EIS, the surplus HEU disposition program would create no spent fuel that would not exist in its absence.

15.006: It is DOE's intent to subject the surplus HEU disposition program to IAEA safeguards to the maximum feasible extent.

09.006: The Department of Energy does not consider it reasonable to blend surplus HEU to 4-percent LEU and then store it for an extended period of time. Such a course would maximize Government expenditures for disposition, because it would necessitate the construction of new storage facilities for the much higher volume of material and would involve no offsetting revenues from sales of commercial material. HEU that is destined to be blended to 0.9-percent LEU for disposal as waste would likely be blended directly to that enrichment level, rather than stopping at an intermediate 4-percent level for some years of storage.

Sierra Club-State of Franklin Group

Linda Cataldo Modica, Group Chair
266 Mayberry Road
Jonesborough, TN 37659
Phone (423) 753-9697
Fax: (423) 753 5429
E-mail. linda.modica@sierraclub org

January 22, 1996

DOE--Office of Fissile Materials Disposition
c/o SAIC-HEU EIS
P.O. Box 23786
Washington, DC 20026-3786 VIA FAX: (800) 820-5156

RE: COMMENTS ON THE DISPOSITION OF SURPLUS HIGHLY ENRICHED URANIUM, DRAFT ENVIRONMENTAL IMPACT STATEMENT, OCT. 1995

Dear Sir or Madam:

The State of Franklin Group of the Sierra Club appreciates the opportunity to comment on the Draft Environmental Impact Statement on the Disposition of Surplus Highly Enriched Uranium. Our Group has 300 members in the Tri-Cities area which encompasses the town of Erwin, TN -- the location of the Nuclear Fuel Services company, one of the firms that may perform downblending operations under DOE's "preferred alternative."

Comments

1) The Department of Energy, by holding only a workshop 100 mil es away, has failed to offer the community of Erwin the opportunity to become better informed of the Highly Enriched Uranium (HEU) disposition problem, and to voice its concerns over Nuclear Fuel Services' involvement in the HEU disposition program. Therefore, a hearing in Erwin (or in another nearby town, like Johnson City) should be scheduled immediately. 32.014

2) At the soonest possible date, the DOE should embark upon an epidemiological study of the health of the people of Erwin, and of Jonesborough and Greeneville, the largest communities downstream of Nuclear Fuel Services. Previous studies have focused only on NFS's workers and have failed to exhaustively assess the health affect of NFS's radioactive discharges into the air and water. 06.022

32.014: The Department of Energy welcomes your comments on the HEU Draft EIS. However, DOE must work within the constraints imposed by available funding and resources. Because DOE is trying to reduce costs of complying with the NEPA, and due to the geographical proximity of three of the four candidate sites identified in the HEU EIS, DOE determined that two public meetings (Knoxville, TN and Augusta, GA) would be appropriate for this program.

Because public involvement is critical to the success of the program, other methods were also made available throughout the comment period: toll-free fax and voice recording, electronic bulletin board, and U.S. mail. These methods can also be used to request additional information or to be placed on the Office of Fissile Materials Disposition's mailing list.

06.022: The *National Environmental Policy Act* does not mandate epidemiological studies such as are requested. The analysis in the HEU EIS includes impacts on surrounding populations as well as site workers, and indicates that, in the absence of highly unlikely accidents, the health and safety impacts of surplus HEU disposition actions at NFS would be low. The safety of the NFS facility is regulated by NRC. The HEU Final EIS also includes available epidemiological data (Appendix E.4).

SIERRA CLUB, JONESBOROUGH, TN
PAGE 2 OF 4

3) As the draft EIS notes (p. 3-102), Nuclear Fuel Services is built on the floodplain of the Nolichucky River. But what the DOE's report fails to adequately consider are the disastrous affects on water quality downstream of NFS in the event of a major flood which would inundate much of the plant, according to recent geologic analyses. [See R. David Bagaley III, "Paleohydraulic Reconstruction of Flood Peaks from Boulder Deposits Along Three Reaches of the Nolichucky River in Northeastern Tennessee," May 1993. See also Tennessee Valley Authority, "Floods on Nolichucky River and North & South Indian Creeks in Vicinity of Erwin Tennessee."] 22.014

4) The draft EIS fails to accurately report that Nuclear Fuel Services has had an accident history fraught with mishaps and Material Unaccounted For (MUF) incidents. While NFS may not have committed any OSHA or TOSHA infractions during the past 7 years (p.3-117), Nuclear Fuel Service employees caused a substantial explosion and fire in 1992 by failing to adhere to appropriate materials handling practices. A burst valve in August 1979 caused a significant airborne release of uranium hexafluoride gas, and press accounts report that NFS dumped 250 pounds of uranium into the Nolichucky River in 1977. Furthermore, throughout the 1970s, NFS so miserably failed in its recordkeeping <u>and/or</u> safeguarding responsibilities, that substantial amounts of highly enriched uranium are still considered Material Unaccounted For (MUF). The State of Franklin Group does not believe that the Tri-Cities public considers Nuclear Fuel Services' record "exemplary" (p.3-117). 21.020

5) Nuclear Fuel Services should be restrained from any new commercial activity until its site is completely remediated. Decommissioning at NFS is currently underway, and the contamination caused by previous accidents, as well as normal operations, is being removed. Sediments in Banner Spring Branch, Martin Creek & the Nolichucky River -- as well as the groundwater below the plant -- need to be exhaustively tested to ensure that all radioactive contamination (which poses a threat to human health, aquatic organisms & the popular sport of fishing) is abated. Employment of laid-off workers might be increased to speed up the decontamination process. 25.002

6) To ensure that the community of Erwin is apprised of NFS' progress toward decontamination of its site and of public waterways, a Citizens Advisory Board needs to be formed. The Citizens Advisory Board should be given the authority to question NFS, NRC and DOE management on the adequacy of the decontamination measures undertaken. Should the DOE select Nuclear Fuel Services as a contractor which would perform downblending operations, the Citizens Advisory Board should continue to monitor NFS and report to the community on public health issues. 32.013

22.014: After review of a study *Paleohydraulic Reconstruction of Flood Peaks from Boulder Deposits Along Three Reaches of the Nolichucky River in Northeastern Tennessee* (Bagaley, May 1993) and Tennessee Valley Authority's *Floods on Nolichucky River* and *North and South Indian Creeks in Vicinity of Erwin Tennessee* (Report No. 0-6589, March 1967), as well as other studies and maps (that is, Federal Emergency Managements Agency's [FEMA] Flood Insurance Study from 1984 and the 1985 FEMA Flood Insurance Rate Map), it was concluded that the site is located in the probable maximum flood area as well as 100- and 500-year floodplains of the Nolichucky River, as the HEU EIS states. Numerous warning devices and systems are in place along the river to warn the public and the plant of the chance of flooding. The NFS site has emergency plans that are in place to contact the City of Jonesborough Water Treatment Plant as well as other national, State, and local committees to inform them when any accidental releases from the plant occurs. During flooding or because of accidental releases to the surface water, the Jonesborough Water Treatment Plant closes off the water intake valves to avoid contamination to the public water supply. In addition, the intake valves are monitored routinely for any water contamination problems.

21.020: The Nuclear Fuel Services Fuel Fabrication Plant has never experienced a fatality resulting from work-related activities nor has a criticality accident ever occurred at NFS. A release of UF_6 occurred on August 7, 1979. The incident was investigated by NRC and was concluded that the quantities released were within regulatory levels. Mitigation measures were implemented after this event. The vaporization station and the scrubbing system were redesigned. A secondary scrubber was added exterior to the process. Detection systems were installed with an alarm at the work station for the process ductwork prior to the entire scrubber and in the stack after the scrubbing systems. In addition, monitoring systems were enhanced and operational procedures were revised.

On September 17, 1979, NFS was closed by NRC because of a uranium inventory difference. On that date, NFS reported to the NRC that the inventory difference for the bimonthly physical inventory taken on August 14, 1979, was in excess of the upper limit specified in the license condition. The plant was closed that same day, and an NRC inspection team examined the plant's inventory listing and item control system records. After a full investigation by NRC, it was determined that the incident was the result of bookkeeping flaws and no material was found to be missing. The unaccounted uranium was located in the process holdup (ventilating hoods, flues, filters, ductwork, piping). The uranium accounting system was modified, and a stringent campaign was conducted to measure the uranium in the ventilation systems. To date, NFS has met all measurement limits of errors.

7) Nuclear Fuel Services should never again be allowed to regulate itself. Should the DOE embark upon its "preferred alternative" and select NFS as a contractor, the Erwin facility should be vigorously & constantly monitored by a full-time NRC inspector. 25.004

8) The State of Franklin Group is sympathetic to the plight of the 400 NFS employees who have been terminated and who are now working at considerably lower wages, or are still unemployed. Should NFS fail to obtain a downblending contract from the DOE, another 300 jobs may be lost. Like the rest of the community, the State of Franklin Group wants workers to be gainfully employed in facilities that do not pose threats to worker or public safety. Therefore, high-tech, high-wage environmentally-friendly alternative employment should be sought for the employees of NFS by the Nuclear Regulatory Commission, the Department of Energy, the State of Tennessee, the Oil, Chemical & Atomic Workers Union, and other agencies. Also, Nuclear Fuels Services' management should further develop the expertise of its workforce in consulting and R&D. Clean services like these would be welcomed in the community of Erwin once NFS decontaminates its facilities. 24.008

9) Old age will cause the retirement of a substantial portion of the nation's nuclear generating capacity over the next few years. Further, fusion power should begin to substitute for fission early in the 21st Century. The demand for power plant fuel will therefore decline, which leads the State of Franklin Group to question the need for the DOE's commercial-fuel-from-weapons downblending program. Sequestration of the surplus highly enriched uranium at the Y-12 plant might be a safer option from the standpoint of human health and nonproliferation. [See comments by Pete Zars, private citizen of Erwin, dated 1/23/96.] 09.023

Thank you again for the opportunity to comment on DOE's draft EIS. Please keep the State of Franklin Group informed throughout the decision making process. Our Sierra Club Group offers its services to the Tri-Cities and the DOE, and will welcome the opportunity to serve on the Citizens Advisory Board. The State of Franklin Group could also assist the DOE in the development of a mailing list of individuals who should be invited to speak at the public hearing in Erwin, and in the formation of a list of members of the local medical community who should be consulted for the epidemiological study. 32.015

Sincerely,

Linda C. Modica
Linda C. Modica
Group Chair

A flash fire did occur inside the 200 Complex at a dissolver in 1992. Material processed in the dissolver burst into flames and caused localized damage inside the facility. The ventilation and emergency response systems prevented radioactive releases outside the facility. There were no injuries nor overexposures to employees. The NRC conducted an independent investigation (NRC Report CAL070-0143/92-01). Administrative procedures were revised to prevent recurrence.

No single incident occurred releasing 250 pounds of uranium into the Nolichucky River in 1977. In 1977, a treatment system was implemented at NFS to reduce the uranium content in waste waters being discharged to the Nolichucky River. Prior to that, the waste water was not treated, and uranium was being discharged in minimal concentrations.

25.002: The Nuclear Fuel Services Fuel Fabrication Plant has prepared a work plan for Phase 1 decommissioning and decontamination of the NFS site. The work plan has been approved by the State of Tennessee, EPA, and NRC. Work is underway in accordance with the approved work plan. NFS is also preparing a comprehensive plan for subsequent phases of the decommissioning and decontamination of the site. When completed, this plan will be submitted to the appropriate regulatory agencies for approval.

32.013: The NFS site is a privately operated commercial entity whose operations are regulated by NRC, EPA, and State regulatory agencies. DOE has no regulatory jurisdiction over NFS operations nor does DOE have authority to establish a Citizen Advisory Board for the community of Erwin. Furthermore, selection of a contractor (or a site) or contractors to perform down-blending operations will be based largely on business considerations including availability of the site when needed and competitive bidding.

25.004: The Nuclear Fuel Services Fuel Fabrication Plant has never been allowed to regulate itself; it has always been licensed and regulated by NRC or its predecessor, the Atomic Energy Commission. NRC places resident inspectors at all power reactors but only rarely at materials licensees such as NFS.

24.008: Decisions about where specific batches of HEU are expected to be blended are based largely on business considerations, although employment impacts are also relevant. Alternative economic development for the Erwin area is outside the scope of this EIS.

SIERRA CLUB, JONESBOROUGH, TN
PAGE 4 OF 4

09.023: The Department of Energy agrees that storage of HEU at the Y–12 Plant for a moderate time (10 to 15 years) presents no serious safety or safeguard risks. However, in the longer term, such storage is unacceptable from a nonproliferation standpoint because it leaves the material in weapons-usable form, thus failing to set an example for other nations.

32.015: The Department of Energy supports the public's involvement and is fully committed to giving the public access to information about its activities and opportunities for involvement in DOE's decisionmaking process. To facilitate this, the Office of Fissile Materials Disposition has compiled and continuously maintains a mailing list of individuals and organizations interested in the storage and disposition of weapons-usable fissile materials. These parties receive newsletters, fact sheets, and other information addressing program activities. Anyone who would like to be added to this mailing list should forward their request to:

U.S. Department of Energy
Office of Fissile Materials Disposition, MD-4
1000 Independence Ave., S.W.
Washington, DC 20585

Southern Nuclear Operating Company
Post Office Box 1295
Birmingham, Alabama 35201
Telephone (205) 868-5550
Fax (205) 870-6165

James H. Miller III
Executive Vice President and Corporate Counsel

Southern Nuclear Operating Company
a subsidiary of The Southern Company

January 16, 1996

U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, D.C. 20226-3786

**COMMENTS ON
THE DISPOSITION OF SURPLUS HIGHLY ENRICHED URANIUM
DRAFT ENVIRONMENTAL IMPACT STATEMENT
(60 Federal Register 55021 Dated October 27, 1995)**

Dear Sir:

In response to the Department of Energy's October 27, 1995 notice in the Federal Register, Southern Nuclear Operating Company, Inc. has reviewed The Disposition of Surplus Highly Enriched Uranium (HEU) Draft Environmental Impact Statement (EIS) and is providing the following comments:

1) We strongly support the Department of Energy's (DOE) proposal to blend down to the maximum extent possible surplus HEU to Low-Enriched Uranium (LEU) for use as commercial nuclear fuel (Alternative 5 of the Draft Environmental Impact Statement). This alternative provides the best options for eliminating the risk of diversion for nuclear proliferation purposes while minimizing any impact on the environment.

2) We concur with DOE's analysis that Alternative 5 will have the least impact on the environment from an ultimate waste disposal standpoint.

3) We believe DOE has over estimated the reduction in deliveries that domestic producers would experience during the blending period and that the Department should review its analysis in this area. Based on studies available to us, which include LEU supplies from both Russian and U.S. HEU blending, world uranium inventories would be projected to continue to decrease and U.S. production to continue to increase. 12.011

4) We disagree with DOE's assessment that an oversupply condition exists in the conversion industry. With the shutdown of the Sequoyah Fuels Corporation facility, the CAMECO Corporation and Allied-Signal, Inc. facilities are the only remaining conversion suppliers in North America. These suppliers have indicated their near term production has been soldout and are looking into ways to expand their existing production capabilities.

12.011: The HEU Final EIS has been revised to more accurately describe the current status of the domestic conversion industry. DOE agrees with the commentor that the HEU EIS no longer accurately portrays the current condition of the domestic markets for nuclear fuel products. Both the uranium and conversion products market are predicted to remain strong in the short and medium term. Prices have increased dramatically in the first quarter of 1996. Long-term prospects, however, are more uncertain. Producers and buyers of conversion products have provided DOE with contradictory projections on future supply and demand. DOE believes, however, that there would not be long-term adverse impacts on the conversion industry, and any adverse impacts that did occur would be largely attributable to the larger quantity of Russian material—not domestic HEU.

Southern Nuclear Operating Company, Birmingham, AL
Page 2 of 2

January 16, 1996
Page 2.

Further, U.S. and European import restrictions and controls upon Russian material restrict the utilization of Russian conversion capacity. We recommend DOE review its impact analysis on the conversion industry. | 12.011 cont.

Should you have any question, please advise.

Respectfully submitted,

J. H. Miller, III

JHM/BEH

SPARKS, DENNIS, UNICOI COUNTY, TN
PAGE 1 OF 1

Yes. My name is Dennis Sparks. I reside in Erwin, Tennessee. I spent twelve years working at Nuclear Fuels Services, and I just wanted to let the DOE know that I feel like we could do a very good job of processing this order, and that our community and our small town which is dependant on nuclear fuel and the jobs that it's brought forth over the years has been greatly impacted by the reduction in jobs that we've had. I speak especially for myself. I have a disability, and I cannot find any work because of the specialized experience I had at Nuclear Fuel, and I feel like we played a great role in the defense of our country, and we've done a real good job and took pride in our work. So I would ask that the DOE would certainly give us the utmost consideration in getting this order here because we have so many people that are really in bad need and of course I know that the case in a lot of places, but as for myself it has created such a hardship on us. We have lost about everything we've got, and we would certainly like to go back to work and keep our plant going, because I feel like it might be needed in the future, that the country right now instead of being safer than it was could actually be more at risk for some type of nuclear war or some type of disturbance just due to the fact that you have so much uranium out there, that you don't know who's hands it's in. I feel like we have a lot of good trained people and it would be a disadvantage for our country to lose those people. If we don't get something going before long, I mean people are just going to go on, and it's not going to be so easy to re-train these people on jobs that are sophisticated and technical as we did. If there is anything else that I could do to help our cause, at NFS and Erwin, I would appreciate a letter or anything. My address is Route 1, Box 300D (D as in dog), Unicoi, Tennessee, and the zip is 37692. I appreciate your time, and giving me the opportunity to express my comments, and would hope that the DOE would give us the utmost consideration, because we have one of the highest unemployment rates in the State of Tennessee, and we need the jobs desperately bad, and we need the work. Thank you for your time. Bye-bye. 10.003

10.003: Comment noted.

State of Missouri Office of Administration, Jefferson City, MO
Page 1 of 1

Mel Carnahan
Governor

Richard A. Hanson
Commissioner

State of Missouri
OFFICE OF ADMINISTRATION
Post Office Box 809
Jefferson City
65102

Stan Perovich
Director
Division of General Services

November 13, 1995

Greg Rudy
Acting Director
Office of Fissile Materials Disposition
Department of Energy
P. O. Box 23786
Washington, D.C. 20026-3786

Dear Mr. Rudy:

Subject: 95100035 - Draft Disposition of Surplus Highly Enriched Uranium EIS

The Missouri Federal Assistance Clearinghouse, in cooperation with state and local agencies interested or possibly affected, has completed the review on the above project application.

None of the agencies involved in the review had comments or recommendations to offer at this time. This concludes the Clearinghouse's review. 23.001

A copy of this letter is to be attached to the application as evidence of compliance with the State Clearinghouse requirements.

Sincerely,

Lois Pohl, Coordinator
Missouri Clearinghouse

LP:cm

23.001: Comment noted.

State of New Jersey
Department of Environmental Protection

Christine Todd Whitman
Governor

Robert C. Shinn, Jr.
Commissioner

December 8, 1995

U.S. Department of Energy
Office of Fissile Materials Disposition
c/o SAIC-HEU
P.O. Box 23786
Washington, DC 20026-3786

RE: Disposition of Surplus Highly Enriched Uranium
Draft Environmental Impact Statement (October 1995)

To Whom It May Concern:

The New Jersey Department of Environmental Protection has completed its review of the above referenced document. The Department has no comments on the Draft Environmental Impact Statement, nor any objections to the proposed action. 23.001

Thank you for providing the Department the opportunity to review this document.

Sincerely,

Lawrence Schmidt
Director
Office of Program Coordination

c. Jill Lipoti, Radiation Protection

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23.001: Comment noted.

State of Tennessee, Department of Environment and Conservation, Oak Ridge, TN
Page 1 of 8

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243 0435

DON SUNDQUIST
GOVERNOR

DON DILLS
COMMISSIONER

January 11, 1996

US Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O Box 23786
Washington, DC 20026-3786

Attention· J David Nulton, Director
Office of NEPA Compliance and Outreach

Dear Mr Nulton,

On behalf of the State of Tennessee, and as the state's Lead Contact for National Environmental Policy Act (NEPA) reviews, I have enclosed the responses of two individual state agencies to the *Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (DEIS) DOE/EIS-0240-DS, October 1995.* These reviews have been conducted in accordance with the requirements of NEPA and implementing regulations of 40 CFR 1500 - 1508 and 10 CFR 1021

Please consider the comments of each agency as the position of the State of Tennessee. Please refer to the enclosed correspondence from Tennessee Governor Don Sundquist to Secretary Hazel O'Leary (dated December 15, 1995). A copy of this letter is provided due to the relationship of low level and low level mixed waste management and associated storage issues described in the current Disposition of HEU EIS to the previous Waste Management PEIS.

Your consideration of the interests of the State of Tennessee is greatly appreciated.

Sincerely,

Don Dills by [illegible]

Don Dills

Enclosures

c: State DOE-NEPA Contacts and Administrators (with enclosures)

LET-DDS.DOC
01/11/96

STATE OF TENNESSEE, DEPARTMENT OF ENVIRONMENT AND CONSERVATION, OAK RIDGE, TN
PAGE 3 OF 8

Commissioner Don Dills
Page Two
December 21, 1995

After review and research, the Division concurs with the DOE preferred Alternative (5.c Maximum Commercial Use 85% Fuel/15% Waste Ratio all four site variation). | 10.003

However, we do have concerns dealing with the disposition of the Low Level Waste in regard that such waste would be consistent with the DOE's Waste Management PEIS and associated ROD's. The Division reiterates its position stated in our review of the WM PEIS, in opposition to siting large scale disposal facilities on the Oak Ridge Reservation for Low Level Mixed and Low Level Wastes. | 28.003

In addition, we have the attached comments for your review and consideration in the preparation of a final programmatic environmental impact statement.

If you have any questions, please contact Dale Rector at (423) 481-0995 or Steve Nisley at (423) 481-0163.

Sincerely

Earl C. Leming
Director

Attachment

em0297.99

10.003: Comment noted.

28.003: The decision where product LLW from the surplus HEU disposition program (0.9-percent LEU derived from surplus HEU) would be disposed of is not part of the HEU Draft EIS, but rather is being made in conjunction with DOE's Waste Management PEIS (DOE/EIS-0200-D, draft issued in August 1995) and subsequent tiered or site-specific NEPA documentation. DOE assumes that process LLW generated as part of the surplus HEU disposition program at the commercial facilities (incidental waste generated during the blending process) would be disposed of as part of the normal process waste stream from those facilities, presumably in a regional compact LLW repository. Product LLW would be considered DOE waste, and thus not eligible for disposal in regional compact facilities, whether it is blended at DOE sites or commercial sites. It is assumed that all product LLW must be disposed of in DOE LLW facilities pursuant to the Waste Management PEIS.

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DOE OVERSIGHT DIVISION
761 EMORY VALLEY ROAD
OAK RIDGE, TENNESSEE 37830-7072

RECEIVED BY
29 1995
TN ENVIRONMENTAL POLICY OFC.

December 21, 1995

Mr. Don Dills, Commissioner
Tennessee Department of Environment and Conservation
c/o Tennessee Environmental Policy Office
14th Floor L&C Tower
401 Church Street
Nashville, Tennessee 37243 - 1553

Dear Commissioner Dills

Document NEPA Review -- "Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement," DOE/EIS-0240-DS, dated October 1995.

The Tennessee Department of Environment and Conservation, DOE Oversight Division has reviewed the above document for your concurrence and transmittal to the following DOE office:

US Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS,
PO Box 23786
Washington, DC 20026 - 3786

Our office review was conducted in accordance with the requirements of the National Environmental Policy Act (NEPA) and implementing regulations 40 CFR 1500 - 1508 and 10 CFR 1021.

This document has four sites being considered for blending operations: DOE Y-12 Site in Oak Ridge, Tennessee on the Oak Ridge Reservation (ORR), Nuclear Fuels Services (NFS) in Erwin, Tennessee, Babcox and Wilcox (B&W) facility in Lynchburg, Virginia, and the DOE Savannah River Site (SRS) in Aiken, South Carolina. The scope of this document deals with only 200 tons of surplus highly enriched uranium, with the major portion of the material now stored on the ORR.

Tennessee Department of Environment and Conservation DOE Oversight Division

Comments on Draft Environmental Impact Statement for Disposition of Surplus Highly Enriched Uranium, DOE/EIS-0240 DS, October 1995

General Comments:

In the public meeting in Knoxville on November 14, 1995, DOE stated that additional HEU material would be declassified in December, 1995. The details of that declassification should be provided in the EIS. 02.007

The risk factors tables show a difference of two orders of magnitude between the sites. The assumptions made for these calculations are not completely disclosed, and may be too generic in nature to make comparisons possible. Therefore, the decision should not be based on risk factors alone. 21.019

A cost evaluation of each alternative, including estimated initial costs for the proposed project, should be included in the final EIS. 16.015

Natural Uranium Hexafloride (UF_6) is valuable as feedstock in the gaseous diffusion process; therefore, it doesn't make sense to use it for blending purposes since there is an excessive amount of depleted UF_6 available at Paducah, Portsmouth and at Oak Ridge K-25 site. Natural UF_6 is mentioned in several places in section 4.4 "Interstate Transportation" (and possibly in other sections) for blending purposes. Natural UF_6 should be changed to depleted UF_6 when listed for use as a blendstock in the EIS.

In addition to the above comment, depleted UF_6 that is stored at the K-25 site should be evaluated in the EIS for use as blendstock. 33.009

Specific Comments:

1. Page S-18, Summary, Basis for Analysis, Paragraph 4

Depleted UF_6, useful as blend stock, may also be obtained from the Oak Ridge K-25 site. The K-25 site should be added to this paragraph in the EIS

2. Page 1-6, Section 1.4.2, Preferred Alternatives

In addition, any LLW transferred to any LLW facility would be consistent with the Department's WM PEIS and associated ROD, any subsequent NEPA documents tiered from or supplementing the Waste Management PEIS. Please provide information to address the disposition of LLW at 28.003 cont.

02.007: Information about the forms and locations of material that make up the inventory of surplus HEU was declassified by the Secretary of Energy on February 6, 1996, and is included in the HEU Final EIS in Figure 1.3–1.

21.019: Variation of risk factors between candidate sites are expected for any alternative due to site-specific characteristics such as land, area, meteorology, and others. For normal operations and facility accidents, the source terms (the quantity of radioactive material that can potentially be released) are the same for each candidate site. When this material is released to the environment, it is transported through the atmosphere to the receptor (worker or public). Site-specific meteorology and distance from the release point will determine the subsequent concentration of these materials in the atmosphere. The closer a receptor is to the release point, the greater the concentration. The more stable the air mass or slower the wind speed, the greater the concentration. The greater the concentration of these materials, the greater the dose received by the receptor and the greater the risk calculated. Appendix E of the HEU Final EIS presents the methodology and assumptions used in both normal operations and accident conditions in performing public and occupational health assessments. Decisions on the proposed action and site selection would likely include several other environmental and economic factors in addition to health risks.

16.015: Cost estimates for the alternatives analyzed in the HEU EIS have been developed to provide the decisionmaker, DOE, comprehensive information upon which to make decisions. The cost analysis, which has been provided to this commentor and all others who have expressed an interest in this subject, is available in a separate document with the HEU Final EIS. It supports the conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

33.009: During the enrichment process, as the ratio of U-235 increases the ratio of U-234 to U-235 increases, accordingly. Using depleted uranium in the blending process will reduce the ratio of U-235 to U-238 but will not change the ratio of U-234 to U-235. To meet the American Society of Testing Materials specification for commercial fuel feed, it is necessary to reduce the U-234 to U-235 ratio. To reduce the ratio of U-234 to U-235, it is necessary to add U-235 in the natural uranium or LEU enrichment state. Depleted uranium would be used as the blendstock for blending to waste because the ratio of U-234 to U-235 is not included in the waste acceptance criteria for waste disposal.

STATE OF TENNESSEE, DEPARTMENT OF ENVIRONMENT AND CONSERVATION, OAK RIDGE, TN
PAGE 5 OF 8

the two proposed commercial sites as the WM PEIS does not address commercial waste disposition. 28.003 cont.

3. Page 3-17 & 3-18, Section 3.3.4 & 3.3.5 Water Recourses & Geology and Soils

Please provide information in the groundwater section of this document on karst hydrology in the carbonate units on the ORR. No information is given on groundwater velocity and solution enlarged conduits in these units. In addition, please provide information on groundwater preferential pathways, e.g., along strike migration. 22.017

4. Page 3-18, Section 3.35 Geology and Soils

Recharge occurs over most of the area, but is most effective where overburdened soils are thin or permeable. In the area near Bear Creek Valley, recharge into the carbonated rocks is mainly along recharge into the carbonated rocks is mainly along Chestnut Ridge. Groundwater generally flows from the recharge areas to the center of Bear Creek Valley and discharges into Bear Creek and its tributaries Please provide evidence to substantiate this statement. 22.018

5. Page 3-18, Section 3.3.5, Geology and Soils

Provide information to show if the groundwater meets drinking water criteria for a water supply. 22.015

6. Page 3-40, Section 3.3.10 Low-Level Waste

The information provided on Class L-I and Class L-II LLW facilities is currently inaccurate please omit or provide current information. 22.013

7. Page 4 - 105, Section 4. 4. 2. 1 Site Transportation Interfaces for Hazardous Materials

Please provide information on why hazardous materials transportation by rail was not addressed. Also, compare public exposures and accidents for rail transportation vs. truck transportation. 20.012

8. Page 4 - 162, Section 4. 6. 2, Site-Specific Cumulative Impacts

Please provide cumulative impact assessment for the ORR incorporating the data from the Waste Management PEIS document that was omitted. 25.007

Depleted UF_6 would not be used for blending to waste because only commercial sites would use UF_6 as a blendstock for blending with the UF_6 process. Since depleted uranium cannot be used as blendstock for blending to fuel as described previously, depleted UF_6 would not be used for any of the processes for commercial fuel. Depleted UF_6 would also not be used as a blendstock for UNH or metal blending because it is in an incompatible form and would need to be converted to UNH crystals or metal ingots, and DOE has ample supplies of depleted uranium in metal and oxide form to use as blendstock for waste material.

22.017: Sections 3.3.4 and 3.3.5 of the HEU Final EIS have been revised to include additional information as requested.

22.018: This information presented on page 3–18 of the HEU Draft EIS was obtained from the *Oak Ridge Reservation Environmental Report for 1991*, (ES/ESH-22/V1, October 1992), pages 5–4 to 5–8.

The thickness of the vadose zone is the greatest beneath ridges, and thins towards valley floors. Beneath ridges underlain by the Knox aquifer, the vadose zone commonly is greater than 30 m (100 ft) thick, whereas beneath ridges underlain by the Rome formation, the vadose zone is typically less than 15 m (50 ft) thick. Most recharge through the vadose zone is episodic and occurs along discrete permeable features (such as relict bedrock fractures) that may become saturated during rain events, even though surrounding microspores remain unsaturated and contain trapped air.

The HEU Final EIS has been revised to include the appropriate citation (OR DOE 1992c: 5–5-5–7).

22.015: A discussion of groundwater quality was provided in Section 3.3.5. However, due to misplaced text the discussion of groundwater quality appeared to be incomplete. This discrepancy has been corrected in the HEU Final EIS. Groundwater quality information at three monitoring wells closest to the Y–12 Plant are shown in Table 3.3.4–2. The information in this table indicates that the quality of groundwater generally meets drinking water criteria.

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF RADIOLOGICAL HEALTH
3RD FLOOR, L & C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1532
615-532-0364
INTERNET: MMOBLEY@POP.STATE.TN.US

January 10, 1996

DOE - Office of Fissile Materials Disposition
c/o SAIC - HEU EIS
P O Box 23786
Washington, DC 20026-3786

ATTN. J. David Nulton, Director
Office of NEPA Compliance & Outreach

Dear Mr. Nulton:

We have reviewed the DOE/EIS-0240-DS "Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement" and would offer the following comment:

Regardless of which facility is chosen by the DOE to perform the downblending of the HEU, the process should be regulated and licensed by the Nuclear Regulatory Commission. This process should be held to the same regulatory standards as other commercial fuel cycle facilities in the United States. 25.008

The independent regulatory oversight of the operations will provide assurance that the public, the workers, and the environment will be adequately protected from any potential radiation hazard.

Sincerely,

Michael H. Mobley
Director

MHM:sk
eis0240/mhm96#1

22.013: The cited information is current as reported in the most recent reference, *Oak Ridge Reservation Waste Management Plan*, ES/WM-30, February 1995 (OR MMES 1995c), but does not reflect proposed waste management strategies. Section 3.3.10 of the HEU Final EIS has been revised accordingly to include these strategies at ORR.

20.012: Highly enriched uranium is transported exclusively by safe secure trailers. Blendstock, LEU fuel feed material, and LLW could be shipped by any acceptable commercial conveyance selected by the shipping traffic manager. For the HEU EIS, calculations were based on truck transport because that is the mode currently used by the Y-12 Plant, B&W, and NFS. Although rail is not excluded, it is not available at all sites.

25.007: The HEU EIS cumulative impact assessments are revised to include data, to the extent available, from the Waste Management PEIS.

25.008: In response to the recommendations of an advisory committee, DOE is reviewing options to bring its facilities under regulation by an external organization. Although the regulating agency would likely be NRC or the Defense Nuclear Facilities Safety Board, no decision has yet been made.

STATE OF TENNESSEE, DEPARTMENT OF ENVIRONMENT AND CONSERVATION, OAK RIDGE, TN
PAGE 7 OF 8

COPY

STATE OF TENNESSEE

DON SUNDQUIST
GOVERNOR

RECEIVED
TN DEPT. ENVIRONMENT & CONSERVATION
BUREAU OF ENVIRONMENT
DEC 22 1995
DEPUTY COMMISSIONER'S OFFICE

WKS 12/22
KWA 12-22

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JAN 02 1996
TN ENVIRONMENTAL POLICY OFC.

D.O.D. Gallagher
ECC

December 14, 1995

Secretary Hazel O'Leary
United States Department of Energy
1000 Independence Avenue, S.W.
Room 7A-257
Washington, D.C. 20585

Dear Secretary O'Leary:

Recently, agencies of the State of Tennessee submitted comments in accordance with the requirements of the National Environmental Policy Act (NEPA) for the *Draft Waste Management Programmatic Environmental Impact Statement (D-PEIS) for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste, DOE/EIS-0200 D, August 1995* I have elected to communicate with you directly to insure that the State of Tennessee's policy interests concerning this important D-PEIS are clearly communicated.

My administration strongly opposes and will continue to oppose any attempt by DOE to "site" large waste deposition activities in Oak Ridge, Tennessee. It is disappointing to me that the United States Department of Energy (DOE) continues to seriously consider another short sighted option in a tiring string of waste deposition assessments for Oak Ridge. My administration views all of the alternatives in the current "Waste Management" D-PEIS that consider disposal of low level mixed waste and low level waste on the Oak Ridge Reservation as technically unsound.

It is commonly known, and widely supported inside and outside of Tennessee that Oak Ridge is one of several sites in the DOE complex that does not possess the appropriate geologic or hydrologic character for such large scale waste deposition activities as currently proposed in your D-PEIS. The National Governor's Association/DOE Disposal Working Group specifically recommended that the Oak Ridge complex be considered only for disposal of a very restrictive list of radionuclides due to an emphasis on protection of human health and the environment. 14.020

Your own agency's data summary for waste management sites in the current D-PEIS indicates that the Oak Ridge Reservation currently produces the highest "population dose" among the 54 DOE sites around the nation. We believe that a large scale low level mixed waste and low level waste disposal facility at Oak Ridge would add additional risk to an already unacceptable situation.

State Capitol, Nashville, Tennessee 37243-0001
Telephone No. (615) 741-2001

14.020: This comment concerning DOE's draft Waste Management PEIS (DOE/EIS-0200-D, August 1995) is not directly relevant to the issues considered in the HEU EIS. Decisions concerning where DOE's LLW will be treated and disposed are being made pursuant to the former NEPA document, not the latter. The Governor's concerns were addressed in a February 8, 1996, letter from Secretary O'Leary to Governor Sundquist, which noted that ORR is one of 17 "major" candidate sites for potential waste disposal facilities by virtue of its current inventory of waste materials, its waste management facilities, and site capabilities. The selection of preferred alternatives for national waste management configurations will be made in the final Waste Management PEIS, and responses to the Governor's comments will also be included in the associated *Comment Analysis and Response Document.*

STATE OF TENNESSEE, DEPARTMENT OF ENVIRONMENT AND CONSERVATION, OAK RIDGE, TN
PAGE 8 OF 8

Page Two
Secretary Hazel O'Leary
December 14, 1995

Despite our concerns, the State of Tennessee recognizes and appreciates the historic role Oak Ridge, Tennessee has played for the nation and the economic contributions DOE has made to the Oak Ridge community and Tennessee over the past 50 years. We will continue to promote and will accept our responsibility to the nation as a potential site for one or several of the complex suite of activities that DOE must perform. However, I believe that DOE's continued consideration of the most technically unsuitable disposal site in the DOE complex for large scale waste deposition is truly a waste of precious national and state resources. I urged you to invest your agency's energies in alternatives that better meet both the short and long term interests of waste storage.

Sincerely,

Don Sundquist

Don Sundquist

c: United States Representative Zach Wamp
United States Senator Fred Thompson
United States Senator Bill Frist
Commissioner Don Dills, Tennessee Department of Environment and Conservation
US DOE Headquarters PA Office
Mr. Greg Rudy, Acting Director, Office of Fissile Materials Disposition
NEPA File

STATE OF TENNESSEE, HOUSE OF REPRESENTATIVES, NASHVILLE, TN
PAGE 1 OF 1

BOB PATTON
STATE REPRESENTATIVE
7th LEGISLATIVE DISTRICT

[illegible] WAR MEMORIAL BUILDING
NASHVILLE, TENNESSEE [illegible]
[illegible]
[illegible] (FAX)

House of Representatives
State of Tennessee

NASHVILLE

MEMBER OF COMMITTEES
EDUCATION
HEALTH AND HUMAN RESOURCES

1117 COLLEGE HEIGHTS DRIVE
JOHNSON CITY, TENNESSEE [illegible]
[illegible]

November 21, 1995

The US DOE
Office of Fissile Materials Disposition
Post Office Box 23786
Washington, D.C. 20026

Dear Sir:

This letter is written in general support for Nuclear Fuel Services, Inc. of Erin, Tennessee.

I am impressed with the history Nuclear Fuel Services has with both safety and security. They have been, and continue to be, good neighbors. Nuclear Fuel Services is the type of small business operation I am happy to support. It is hoped the plant will be considered for any future contracts or projects. The workers at Nuclear Fuel Services are capable of competing successfully. 10.003

Sincerely,

Robert D. "Bob" Patton, M.P.A., Ed.D

RDP/bc

10.003: Comment noted.

STATE OF TENNESSEE, JOHNSON CITY, TN
PAGE 1 OF 2

NOV-14-1995 16:32 TN SENATE PLAZA 615 741 5349 P.01/02

D. E. "RUSTY" CROWE, II
3RD SENATORIAL DISTRICT
CARTER, JOHNSON &
WASHINGTON COUNTIES
300 E. 8TH AVENUE
JOHNSON CITY, TENNESSEE 37601

SUITE 8A
LEGISLATIVE PLAZA
NASHVILLE, TENNESSEE 37243-0003
615-741-2468
1-800-300-CROW
(Carter, Johnson & Washington Counties)
FAX 615-741-8340

Senate Chamber
State of Tennessee
NASHVILLE

SECRETARY
SENATE JUDICIARY COMMITTEE
MEMBER OF COMMITTEES
EDUCATION
GOVERNMENT OPERATIONS
SELECT OVERSIGHT COMMITTEE ON
EDUCATION
COMMUNICATIONS AND INFORMATION
VETERANS' AFFAIRS
NATIONAL COMMITTEES
NCSL ENVIRONMENT AND NATURAL
RESOURCES OF THE STATE FEDERAL
ASSEMBLY

November 14, 1995

FAX 1-800-820-5156

U. S. Department of Energy
Office of Fissile Materials Disposition
P. O. Box 23786
Washington, D. C. 20026-3786

Ladies/Gentlemen:

It has come to my attention that Nuclear Fuel Services, Inc. (NFS) is one of four candidates nationwide vying for the opportunity to process uranium originally intended for the American weapons program. | 10.003

The opportunity for NFS to receive this contract is very important to the people within the East Tennessee district that I serve. My district is very excited about the prospects of this additional work possibly coming to NFS.

Our community is very proud of the part that NFS has played with regard to our nation's defense, and the prospect of down-blending High Enriched Uranium for peace time use is very appealing indeed.

I have personally met with members of my community regarding this project, and have toured NFS on several occasions in order to familiarize myself and the people I serve with their operations and capabilities.

I certainly appreciate your consideration of NFS for this very important contract, and I am confident that NFS could provide for this down-blending in the most cost-efficient, safest and most secure manner.

I am also confident that the work that NFS has done in the past and the track record it has developed, will render it the most capable in terms of experience and technical ability to perform this work. | 10.003 cont.

10.003: Comment noted.

STATE OF TENNESSEE, JOHNSON CITY, TN
PAGE 2 OF 2

NOV-14-1995 16:32 TN SENATE PLAZA 615 741 9349 P.02/02

Page 2
United State Department of Energy
Office of Fissile Materials Disposition
November 14, 1995

This contract would mean close to 100 jobs for the people of Upper East Tennessee. I can assure you that this contract, is not only wanted, but needed, and we appreciate the opportunity to compete for this very important project.

NFS is one of those small businesses that has been so important to the economy of Tennessee, and has meant so much to the defense of our country and to the development of the kind of technology so important in the field of nuclear energy.

Again, I am very confident that, not only will our facility produce this work for you at the lowest cost, but at the highest of quality in the safest and most secure way.

10.003 cont.

We appreciate this opportunity, and look forward to working with you as we turn "Swords into Plow Shares" and provide a new source of energy.

If I can be of assistance in any way, please don't hesitate to contact me at 1-800-200-CROW or 615-741-2468.

Sincerely,

D. E. Crowe, II

DEC:wsc

HEU EIS PUBLIC . . .)RAL COMMENTS
AFTERNOON WORKSHOP
Knoxville, Tennessee
November 14, 1995

SESSION: Discussion Group A

OPEN DISCUSSION

Facilities Capabilities

What upgrades are required among the candidate sites in order for the commercial facilities and government facilities to perform the work and be in compliance? What new equipment, processes, facilities, and/or technologies would be needed to blend down the material? | 22.010

If there is a potential need for new facilities to carry out the proposed actions, have they been adequately addressed in the EIS? | 11.005

If the blending to UF_6 is the better way to deal with this material, why is this process only considered for the commercial facilities and not the government facilities? | 01.002

Who will pay B&W or NFS to blend down the material, purchase new equipment, and store the wastes? | 16.003

Is the private company who buys the fuel the one who will be responsible for the waste? Could the waste be sent back to a DOE facility? What happens to the waste from the commercial facilities operations? This issue needs to be expanded in the final EIS. | 14.003

What are the criteria for deciding who gets what business? Y-12 can blend to metal. Would it be more cost effective to send the material to Y-12 or would it be sent to commercial facilities? | 11.006

Cost is the biggest determining factor in deciding which process, government or commercial, will be used.

Other Alternatives

How far did DOE look into other issues/alternative uses of HEU? Did DOE use the national laboratories to look into these issues/alternatives? | 09.012

In terms of the Nevada Test Site, what about putting the materials in small yield nuclear explosions to get rid of it? | 09.004

REVISED December 7, 1995
[1]REVISED December 13.1995

22.010: Site-specific upgrade requirements for each of the blending technologies are discussed throughout the HEU EIS; specifically in Sections 2.2.3.2, 2.2.3.3, 2.2.3.4, 2.2.3.5, 4.3.1, 4.3.2, 4.3.3, and 4.3.4. Each of the blending processes and the equipment needed for those processes are discussed in Section 2.2.

11.005: The HEU EIS assumes that no new facilities (buildings) would be needed to carry out the proposed actions, although modifications or additional equipment might be installed in existing facilities (such additions would be necessary to make UF_6 blending possible, for example). DOE has no plans to construct new facilities. If commercial entities choose to build new facilities for the HEU disposition program, additional NEPA review would probably be necessary, most likely in the context of NRC license amendment proceedings.

01.002: The ability to convert HEU in the form of metal or oxide to UF_6 does not currently exist at any facility. Because UF_6 blending would only be used for blending commercial material, it would only be developed if one of the commercial blenders decides it is economically preferable to its existing UNH blending capabilities. DOE does not intend to install new equipment for the purpose of competing with the private sector in a commercial market when it already has adequate UNH and metal (at the Y–12 Plant) blending capability.

16.003: The costs of undertaking HEU blending actions could initially be borne by DOE, by USEC, or by potential purchasers of the material. Any new equipment installed at commercial facilities would be at their own expense. It is fully expected that all costs of blending, including waste management, would ultimately be covered by the purchase price for commercial material.

14.003: Any utility purchaser of nuclear fuel derived from surplus HEU would be responsible for disposal of the resulting spent nuclear fuel. Under the *Nuclear Waste Policy Act*, DOE manages the Nation's civilian radioactive waste program in return for fees assessed on nuclear electricity generation, so the waste would eventually be sent to a DOE permanent repository (or possibly an interim storage facility). The process waste from commercial blending facilities would be handled the same as any other waste from those facilities—in regional LLW repositories governed by interstate compacts under the *Low-Level Radioactive Waste Policy Act*, as amended.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
DISCUSSION GROUP A
PAGE 2 OF 8

Environmental Safety and Health

One benefit for blending down to fuel instead of waste would be eliminating the need to mine more uranium ore for fuel. I was not convinced by the EIS that there is a large demand for the fuel in the United States and that there would be no damage to the environment when blending down to fuel. 11.007

No data has been presented in the EIS that compares the impacts of blending down to fuel versus mining. Why haven't the impacts to the mining industry been fully addressed? There needs to be better discussions in the EIS on relative environmental impacts. Uranium mining is an issue that should be addressed in the EIS. 12.004

Worker and Environmental Protection

What accident scenarios were used to compile the fact sheet for Oak Ridge and how were the numbers derived? 21.006

Does the accident analyses addressed in the document assume that the same accident occurs at each facility, such as earthquakes, transportation, etc.?

With regards to long-term proliferation, isn't it prudent to compare the issue of transportation risks to the risk of leaving the materials in a weapons-usable form? Which action poses the most risk; transporting the material or leaving the material in a weapons-usable form where it is presently located? There are risks associated with the blend down and no action alternatives. The risks of proliferation should be compared with the risks associated with transporting the materials to the blending facilities. This information should be addressed in the EIS. 20.009

I understand that 4% blend down of HEU can be treated with nitric acid to make Pu. You can get 4% Pu from blending down the material from commercial reactor fuel. Can this 4% Pu from down blending the material from commercial reactor fuel be used to make a weapon? 06.009

Once HEU is blended down into fuel, could it become HEU again? 06.020

The public has a right to know what will be done with the material in their area, even if it comes from abroad or if impacts are low. The public needs the facts to be able to make an educated decision. 32.007

The public should be notified of any potential actions that will be taken and an epidemiological study should be conducted for cancer, etc.

This action (blending to fuel) would be great for generating jobs and turning weapons into fuel, 06.024
but I am not sure I want to take the risk of blending the Russian fuel. DOE needs to hold a forum 32.008
at the local level, and not require the participants to have to drive so far to attend.

REVISED December 7, 1995

11.006: Decisions about which facilities get blending business from this program are most likely to be decided on the basis of competitive bidding procedures that may be conducted by USEC or other entities, in addition to DOE. The metal blending capabilities at the Y–12 Plant would only be used to blend noncommercial material for disposal as waste, since metal blending would not be conducive to subsequent commercial use.

09.012: Retaining and using surplus HEU in weapons-usable forms would not be consistent with the purpose and need for the proposed action. As explained in Section 2.1 of the HEU EIS, DOE used a formal screening process and public input to identify a range of reasonable alternatives for the disposition of HEU. The process was conducted by a screening committee that consisted of five DOE technical program managers, assisted by technical advisors from DOE's national laboratories and other support staff. The committee compared alternatives against screening criteria, considered input from the public, and used technical reports and analyses from the national laboratories and industry to develop a final list of alternatives.

09.004: The United States has discontinued nuclear tests or other nuclear explosions as part of its nonproliferation policy.

11.007: Section 4.7 of the HEU EIS discusses the positive impacts from avoided uranium mining, milling, and enrichment. The more than 100 commercial reactors in the United States (and hundreds more overseas) create a steady demand for uranium fuel. The environmental analysis in Chapter 4 of the HEU EIS indicates that blending HEU down would result in few significant impacts.

12.004: The Department of Energy continuously assesses the impact of introducing uranium from its inventory into the U.S. uranium market. DOE is required by the terms of the *USEC Privatization Act* to avoid introducing uranium into the market in a manner that would have adverse material impacts on the domestic uranium industry. The impacts on the uranium and nuclear fuel cycle industries are detailed in Section 4.8 of the HEU Final EIS.

Weapons Potential/Risk

It might be better to use Alternative 2 (blend to waste), so proliferation will not be an issue. | 10.009

If DOE would take USEC out of the picture, wouldn't DOE still have an obligation to comply with various treaties, to blend down the material from other nations to make it unusable? | 03.007

Is there a treaty for Pu and HEU? Do we have an obligation to dispose of these materials? | 03.008

Transportation

If most of the material is at Y-12, andY-12 has the capability to process it into metal or the oxide form, why does DOE want to transport the material all over the country if it can all be done at Y-12? Will the transportation cost and risks be a factor in determining where the material will be transported and processed? | 20.006

Does the burden of the accidents fall on the person that buys the fuel? | 06.010

If the alternative was to blend down to waste, who is the customer? | 11.008

Would cost be the most important factor in the decisionmaking process? | 29.001

If the alternative was chosen to blend down to waste, would all four sites participate in this action? If the decision is to blend down to commercial fuel, who will make the decision at which site to blend down the material? If the customer decides to blend down the material, would it be feasible to think that all four candidate sites would bid on the work, or would DOE make the decision which sites got what material? Can DOE assume that the candidate sites will be available when the decision is finally made as to where the blending will take place? Can the customer decide who will blend the material down and who will transport it? How will the decision on which commercial or government facility will do the work be made? | 11.008 cont'.

Costs

Can DOE recover the cost of what it took to make the material? Does DOE have an estimate of the cost per kilogram that it took to make the material versus today's market value? | 04.007

How do you evaluate today's market value of the fuel? | 16.004

Socioeconomics - Labor

Workers in Oak Ridge are losing their jobs. Why wouldn't DOE select the site to blend down the material in a place where jobs and the work is needed? | 10.008

21.006: Several accident scenarios were considered for the HEU EIS including a tornado, straight winds, an aircraft crash, nuclear criticality, process-related accidents, and an evaluation basis earthquake. As stated in Section 4.3, it was assumed that with the exception of the filter fire and the fluidized bed release, all of the accident scenarios considered in the EIS could be initiated by the evaluation basis earthquake. The evaluation basis earthquake is also assumed to initiate the nuclear criticality and the UF_6 cylinder release. To be conservative, the consequences from the evaluation basis earthquake, earthquake induced criticality, and the UF_6 cylinder release were added to yield the total consequences from both the release of radioactivity and hazardous chemicals into the environment and a criticality.

Because details on some of the site-specific processes were proprietary, one set of representative data were used in the HEU EIS for each blending process with nominal throughput rates that assumed a full-scale operation with bounding values for operational requirements, emissions, waste streams, and other parameters. Therefore, the same accident scenarios representative of each blending process were used at each site.

20.009: Continued storage does not reduce the inventory of weapons-usable material, which is the purpose of the proposed action. It would be unreasonable to compare storage (no action alternative) impacts with only part of the potential risk (that is, transportation) encountered for the other alternatives. However, the total impacts for each alternative are presented and compared. Transportation impacts are specifically addressed in Section 4.4 and Appendix G of the HEU Final EIS.

06.009: Neither blending down of HEU nor treatment with any chemical can make Pu. However, blending HEU to 4-percent LEU and using it as fuel in commercial reactors results in the creation of some Pu in the spent nuclear fuel. Only reactors can make Pu. It is possible to reprocess the resulting spent fuel by dissolving it in nitric acid and using other chemicals to separate Pu, but because spent fuel is extremely radioactive, the process is very hazardous and difficult and must be carried out by remote control in heavily shielded cells. This is the process that was used to make the Pu used for the nuclear weapons in the first place, but it has never been accomplished by any subnational group. Because of the difficulty of separating Pu from spent fuel, spent fuel is considered highly proliferation resistant for at least 80 to 100 years after it is removed from reactors.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
DISCUSSION GROUP A
PAGE 4 OF 8

Are the costs of Section 3161 included as part of the analysis? What if the work goes elsewhere outside DOE? | 24.005

The City of Erwin would experience positive economic impacts if the jobs came to NFS. The NFS union could use the jobs. | 10.003

What is the time limit of storage and the amount of materials that can be stored at the blending site? | 26.005

[1]Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

06.020: Once HEU is blended down to 4- or 0.9-percent LEU, it could become HEU again only if it were re-enriched. It would be no less difficult to turn such LEU back into HEU than it would be for any of the much more plentiful world stocks of LEU of comparable enrichment levels.

32.007: The Department of Energy supports the public's involvement and is fully committed to giving the public access to information about its activities and opportunities for involvement in DOE's decisionmaking process. In this regard, the Office of Fissile Materials Disposition published a Notice of Availability in the *Federal Register* (60 FR 54867) on October 26, 1995 that announced that the HEU EIS was available for comment; provided the dates of the comment period and the schedule of public meetings; and identified the methods by which to submit comments. Additional information, including newsletters and fact sheets, were distributed directly to interested members of the public who are on the office's mailing list. The office also maintains an electronic bulletin board that provides current information, program status and activities, and the ability to interact with the office directly.

Health effects studies are discussed for each candidate site in Chapter 3 of the HEU EIS. Impacts of the proposed action and alternatives on public and worker health from both normal and potential accidents are addressed in Chapter 4. No actions will be taken until the decisions are made public. The ROD is scheduled to be published in the *Federal Register* in the summer of 1996.

06.024: The purpose of the U.S.-Russian HEU agreement is to reduce the threat to U.S. and world security that is posed by large stockpiles of surplus Russian HEU, as well as to provide needed hard currency to Russia to assist its redevelopment efforts. The U.S. effort that is the subject of the HEU EIS is reciprocal to the Russian effort to reduce its HEU stockpiles.

32.008: The Department of Energy must work within the constraints imposed by available funding and resources. Because DOE is trying to reduce costs of complying with the NEPA, and due to the geographical proximity of three of the four candidate sites identified in the HEU EIS, DOE determined that two public meetings (Knoxville, TN and Augusta, GA) would be appropriate for this program.

Because public involvement is critical to the success of the program, other methods for submitting comments were also made available throughout the comment period: toll-free fax and voice recording, electronic bulletin board, and U.S. mail. These methods can also be used to request additional information or to be placed on the Office of Fissile Materials Disposition's mailing list.

10.009: Blending down the entire stockpile of surplus HEU to less than 1 percent and disposing of it as waste was evaluated in the HEU EIS as one of the alternatives. The analyses showed that this alternative would generate the highest environmental impact among other alternatives evaluated in the HEU EIS (Table 2.4–2). DOE has developed cost estimates associated with the alternatives analyzed in the HEU EIS and has made them available in a separate document with the HEU Final EIS. The cost analysis indicates that commercial use of LEU fuel derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste. DOE believes that all of the action alternatives (2 through 5) evaluated in the HEU EIS meet the objective of nonproliferation and will send a positive message to other nations.

03.007: It is correct that the foreign policy objective of reducing global stockpiles of weapons-usable fissile materials would remain without regard to USEC's role. USEC's involvement stems from the provision of the *Energy Policy Act* of 1992 that makes USEC the exclusive marketing agent for sales of U.S. Government and Russian enriched uranium. There are at present no international treaties concerning disposition of fissile materials. However, the *Joint Statement between the United States and Russia on Nonproliferation of Weapons of Mass Destruction and the Means of their Delivery* (January, 1994, reproduced as Appendix B of the HEU Final EIS) provides a bilateral framework for U.S.-Russian nonproliferation efforts. In addition, the President's *Nonproliferation and Export Control Policy* (September 1993, reproduced as Appendix A of the HEU EIS) commits the United States to "seek to eliminate where possible, the accumulation of stockpiles of HEU or Pu to ensure that where these materials already exist they are subject to the highest standards of safety, security, and international accountability." The U.S. Government is pursuing fissile materials disposition on a unilateral basis, to set an example for other nations, and to reciprocate similar actions already being taken in Russia.

03.008: There is no treaty related to Pu or HEU. However, the joint statement between the United States and Russia on *Nonproliferation of Weapons of Mass Destruction and the Means of their Delivery* (January 1994, reproduced as Appendix B of the HEU Final EIS) provides a bilateral framework for U.S.-Russian nonproliferation efforts. In addition, the President's *Nonproliferation and Export Control Policy* (September 27, 1993, fact sheet included as Appendix A of the HEU Final EIS) commits the United States to "seek to eliminate where possible, the accumulation of stockpiles of HEU or Pu to ensure that where these materials already exist they are subject to the highest standards of safety, security, and international accountability."

20.006: Assessment of impacts resulting from the proposed action were conducted at sites where facilities for UNH and metal blending processes currently exist and would not require new construction even for a new UF_6 capability at commercial sites. This provides the decisionmaker a reasonable range of site options to consider. However, because environmental and transportation related risks are low for all alternatives, it is anticipated that decisions on blending locations will be a function of material forms, availability of facilities when needed, and business decisions.

Transportation risk assessments showed that risks would be only slightly lower for blending to LLW at ORR. For blending to fuel feed material as UNH crystals, ORR is not the lowest risk alternative. Two significant factors contributed to these conclusions: (1) onsite material handling represents the greater part of the total risk, and such handling would still be necessary even to blend at ORR, and (2) the highest transportation risk for these scenarios is not in transporting HEU, but in transporting the significantly larger volume of fuel feed material and LLW after blending.

06.010: It is not clear what accidents the question refers to. In general, the burden of nuclear accidents falls on whatever party has legal possession of nuclear material at any given time. The *Price-Anderson Act* establishes a framework of liability coverage for nuclear accidents. For the private nuclear industry, that framework includes private insurance and retroactive liability that is shared across the entire nuclear industry. The Government is self-insured.

11.008: If the decision were made to blend all surplus HEU to waste, there would be no customer in the commercial sense. The material would be blended by or on behalf of

DOE for disposal as waste. Any or all of the facilities could be involved in such blending. It is not possible to specify today where blending would take place for either waste or commercial material, since those decisions will depend in part on the forms of the business transactions governing particular disposition actions. Decisions about blending sites and transportation could be made by DOE, by USEC, or by other entities involved in those transactions. It is very likely that competitive bidding procedures will be instrumental in such decisions.

29.001: Cost will play a key role in the decisionmaking process. The Preferred Alternative identified in the HEU Final EIS is to maximize commercial use of the material, because it would recover the material's economic value and satisfy the nonproliferation objective in the most timely manner.

Preliminary cost estimates suggest that 170 t of surplus HEU may have a net commercial value of approximately $2 billion. More importantly, avoiding disposal costs for the same amount of material would save the Government between $5 and $15 billion.

04.007: The Department of Energy has no expectation of recovering the invested costs of producing HEU, which have been very high. (The marginal cost of enrichment goes up as enrichment levels increase.) DOE has no reliable basis for estimating the actual cost of producing HEU. The current question is whether recovery of those invested costs can be at least partially offset by commercial use of the material or completely written off by making it all into waste.

16.004: The value of LEU fuel derived from surplus HEU has been evaluated as part of cost estimates for the alternatives in the HEU EIS that have been released separately from the HEU Final EIS. The value of commercial material is expected to be equivalent to market value for any other commercial LEU. Off-spec material is expected to be discounted to reflect its lower value.

10.008: The Y–12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmakers.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
DISCUSSION GROUP A

24.005: Cost analysis is not part of the HEU EIS, although cost estimates for the alternatives have been developed to be included in the ROD(s) and are available as a separate document. It is anticipated that the work needed to blend down surplus HEU will be done using both DOE and commercial sites. To the extent that work is done within DOE, the requirements of Section 3161 of the *Defense Authorization Act* of 1994, as applicable, will be complied with.

10.003: Comment noted.

26.005: Storage limitations of uranium materials differ at each candidate blending site. Interim storage of enriched uranium at the Y–12 Plant is limited to 500 t of HEU and 6 t of LEU for a period of up to 10 years (60 FR 54068, October 19, 1995). There are no limitations on the storage of uranium at SRS. The quantity of uranium that could be stored at commercial sites are limited by their NRC licenses. B&W and NFS are licensed to possess up to 60,000 kilograms (kg) (132,000 pounds [lb]) and 7,000 t (15,400 lb), respectively, of U-235 in any required chemical or physical form (except UF_6) and at any enrichment (see Sections 2.2.3.4 and 2.2.3.5 of the HEU EIS).

HEU EIS PUBLIC MEETING ORAL COMMENTS
AFTERNOON WORKSHOP
Knoxville, Tennessee
November 14, 1995

SESSION: Discussion Group B

Impacts

Although the overview presenter indicated that there were no environmental problems associated with any of the candidate sites, there was a release of UF_6 at NFS in 1979 which was never adequately explained to the public and certainly represents a potential danger to the public and the environment. The EIS should deal with this issue and clarify the potential safety and health impacts associated with this facility. | 21.003

DOE needs to quantify the potential releases to groundwater, aquifers and air from the proposed actions. [Participant referred to Section S-2, Table summary on page S.24, and Chapters 4.3 and 4.5 for annual and total campaign impacts, respectively.] | 22.005

DOE needs to compare accidental releases versus chronic releases | 21.004

DOE needs to clarify the different impacts at different sites, i.e., why is the environmental justice impact high at the Savannah River Site? Why does NFS have higher dose rates? | 24.002 | 21.005

What are the differences in environmental impacts associated with keeping weapons-grade materials in storage compared to risks of transportation to various blending sites? How is the safety of its transport being ensured? Is transportation expensive? | 20.005

Who decides what will be done with the HEU? | 01.001

Alternatives

DOE should clarify and compare the proliferation risks associated with each alternative, especially indicating that increasing commercial use of HEU also increases the proliferation potential | 03.001

How does the criteria of setting a good example to other nations relate to the various alternatives being considered? | 03.002

What are the economic costs associated with each alternative? | 16.009

What proliferation potential is associated with spent fuel? | 03.003

[illegible] TN-A-DGB-1

21.003: The UF_6 release that occurred on August 7, 1979 was reported in the *Environmental Assessment for Renewal of Special Nuclear Material License SNM-124, Nuclear Fuel Services, Inc., Erwin Plant, Erwin, Tennessee*, Docket No. 70-143, dated August 1991. As described on page 4-38 of the environmental assessment the quantities released to the atmosphere increased rapidly to a maximum within 10 to 15 minutes and then slowly decreased as material circulated out of the process ventilation and out of the stack. Most activity (60 to 80 percent) was released in 1 hour, although it took about 3 hours for all the activity to escape. The incident was investigated by NRC. The quantities released were within regulatory levels. After this event, the scrubbing system was redesigned and modified to improve the system. Detection systems with alarms were also installed at the work station.

The HEU EIS analyzed radiological releases from UF_6 blending process during normal operations of NFS as well as under a severe accident condition during which the highest atmospheric release of radioactivity and hazardous chemicals would occur. The accident scenarios evaluated in the HEU EIS included the release of UF_6 from a cylinder leak similar to what occurred at NFS in 1979. Section 4.3.2 of the HEU Final EIS presents impacts of blending HEU to 4-percent UF_6 to the public and the environment.

22.005: Potential releases to air from the proposed action were estimated and presented in Section 4.3 of the HEU EIS. However, it was determined that there would be no hazardous waste released to the surface or groundwater during blending operations. All hazardous waste would be treated until it becomes nonhazardous and, after treatment, would then be released to an NPDES-permitted outfall.

21.004: The HEU EIS analyzed both accidental and chronic releases of HEU from the proposed alternatives. Chronic releases are very small releases of material to the environment over a long period of time. Accidental releases are releases of material to the environment over a very short period of time to an instantaneous release. The impacts of chronic and accidental releases from normal operations and accidents, respectively, were evaluated for each alternative blending process and presented in Section 4.3 of the HEU Final EIS.

24.002: Differences in current conditions at each site lead to different potential impacts at each site. For example, the area surrounding SRS has a higher minority population than

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
DISCUSSION GROUP B
PAGE 2 OF 5

DOE needs to clarify the results of Alternative 2 (blend all HEU to waste) compared to nonproliferation concerns and highlight the fact that this alternative takes much longer, is much more expensive than Alternatives 3, 4, & 5 (the commercialization alternatives), and does not make the material any more nonproliferation resistant. | 03.004

Comparison of the alternatives should highlight that we will get rid of more HEU faster if we go with one of the commercial alternatives. | 11.003

Other

DOE should clarify the point that both enrichment and reprocessing are more difficult procedures than blending down. | 11.004

When discussing proliferation resistant advantages of blending down HEU, DOE should clarify the point that it is still easier to make weapons from HEU blended down to 1% than it is from irradiated spent nuclear fuel. | 03.005

Has DOE considered the site capabilities of K-25 at Oak Ridge, Portsmouth in Ohio, and Paducah in Kentucky? | 09.002

Are the residents other than candidate site employees in the communities around Erwin, TN and Lynchburg, VA being informed of this project? | 32.006

Is there really a market for LEU? | 04.002

DOE should emphasize the fact that proliferation concerns and perceptions thereof are the real drivers, not finances and economic recovery. | 03.006

It is economic insanity to destroy this resource. | 04.003

What do the different forms of HEU look like and where is it currently being stored? | 33.001

the area around any of the other sites. Therefore, SRS may have a disproportionate environmental justice impact.

21.005: NFS has higher dose rates than other candidate sites because it is the smallest site in land area, and thus the receptors are closer. The potential impacts of any release of HEU are a function of the amount of material released (source term), the dispersion of the material into the atmosphere (related to the site meteorology), and the distance to the nearest receptor (the worker or member of the public). Since the source terms are identical, only the distance to the nearest receptor and meteorology will make significant differences in the dose rate. The closer the receptor to the source term, the larger the calculated dose rate will be (in much the same way that the closer someone is to a fire [the source term], the more heat [the dose rate] they would feel).

20.005: The purpose of the proposed action is to reduce HEU to non-weapons-grade for commercial use. Long-term storage would not achieve this. The HEU EIS weighs the total impacts for the alternatives, but does not compare storage with only part of the potential risk that might be encountered (that is, transportation). As explained in Section 4.4 of the HEU Final EIS, HEU would be transported by safe secure trailers, a conveyance that provides optimum safety and security. For example, there has never been a safe secure trailer accident involving a release of radioactive material causing injury or death. Transportation cost was not evaluated in the HEU EIS; however, it is relatively inexpensive when compared to the long-term storage.

01.001: The Department of Energy will make programmatic decisions whether surplus HEU should be blended for commercial use or for waste. Subsequently, DOE will make decisions about specific lots of HEU for disposition. Decisions about blending locations for commercial material may be made by DOE or USEC or other entities involved in disposition actions. Decisions about blending for waste materials are likely to be made by DOE.

03.001: The Department of Energy does not agree that commercial use of LEU derived from HEU increases proliferation potential. Among the alternatives considered, Alternative 1, the No Action Alternative, has the highest proliferation potential because it leaves the HEU in weapons-usable form. DOE considers Alternatives 2 through 5, which represent blending different portions of the surplus HEU to waste or fuel, as roughly equivalent in terms of proliferation potential, and much more proliferation resistant than the HEU in its present form. That is, LEU at both 4- and 0.9-percent enrichment, and spent fuel are all considered to have low proliferation potential, because both enrichment of uranium and reprocessing to separate Pu are difficult and costly.

03.002: The program objective of setting a good example for other nations relates to converting weapons-usable fissile materials to forms that are no longer weapons-usable; (that is, to demonstrate to other nations that our nuclear disarmament actions are permanent and irreversible). It is in the national security interest of the United States that other nations take similar actions to reduce stockpiles of weapons materials, so the United States is obligated to take such actions itself. All four of the action alternatives in the HEU Final EIS (Alternatives 2 through 5) satisfy this objective by seeking to blend all of the surplus HEU to LEU. Only the No Action Alternative, which would leave the HEU in its present weapons-usable forms, would fail to satisfy this nonproliferation objective.

16.009: Cost estimates for the alternatives analyzed in the HEU EIS have been developed for inclusion into the ROD(s) and are available in a separate document with the HEU Final EIS. The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

03.003: Although spent fuel contains Pu, which if separated is a weapons-usable fissile material, spent fuel is extremely radioactive and hazardous to handle; thus, it is difficult and costly to separate Pu from spent fuel. In accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as commercial spent fuel.

03.004: The Department of Energy agrees that blending all surplus HEU to waste would be much more costly and take longer than options that make commercial use of the material. It also would have greater adverse environmental impacts. However, it must be

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
DISCUSSION GROUP B
PAGE 4 OF 5

included in the HEU EIS to assure that a "range" of alternatives has been analyzed. DOE also agrees that blending to waste offers no nonproliferation advantage over blending for commercial use.

11.003: Section 2.1.2 of the HEU EIS indicates that, under some circumstances, maximizing commercial use reduces the time needed to complete disposition actions.

11.004: The HEU EIS indicates in the text box in Section 1.1.1 that blending down is much easier than enrichment. DOE agrees with the commentor that reprocessing is also very difficult relative to blending HEU down to LEU.

03.005: The Department of Energy considers the re-enrichment of uranium from material blended down to 1 percent and reprocessing of spent fuel to recover Pu to be comparably difficult barriers to proliferation.

09.002: The gaseous diffusion enrichment plants at Paducah and Portsmouth have the capability to deal with HEU only in the form of UF_6. The K-25 Site at ORR is permanently closed. Since the surplus HEU is in the form of metal or oxide, not UF_6, those facilities cannot be used for the blending activities.

32.006: The Department of Energy supports the public's involvement and is fully committed to giving the public access to information about its activities and opportunities for involvement in the DOE's decisionmaking process. In this regard, the Office of Fissile Materials published a Notice of Availability in the *Federal Register* (60 FR 54867) on October 26, 1995, that announced that the HEU Draft EIS was available for comment; provided the dates of the comment period and the schedule of public meetings; and identified the methods by which to submit comments. Additional information, including newsletters and fact sheets, were distributed directly to interested members of the public who are on the office's mailing list. Regional print and media advertisements were also used to draw attention to the public meetings and other methods available to submit comments. The office also maintains an electronic bulletin board that provides current information, program status and activities, and the ability to interact with the office directly.

04.002: The Department of Energy does not expect to have any difficulty marketing the commercial material at market rates. Off-spec material will probably need to be marketed at discounted rates to compensate for the added processing and operational requirements for its use. The uranium market is now a global one, involving numerous competitors. DOE expects that LEU derived from surplus HEU will be introduced into the market at rates that do not have an adverse material impact on the market.

03.006: The Department of Energy agrees that the nonproliferation objectives are pre-eminent; however, the recovery of some of the costs involved in creating this HEU are also very important, particularly in the current budgetary climate. Fortunately, the two objectives are complementary in the HEU disposition program.

04.003: The Department of Energy's preference is to utilize as much as possible of this resource as LEU reactor fuel derived from surplus HEU.

33.001: Forms of surplus HEU are mainly metal, compounds, solutions, oxides, irradiated fuel, reactor fuel, UF_6, scrap, and material in weapons that have been retired but have not been transferred to Pantex for disassembly. Surplus HEU is currently located at 10 DOE sites around the country and is shown in Figure 1.3–1 of the HEU Final EIS.

Tennessee (Knoxville), Afternoon Workshop
Discussion Group C
Page 1 of 8

HEU EIS PUBLIC MEETING ORAL COMMENTS
AFTERNOON WORKSHOP
Knoxville, Tennessee
November 14, 1995

SESSION: Discussion Group C

ISSUES

What type or level of effect does each of these alternatives have on proliferation? | 03.009

Which alternative (disposition as waste versus disposition as fuel) generates the most jobs? | 24.001

Timing -- How rapidly could this blending down take place and what are the potential effects on the economy? Will the need for additional fuel impact the timing of DOE action? | 05.002

What are the environmental impacts of disposing of all these canisters? | 06.011

How much earth needs to be moved in order to get one pound of uranium or one pound of fuel from natural uranium ore? What are the impacts? How big will the hole in the ground be after the ore is mined?

What's the worldwide demand in comparison to the fuel that would be generated from the blend down and where is it going to be stored (fuel)? If the production is above the demand then where would the surplus be stored? | 17.012

Where is all the commercial demand coming from? Why do we expect an increase in the use of nuclear power? | 13.002

The electrical industry is being deregulated and this will have a negative impact on the industry. There hasn't been a good analyses of the actual demand. | 13.003

OPEN DISCUSSION

What Are the Preferred Sites?

Does this EIS include full production input at all the sites? | 11.010

Does this document identify a preferred site? Is it set up as a generic document or a site-specific document? Regardless of what site is selected this document will stand? Does the EIS identify preferred sites with the preferred alternative? There may be some materials or mixtures of materials that will preselect ORR, SRS, B&W or NFS. | 07.002

[1]REVISED December 7, 1995

03.009: Among the alternatives considered, Alternative 1, the No Action Alternative, has the highest proliferation potential because it leaves the HEU in weapons-usable form. DOE considers alternatives 2 through 5, which represent blending different portions of the surplus HEU to waste or fuel, as roughly equivalent in terms of proliferation potential, and much more proliferation-resistant than the HEU in its present form. That is, LEU at both 4- and 0.9-percent enrichment and spent fuel are all considered to have low proliferation potential, because both enrichment of uranium and reprocessing to separate Pu are difficult and costly.

24.001: The largest number of direct jobs generated would be 126 for blending HEU to LEU as UF_6 (disposition fuel). The largest number of total jobs (direct and indirect) generated would be 444 in the ORR region. These jobs would be created as a result of blending HEU to either waste or fuel. There would be no difference between fuel or waste alternatives in terms of the total number of jobs created.

05.002: The Department of Energy estimates that the shortest time to blend 200 t of surplus HEU would be about 20 to 25 years, assuming all four blending sites were used. DOE expects that the commercial material in current surplus HEU will take between 15 and 20 years to blend, and material that must be blended to waste could take 10 to 15 years. DOE expects the demand for uranium fuel to remain essentially steady for the foreseeable future.

06.011: The environmental impacts from disposal of radioactive wastes are being analyzed in other NEPA documents together with the much larger quantities of radioactive waste that must be managed by DOE. As explained in Section 1.4.2 of the HEU Final EIS, the disposal of LLW generated as a result of this program will be addressed as part of DOE's *Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* and any site-specific or project-specific EIS's concerning LLW repositories.

17.012: Material will generally not be blended down until it can move promptly into the pipeline for either commercial use or disposal as waste, so there is no need for extended storage of blended down product. As stated in Section 4.8.1 of the HEU Final EIS, the U.S. surplus HEU would represent about 2 percent of the world market for uranium.

How and where has the blend down technology been tested? And is it the best technology?

DOE oversight office is not sure even if this technology is in existence – so how many years has the blending technology been carried out at each site? How long has B&W been doing blend down? Are we getting double talk? DOE has stated that all of the sites have blended down the material to 1% or 4%. What are you saying, that B&W has not? 01.004

Can these people/sites blend the material down to 4% on-spec in the time frame given in the EIS? 05.006

What are the criteria for selecting SRS, ORR, B&W or NFS? 07.008

What is the specific composition of the materials? What is classified, the amount or the locations of the surplus HEU? 02.001

What drives DOE's selection of a specific site? Least cost or least risk? 08.003

Transportation Risks

How much material is transported per truckload? 20.002

Has the EIS looked at the ratio of accidents between transporting waste versus LEU? 19.001

Isn't there a difference in transporting the material in safe secure trailers (SSTs) as opposed to Joe Blow Transportation hauling the waste? Is the probability of accidents lower when transporting the materials in safe secure trailers (SSTs)?

Are trucks the normal or best way to move the material? 20.003

If a truck carrying 1% material crashes on I-40 what would be the accident scenario? What would the ground look like? What are the environmental and health effects? Please explain for both 1% and 4% material. 20.010

Proliferation Differences

When the HEU is blended down it would be run through commercial reactors and you end up with more weapons-usable fissile materials. Would there be more weapons-usable materials after processing in commercial reactors? If so, how much? 03.010

The period of 8 years versus 46 years throughput -- I would like to suggest that if the 46 years were changed to 8 years we would have more jobs in the short term. 05.005

What makes us believe that these utilities will purchase the materials from the United States over the other available materials?

13.002: The demand for HEU-derived uranium would come from the approximately 100 nuclear electric power plants operating in the United States and hundreds of others overseas. There is no expected increase in the number of these power plants in the United States.

13.003: There is consideration of deregulation of the electrical supply industry, but that has not happened yet and no one can be sure what form it will take or what its impact will be. At this time, there is no deregulation data to analyze. The demand for uranium in the United States is continuously analyzed by numerous firms specializing in the uranium market. These analyses predict essentially steady demand for uranium at 165 million pounds U_3O_8 per year worldwide. The United States uses about 45 million lbs U_3O_8 per year and produces only about 6 million lbs.

11.010: The HEU EIS analyzes generic processes for the various blending technologies at all of the sites. Generic process rates are also applied based on rates that all of the facilities could achieve. It is possible that some of the facilities could process material at higher rates, although it is unlikely DOE could make material available for blending at higher rates.

07.002: The HEU EIS is programmatic in the sense that it will support programmatic decisions (for example, as proposed, to make commercial use of surplus HEU). The Preferred Alternative in the HEU Final EIS does not include any site preferences. The document concludes that the necessary blending activities could take place at any of the analyzed sites without significant adverse impacts. Thus, environmental considerations are not considered likely to drive site decisions, which may be made by parties other than DOE. If subsequent decisions concerning disposition of specific lots of HEU fall within the parameters analyzed in the EIS in terms of sites, quantities, and processes, it is expected that no additional NEPA documentation will be required.

01.004: Uranyl nydrate hexahydrate blending technology is in existence at all four facilities, and metal blending technology exists at DOE's Y–12 Plant. While all of the facilities have engaged in some blending as part of their past operations, blending to pre-

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
DISCUSSION GROUP C
PAGE 3 OF 8

What makes us believe that these utilities will purchase the materials from the United States over the other available materials? 13.004

This EIS is suppose to be driven by proliferation concerns and after the first three pages the document focuses on money. DOE states that the President's nonproliferation policy – not economics drives this EIS. You could have just as easily stated that money and not proliferation concerns drive this document. 06.015

Maximum commercial use equals maximum proliferation risks. Resulting fuel could be sold internationally. If other countries are looking at the process then they see we have spent fuel and the ability to reprocess – no one in this room can give assurances that it won't turn back into bomb materials in other countries. If we look at the proliferation issue then the 1% enrichment alternative is the way to go. Could someone turn all the material into bomb material? 03.017

The world is watching what we are doing and so we should be very clear and specific in our actions. 06.017

Will the IAEA follow the spent fuel into another country and track it as fuel? How wide spread is the IAEA membership – how many countries belong? 03.011

Does the EIS take a sample of 50% of the material - then is 50% of material something else? Are some of the scraps from Rocky Flats included in the material analyzed in this document? Does this material contain other stuff? I would like clarification of what is included in the materials analyzed in this EIS. Is 50% pretty accurate? What is the other stuff? 06.019

If 50% of the material is U-235 then what is contained in the other 50% of the material?

Basis for Selection of Alternative Five

Why and what contributed to the selection of the preferred alternative? 07.004

Isn't time one of the major factors involved in the process? Why not share the materials between all four sites? Blend down the material as quickly as possible. 05.013

Each company will encounter some problems. There are always some problems associated with this type of work. I have dealt with NFS and they have been very open and forthcoming with information. East Tennessee is economically depressed so the jobs created by this action would be great. 10.003

Why would you consider blending the material to waste, it does not make sense. 10.014

If you blend down the material to waste – the uranium will never go away. We don't make a dime – why not blend and sell – why not make profits?

REVISED December 7, 1995

cisely 0.9 or 4 percent has probably not been done because HEU has never before been blended down either for commercial use or waste. The point is, the technology for blending at higher enrichment levels is the same as would be used to yield the lower level products for this program, except more blending and blendstock would be needed. There is no environmentally consequential difference between the experience these facilities have and the proposed actions.

05.006: The timeframes presented in Table 2.1.2–1 of the HEU Draft EIS were rough estimates and are considered optimistic. They were based on the assumption that the sites can process material at the analyzed rates (up to 10 t per year) and that DOE can provide material for blending at up to 40 t per year in the case of using all four sites simultaneously. The HEU Final EIS is revised to reflect more realistic assumptions. In actuality, DOE could not provide material that quickly. DOE expects that a realistic estimate of the time needed to blend material for commercial use will be 15 to 20 years.

07.008: The sites that are considered in the HEU EIS are the two commercial and two DOE sites that can process significant quantities of HEU today. The Preferred Alternative contemplates the use of all four sites, although some alternatives or processes cannot be performed at all sites, as explained in the EIS. DOE does not expect to select the exact timing or use of the commercial and DOE sites in its ROD. It will make programmatic decisions whether surplus HEU should be blended for commercial use or for waste, and may also include decisions to proceed with disposition of one or more initial discrete batches of HEU. Decisions about where blending will occur will be based on business considerations, facilities being available when needed, transportation considerations, and competitive bidding processes. The commentor is correct that the forms and locations of some batches of HEU may militate strongly in favor of particular sites for blending.

02.001: Highly enriched uranium is primarily metal, uranium oxide, and UF_6. Most of the amounts and forms of surplus HEU at specific locations have been declassified and were made available in the Secretary of Energy's *Openness Initiative* announcement on February 6, 1996. The newly-released information is indicated in Figure 1.3–1 of the HEU Final EIS.

08.003: The HEU Final EIS indicates that risks would be comparable and quite low at all sites. Thus, the selection of sites for blending, which may be done by USEC or other

If you blend it to fuel, you don't have more time to find a repository. Blending to fuel ignores the issue that there is no repository for spent fuel. | 14.006

Spent Fuel

When does DOE begin to grapple with the issue of spent fuel? If we blend down the HEU we continue to add to the insanity of generating spent fuel. We should blend down the material to 1% and get it out of the cycle by disposing as low-level waste. Economic and environmental impacts are skewed because the issue of spent fuel is not dealt within this document. | 14.011 | 10.009

Is there any economic incentive to blend to 1% over the 4% LEU? | 04.006

[1] Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

entities as well as DOE, would probably be dictated primarily by business considerations and the results of competitive bidding processes.

20.002: The quantity of material per truckload (shipment) varies, depending on the alternative and type of material. For example, under the alternative to produce UNH for commercial use, a truckload would contain 48 packages of surplus HEU, 35 kg per package (77 lbs), or 1,680 kg (3,696 lbs) of surplus HEU per truckload. Table G.1–3 of the HEU Final EIS presents the quantity of each material transported in the assessment.

19.001: Yes. The maximum annual transportation impacts would be 0.038 fatalities for transportation of LLW and 0.061 fatalities for LEU destined for commercial fuel fabrication. A cumulative summary of transportation environmental impacts is presented in Table 4.4.3.3–1. The accident risk for each material is presented in Appendix G.

20.003: Safe secure trailer trucks are reserved for the exclusive transport of highly sensitive special nuclear materials, primarily for security reasons. LLW does not require intensive security oversight and therefore would be transported by certified commercial truck. Regardless of the vehicle, either safe secure trailer or commercial truck, the carrier of radioactive materials must comply with the same stringent Department of Transportation packaging and transport requirements, as explained in Section 4.4 of the HEU Final EIS. For normal traffic fatalities, no difference is assumed in the probability of risk per kilometer for either safe secure trailer or commercial shipments. However, for the probability of release of radioactivity in the case of accidents, it is lower for safe secure trailer shipments (due to special design of the safe secure trailer) than for commercial shipments.

20.010: Depending on the severity of the accident for the LLW material (with 0.9-percent enrichment), some of the Type A radioactive material packages could disengage from the truck and be breached, and some material could possibly be released. Any loose material could be recovered by conventional tools, repackaged, and transported away with minimal loss of life or property, and minimal permanent site contamination.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
DISCUSSION GROUP C
PAGE 5 OF 8

For the 4-percent LEU in UNH form, the material would be transported in Type A packaging, and the accident scenario would be similar to 0.9-percent LLW material. For the 4-percent LEU in UF_6 form, the material would be transported in Type B packaging designed to prevent the release of contents under all credible transportation accident conditions. It is expected there would be no breach of the package and no loss of contents, even in severe accidents.

Both 0.9-percent LLW and 4-percent LEU are very low in radioactive properties. The health effects from transporting materials evaluated in the HEU EIS have been calculated and are presented in Appendix G of the HEU Final EIS.

03.010: Spent fuel is not a weapons-usable fissile material because its high radiation field makes reprocessing it to separate the Pu very difficult. Thus, there would be no fissile material that could be directly usable in weapons after use of LEU fuel derived from surplus HEU in commercial reactors.

05.005: The 8-year period in the HEU Draft EIS was based on the assumption that four blending sites would be used, and 46 years was based on the assumption that only one site would be used. In actuality, DOE will not be able to make material available for blending quickly enough to meet the 8-year schedule, and the HEU Final EIS is revised accordingly. DOE expects that a realistic estimate of the time needed to blend currently declared surplus HEU material for commercial use will be 15 to 20 years, and material that must be blended to waste is expected to take an additional 10 to 15 years.

13.004: There is no certainty that anyone will purchase the blended HEU, but 45 million pounds of uranium are purchased in the United States each year and 165 million pounds purchased world wide. It would appear that there is an adequate market for the blended Government uranium.

06.015: Because all of the action alternatives in the HEU Final EIS (Alternatives 2 through 5) fully satisfy the nonproliferation objective of the surplus HEU disposition program by making the material non-weapons-usable, extensive discussion of the differences among the alternatives for nonproliferation purposes is not called for. The economic and nonproliferation objectives of the program are consistent in that they both support commercial use.

03.017: The Department of Energy does not agree that commercial use of LEU fuel derived from surplus HEU increases the proliferation potential. DOE considers Alternatives 2 through 5, which represent blending different portions of the surplus HEU to waste or fuel, as roughly equivalent in terms of proliferation potential, and much more proliferation-resistant than the HEU in its present form. That is, LEU at both 4- and 0.9-percent enrichment and spent fuel are all considered to have low proliferation potential, because both enrichment of uranium and reprocessing of spent fuel to separate Pu are difficult and costly. Although fuel derived from U.S. surplus HEU and sold abroad could conceivably be reprocessed in some countries to separate Pu for commercial (non-military) use in mixed oxide fuel, that LEU fuel derived from surplus HEU would simply replace other fuel, so no incremental Pu will be created as a result of this program.

06.017: The Department of Energy agrees that setting an example for other nations is an important objective of the surplus HEU disposition program. Consequently, it is considered important to begin work on making our surplus HEU non-weapons-usable in a prompt manner.

03.011: The International Atomic Energy Agency probably would not track HEU beyond the point that it is blended down to LEU, at which time it is no longer a proliferation concern, and which will occur in the United States. Currently, 123 nations are members of the IAEA.

06.019: The inventory of surplus HEU has an average enrichment level of 50 percent, which means that, on average, 50 percent of it by weight is U-235. Almost all of the remainder is U-238, with small quantities of U-234 and U-236 in some of the material. Various portions of the inventory contain numerous other materials. Details concerning the forms, quantities, and locations of surplus HEU are shown in Figure 1.3–1. Some of the material is located at Rocky Flats.

07.004: As explained in Section 1.4.2 of the HEU Final EIS, DOE prefers the Maximum Commercial Use Alternative because it would best serve the purpose and need for the proposed action, which is to make the surplus HEU non-weapons-usable and, where feasible, recover its economic value. It is self-evident that the economic recovery objective is best served by an alternative that seeks to maximize commercial use of the material, since the alternative of blending the material to waste recovers no value. DOE believes that the nonproliferation objective is also best served by the maximum commercial use alternative, primarily because it would permit the surplus HEU to be blended down more quickly than blending it to waste.

05.013: As described in Section 1.4.2 of the HEU Final EIS Preferred Alternative, DOE intends to sell as much as possible of the LEU fuel derived from surplus HEU or surplus HEU using a combination of four sites and two possible blending technologies. The goal is to achieve DOE's objectives in a way that would satisfy programmatic, economic, and environmental needs, beginning after the ROD and proceeding, as necessary, until all surplus material is blended down.

10.003: Comment noted.

10.014: Alternative 2, which considers blending the entire stockpile of surplus HEU to LEU for disposal as waste, was included in the analyses because it provides a comprehensive evaluation of a full range of alternatives in the HEU EIS as required by NEPA. Blending the material to waste would not recover any of the economic value of HEU for the Government or provide peaceful, beneficial use of the material; however, it would meet nonproliferation objectives. DOE's Preferred Alternative is to maximize commercial use of the material.

14.006: The HEU EIS does not need to explicitly analyze the disposal of spent fuel, since this program would create no incremental spent fuel to dispose of. As explained in Section 1.4.2 of the HEU EIS, spent fuel management and disposal is covered by the *Nuclear Waste Policy Act*, as amended. That program has its own NEPA process which must be fulfilled.

14.011: Spent fuel need not be dealt with in the HEU EIS because the HEU disposition program would generate no incremental spent fuel that would not be generated in the absence of the program.

10.009: Blending down the entire stockpile of surplus HEU to less than 1 percent and disposing of it as waste was evaluated in the HEU EIS as one of the alternatives. The analyses showed that this alternative would generate the highest environmental impact among other alternatives evaluated in the HEU EIS (Table 2.4–2). DOE has developed cost estimates associated with the alternatives analyzed in the HEU EIS and has made them available in a separate document with the HEU Final EIS. The cost analysis indicates that commercial use of LEU fuel derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste. DOE believes that all of the action alternatives (2 through 5) evaluated in the HEU EIS meet the objective of nonproliferation and will send a positive message to other nations.

04.006: The Department of Energy's preliminary analysis has found no economic advantage of blending to 1 percent or less for waste disposal, since approximately five times as much blending would be required, and waste disposal costs are expected to be high. An analysis available separately from the EIS compares the costs of the alternatives and supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU makes the most economic sense and would save considerable money.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
PLENARY SESSION
PAGE 1 OF 4

HEU EIS PUBLIC)RAL COMMENTS
AFTERNOON WORKSHOP
Knoxville, Tennessee
November 14, 1995

SESSION: Plenary

What was the motivation for the 50 metric tons of HEU to be transferred to USEC, and why wasn't it evaluated in the EIS? | 01.003

The transfer of 50 metric tons seems to mix an economic and technical issue. The transfer of the 50 metric tons should be separate from this process. Is there an economic analysis in the EIS? How was the figure of 50 metric tons transferred to USEC derived? Why was the figure not 100 or 30 metric tons? The economics of this action should be fully considered in this process. | 04.005

Why doesn't DOE blend down all of the HEU with the depleted uranium at Paducah (Kentucky), for example? | 09.005

There appears to be a huge time discrepancy between the time frames for blending down to waste and blending down to fuel. How can the blending down process be expedited? | 05.001

Aren't there other commercial facilities seeking licensing, other than the two listed in the EIS? | 11.009

Why are Paducah (Kentucky) and Portsmouth (Ohio) not included as candidate sites if they have the capabilities to deal with the HEU? | 09.002

The waste types and forms should be elaborated on in the document. Also, where will the waste types and forms be stored? Will mixed waste be generated during any of the proposed actions? | 22.003

In reference to the alternatives slide during the plenary presentation, fuel should be referred to as spent fuel. Why is it important for DOE to say that it will not do anything until a site has been selected for the waste alternative, but will not do the same with regards to the fuel alternatives?

Why doesn't this document consider the spent fuel that will be generated as a result of the commercialization alternatives that convert the HEU to fuel? Where will the resulting fuel and the waste be stored? | 14.004

DOE should establish the same criteria for fuel alternatives as for waste alternative.

Isn't there storage space at the Nevada Test Site for the material? What about storage at a tomb at Oak Ridge? | 26.002

REVISED December 7, 1995
[1]REVISED December 13.1995

01.003: Fifty t of HEU is proposed to be transferred to USEC to increase the corporation's assets and value. That would increase the proceeds to the Federal Treasury when the corporation is sold. That proposed transfer is evaluated as part of each of the commercial use alternatives in the HEU EIS (Alternatives 3 through 5).

04.005: The transfer of 50 t of surplus HEU to USEC might have been considered separately for purposes of NEPA, but DOE concluded that such separation might constitute unallowable segmentation of connected actions. The only difference between the 50 t of surplus HEU proposed to be transferred to USEC and the remainder of the surplus HEU is that the 50 t is the only concrete disposition proposal at this time. There is no difference in terms of potential environmental impacts, so it made the most sense to consider it in this EIS together with the rest of the surplus.

The HEU Final EIS does not contain a formal economic analysis, and one is not required by NEPA. However, cost estimates for the HEU EIS alternatives have been developed and are available in a separate document with the HEU Final EIS. The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU makes the most economic sense and would save considerable money. Economic considerations will clearly play an important part in ROD(s) stemming from this EIS. The 50 t figure was derived from DOE estimates of the quantity of material that could be made available for blending over a 5-year to 6-year period.

09.005: Depleted uranium at Paducah and other DOE sites could be used as blendstock for HEU. However, depleted uranium would generally not be used as blendstock for commercial material because it would not yield appropriate isotopic content in the product material. Since DOE has copious inventories of natural and low-enriched uranium that would make better blendstock, it is not likely that the HEU disposition program would make much use of the depleted UF_6 at Paducah or Portsmouth.

05.001: It takes about four times as long to blend a ton of HEU to 1 percent as to blend it to 4 percent, because the processing rates are limited by the quantity of material output. The process can be expedited by maximizing commercial use and using more than one blending site.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
PLENARY SESSION
PAGE 2 OF 4

How do you know that the process of blending down the HEU would not cost more than to start making fuel from scratch if you have not done a cost analysis? What if you can't sell the blended down material? How much will it cost to blend down the material? How can the public get copies of the cost studies? The cost analysis should be included in the final EIS. 16.005

How much more strontium, cesium, arsenic, mercury, etc. will be added to our water supply at Watts Bar through the blend down process? How much more water contamination can we expect as a result of this action? 22.004

The United States has identified 200 metric tons of fuel (HEU) and 50 metric tons of fuel (HEU) from Russia that will be going to USEC. Is there a market for this fuel? Does DOE plan to send the waste from the blend down process back to Russia? 06.012

Where would the blended down fuel be stored?

Where is the material to be used for blending presently stored? 26.004

Do the facilities at the candidate sites have permits in place to blend down material? 23.002

Once the fuel was used commercially, would the spent fuel be stored at the commercial site and would that cause a proliferation risk? Can the United States assure that the fuel sold to foreign countries would be safe from associated proliferation risks? 15.001

The document only addresses the actions until the fuel becomes commercial. Under the NEPA process, the life of the material should be covered from cradle to grave. 30.004

What happened to the international treaty for returning foreign research reactor spent nuclear fuel to the United States?

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[1][illegible] concerning similar issues were combined

11.009: At this time, DOE is aware of no commercial facilities seeking licenses to process HEU other than the two analyzed in the HEU EIS.

09.002: The gaseous diffusion enrichment plants at Paducah and Portsmouth have the capability to deal with HEU only in the form of UF_6. The K–25 Site on ORR is permanently closed. Since the surplus HEU is in the form of metal or oxide, not UF_6, those facilities cannot be used for the blending activities.

22.003: Waste types, forms, and volumes generated by the three blending processes (UNH, metal, and UF_6) are listed in Tables 2.2.2.1–2, 2.2.2.2–2, and 2.2.2.3–2 of the HEU EIS.

Conceptual treatment schemes for the blending alternatives as envisioned at the candidate sites, and storage and disposal impacts are described in the waste management sections of Chapter 4, Environmental Consequences.

Mixed waste is generated by all three of the blending processes, as indicated in the tables referenced above, but the mixed wastes are treated to LLW in the conceptual treatment schemes.

14.004: The Department of Energy does not intend to take actions to commence blending of HEU until there is a clear destination for the resultant material. In the case of waste material, that destination is a LLW repository. In the case of commercial material, the destination is the normal nuclear fuel cycle, which in the United States is a "once-through" cycle ending in disposal of spent fuel. The alternative of blending HEU to waste would generate LLW for disposal that would not otherwise exist. In contrast, the spent nuclear fuel that would result from commercial use of blended-down HEU would not represent any increment over that which would exist in the absence of this program.

The context of this comment pertains to the timing of disposition actions. DOE explained that waste HEU would not be blended until disposal capacity for the resultant LLW was available, because DOE does not want to build expanded storage facilities for the much higher volume of the blended-down material. The commentor expressed the opinion that HEU should likewise not be blended for commercial use until disposal capacity for the resultant spent fuel was available. The difference between the two is that, without this program, there would be no less spent fuel to dispose of (as fuel from natural uranium would be used instead), whereas LLW that would be created by blending HEU to waste would be in addition to that which would otherwise exist.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
PLENARY SESSION
PAGE 3 OF 4

26.002: Two DOE sites, NTS and ORR, are possible locations for disposal facilities for LLW derived from surplus HEU as identified in the Waste Management PEIS. The HEU EIS analyzes NTS as a representative site for such disposal for purposes of analyzing the transportation of waste materials. The Y–12 Plant is the primary facility for interim storage of surplus HEU, pending its disposition.

16.005: Cost estimates for the alternatives have been developed for inclusion in the ROD(s), and are available to the public separately from the Final HEU EIS. The cost analysis supports DOE's preliminary conclusion that the cost of commercial fuel alternatives would be less than making nuclear fuel by enriching natural uranium, as blending is relatively easy, whereas enrichment is difficult and expensive. Even if this were not so, and HEU-derived fuel cost more than natural uranium-derived fuel, it would almost certainly still be economic from DOE's perspective to bear that additional cost in order to avoid the much higher costs of blending the material to waste (involving 3 to 4 times as much blending) and waste disposal, which is now very costly. In other words, even if DOE had to give commercial material away free, it would almost certainly be more economical to do so than to bear the high costs of disposing of it all. The cost analysis also supports DOE's conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

22.004: As discussed in Chapter 2 of the HEU EIS and shown in the Tables 2.2.2.1–1 and 2.2.2.2–1, strontium, cesium, arsenic, and mercury would not be used during the blending down process, and consequently, would not affect the water supply at Watts Bar. As discussed in the Chapter 4 water resource sections, there would be no direct discharges of process wastewater to groundwater. Any hazardous liquids generated would be treated to limits specified in local, State, and Federal permits and would not be released until permit requirements are met. Consequently, the the alternative of blending process would not affect the water supply at Watts Bar.

06.012: The surplus HEU under consideration in this EIS is from the U.S. nuclear weapons program, not Russia; thus no waste would be sent to Russia. DOE anticipates no problems marketing the resulting nuclear fuel over a 15- to 20-year period.

26.004: Surplus HEU is currently located at 10 DOE sites (see Figure 1.3–1 of the Final HEU EIS) but most will be moved to the DOE's Y–12 Plant for interim storage. The blendstock material, which would be used in blending with surplus HEU to produce LEU, is located at various sites as natural uranium, depleted uranium, and LEU. These sites are ORR; SRS; Hanford; Paducah, KY; and Portsmouth and Fernald, OH. Once the surplus HEU material is blended to LEU, it will be shipped to fuel fabricators. DOE does not intend to blend down all surplus HEU and store as LEU. Surplus HEU will be kept in storage until there is a buyer that would utilize the material as fuel in commercial reactors within a reasonable timeframe.

23.002: All of the facilities at candidate sites have NRC permits in place to conduct down-blending of HEU.

15.001: Spent fuel is considered to present low proliferation potential during the 80 to 100 years that its radiation field is very high. Fuel fabricated from HEU-blended material that may be sold to foreign users would present absolutely no increment to proliferation risks, since it would simply supplant fuel derived from natural uranium.

30.004: Once the material becomes commercial fuel, it is fungible with and supplants other commercial fuel. Thus, the surplus HEU disposition program presents no incremental impacts after the material becomes commercial fuel, other than the positive impacts of avoided uranium mining, milling, and enrichment. The impacts of spent fuel management and disposal are covered under the *Nuclear Waste Policy Act*, as amended, including appropriate NEPA documentation.

TENNESSEE (KNOXVILLE), AFTERNOON WORKSHOP
SUMMARY SESSION
PAGE 1 OF 1

HEU EIS PUBLIC MEETING ORAL COMMENTS
AFTERNOON WORKSHOP
Knoxville, Tennessee
November 14, 1995

SESSION: Summary

Who selects the trucking firm that will transport the material? | 08.007

I support the nonproliferation policy for this material. I recommend, out of all the alternatives, to use the commercial facilities for blending. The United States should show responsible actions regarding the disposition of this material to the rest of the world. Work should be done at commercial vendors. The work described in the EIS is simple, not technically challenging. NFS is dedicated to worker safety and ensuring minimal environmental impacts as a matter of routine. NFS can do this work with no problems. | 10.003

[1] Revised December 7, 1995.

[1] Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

08.007: All shipments of HEU would be by DOE-owned safe secure trailers (trucks specially designed for security and safeguards considerations). The selection of transportation contractors for blendstock or LEU shipments could be done by DOE, USEC, or other commercial entities that are involved in blending or purchasing the material.

10.003: Comment noted.

HEU EIS PUBLIC MEETING ORAL COMMENTS
EVENING WORKSHOP
Knoxville, Tennessee
November 14, 1995

SESSION: Plenary

Why not blend all of the material to reactor fuel? 09.003

If this material is used in the United States reactor market will it then preclude international fuels from entering the United States market? 17.001

DOE has the support from Unicoi County, Tennessee for this process. We appreciate NFS. I can't think of anyone in our county that would not support this. 10.003

Is this an all or nothing situation? That is, having one site do it all or dividing it all between the four sites? 07.002

Do you anticipate a good market for this? There is a proposed facility in Claibourne, Louisiana that will process the material from start to finish. They have said they will be a direct competitor with the DOE and USEC. 04.002

Who will be marketing the material other than the 50 metric tons going to USEC?

Once USEC is privatized who will have title of the 50 metric tons of the material? 17.004

Is there full intent to market the material, no matter how low the costs, or would DOE hold on to it until the price is at a level you would want to sell it? 04.004

Ultimate storage - what is the anticipated storage time before selling? 08.002

Regarding the time frame, how many years is DOE expecting this process to take? 05.002

Do we expect that the Russians will be sending more fuel material over thus competing with the what the candidate sites would be processing? 12.003

With the Russians taking so long to process their fuel, will this impact the time frame for processing our 200 metric tons? 05.003

[1]REVISED December 1995

[1]Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document.

09.003: The Department of Energy's Preferred Alternative is to blend as much as possible of the material for commercial use as reactor fuel. Some portion of the material (between 15 and 30 percent) is in forms that may ultimately prove uneconomical to develop for commercial use and will have to be blended down for disposal as LLW.

17.001: Commercial fuel derived from HEU is expected to enter a global uranium market. It is possible that it could supplant uranium imports or augment U.S. exports.

10.003: Comment noted.

07.002: The HEU EIS is programmatic in the sense that it will support programmatic decisions (for example, as proposed, to make commercial use of surplus HEU). The Preferred Alternative in the HEU Final EIS does not include any site preferences. The document concludes that the necessary blending activities could take place at any of the analyzed sites without significant adverse impacts. Thus, environmental considerations are not considered likely to drive site decisions, which may be made by parties other than DOE. If subsequent decisions concerning disposition of specific lots of HEU fall within the parameters analyzed in the HEU EIS in terms of sites, quantities, and processes, it is expected that no additional NEPA documentation will be required.

04.002: The Department of Energy does not expect to have any difficulty marketing the commercial material at market rates. Off-spec material will probably need to be marketed at discounted rates to compensate for the added processing and operational requirements for its use. The uranium market is now a global one, involving numerous competitors. DOE expects that LEU derived from surplus HEU will be introduced into the market at rates that do not have a material adverse impact on the market.

17.004: Under the current proposal, if this HEU EIS is finalized and an ROD is published consistent with the Preferred Alternative to maximize commercial use, the ROD may include a decision to transfer title to 50 t of HEU to USEC. This is planned to increase the value of USEC and thus the proceeds to the Federal Treasury from the sale of USEC. As explained in the HEU Final EIS, under current law, USEC must act as DOE's

TENNESSEE (KNOXVILLE), EVENING WORKSHOP
PLENARY SESSION
PAGE 2 OF 3

marketing agent for the sale of all enriched uranium, including that derived from HEU. Proposed legislation to privatize USEC may modify or eliminate that restriction, in which case material could be marketed by DOE directly or by any number of other commercial entities acting as agents for DOE pursuant to competitive contracting arrangements.

04.004: It is expected that avoiding the costs of disposing of the material as waste will be a more important cost consideration to the Government than the potential proceeds from sales. However, market prices probably will play a role in DOE's sales decisions, since DOE will be required to avoid causing adverse material impacts to the domestic uranium industry.

08.002: It is expected that HEU would not be blended down until it can either be sold for commercial use or moved to a repository for disposal as waste. Thus, there would be very little storage needed for blended-down material. Some portions of the surplus stockpile may continue to be stored as HEU for up to 15 or 20 years prior to their disposition.

05.002: The Department of Energy estimates that the shortest time to blend 200 t of surplus HEU would be about 20 to 25 years, assuming all four blending sites were used. DOE expects that the commercial material in current surplus HEU will take between 15 and 20 years to blend, and material that must be blended to waste could take 10 to 15 years. DOE expects the demand for uranium fuel to remain essentially steady for the foreseeable future.

12.003: The United States has agreed to purchase LEU fuel derived from 500 t of highly enriched uranium from Russia to be delivered over a 20-year period. Eighteen tons equivalent to 14 million pounds of U_3O_8 have already been delivered to USEC. Legislation passed by Congress and signed on April 26, 1996, (P.L.104-134) authorized transfer of this material from USEC to DOE to be sold starting in 2002 at a rate not to exceed 3 million lbs per year. In addition, this legislation limits the sale of subsequent uranium received from the agreement between the United States and Russia. No further purchase of Russian uranium is anticipated. See Section 4.8 of the HEU Final EIS.

05.003: The Department of Energy must ensure that its sales of uranium do not have a material adverse impact on the domestic uranium industry, taking into account the U.S.-Russian HEU agreement. It is possible that if the Russian agreement appears to be jeopardized by domestic HEU disposition actions, the administration might decide to defer domestic sales until market conditions improve.

TENNESSEE (KNOXVILLE), EVENING WORKSHOP DISCUSSION/SUMMARY SESSION PAGE 1 OF 2

HEU EIS PUBLIC MEETING ORAL COMMENTS
EVENING WORKSHOP
Knoxville, Tennessee
November 14, 1995

SESSION: Discussion/Summary

OPEN DISCUSSION

Safety of Off-Specification HEU

Is a certain portion of HEU, the off-specification material, still going to be sold on the market? Would the off-specification material be dangerous to use in commercial reactors? Will the buyer will be made aware that the fuel is off-specification? Is there a safety issue with the off-specification material in storage? | 17.002

Use of Depleted Uranium

Does this depleted uranium have contaminants?

General conversations have indicated that depleted uranium would be a good blend stock, is this true?

Is U_{234} in HEU a problem? | 33.003

Can the supply of natural uranium be used as blend stock? To what extent has DOE used the act of 1992 (Energy Policy Act) with respect to domestic mining of natural uranium for use in blending? | 06.025

Are there mining companies that will be affected if natural uranium is not used? | 12.004

With reference to page S-20, second column, first paragraph, first sentence of the EIS Summary; this should read "there would be little impact" on the nuclear fuel cycle not "no impact." This statement does not seem to be in relation to the global market and could be taken out of context. DOE needs to expand and analyze this issue more. Clarify the impacts of this HEU to the current market and mining activities. | 12.005

DOE may need to consider adding more information or expanding the cumulative impact section. | 17.003

Has DOE considered what would happen in the fuel market and in the uranium mining industry if the material is blended down to fuel? | 12.006

' REVISED December 7, 1995

17.002: The Department of Energy expects that some or most of the off-spec material will eventually be able to be sold for commercial use, subject to NRC license amendments for the users. Although the elevated U-234 content would present some radiation safety concerns for workers, particularly in fuel fabrication plants, comparable material is used in reactors overseas without any significant safety problems. DOE would fully disclose the composition of any material it sold.

33.003: The Department of Energy has large inventories of depleted uranium in many forms and with many levels of contamination. In general, depleted uranium would be suitable blendstock only for material that is to be blended to 0.9 percent for disposal as waste. However depleted uranium is less likely to be used as blendstock for commercial material, since it would not yield appropriate isotopic composition for commercial fuel. U-234 generates a substantial portion of the radioactivity in uranium, so elevated levels may necessitate special measures to protect workers during handling.

06.025: It is expected that natural uranium will be used as blendstock for blending some of the surplus HEU. New quantities of uranium may not need to be mined for this purpose since DOE has extensive supplies of natural uranium in its inventory.

12.004: The Department of Energy continuously assesses the impact of introducing uranium from its inventory into the U.S. uranium market. DOE is required by the terms of the *USEC Privatization Act* to avoid introducing uranium into the market in a manner that would have adverse material impacts on the domestic uranium industry. The impacts on the uranium and nuclear fuel cycle industries are detailed in Section 4.8 of the HEU Final EIS.

12.005: The cited "no impact" quotation refers to the case in which all surplus HEU would be blended to waste for disposal, in which case there would indeed be no impact on the nuclear fuel cycle. The HEU EIS correctly notes just below the cited passage that for the commercial use alternatives, "there would be some effects on the world and U.S. uranium fuel cycle industries."

17.003: Comment noted.

Tennessee (Knoxville), Evening Workshop Discussion/Summary Session
Page 2 of 2

Does the 200 metric tons of HEU identified, also include the foreign HEU? | 02.002

Regarding the ratios provided for commercial off specification material and waste, do they reflect the amounts that DOE has now or will have with the material identified in this document? What was the basis for the ratio? | 07.005

Has the schedule of the Record of Decision slipped and why? If it has slipped, what does the schedule look like now? | 29.003

How soon can the material be blended down once the Record of Decision is issued? | 05.004

Regarding the transportation issue, does DOE expect any challenges from the sites? | 20.004

[1]Oral comments received in public meetings concerning similar issues were combined (grouped) for presentation in this document

12.006: The impacts on the uranium and nuclear fuel cycle industries are detailed in Section 4.8 of the HEU EIS, which has been enhanced in the final document.

02.002: The 200 t does not include any foreign HEU. It consists of about 175 t of domestic HEU presently declared surplus by the President plus an additional amount that may be declared surplus sometime in the future.

07.005: The estimates of the quantities of HEU that will be deemed commercial, off-spec, and non-commercial are based on DOE's current understanding of the material in the surplus inventory. That understanding is still developing. Since the HEU EIS analyzes a range of fuel/waste ratios from 0/100 to 85/15, the eventual outcome is in any event covered by the analysis.

29.003: The Record of Decision is scheduled to be published in the *Federal Register* in the summer of 1996.

05.004: The Department of Energy expects that a realistic estimate of the time needed to blend currently declared surplus material for commercial use will be 10 to 15 years. Material that must be blended to waste is expected to take an additional 10 to 15 years.

20.004: The Department of Energy does not anticipate any challenges regarding transportation of surplus HEU or LEU among the candidate sites used in the HEU EIS because these sites have been routinely transporting radioactive materials for many years.

TENNESSEE VALLEY AUTHORITY, CHATTANOOGA, TN
PAGE 1 OF 1

TVA

Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

November 29, 1995

Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, D.C. 20026-3786

COMMENT ON DISPOSITION OF SURPLUS HIGHLY ENRICHED URANIUM DRAFT ENVIRONMENTAL IMPACT STATEMENT

Many U.S. commercial reactors are using higher than 4 percent enrichment to refuel. Therefore, the alternative to blend the HEU and sell as commercial reactor fuel should not specify 4 percent as the target enrichment level. Rather, the alternative should say the HEU will be blended to less than 5 percent enrichment for sale as commercial fuel. All references to 4 percent LEU in the EIS should be changed to less than 5 percent LEU. 07.003

Sincerely,

JT Robert

James T. Robert
Manager, Nuclear Fuel Projects

07.003: The HEU EIS explains in the text box, Highly Enriched Uranium–A Weapons-Usable Fissile Material, Section 1.1.1, that commercial reactors use uranium enriched to between 3 and 5 percent. Throughout the HEU EIS, references to 4-percent enrichment are intended to be surrogates for the range of commercial use enrichments. There is no intent to limit the blend-down enrichment level to precisely 4 percent. This point has been further clarified in the HEU Final EIS.

TOWN OF ERWIN, ERWIN, TN
PAGE 1 OF 1

GARLAND "BUBBA" EVELY, Mayor

Town of Erwin

P.O. Box 59
Erwin, Tennessee 37650

November 22, 1995

The U.S. Department of Energy
Office of Fissile Materials Disposition
P.O. Box 23786
Washington, D.C. 20026-3786

Ladies/Gentlemen:

It has come to the attention of the Erwin Board of Mayor and Aldermen that NFS is one of four companies bidding for work involving the down-blending of high enriched uranium.

We are very familiar with NFS' record of safety and environmental compliance and we believe they could perform the down-blending work in a timely, safe and cost-effective manner.

The work would bring an estimated 100+ jobs to NFS here in Erwin, Tennessee. The multiplying economic impact on the local economy would be in the millions of dollars.

The community of Erwin fully supports the work which NFS has dubbed "swords into plowshares." The plan makes sense, not only for the people of Erwin, but for the U.S. Citizens at large... blending American stockpiled weapons into fuel for electricity.

We look at this as an opportunity to regain some of the jobs lost during the reductions in force that followed the end of the naval fuel work at the plant. NFS has been safely producing nuclear fuel and securely handling high enriched uranium for more than 35 years. Throughout that time it has been a fine corporate citizen, providing not only excellent jobs but also lending a hand to the community on numerous occasions.

I recently had the opportunity to tour the Erwin plant site and had the chance to view first hand the safety, security and environmental work that NFS performs. Please know that this project has the full support of the Erwin Board of Mayor and Aldermen.

10.003

Sincerely,

Garland Evely

Garland "Bubba" Evely
Mayor

lhs

10.003: Comment noted.

ULMAN, ROBERT, ERWIN, TN
PAGE 1 OF 1

Date Received: 11/09/95
Comment ID: P0010
Name: Robert Ulman
Address: Erwin, Tennessee

Transcription:

Hello. My name is Robert Ulman, and I'm calling from Erwin, Tennessee. I would be very much in favor of NFS receiving the contract for the uranium blending. Our county is over 60 percent federal property owned by the government as national forest land, and we really make sacrifices because of that reason. I would like to see NFS get this contract so we can get more revenue into the county. Thank you. 10.003

10.003: Comment noted.

UNICOI COUNTY BOARD OF EDUCATION, ERWIN, TN
PAGE 1 OF 2

UNICOI COUNTY BOARD OF EDUCATION

DR. RONALD WILCOX, SUPERINTENDENT
600 NORTH ELM AVENUE, ERWIN, TENNESSEE 37650
(423) 743-1600

"Working for Children"

November 30, 1995

The U. S. Department of Energy
Office of Fissile Materials Disposition
P. O. Box 23786
Washington, D. C. 20026-3786

Dear Sir/Madam:

I support the effort by Nuclear Fuels Services to obtain a contract to blend high grade and low grade uranium into a marketable fuel. Our county needs an economic boost. Nuclear Fuels Services is located in Unicoi County, which is heavily impacted by federal property ownership. The federal government owns 50% of the land in our county. This vast ownership limits the amount of property taxes that are collected in our school district. Due to a low tax base our educational programs and services suffer. We need a new high school in our county since the present one was built in 1929, yet we cannot afford one.

Children in our county need jobs upon graduation. We graduate approximately 200 students per year. Local industry employs approximately 20% of these graduates, with the remainder either not working or leaving our community to find a job.

If Nuclear Fuels is chosen for the project there are many benefits that will accrue for our county such as: 10.003

1. More dollars spent in our community due to more jobs created
2. Opportunities for our senior students to get a job locally upon graduation
3. The economy in Tennessee as a whole will improve providing a better life style for citizens
4. Nuclear waste will be reclaimed and made usable
5. Local property and sales tax dollars will increase
6. The project will be done in a safe manner. Their track record for safety speaks for itself

10.003: Comment noted.

UNICOI COUNTY BOARD OF EDUCATION, ERWIN, TN
PAGE 2 OF 2

We are located in rural Appalachia and desperately need and want this project. Nuclear Fuels Services has helped our school system tremendously in past years. We consider them a "very good neighbor". | 10.003 cont.

Respectfully,

Ronald Wilcox

Ronald Wilcox, Ed.D.
Superintendent of Schools

RW/dh

UNICOI COUNTY MEMORIAL HOSPITAL INC., ERWIN, TN
PAGE 1 OF 1

Unicoi County
Memorial Hospital Inc.
dba Unicoi County Memorial Hospital
and Unicoi County Nursing Home

Greenway Circle • Erwin, Tennessee 37650 • (615) 743-3141 • FAX (615) 743-1244

November 22, 1995

The U. S. Department of Energy
Office of Fissile Materials Disposition
P. O. Box 23786
Washington, D. C. 20026-3786

Ladies/Gentlemen:

The Erwin/Unicoi County Economic Development Board has been made aware that Nuclear Fuel Services, Inc., is one of four companies bidding for the project of downblending high enriched uranium into fuel for energy. The Board fully endorses this project for NFS in Erwin, Tennessee.

The work would provide an estimated 100+ job opportunities here in Erwin, and the multiplying economic impact on the local economy would be tremendous. Jobs lost during reduction of personnel following the end of naval fuel work at the plant could be reinstated. We are very supportive of existing industries in Erwin and Unicoi County and appreciate the excellent jobs NFS provides our citizens.

As CEO/Administrator of the local hospital, I am familiar with NFS' safety record and environmental compliance. The Hospital works closely with NFS, participating with them in disaster drills and training programs, as well as performing annual physicals for the employees.

The Economic Development Board believes the plan which NFS has dubbed "swords into plowshares," makes sense not only for the people of Erwin and Unicoi County, but for U. S. Citizens at large -- blending American stockpiled weapons into fuel for electricity. We believe they could perform the downblending work in a timely, safe and cost-effective manner.

10.003

I recently had the opportunity to tour the Erwin plant site and view first hand, the safety, security and environmental work that NFS performs. This project has my full support.

Sincerely,

Jim

Jim McMackin, Chief Executive Officer
Vice Chairman, Erwin/Unicoi County Economic Development Board

JMc:le

cc: William H. Timbers Jr.

Accredited by the Joint Commission on Accreditation of Healthcare Organizations

10.003: Comment noted.

United States Department of the Interior, Atlanta, GA
Page 1 of 1

United States Department of the Interior

OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

January 25, 1996

ER 95/820

Mr. J. David Nulton
Department of Energy
Office of Fissile Materials
Disposition
c/o SAIC-HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

Dear Mr. Nulton:

The Department of the Interior has completed its review of the Draft Environmental Statement for the Disposition of Surplus Highly Enriched Uranium (HEU) at Four Potential Sites located in Tennessee (2), South Carolina, and Virginia.

We are concerned about the risks involved in transportation of these materials to various sites as identified in the preferred alternative. The Final Environmental Statement should discuss the risks of doing all the blending at Oak Ridge, where the materials are now stored, as compared to the risks of additional transportation and processing at other plants. 20.013

It is estimated in the public health impact analysis that the maximum additional cancer fatalities from accident-free operations would occur at Oak Ridge as a result of blending related exposures. This analysis should include a discussion of nonfatal cancers. In addition, the risk of maximum additional cancer fatalities at Oak Ridge should be compared with the accident associated risks of transporting HEU to the sites identified in the preferred alternative. 21.011

We appreciate the opportunity to comment on this document.

Sincerely yours,

James H. Lee

James H. Lee
Regional Environmental Officer

20.013: Oak Ridge Reservation has the capability to blend surplus HEU as metal or as UNH. However, it is not considered as a candidate site for blending as UF_6 for which the material would have to be transported from ORR to another site. The results showed that transportation risks would be only slightly lower for blending to either metal or oxide LLW at ORR. For blending to fuel feed material as UNH crystals, ORR is not the lowest risk alternative. Two significant factors contributed to these conclusions: (1) onsite material handling represents the greater part of the total risk and such handling would still be necessary even to blend at ORR, and (2) the highest transportation risk for these scenarios is not in transporting HEU, but in transporting the significantly larger volume of fuel feed material and LLW after blending. The HEU Final EIS compares all of the blending options in Section 4.4 and Appendix G.

21.011: Public and occupational health assessments revealed that the maximum incremental cancer fatalities would not occur at ORR when all four sites were involved in blending. However, estimates showed that ORR would have higher incremental cancer fatalities when blending occurs at two DOE sites.

For a uniform irradiation of the body, the incidence of cancer varies among organs and tissues; the thyroid and skin demonstrate a greater sensitivity than other organs. However, such cancers also produce relatively low mortality rates because they are relatively amenable to medical treatment. Because of the readily available data for cancer mortality rates and the relative scarcity of prospective epidemiologic studies, somatic effects leading to cancer fatalities rather than cancer incidence (nonfatal) are presented in this EIS.

Transportation risk assessments showed that risks would be only slightly lower for blending to LLW at ORR. For blending to fuel feed material as UNH crystals, ORR is not the lowest risk alternative. Two significant factors contributed to these conclusions: (1) onsite material handling represents the greater part of the total risk and such handling would still be necessary even to blend at ORR, and (2) the highest transportation risk for these scenarios is not in transporting HEU, but in transporting the significantly larger volume of fuel feed material and LLW after blending.

United States
Enrichment Corporation

2 Democracy Center
6903 Rockledge Drive
Bethesda, MD 20817

Tel. (301) 564-3200
Fax. (301) 564-3201

USEC

United States
Enrichment Corporation

January 11, 1996

Office of Fissile Materials Disposition (MD-4)
ATTN: HEU EIS
U. S Department of Energy
P O Box 23786
1000 Independence Avenue S.W.
Washington, D.C. 20585

Dear Sir/Madam:

USEC has reviewed the October 1995 *Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement.* We offer the following comments on the draft document.

Section 1.4 - USEC supports the preferred alternative to sell as much HEU as possible for use in commercial reactor fuel using a combination of sites and blending technologies that best serves programmatic, environmental, and economic needs | 10.003

Section 2.1.2.3 - (i e the **Limited Commercial Use** Alternative) states that the 50 t of HEU will be split equally between two commercial facilities. This alternative should also cover the possibility of having all of the material go to only one facility The other commercial use alternatives give ranges of the mix from "all commercial" to "all DOE" The Limited Commercial Use alternative should be analyzed in the same way | 09.024

Section 2.2 - On page 2-13 it states that "UNH, metal, and UF_6 are reactive and are not suitable for land disposal as waste", and that these forms would need to be converted to triuranic octaoxide prior to disposal It is not clear in this section that the environmental impacts associated with this conversion step were analyzed. If these impacts were analyzed it should be clearly stated in this section, and if they were not analyzed, an analysis should be done and included in the appropriate section of the impact analyses | 33.007

Section 2.2.2.2 Metal Blending - states that metal blending would only be done if the HEU was to become waste This section should be expanded to specify that metal blending may also be used to produce feedstock for USEC's Advanced Vapor Laser Isotope Separation program | 11.011

Offices in Paducah Kentucky Portsmouth, Ohio Washington DC

10.003: Comment noted.

09.024: The alternatives described in the HEU EIS were selected for analysis purpose only and are not intended to represent exclusive choices among which DOE (or USEC or other decisionmakers) must choose. These alternatives and site variations were defined to encompass the entire spectrum of potential fuel/waste ratios and combinations of sites that could result from the proposed action. Even though blending of all of 50 t of USEC material at a single commercial site was not included as a variation in the limited commercial use alternative, the impacts of that variation are evaluated in the substantial commercial use and maximum commercial use alternatives.

33.007: The environmental impacts associated with the oxidation step are analyzed in the HEU EIS and stated in Section 2.2.2.

11.011: Section 2.2.2.2 of the HEU Final EIS has been revised to include the fact that metal blending may also be used to produce feedstock for USEC's Advanced Vapor Laser Isotope Separation program.

33.009: During the enrichment process, as the ratio of U-235 increases the ratio of U-234 to U-235 increases, accordingly. Using depleted uranium in the blending process will reduce the ratio of U-235 to U-238 but will not change the ratio of U-234 to U-235. To meet the American Society of Testing Materials specification for commercial fuel feed, it is necessary to reduce the U-234 to U-235 ratio. To reduce the ratio of U-234 to U-235, it is necessary to add U-235 in the natural uranium or LEU enrichment state. Depleted uranium would be used as the blendstock for blending to waste because the ratio of U-234 to U-235 is not included in the waste acceptance criteria for waste disposal.

Depleted UF_6 would not be used for blending to waste because only commercial sites would use UF_6 as a blendstock for blending with the UF_6 process. Since depleted uranium cannot be used as blendstock for blending to fuel as described previously, depleted UF_6 would not be used for any of the processes for commercial fuel. Depleted UF_6 would also not be used as a blendstock for UNH or metal blending because it is in an incompatible form and would need to be converted to UNH crystals or metal ingots, and DOE has ample supplies of depleted uranium in metal and oxide form to use as blendstock for waste material.

UNITED STATES ENRICHMENT CORPORATION, BETHESDA, MD
PAGE 2 OF 2

January 11, 1996
Page Two

Section 4.4 - On page 4-99 it states that "NU blendstock (in UF_6 form) would be provided by representative sources from the USEC Gaseous Diffusion Plant.. ". While NU could be obtained from USEC it would be more economical to use depleted UF_6, since it would take less to dilute the HEU, and is abundantly available at a lower cost than NU. 33.009

Section 4.7 - Several important positive environmental impacts of blending HEU to LEU for nuclear power plants were omitted from this section. The first is the benefits of reducing the threat of terrorism or nuclear accidents from HEU Although this benefit is not quantifiable, it certainly needs to be included as it is a major reason for the proposed action 03.026 Secondly, there are significant positive economic benefits .o the federal budget from selling the fuel converted from HEU. Whether DOE directly sells the converted HEU, or USEC markets it (as is presently the law), the income from the sale of this material can either be applied to reduce the federal deficit or result in the need for lower revenues from taxes, tariffs, fees, etc. Another positive impact that should be included is that the use of government inventories of DU, NU, and LEU which currently have limited uses, if used as blendstock, would no longer require storage or disposal costs 04.017

Section 4.8 - There appears to be a misinterpretation of the findings contained in USEC's *Environmental Assessment for the Purchase of Russian Low Enriched Uranium Derived from the Dismantlement of Nuclear Weapons in the Countries of the Former Soviet Union* For the action of purchasing low enriched uranium from dismantled Russian nuclear warheads over a 20 year period, there will be no short term (before the year 2000) impacts on personnel levels at USEC's gaseous diffusion plants. After the year 2000, when shipments from Russia have increased to the equivalent of 30 metric tons of highly enriched uranium per year, the possibility exists that the total USEC production needs could be met by only one GDP. The impacts to unemployment from the closure of a GDP were analyzed in the Environmental Assessment On page 4-185, it is inaccurate to say that there would be no loss of employment at the gaseous diffusion plants, as this is a possibility 12.023

Section 4.9 - Several of the potential environmental impacts (bullets 2 and 4 on page 4-187) indicate that chromium contamination would occur. The gaseous diffusion plants (GDPs) no longer use chromium as a cooling water additive Therefore, there should be no vegetation damage or contamination of the liquid discharge from chromium if the 7,000 tons of natural uranium is transferred to USEC and processed in the GDPs. 33.011

Also on page 4-187, "vesidual chlorine" should be "residual chlorine"

References Section - On page R-13, the reference "USEC 1994a" (i.e. - *Environmental Assessment for the Purchase of Russian Low Enriched Uranium Derived from the Dismantlement of Nuclear Weapons in the Countries of the Former Soviet Union*, USEC/EA-94001) was inadvertently omitted.

January 11, 1996
Page Three

Please contact me at (301) 564-3409 or Patrick Gorman at 564-3412, to discuss matters related to the comments above.

Sincerely,

Patrick H Gorman for

T Michael Taimi
Environmental Assurance and Policies Manager

cc
P. Gorman, USEC-HQ

03.026: The benefits of reducing the threat of terrorism or nuclear accidents from HEU due to this proposed action have been added to Section 4.7 of the HEU Final EIS.

04.017: Recently completed cost analyses for alternatives evaluated in the HEU EIS revealed that net income from the proposed action would be realized if the fuel/waste ratio remains between 65/35 (substantial commercial use) and 85/15 (maximum commercial use). DOE agrees that there would be positive economic benefits to the Federal budget from selling surplus HEU as commercial reactor fuel, and that the proposed action would reduce the necessity of storage, and associated costs, for Government inventories of depleted uranium, natural uranium, and LEU. This positive impact has been incorporated into Section 4.7 of the HEU Final EIS.

12.023: Section 4.8 of the HEU Final EIS has been revised to update information on the current status of the uranium mining and nuclear fuel cycle industries. Additional discussion of economic consequences of the Russian HEU was also added to the HEU Final EIS reflecting USEC's EA on the purchase of Russian LEU derived from the dismantlement of nuclear weapons in the countries of the former Soviet Union, and enactment of the *USEC Privatization Act*. In light of the act's restrictions on deliveries to commercial end users of material from Russian HEU, DOE concludes that the USEC EA's projections concerning the need for operation of the second enrichment plant are not likely to be valid.

33.011: Section 4.9 of the HEU Final EIS has been revised to reflect termination of chromium use as a cooling water additive at the gaseous diffusion plants. The editorial change has also been incorporated in Section 4.9 of the HEU Final EIS.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, DC
PAGE 1 OF 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 7 1996

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Mr. J. David Nulton
Director
Office of NEPA Compliance and Outreach
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

Dear Mr. Nulton:

The Environmental Protection Agency (EPA) has reviewed the Department of Energy's Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement. As a Cooperating Agency for the EIS, our review is provided pursuant to the National Environmental Policy Act (NEPA) (42 U.S.C 4321 et seq.) and Section 309 of the Clean Air Act.

DOE proposes to dispose of U.S.-origin, weapons-usable, highly enriched uranium that is surplus to national defense or defense-related program needs. The draft EIS analyses the environmental effects of a no action alternative and four other alternatives that represent different ratios of blending the highly enriched uranium to low enriched uranium using three different processes at four potential sites. The incremental radiation-related environmental impacts are modest and would not rule out any of the alternatives under consideration. EPA has rated the preferred alternative EC-2, environmental concerns - insufficient information. An explanation of EPA's ratings is provided in Enclosure 1. Detailed comments are provided for your consideration in Enclosure 2.

Thank you for the opportunity to comment. If you have any questions, please contact Susan Offerdal at (202) 260-5059.

Sincerely,

Anne N. Miller
for Richard E. Sanderson
Director
Office of Federal Activities

Enclosures

Recycled/Recyclable

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, WASHINGTON, DC
PAGE 2 OF 4

Enclosure 1

SUMMARY OF THE EPA RATING SYSTEM
FOR DRAFT ENVIRONMENTAL IMPACT STATEMENTS:
DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO--Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC--Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA intends to work with the lead agency to reduce these impacts.

EO--Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3--Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment

February, 1987

Enclosure 2

EPA Detailed Comments on the Department of Energy's Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement

The draft environmental impact statement (EIS) is comprehensive regarding radiation related environmental impacts and the cumulative, site-specific impacts of a variety of waste management tasks the Department of Energy (DOE) might assign to a particular facility. Particularly useful is the discussion at the end of Chapter 4 concerning the relative impacts of "de-enriching" highly-enriched uranium (HEU) and enriching natural uranium (NU). This makes clear that radiation exposures from the "de-enriching" process are at least two orders of magnitude less than that associated with the enrichment process which would be displaced by DOE's disposal of the surplus HEU. It would be helpful if this analysis were extended to the production of radioactive wastes and perhaps to environmental impacts in general. 33.012

There are several additional points at which the draft EIS could be strengthened. The nature of the excess HEU to be disposed of is not clearly defined. This is significant because environmental effects, including radiation-related ones, are direct functions of the degree of blending that is necessary to "de-enrich" the material to a given level. This is the reason, for example, that blending to waste has greater environmental impacts than blending to fuel. Thus, the nature of the HEU to be disposed of is a central determinant of the total environmental effects. The rationale for the assumption that the material is on average 50% enriched is not clearly explained in the text. Indeed, given that the apparent reason for having surplus HEU is nuclear disarmament, one might assume that the level of enrichment of the material to be disposed of would be "bomb grade", or well above 90%. It is also not clear why any "assumption" is necessary - - unlike problems associated with characterizing complex sites for cleanup, DOE should have a complete inventory of HEU in its possession. The EIS should provide a more complete discussion of the HEU to be disposed of and to the extent there is uncertainty concerning the composition of the material discuss and put bounds upon that uncertainty. 33.010

The EIS could also discuss explicitly the functional relationship between the degree of "de-enrichment" required and environmental and economic impacts. If there is a strongly nonlinear relationship, it may be that the environmental consequences of de-enriching say, one unit of 20% HEU and one unit of 90% HEU is much greater than de-enriching two units of 55% HEU, (the average of 20% and 90%). If so, one could not assess the overall effects of the campaign without knowing something about the actual distribution of enrichment levels in the surplus materials. 33.010 cont.

It would be helpful if the EIS clarified early in the text that the molten metal blending process would only be used to create low-level waste and not low-enriched uranium (LEU). It is also unclear why blending using the uranium hexafluoride process is mentioned since none of the facilities have that capability. 07.015

33.012: A discussion is added in Section 4.7 of the HEU Final EIS to include avoided waste generation as a result of replacing current reactor fuel obtained from mined natural uranium with the LEU fuel derived from surplus HEU. A discussion is also added to compare potential emission rates of pollutants generated during the current fuel cycle and the surplus HEU blending process.

33.010: The nature of the surplus HEU was classified when the HEU Draft EIS was published and could not be included in the EIS. However, the amounts and forms of surplus HEU and their specific locations have been declassified recently and were made available in the Secretary of Energy's *Openness Initiative* announcement on February 6, 1996. This information is now included in Figure 1.3–1 of the HEU Final EIS. A declassified discussion of the rationale for using an average of 50 percent enrichment for the surplus HEU inventory in analyses was also added to Section 2.2.1 of the HEU Final EIS. As explained in this section, most of the surplus HEU is between 35-percent and 70-percent enrichment. Because the relative impacts of blending HEU to different enrichment levels are expected to be linear, and the variance from the 50-percent mean for the bulk of the surplus HEU is not great, it is reasonable to use 50 percent as the enrichment level for purposes of analyses in the HEU EIS.

07.015: Low-enriched uranium is a terminology used to characterize material that has a U-235 isotope enrichment of 19 percent or less. It is proposed in the HEU EIS that all surplus HEU will be blended down to LEU. Therefore, whether surplus HEU is commercial or not, the blending process will transform that material from a highly-enriched state (20-percent or greater enrichment) to a low-enriched state. Material that cannot be used in the fabrication of reactor fuel will be discarded as LLW. Hence, molten metal blending will be used to produce LEU, and this LEU would be discarded as waste. The fact that metal blending would only produce waste material has been added to Section 1.3 of the HEU Final EIS.

UF_6 is a technically viable blending process that could be used to blend surplus HEU inventory. Commercial reactor fuel fabricators prefer to receive LEU for commercial reactor fuel feed as UF_6. Therefore, because this process could be implemented without major modifications to current blending facilities, the HEU EIS evaluates potential impacts of using the UF_6 blending process.

United States Environmental Protection Agency, Washington, DC
Page 4 of 4

Enclosure 2

The EIS would also benefit from some detailed and specific analysis of its preferred alternative. For example, the entire analysis is geared to the assumption that 10 tons of material per year are processed. The description of the preferred alternative suggests that 20 tons per year are processed. Does this double the short term environmental and economic consequences estimated for this alternative, or is the effect more or less than this? While the higher process rate used in the analysis may be reasonable, the reader would have a clearer sense of the tradeoff between the duration of the disposal campaign and various measures of impact. In general, the analysis should avoid assuming a generic value for a parameter which is explicitly varied in an alternative. 07.016

It is also unclear in the preferred alternative whether the 50 tons of HEU to be transferred to the United States Enrichment Corporation (USEC) will be processed and disposed of differently than the other 150 tons of HEU. For example, on page S-15, second paragraph, the 50 tons of HEU are mentioned separately from the remaining 120 tons that could be blended to LEU for commercial fuel at any of the four sites. However, in the following paragraph, it mentions that the two DOE facilities would each blend 85 tons of HEU to LEU for commercial fuel. This amounts to a total of 170 tons of HEU for commercial fuel, and from this amount it appears as though the two facilities will receive or share the 50 tons from the USEC. 07.014

Finally, it would be useful to have an explicit discussion in the text why "waste" must be blended to essentially background levels before disposal. In the absence of such a discussion (of criticality or other issues) it is not clear to the reader why waste could not be created by blending HEU down to some intermediate level of low-enriched uranium, say 10%. This would make such an alternative more attractive in terms of the measures of impact detailed in the text, though perhaps still unfavorable when the consequences of having to mine and process additional NU are considered. 33.002

07.016: The environmental impact analyses in Section 4.3 of the HEU EIS are based on an assumed processing rate of 10 t per year per site for commercial material. The combined, life-of-campaign analyses (in Sections 2.4 and 4.5 of the HEU Draft EIS) thus assumed that up to 40 t per year of commercial material could be processed in the site variation involving four sites. In the HEU Final EIS, DOE has revised these processing rates to reflect more realistic assumptions about the rate at which material can be made available for blending, commercial considerations, and the need to avoid adverse material impacts on the domestic uranium industry. The durations shown in Table 2.1.2–1 have been revised to reflect a total commercial processing rate of about 8 t per year. The total life-of-campaign impacts for each alternative and site variation in Section 2.4 of the HEU Final EIS are not changed by these revised rate assumptions, but they reflect lower annual impacts spread over a longer period of time.

07.014: There is no difference in processing between 50 t of surplus HEU proposed to be transferred to USEC and the remaining commercially usable material. As described in the Preferred Alternative section of the Summary, the proposal to transfer 50 t of HEU to USEC is a component of each of the commercial use alternatives (3, 4, and 5). In describing these alternatives, 50 t of surplus HEU is always mentioned separately because this is the only concrete proposal for disposition of a batch of HEU at this time and the transfer is specifically authorized by P.L. 104–134. Nevertheless, footnotes have been added in the Summary and Section 2.1.2.4 (footnote 5 in both sections) to clarify this matter.

33.002: The representative enrichment level of 0.9 percent (used for analytical purposes) was selected for material destined for waste disposal based on experience in both the United States and Europe where waste has been disposed of at slightly greater than 1-percent U-235. This enrichment level assures that an inadvertent criticality would not occur. It is possible that uranium at higher enrichment levels could be disposed of (the LLW facility at NTS has accepted 1.25-percent enriched uranium in the past), but the lower level was selected for purposes of conservatism in the HEU EIS analysis. Blending to an enrichment level less than 0.9 percent would substantially increase the amount of waste product and cost of blending (for example, blending to a natural uranium state of 0.7 percent would increase the waste volume by 40 percent) without any incremental criticality protection. The actual percentage of blend down will be determined by the waste acceptance criteria of the selected waste disposal site.

URANIUM PRODUCERS OF AMERICA

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November 15, 1995

Mr. J. David Nulton, Director
Office of NEPA Compliance and Outreach
Office of Fissile Materials Disposition
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Nulton:

The purpose of this letter is to request a 120-day extension of the public comment period for the *Draft Environmental Impact Statement for Disposition of Surplus Highly Enriched Uranium ("HEU EIS")*. The issues raised in the HEU EIS are numerous and complex, and the Uranium Producers of America (UPA) believes it is essential that sufficient time be allowed by the Department for interested stakeholders to review and comment on these issues. As it was DOE's announced intention to publish a draft EIS in July of this year, thereby allowing ample time for stakeholder input to the process, we believe that to now allow only 45 days for comment is simply too short a period in which to develop and submit comprehensive comments on this vital national issue. Accordingly, for the reasons that we discuss in more detail below, we urge you to consider extending the comment period. 32.003

As the organization representing the domestic uranium producers, UPA is particularly concerned about the impact that the disposition alternatives will have on the domestic uranium market. As you know, the pending United States Enrichment Corporation (USEC) privatization legislation specifically requires DOE to evaluate the impact on the domestic uranium market of any disposition of excess materials from the U.S. stockpile. Our preliminary review of the HEU EIS suggests that no more than a cursory examination of this issue has been undertaken. 12.002

In this regard, we find the document seriously lacking in any analysis of the identified alternatives from the standpoint of how these alternatives would impact the domestic uranium industry, as well as how they would maximize proceeds to the Federal Treasury. Indeed, in this latter regard, other than the assertion that the "preferred alternative" would "allow for peaceful, beneficial reuse of the material as much as possible [and] maximize proceeds to the Federal Treasury", we have found no analysis in the document, nor in the cited references, as to how this would be 16.001

32.003: The Department of Energy originally designated a comment period of 45 days running from October 26 to December 11, 1995. In response to requests from the public from several reviewers, the comment period was extended until January 12, 1996. DOE feels that the total comment period of 78 days provided an adequate period for review and comment based upon the length and content of the document.

12.002: The quantity and rate of processing of materials addressed in the HEU Draft EIS was established to evaluate the environmental impacts associated with the maximum amount and processing rate of HEU that might potentially be made commercially available for use in reactor fuel. The rate at which material would actually be introduced into the market by DOE would be significantly less because of DOE's ability to make the material available for blending and because of the limitations on commercialization specified in the *USEC Privatization Act* (P.L. 104-134). The processing rates in the HEU Final EIS (Section 2.1.2) are revised to reflect more realistic assumptions about the rates at which LEU fuel derived from surplus HEU might be made available for commercial sale. DOE estimates that no more than 8 t per year total would be blended for commercial use.

The rate at which LEU fuel derived from surplus HEU could be introduced into the commercial market would be determined over time by many factors, including the rate at which the material becomes available from the weapons program, physical infrastructure, legislative guidance, and future market conditions. DOE's physical ability to make surplus HEU available for blending is constrained because much of it is in forms that cannot be used without prior processing and there is limited availability of processing capacity (such as for weapons dismantlement). It is anticipated that delivery of the proposed 50 t of material to USEC over the next 6 years will largely exhaust DOE's delivery capabilities during that period. From the existing surplus, only an additional 40 t of material is likely to be blended and introduced into the market for commercial use over a period of 10 to 15 years. The *USEC Privatization Act* (P.L. 104–134) requires the Secretary of Energy to determine that sales of uranium will not have an adverse material impact on the domestic uranium industry. Based on these considerations, DOE does not believe that the rates of disposition of domestic surplus HEU will have any significant impact on the U.S.-Russian HEU agreement. DOE will take these and other factors into account in making its decisions concerning uranium sales.

16.001: The Department of Energy has developed cost estimates associated with the alternatives analyzed in the HEU EIS and they are available in a separate document with the HEU Final EIS. The alternative to "blend HEU to 19-percent enrichment LEU and store indefinitely" was considered by the original screening process and eliminated

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 2 OF 3

Mr. J. David Nulton
November 15, 1995
Page 2

accomplished, what the costs of the various options would be, and, specifically, what the comparative costs of the "preferred alternative" and the "Blend to LEU (19-percent enrichment) and Store Indefinitely" alternatives are likely to be. In fact, we are troubled that, as noted on page 2-9 of the document, the latter option appears to have been deleted after the screening process was completed, with no explanation of DOE's reasons for deleting this alternative. 16.001 cont.

Beyond this, the document contains no discussion of the impact that the "preferred alternative" is likely to have on the U.S.-Russian HEU Agreement and, in particular, on the carefully structured compromise that is contained in the pending USEC privatization legislation. 11.002

For the foregoing reasons, we believe it is important that DOE extend the deadline for the submission of comments. Moreover, we would ask that DOE provide all of the supporting documents and analyses that provide the basis for the conclusions reached in the HEU EIS, including the economic analysis of all of the alternatives, as well as the basis for eliminating the Blend to LEU (19-percent enrichment) alternative after the screening process was completed. UPA would request a minimum of 60 days prior to the deadline for comments during which the DOE's supporting information and analyses can be reviewed. This would then enable UPA to undertake an independent analysis of the basis for DOE's conclusions, including the likely impact on the U.S. domestic uranium industry of the various alternatives discussed in the EIS. 30.003

Finally, we note that DOE intends to conduct two public workshops on the HEU EIS, one in Knoxville, Tennessee and one in Augusta, Georgia. While the location for these two workshops will ensure that DOE will obtain much valuable input from those who are knowledgeable about the technical issues associated with blending down surplus HEU, we do not believe that DOE will receive the same level of input from interested stakeholders concerned about the impact of this initiative on the domestic uranium mining and milling industries. For this reason, we would formally request that DOE schedule an additional public workshop on the EIS, either in Denver, Colorado or Casper, Wyoming. 32.005

Thank you for your consideration of this request.

Very truly yours,

Dale L. Alberts
President

because it would not recover the economic value of the material or provide for peaceful, beneficial use; would necessitate the construction or expansion of storage facilities to accommodate the increase in volume of material; and would require additional processing for either commercial use or disposal. The related alternative to "blend HEU to 19-percent enrichment LEU and sell" was eliminated after the initial screening process, a decision that was formalized by the screening committee in a subsequent meeting for essentially the same reasons. DOE's explanation of its rejection of the "blend to 19 percent and store" option in Section 2.1.3 has been expanded in the HEU Final EIS.

11.002: The HEU Final EIS includes additional discussion (in Section 4.8) regarding the relationship of the preferred alternative on the U.S.-Russian HEU agreement. DOE expects that there will be no significant impact on the agreement because LEU fuel derived from currently declared surplus HEU from the U.S weapons program would be introduced into the market over a period of 10 to 15 years (beginning in 1998 or beyond) and represents a small increment over the Russian material. The HEU Final EIS acknowledges the need to avoid adverse material impacts on the uranium industry.

30.003: Technical documents supporting the HEU Draft EIS are available for review in 12 DOE reading rooms, published in the *Federal Register* (60 FR 54867) on October 26, 1995, announcing the availability of the HEU Draft EIS. DOE has developed cost estimates associated with the alternatives evaluated in the HEU EIS (which are available in a separate document and have been provided to this commentor and all others who have expressed an interest in this subject). The cost analysis supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

The option of blending to 19 percent and storing the LEU indefinitely was eliminated by the original screening process for surplus HEU disposition alternatives because it would not recover the economic value of the material or provide for peaceful beneficial use; would necessitate the construction or expansion of storage facilities to accommodate the increase in volume of material; and would require additional processing for either commercial use or disposal.

With regard to extending the public comment period for the HEU Draft EIS, DOE extended the period to January 12, 1996. A notice to this effect appeared in the *Federal Register* (60 FR 58056) on November 24, 1995. In light of the extension granted, DOE feels adequate time existed for all interested parties to complete their review and submit comments.

32.005: The Department of Energy must work within the constraints imposed by available funding and resources. Because DOE is trying to reduce costs of complying with NEPA, and due to the geographical proximity of three of the four candidate sites identified in the HEU EIS, DOE determined that two public meetings (Knoxville, TN and Augusta, GA) would be appropriate for this program.

Because public involvement is critical to the success of the program and recognizing that some individuals might not have been able to attend any public meetings, DOE provided other methods for submitting comments throughout the comment period: toll-free fax and voice recording, electronic bulletin board, and U.S. mail. These methods can also be used to request additional information and to request to be placed on the Office of Fissile Materials Disposition's mailing list.

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 1 OF 12

URANIUM PRODUCERS OF AMERICA
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January 10, 1996

Department of Energy
Office of Fissile Materials Disposition
c/o SAIC-HEU EIS
P.O. Box 23786
Washington, D.C. 20026-3786

Re: Comments to *Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement* (DOE/EIS - 0240-D)

Dear Sirs:

The Uranium Producers of America ("UPA") respectfully submit the following comments regarding the Disposition of Surplus Highly Enriched Uranium Draft Environmental Impact Statement (DOE/EIS - 0240-D) dated October, 1995. The UPA is a trade association representing thirteen member companies involved in the domestic uranium mining industry.

Section 4.8 at page 4-181 of the Draft EIS recognizes that the disposition of the uranium derived from the Department's HEU will impact the domestic uranium industry. The impact of this material is a fundamental policy question that has been appropriately addressed by Congress in the Energy Policy Act of 1992 and the Balanced Budget Act of 1995

The disposition of "surplus" highly enriched uranium is of great concern to the domestic uranium producing industry. This industry was created in response to a critical national security need fifty years ago as the United States required a dependable source of uranium to fuel the atomic weapons necessary to win the Cold War. After the end of World War II, uranium production in the United States was practically non-existent, making the nation dependent upon unreliable foreign supplies of this vital material. Responding to urgent military requirements, the Atomic Energy Commission established the Domestic Uranium Procurement Program to develop domestic supplies of uranium concentrate for the national defense. The material that has now been declared surplus is the result of the very successful Domestic Uranium Procurement Program Today our nation's defense needs have been met. However, the need for a strong domestic producing industry still exists due to the need for a secure source of uranium to fuel twenty percent of our nation's electricity requirements. 12.014

The domestic industry has confronted numerous challenges. As the Department is aware, the uranium market has been depressed since the early 1980's. Initially, there were two major contributing factors to the decline of the domestic uranium industry. The first was the U.S. government uranium enrichment contracting policies creating an oversupply of uranium which was exacerbated by a cut back in construction of new nuclear power plants beginning in the 1970's and increasing foreign imports of uranium. Second, just when supply and demand were coming in balance in 1990 and the market

12.014: The timeframes presented in Table 2.1.2–1 of the HEU Draft EIS were rough estimates and should be considered a very conservative, worst-case scenario. They were based on the assumption that each of the sites can process material at the analyzed rates (up to 10 t per year) and that DOE could provide material for blending at up to 40 t per year in the case of using all four sites simultaneously. In actuality, DOE will not be able to provide material nearly that quickly, and the rates presented in the HEU Final EIS have been revised accordingly. DOE expects that a realistic estimate of the time needed to blend currently declared surplus material for commercial use will be 10 to 15 years. The HEU Final EIS identifies 103 t of material that is likely to be commercially usable in the next 10 to15 years, but 63 t of it is either already transferred or proposed to be transferred to USEC, leaving only 40 t of additional near-term commercial material in the current surplus. DOE must abide by the requirement in the *USEC Privatization Act* that it avoid adverse material impacts on the domestic uranium industry in undertaking its uranium transactions.

January 10, 1996
page 2

was improving came a challenge from overseas -- a flood of unfairly-traded imported uranium from the former Soviet Union.

In response to these challenges, domestic producers have rationalized production and restructured their operations. And while employment and production levels have fallen, uranium production remains a vital industry -- particularly in the Western United States -- and has stabilized and positioned itself for recovery.

Modern, low-cost, in-situ leaching technology has been developed in a smaller, but more competitive domestic producing industry that has also minimized environmental impacts. Today, U.S. mining operations are competitive with foreign producers. Four U.S. production centers rank in the top ten world-wide in productivity.[1] Other modern and efficient production facilities are poised to commence production if market stability can be attained.

12.014 cont.

In 1992 the Congress specifically recognized the need to maintain a domestic uranium industry by including Uranium Revitalization provisions in Title X of the Energy Policy Act.[2] The Energy Policy Act also dealt with the impact of the purchase of highly enriched uranium from the former Soviet Union. Section 1408(d) of the Act requires that DOE "shall seek to minimize the impact on domestic industries (including uranium mining) of the sale of low enriched uranium derived from highly enriched uranium.[3] Congress further recognized the February 18, 1993, Government-to-Government HEU Agreement between the United States and the Russian Federation for the purchase of low enriched uranium derived from 500 metric tons of highly enriched uranium removed from nuclear weapons would have a major impact on the domestic uranium industry, as this represents the equivalent of approximately 400 million pounds of natural uranium. Accordingly, Section 5212(b) of the Balanced Budget Reconciliation Act establishes a schedule for sales of natural uranium displaced by imports of Russian HEU products.

The USEC privatization legislation reflects a carefully crafted schedule for the sale of uranium products derived from dismantled Soviet and U.S. weapons. This schedule promotes the principles of arms reduction and nonproliferation, while ensuring that the commercial nuclear fuel market is not disrupted by an uncontrolled flood of government-inventory product.

1 See Exhibit 1.

2 Public Law 102-486 - October 24, 1992. Section 1012 of the Energy Policy Act established the National Strategic Uranium Reserve which consists of natural uranium and uranium equivalents contained in stockpiles or inventories held by the Unites States for defense purposes. The use of this stockpile or reserve is restricted for military purposes until 1998. Section 1013 of the Act provided that remaining DOE inventories could be sold to USEC, *at a fair market price*, "only if such sales will not have a substantial adverse impact on the domestic uranium mining industry." (Emphasis added). These provisions were enacted due to the recognition that the unfettered introduction of uranium from government stockpiles would damage commercial markets.

3 The January 14, 1994 Implementation Agreement of the HEU Agreement between the United States and the Russian Federation incorporated the provisions of §1408(d) of the Energy Policy Act, by providing that the sales of uranium derived from Russian HEU should be accomplished in a manner that minimizes impact upon the U.S. uranium industry. *See also* Exhibit 2, Letter from Terry Lash, DOE Director, Office of Nuclear Energy, to Senator Craig Thomas.

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 3 OF 12

January 10, 1996
page 3

The provisions of the Energy Policy Act and the USEC privatization legislation underscore the recognition by policymakers that the disposition of uranium derived from HEU must be handled responsibly.

1. **THE DEPARTMENT'S DISPOSITION OF THE EXCESS MATERIALS FROM THE U.S. STOCKPILE MUST NOT HAVE A MATERIAL ADVERSE IMPACT ON THE DOMESTIC URANIUM MARKET.**

The United States Enrichment Corporation ("USEC") privatization legislation specifically requires the Department to evaluate the impact on the domestic uranium market of any disposition of "surplus" materials from the government's stockpile. The HEU EIS is deficient in its examination of this issue. The preferred alternative contained in the EIS calls for blending 170 tons of HEU form commercial use in eight years -- through the end of 2003. Of this amount, 50 tons would be transferred without charge to USEC for blending and commercial sale.[4] The remaining 120 tons of HEU would be blended to commercial reactor fuel over three years, beginning in 1999. Assuming that blending ten tons of HEU to commercial low-enriched uranium ("LEU") displaces 3.5 million pounds of natural uranium production, the Department's preferred alternative would displace 59.5 million pounds of natural uranium. If sold over three years, the Department's material could displace approximately 20 million pounds of natural uranium production annually, or approximately forty percent (40%) of annual U.S. requirements..

In order to be consistent with the objectives of Section 5212(d) of the Balanced Budget Act, the principal focus of any disposition of the Department's surplus HEU should be on ensuring that any sales undertaken will not have an adverse material impact on the domestic uranium mining industry. To accomplish this the aggregate impact on the domestic uranium industry of the sales of Russian HEU, USEC material and the Department's material must be analyzed. The quantities and disposition of material set forth in the Draft HEU EIS would have a material adverse impact on the domestic uranium mining industry. Such adverse impact should be specifically recognized and avoided by the Department. 12.014 cont.

Section 4.8 of the Draft EIS recognizes that the Department's disposition of the material derived from the blended HEU will constitute a material adverse impact on the domestic uranium industry. At page 4-185 it is stated that blending 10t of HEU as UNH to 4 percent LEU per year could annually displace 3.5 million pounds of uranium production. According to the Draft EIS this would displace the current annual production of all domestic producers. While the UPA would dispute the Draft EIS's apportionment of some of this material to foreign purchasers, the 15 to 20 percent reduction in deliveries by domestic producers projected in the Draft EIS would be devastating to the industry.

Correspondence dated December 5, 1995 from the Department to the UPA (see Exhibit 3) indicates the quantity of materials addressed in the draft HEU EIS was established to evaluate the environmental impacts associated with the maximum amount of highly enriched uranium that might potentially be offered for sale. The letter states

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[4] The disposition of this material into the commercial market place is subject to the schedule set forth in §5212(c) of the Balanced Budget Act.

"[t]he quantity of materials that would actually be introduced into the market by DOE would be significantly less."

The Department's letter suggests that "an estimated 40 metric tons of highly enriched uranium (12.6 million pounds of U_3O_8 equivalent)" may become available for use during a 10-15 year period beginning in 1998." This would amount to DOE introducing material equivalent to approximately 2% of annual U.S. uranium needs or 0.6% annual global needs." These amounts over the 10 to 15 year disposition schedule noted would have substantially less of an impact on the domestic uranium industry. However, this disposition plan is not specified nor even discussed in the draft HEU EIS. The text of the HEU EIS, without additional explanation, would leave the reader with the clear impression that DOE plans to process HEU for "maximum commercial use" at "all four sites," with processing for commercial use to be completed in an estimated three years (by the year 2002). Under DOE's "preferred alternative," 170 metric tons of HEU would be processed for commercial use, and another 30 metric tons would be disposed of as waste.

A vital ingredient of an EIS required by NEPA is a discussion of steps that can be taken to mitigate adverse consequences resulting from government action. While Section 4.8 recognizes adverse consequences to the domestic uranium mining industry as a result of the material derived from HEU, the Draft EIS does not include mitigating steps the Department must take to avoid a material adverse impact on the domestic uranium producers. The disposition schedule set forth in the December 5, 1995 letter is a proper discussion of the mitigating steps missing from the Draft EIS. The UPA would strongly urge the Department to formalize the disposition schedule set forth in the December 5, 1995 letter in the Record of Decision on the HEU EIS, so that these assurances will become a part of the formal DOE decision-making record. Such assurances regarding the mitigation of the socioeconomic impacts on the domestic uranium producing industry would fulfill at least part of the Department's obligations set forth in the Energy Policy Act and Section 5212(d) of the Balanced Budget Act.

12.014 cont.

2. INTRODUCTION OF URANIUM DERIVED FROM THE DEPARTMENTS HEU ACCORDING TO THE PREFERRED ALTERNATIVE WILL HAVE A DETRIMENTAL IMPACT ON THE U.S.-RUSSIAN HEU AGREEMENT.

The Department of Energy has stated strong support for achievements in Russian nuclear weapons dismantlement and the furtherance of U.S. nuclear nonproliferation objectives while recognizing the need for a viable U.S. uranium industry.[5] In order to minimize the impact of Russian HEU on the domestic producers, Congress provided in Section 5212(b) of the Balanced Budget Act for the orderly and disciplined introduction into the commercial nuclear fuel market of this uranium. This legislation provides that material from Russian HEU shall enter the market pursuant to a schedule which reflects uncommitted future demand for the product. The scheduled entry of this material insures the success of the Russian HEU Agreement by preventing price-suppression. Such price-suppression would result if additional material derived from the Department's HEU is suddenly dumped into the commercial market place in quantities that could be available from the preferred alternative described in the EIS.

03.023

[5] See Exhibit 2.

03.023: The HEU Final EIS is revised to enhance the discussion of the cumulative impact of the U.S.-Russian HEU agreement on the uranium industry, as well as the potential impact of the domestic surplus HEU disposition program on the Russian agreement. DOE does not expect to be able to make HEU available for disposition actions at the high rates suggested by the HEU Draft EIS, and those rates have been revised to reflect more realistic assumptions in the HEU Final EIS. It is correct that excessive depression of the market price of uranium could adversely affect the viability of the U.S.-Russian HEU agreement. However, in light of the restrictions on the rate of commercialization of both Russian and U.S. HEU specified in the *USEC Privatization Act*, DOE does not believe the domestic surplus HEU disposition program will significantly affect market prices. A countervailing consideration to the market price impact is that Russia would be reluctant to expand its HEU disposition actions if the United States does not reciprocate with similar actions with respect to its domestic stockpiles of HEU. Under the Act, DOE must ensure that its surplus HEU disposition actions are undertaken in such a way as to avoid adverse material impacts on the industry, and on the nonproliferation objectives of the U.S.-Russian HEU agreement.

Uranium Producers of America, Santa Fe, NM
Page 5 of 12

January 10, 1996
page 5

The preferred alternative published in the Draft Environmental Impact Study states in part, the Department's preference "[t]o sell for use in commercial reactor fuel as much as possible of the Low Enriched Uranium derived from HEU or HEU for blend down to LEU (up to 170 tons HEU, including 50 tons HEU with 7000+ natural uranium that are proposed to be transferred to USEC over a 6-year period,) . . . that best serves programmatic, economic and environmental needs, beginning as soon as possible following the Record of Decision and continuing over an approximate 8-year period, with continued storage of the HEU until blend down . . . ." While the Department's "preferred alternative" may serve its "programmatic needs" it does not take into account the material adverse impact such an alternative would have on the ability of the Russian HEU Agreement to succeed.

The Draft EIS mentions the Russian HEU Agreement only in passing at page 4-182. The Draft EIS is deficient in this regard as an Administrative Agency should consider the impact of other impacts when the actions are so interdependent that it would be unwise to consider one action without the other. Any benefit of disposing of surplus domestic HEU pales to the national security and nuclear non-proliferation benefits to be achieved by the successful implementation of the U.S.-Russian HEU Agreement.

As previously noted in our first comment, uncommitted demand for uranium will not support the introduction of uranium derived from the Department's HEU in the near future The market simply cannot absorb the Department's material without severely depressing market prices. Lower natural uranium prices will produce lower returns to the Russian Federation on material derived from its blended HEU. If the marketplace will not produce the revenues expected by Russia, the contract for LEU derived from dismantled Russian weapons will be terminated or the U.S. Government will be forced to make national security premium payments to sustain the Russian HEU agreement. Such payments would dwarf any gains expected by DOE under its "preferred alternative." 03.023 cont.

National security and non-proliferation goals mandate that the U.S. Russian HEU Agreement be preserved and successfully completed. DOE must take into consideration the detrimental effect the disposition of its material would have on the continued success of the U.S.-Russian Agreement. As noted in our first comment, this could be accomplished by stating in the Record of Decision specific limitations on the introduction of this material into the commercial marketplace. The amounts of material to be sold commercially should be tied to uncommitted demand taking into account the legislatively scheduled deliveries in order to assure the continued success of the Russian HEU Agreement.

3. **THE DRAFT EIS IS DEFICIENT DUE TO THE LACK OF COST COMPARISON INFORMATION CONCERNING THE VARIOUS OPTIONS CONSIDERED BY THE DEPARTMENT.**

The Draft EIS does not contain comparative cost information concerning the various options or alternatives considered by the Department. In order to make a reasoned decision balancing the risks to the environment against benefits to be derived from the Department's proposed action, the comparative cost of each alternative is required. NEPA's intent to require full disclosure of potential impacts to the decision-maker and the public cannot work without accurate and complete fact gathering and analysis. 16.015

16.015: Cost estimates for the alternatives analyzed in the HEU EIS have been developed to provide the decisionmaker, DOE, comprehensive information upon which to make decisions. The cost analysis, which has been provided to this commentor and all others who have expressed an interest in this subject, is available in a separate document with the HEU Final EIS. It supports DOE's preliminary conclusion that commercial use of LEU fuel derived from surplus HEU would save billions of dollars compared to the alternative of blending HEU for disposal as waste.

January 10, 1996
page 6

Cost information associated with the various alternatives proffered by the Department is necessary for complete fact gathering and analysis of this EIS. For example, the Draft EIS states at page 4-185 that under the no action alternative, DOE would continue to store the surplus HEU. This alternative would not have an adverse material impact on the domestic uranium industry, but may not accomplish the Department's stated programmatic objectives. However, it is impossible to make a reasoned decision concerning this alternative compared to the Department's preferred alternative without disclosure of the costs of storage and the cost of blending the HEU material to LEU for immediate sale into the nuclear fuels market. Without comparative costs analysis between the various Alternatives and the Preferred Alternative described in the Draft EIS, it is impossible to fully weigh the environmental risks and socioeconomic impacts of the Preferred Alternative against the risks and benefits that could be achieved by following other stated Alternatives. 16.015 cont.

The impacts raised by the Draft EIS in section 4.8 cannot be fully reviewed without cost analysis and a risk/benefit analysis regarding the various alternatives. This is particularly true when the preferred alternative as stated could have a material adverse impact on the industry described in this section of the Draft EIS.

4. THE DRAFT EIS IS DEFICIENT AS IT FAILS TO EXPLAIN THE REASON THE DEPARTMENT DELETED THE BLEND TO LEU (19-PERCENT ENRICHMENT) AND STORE INDEFINITELY.

The Draft EIS rejects at page 2-9, the Blend to LEU (19-percent enrichment) and Store Indefinitely alternative with insufficient explanation. While recognizing that such an alternative would have no impact on the commercial nuclear fuel market and retains the potential value of the blended material, no cost analysis accompanies this rejected alternative in order to support the Department's action. Without a cost comparison between storage costs and the additional cost to blend this material to a lower enrichment level it is impossible to make a reasoned analysis of the benefits of this alternative as compared to other options.

Mention is made in passing to environmental concerns associated with storage that would need to be accommodated under this alternative. However, none of these concerns are identified. The benefit of no impact on the commercial nuclear fuel market certainly may outweigh these unidentified environmental concerns. 07.006

The Draft EIS places a high value on the beneficial reuse of the material and in other rejected alternatives for the recovery of monetary value by the Government as goals of the Department. The public reviewing the Draft EIS is at a handicap in assessing the true benefit of these professed goals as the costs associated with such goals are not included to be compared with rejected alternatives. Further, as pointed out in Comments 1 and 2, there are overriding policy goals that severely restrict the disposition of this material into the commercial market.

The Department should consider the legislative mandate that the disposition of this material shall have no material adverse impact on the domestic uranium mining industry and the effect of such disposition on the U.S.-HEU Agreement in its stated alternatives. Given the national security and energy independence importance of these policy decisions, the Blend to LEU (19-percent enrichment) and Store Indefinitely alternative merit close review.

07.006: While it may appear that there is no impact of blending and storing at 19 percent, there are environmental concerns associated with potential storage of 19-percent material. These concerns are the construction of new storage facilities that would be necessary to accommodate the increased volume of the material and transportation of the material between the blending sites and the storage facilities. DOE's preliminary conclusions about the economics of the HEU disposition alternatives are based on first-order analysis: (1) if DOE blends material for sale, the resulting revenues would offset blending costs; (2) storage costs would be reduced; (3) if DOE blends material for disposal as waste, there will be no offsetting revenues, but only large outlays for disposal costs and much higher blending costs because much more blending is needed; and (4) blending for storage would likewise entail substantial outlays for new storage capacity, with no offsetting revenues. An analysis comparing the costs of HEU disposition alternatives has been prepared (and provided to this commentor and all others who expressed an interest in this subject) to aid the Secretary of Energy in reaching an ROD. The cost study, which is available separately from this EIS, supports the conclusion that commercial use of LEU derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste. DOE will comply with the legislative mandates to avoid adverse material impacts on the domestic uranium industry when undertaking future uranium transactions.

Uranium Producers of America, Santa Fe, NM
Page 7 of 12

January 10, 1996
page 7

The UPA appreciates the opportunity to comment on the Draft EIS. We appreciate your consideration of the UPA's views on the disposition of surplus HEU as it is of vital interest to our industry. We strongly urge you to formalize the Record of Decision to include assurances that the Department has expressed in discussions regarding our concerns.

Very Truly Yours,

Dale L. Alberts

enclosures

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 8 OF 12

SUMMARY OF SELECTED URANIUM INDUSTRY PRODUCTIVITIES - 1994

COUNTRY	PRODUCTION CENTER	PRINCIPAL OWNER	PRODUCTION TYPE	PRODUCTION (1000 LBS U3O8)	EMPLOYEES	PRODUCTIVITY (LBS/EMP/YR)
CANADA	Key Lake	Cameco	conv.	13,190	399	33,058
CANADA	Rabbit Lake	Cameco	conv.	7,456	234	31,863
U.S.	Crow Butte	Uranerz	isl	702	35	20,057
AUSTRALIA	Ranger #1	Energy Resources	conv.	3,223	193	16,699
U.S.	Highland	Power Resources	isl	811	53	15,302
CANADA	Cluff Lake	Cogema	conv.	2,770	250	11,080
U.S.	El Mesquite	Cogema	isl	460	44	10,455
U.S.	Irigaray/Christensen	Cogema	isl	396	46	8,609
CANADA	Stanleigh	Rio Algom	conv.	1,800	275	6,545
NAMIBIA	Rossing	RTZ	conv.	5,000	1,300	3,846
NIGER	Arlit	Cogema	conv.	2,600	830	3,133
FRANCE	Herault	Cogema	conv.	1,352	450	3,004
NIGER	Akouta	Cogema	conv.	5,100	2,132	2,392
GABON	Mounana	Cogema	conv.	1,480	1,000	1,480
SPAIN	Saelices el Chico	ENUSA	conv.	664	703	945
RUSSIA	Krasnokamensk	Priargunsky	conv.	6,000	7,500	800
HUNGARY	Pecs	MEV	conv.	1,074	1,800	597
CZECH	Dolni Rozinka	Diamo	conv.	780	3,000	260
ROMANIA	Feldiora	RAPMR	conv.	300	3,000	100

Notes: Foreign production and employment information obtained from various official and unofficial sources.
U.S. production obtained from the producers or State of Wyoming.
U.S. employment obtained from Mine Safety and Health Administration.

Compiled by: International Nuclear, Inc. - May 10, 1995.

Exhibit 1

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 9 OF 12

Department of Energy
Washington, DC 20585

The Honorable Craig Thomas
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Thomas:

Thank you for your November 21, 1994, letter to Secretary O'Leary regarding the Government-to-Government agreement between the United States and the Russian Federation for the purchase of 500 metric tons of low enriched uranium derived from highly enriched uranium (HEU) removed from nuclear weapons and its effects on the U.S. uranium industry. While the Department of Energy strongly supports recent achievements in Russian nuclear weapons dismantlement and the furtherance of U.S. nuclear nonproliferation objectives, we also share your concern for the viability of the U.S. uranium industry.

The implementation of this agreement, which was signed by the United States and the Russian Federation on January 14, 1994, should be accomplished in a manner that minimizes the impact upon the U.S. uranium industry. It is important to note that the United States Enrichment Corporation, a wholly-owned Government corporation established by the Energy Policy Act of 1992, is the executive agent on behalf of the United States for the implementation of the HEU agreement. It is our understanding that the United States Enrichment Corporation has not purchased any uranium under this agreement. Therefore, no material has been imported into the United States at this time.

In order to ensure that your concerns are properly addressed, I have forwarded a copy of your letter to Mr. William H. Timbers, Chief Executive Officer and President of the United States Enrichment Corporation. The Enrichment Corporation has sole responsibility for placing orders under the agreement with the Russian Federation.

The Department's position regarding the disposition of the material is that the natural uranium component of the purchase agreement should be utilized consistent with public interest provisions of the uranium Antidumping Suspension Agreement and its amendment as negotiated by the U.S. Department of Commerce. This restriction limits the amount of Russian uranium imported for end use in the United States through the year 2003. As a result of this provision the impact on the U.S. uranium industry would be minimal.

Sincerely,

Terry R. Lash, Director
Office of Nuclear Energy

Exhibit 2

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 10 OF 12

Department of Energy
Washington, DC 20585

December 5, 1995

Mr. Dale L. Alberts
President
Uranium Producers of America
141 East Palace Avenue
P.O. Box 669
Santa Fe, NM 87504-0669

Dear Mr. Alberts:

This is in response to your letter of November 15, 1995, concerning the Department of Energy's Draft Environmental Impact Statement for the Disposition of Surplus Highly Enriched Uranium (HEU EIS). I understand that Greg Rudy, Acting Director of the Office of Fissile Materials Disposition, spoke with you on Wednesday, November 22, 1995, about the issues raised in your letter. As Mr. Rudy pointed out, the quantity of materials addressed in the draft HEU EIS was established to evaluate the environmental impacts associated with the maximum amount of highly enriched uranium that might potentially be offered for sale. The quantity of materials that would actually be introduced into the market by DOE would be significantly less.

Of the approximately 175 metric tons of highly enriched uranium declared surplus to national security needs, plans call for approximately 63 metric tons to be transferred to the United States Enrichment Corporation; approximately 10 metric tons are under International Atomic Energy Agency safeguards in Oak Ridge, Tennessee and are reserved for other program needs; and approximately 62 metric tons of materials are comprised of forms and assays for which recovery and commercial use is considered unlikely. This results in an estimated 40 metric tons of highly enriched uranium (12.6 million pounds of U_3O_8 equivalent) that may become available for commercial use during a 10 - 15 year period beginning in 1998. This would amount to DOE introducing material equivalent to approximately 2% of annual U.S. uranium needs or 0.6% of annual global needs. I hope this helps to alleviate your concerns regarding the potential adverse impact that the disposition of surplus highly enriched uranium might have on the U.S. uranium industry.

As part of the Secretary's openness initiative, the Department is planning to declassify additional information in the near future on the quantities and locations of materials declared surplus. Following this declassification, a more definitive analysis will be available.

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Exhibit 3

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 11 OF 12

Mr. Dale L. Alberts
Page 2

With regard to extending the public comment period on the draft HEU EIS, the Department has already extended the period to January 12, 1996. A notice to this effect appeared in the Federal Register on November 24, 1995. In light of the extension already granted, and the information provided earlier by Mr. Rudy and reiterated above, I believe that adequate time exists for all interested parties to complete their review and submit comments, and that additional time or public meetings are not necessary. Your letter has been formally entered into our comment tracking data base. At the close of the comment period, an analysis will be prepared that addresses all questions and comments received during the comment period. This analysis will appear as part of the Final HEU EIS.

Lastly, DOE is developing cost estimates to support the alternatives evaluated in the HEU EIS. This information will be made available at the time the Final EIS is issued in April, 1996.

I understand that Howard Canter will be meeting with you on Thursday, December 7, 1995, in Washington, D.C. to discuss further the points raised in your letter. Please feel free to call me at (202) 586-4513 with any additional questions or comments that you may have.

Sincerely,

Dean R. Tousley for

J. David Nulton
Director, NEPA Compliance & Outreach
Office of Fissile Materials Disposition

URANIUM PRODUCERS OF AMERICA, SANTA FE, NM
PAGE 12 OF 12

HEU SURPLUS OVERVIEW PROJECTION
11/95

Total HEU Declared Surplus	**~175 MT**
Transfers to USEC	**(63 MT)**
12/94: (13mt UF6 ~ 75% average assay) *(1.7 million swu / 2400 MT U / 6.24 million lbs U308)*	
Proposed: (50mt metal/oxides ~ 40% average assay) *(3.3 million swu / 4,800 MT U / 12.48 million lbs U308)*	
Program (Non-weapons) Uses **(Under IAEA safeguards at Oak Ridge)** *(1.6 million swu / 2,250 MT U / 5.85 million lbs U308)*	**(10 MT)**
NET Potential DOE Disposition	**102 MT**
Recovery/Commercial Use Not Likely **(mixtures, irradiated materials etc.)**	**~(62) MT**
Balance Available **Average Assay ~ 50%** **~20MT w/high U236** **Available over 10 - 15yr period--1998 & out years** *(3.4 million swu / 4,840 MT U / 12.58 million lbs U308)*	**~40 MT**

U.S. ENERGY/CRESTED CORP., RIVERTON, WY
PAGE 1 OF 5

U. S. ENERGY / CRESTED CORP.

877 North 8th West (307) 856-9271 Riverton, Wyoming 82501

VIA FAX: 1-800-820-5156

January 15, 1995

Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU
P.O. Box 23786
Washington, DC 20026-3786

Ladies and Gentlemen,

This letter is in response to your invitation to submit comments with respect to the Department's Draft Environmental Impact Statement for Disposition of Surplus Highly Enriched Uranium (HEU EIS). As a member of the Uranium Producers of America ("UPA") we have reviewed the UPA comments with respect to the HEU EIS. We both agree with and incorporate by reference the comments of the UPA with respect to the deficiencies in the Department's HEU EIS and the devastating effect that the Department's Preferred Alternative will have on the United States uranium producers as a whole. We also echo UPA's concern that the Department's Preferred Alternative will have a detrimental effect on the U.S. - Russian HEU Agreement.

The Department's suppression of prices in the United States from the indiscriminate release into the commercial market of low enriched uranium (LEU) derived from blending "surplus" U.S. highly enriched uranium ("HEU") would be reflected in the world market price for natural uranium concentrates (U_3O_8), as well as uranium hexafluoride (UF_6). Not only would this reduce the revenues expected by Russia from its agreement with the U.S., risking the possible termination of the U.S. - Russian Agreement (with obvious national security implications), or the need for the U.S. to make national security premium payments to avoid such termination, as noted in the UPA letter of comments, but also the prospect of Russia or the United States Enrichment Corporation ("USEC") then dumping the LEU derived from Russian HEU on the world market would further depress the price for U_3O_8 worldwide. This would most likely prompt protests by Canada and Australia, as well as dealing the final blow to the U.S. uranium producers, including U.S. Energy Corp. 12.015

Apart from these concerns and objections to the Department's HEU EIS, which have been addressed very capably in the UPA letter of comments, U.S. Energy Corp. has particular concerns about the effect the Department's proposed actions will have on the Company's plans

FAX (307) 857-3050 Plateau\Corresp\1996\Comments

12.015: The Department of Energy may not release uranium into the commercial market indiscriminately due to the provisions of the *USEC Privatization Act*. Most observers of the uranium fuel industry are projecting substantial increases in world uranium prices in the next several years as existing stockpiles are depleted. One producer has submitted comments to the effect that world uranium production is already only one-half of world demand. DOE anticipates that the combined impacts of Russian and U.S. HEU disposition actions will be to moderate those expected price increases. DOE is confident that its foreign policy (nonproliferation) objectives and the interests of the uranium industry can be accommodated. DOE intends to move cautiously, and must abide by the requirement in the *USEC Privatization Act* to avoid adverse material impacts on the domestic uranium industry in undertaking its uranium transactions.

to reopen its conventional uranium mining and milling operations in Wyoming and Utah, on which millions of dollars have already been spent. These additional concerns, which are not directly addressed in the UPA letter of comments, prompt us to submit this supplemental letter of comments. 12.015 cont.

U.S. Energy Corp. is a Wyoming corporation with its headquarters in Riverton, Wyoming. It is a publicly traded corporation with shares of common stock traded on the NASDAQ/NMS quotation system. The Company currently has approximately 900 shareholders of record (and several times that number in street name) and employs approximately 90 full time employees and 15 part-time employees, principally in Wyoming. The Company is the originator of, and a 50% participant in, the Green Mountain Mining Venture ("GMMV") in Wyoming. The other 50% participant is Kennecott Uranium Company ("Kennecott"), a 100% subsidiary of Kennecott Corporation of Salt Lake City, Utah. (Kennecott Corporation is a wholly-owned subsidiary of The RTZ Corporation PLC, a United Kingdom public company.)

The GMMV owns a potentially world class uranium deposit (the Jackpot ore deposit) on Green Mountain in Fremont County Wyoming and the Sweetwater uranium processing facility in Sweetwater County, the only conventional uranium mill remaining in Wyoming. The mill was one of the latest built in the U.S. and has been maintained in excellent condition. It is rated at 3,000 tons per day (tpd) of ore, but has operated continuously for periods of time at 4,200 tpd. Initial production is projected at 3.7 million lbs. U_3O_8/yr., which can be increased to potentially as much as 6 million lbs. U_3O_8/yr., depending upon the grade of ore fed to the mill. The Jackpot deposit contains reserves of approximately 52 million pounds U_3O_8, with additional resources of up to 500 million pounds U_3O_8 in the vicinity and under the control of GMMV. In addition to the uranium reserves and resources, GMMV has access roads, shop buildings, portals, containment structures, telephone, gas, electricity, and other infrastructure already in place. The cost to various companies to build these facilities has been over $150 million and the standby cost of maintaining these facilities has been (and continues to be) approximately $1,000,000 annually.

In Utah, U.S. Energy Corp. acquired Plateau Resources Limited, a Utah corporation ("Plateau"), from Consumers Power Company in 1993. Plateau owns the Shootaring Canyon mill, an essentially new 750 tpd uranium processing facility in Garfield County in southeastern Utah. Plateau also has contract rights to the Tony M mine and Frank M uranium deposit approximately 3 miles from the mill. The Tony M mine is fully developed and permitted with 18 miles of underground haulage drifts, crosscuts, vent holes and an underground shop. It is ready to produce. All required infrastructure is in place. Plateau spent nearly $120 million to build the mine-mill complex. In addition, Plateau also owns uranium properties in the Lisbon Valley area of Utah, the ore from which could be processed at the Shootaring Canyon mill.

Plateau\Corresp\1996\Comments

U.S. ENERGY/CRESTED CORP., RIVERTON, WY
PAGE 3 OF 5

Plateau's conventional uranium resources in Utah are estimated at about 17 million pounds U_3O_8. Plateau is also seeking to acquire additional reserves in the Arizona Strip and Colorado Plateau, areas with reasonably close proximity to the Shootaring Canyon mill. The standby cost for the Shootaring Canyon mill and support facilities has been (and continues to be) approximately $650,000 annually to keep this facility available for U.S. production.

Finally, U.S. Energy Corp. owns 50% of Sheep Mountain Partners (SMP) with Cycle Resource Investment Corp., a wholly owned subsidiary of Nukem Inc. There are multiple uranium deposits that have been delineated so far on Sheep Mountain in Fremont County, Wyoming. Remaining higher-grade reserves at Sheep Mountain total about 4 million lbs. U_3O_8. Additional amounts of lower-grade resources also exist, with a total resource at Sheep Mountain estimated at approximately 13 million lbs. U_3O_8. Western Nuclear, the previous owner, spent in excess of $125 million in developing these properties.

Underground development of the Sheep Mountain mines was first started by Western Nuclear, a subsidiary of Phelps Dodge Corporation, with the sinking of a 14-foot concrete-lined shaft (Sheep Mountain #1) that was completed in late 1975. A second shaft, Sheep Mountain #2, was completed in 1976 According to published reports, production by Western Nuclear averaged 300,000 tons of ore per year from 1978 to 1980, but in 1981 Western Nuclear suspended all uranium operations at Sheep Mountain. U.S. Energy acquired the properties from Western Nuclear in February 1988 and operated Sheep Mountain #1 until April 1989, toll milling the ore at the Shirley Basin mill of Pathfinder Corporation in Wyoming, to produce approximately 100,000 lbs. U_3O_8. Mining ceased because the market price of uranium concentrates dropped to a point that it was more economical to buy concentrates required to supply existing utility contracts, rather than produce them.

Today the Sheep Mountain #1 and #2 underground shafts are completed to 1,675 and 1,350 feet, respectively, both mines are permitted and have developed or partially developed mining levels with drifts that extend into the orebodies. Like the Tony M mine in Utah and the Big Eagle properties of GMMV (which is near the Jackpot deposit on Green Mountain), the Sheep Mountain properties have all required infrastructure in place and are ready to produce. Keeping the Sheep Mountain facilities in a workable condition to be ready to meet U.S. demand has cost (and continues to cost) about $1,000,000 annually.

In summary, U.S. Energy Corp. is poised to resume uranium production in Wyoming and Utah. The market permitting, U.S. Energy Corp. has the capability of producing a total of 3 to 5 million pounds of U_3O_8 annually via conventional methods before the end of 1998. Its processing facilities are licensed and on a standby basis. The Tony M mine in southeastern Utah is fully developed and permitted. The Jackpot deposit in Wyoming is about to receive its Permit to Mine within the next two months, after nine years in the environmental permitting

12.015 cont.

Department of Energy
January 15, 1996
Page 4

process. The Company is currently arranging financing to put these facilities back into production. When they are in full production, operation of the Jackpot mine, which has a projected life of 13 to 25 years, and Sweetwater mill will employ approximately 260 people in Wyoming. This does not include indirect employment in the surrounding area resulting from the operation of the mine and mill. These would be high paying jobs in an area where there is serious underemployment, which causes hardships not only to the affected families, but also to the State and federal government. Tax revenues to the State of Wyoming in the form of property, sales and ad volorem taxes are estimated to be approximately $3.4 million annually when the mine and mill are in full operation.

In Utah, reactivation of the Shootaring Canyon mill in Garfield County, and mining the nearby deposits in San Juan and Emery Counties, required to feed the mill, would employ approximately 250 persons in an area where employment opportunities are quite limited. Again, these would be high paying jobs and the number does not include employment gains in support businesses. Moreover, additional revenues to the State of Utah when the mines and mill are in full operation would be substantial.

All of this would be lost or at least delayed indefinitely if the price of uranium concentrates remain depressed as a result of the unrestrained disposition of LEU from "surplus" HEU, which has been accumulated by the Department or its predecessors over several decades. According to the Department's own analysis and publications, total U.S. uranium concentrate production in 1994 was only 3.4 million pounds. This compares to 43.7 million pounds in 1980 (*Uranium Industry Annual* 1984). Moreover, there was no uranium concentrate production from conventional mining and milling of uranium ore in 1994 and by the end of 1994 only six conventional mills were being maintained on a standby mode in the United States (*Uranium Industry Annual* 1994). This compares to 24 conventional uranium mills in the U.S. in 1981, of which 20 were operating throughout the year (*Uranium Industry Annual* 1984). Employment in the U.S. uranium industry in 1994 (excluding reclamation work) totaled 452 person-years (up 19% from 1993) compared to a peak of 21,951 person-years in 1979 (19,919 person-years in 1980). This disastrous decline in production and employment in the U.S. uranium industry is attributable principally to the depressed prices resulting from high inventories built up during the 1980's and the dumping of uranium concentrates from Russia and other CIS countries during the first half of the 1990's. 12.015 cont.

Now it appears that the Department, and indeed others in the Clinton administration, are bound and determined to continue to suppress prices and frustrate efforts, such as those by our Company, to revitalize the domestic uranium industry. Not only is this in violation of the express mandates of Title X of the Energy Policy Act of 1992, but it is contrary to any notion of sensible government policy. The impact on the U.S. balance of payments deficit will continue to worsen if the U.S. uranium industry is crippled further. The potential for the

Plateau\Corresp\1996\Comments

U.S. ENERGY/CRESTED CORP., RIVERTON, WY
PAGE 5 OF 5

Department of Energy
January 15, 1996
Page 5

closure and dismantling of U.S. production facilities, which will cost hundreds of millions of dollars to replace, will continue and a complete collapse of the U.S. uranium market would be inevitable, causing our country to become solely reliant on foreign uranium to fuel the 110 nuclear reactors now operating in the United States. 12.015 cont.

We agree with the UPA that a possible solution may lie in its suggestion that the Department formalize in its Record of Decision a more limited disposition schedule, as set forth in the Department's December 5, 1995 letter to the UPA. 05.009 Alternatively, the Department should consider the alternative that was rejected without explanation in the HEU EIS to blend the HEU to LEU (19% enrichment) and to store such LEU indefinitely. 09.019 This satisfies national security concerns regarding the reduction of HEU stockpiles, while preserving the potential value of the blended material without impacting the commercial nuclear fuel market. Moreover, the further blending and sale of this LEU when the market requires additional supply most likely would result in greater revenue to the government and confer greater benefit on U.S. utilities that consume nuclear fuel.

For the foregoing reasons, U.S. Energy Corp. respectfully request that the Department reconsider its Preferred Alternative or at least formalize in its Record of Decision an orderly disposition schedule for LEU derived from blending surplus HEU along the lines proposed in the Department's December 5, 1995 letter to the UPA.

Sincerely,

John L. Larsen,
Chairman, President and
Chief Executive Officer

JLL/ms

F:\...\Corresp\1996\Comments

05.009: The Department of Energy has modified the discussion of the schedule for HEU disposition actions in Section 2.1.2 of the HEU Final EIS to make it more realistic. The more realistic schedule will also be reflected in subsequent ROD(s), as appropriate.

09.019: The HEU EIS explains the rejection of the blend to 19 percent and store option in Section 2.1.3. DOE does not consider the options of blending HEU for extended storage as reasonable as other alternatives because it would delay recovery of the economic value of the material and incur unnecessary costs and environmental impacts due to the need to build additional storage capacity to accommodate the increased volume of the material.

UTILITY RESOURCE ASSOCIATES

January 11, 1996
URA Letter No. 361-04

Mr. J. David Nulton, Director
Office of NEPA Compliance and Outreach
Office of Fissile Materials Disposition
United States Department of Energy
1000 Independence Avenue S.W.
Washington D.C. 20585

SENT VIA FACSIMILE

Subject: Comments on Disposition of Surplus Highly Enriched Uranium (HEU) Draft EIS

Dear Mr. Nulton:

Utility Resource Associates (URA), a Maryland corporation, endorses the DOE's proposed action to maximize the commercial use of surplus HEU. We agree that this action eliminates proliferation risks on a timely basis compared to other alternatives, reduces waste disposal costs and radiological exposures, and is expected to provide substantial revenue to the U.S. Treasury. 10.003

DOE characterized the surplus HEU as commercial, off-specification, and non-commercial. Although we do not know the batch quantities and isotopic content of the off-specification material, from a reactor core design basis we believe there is a domestic market for this material. 13.006

URA provides independent technical analysis, licensing support and economic analysis for approximately thirty reactors. Technical analysis includes fuel assembly nuclear, thermal and mechanical design, core reload pattern design and safety analysis. Our criticality analysis has been applied to reactor cores, spent fuel pools and dry cask storage. We understand the modeling issues involved in using off-specification enriched uranium and are available to use our PC-based Core Analysis Workstation or other methods to assist DOE in the technical and commercial analyses associated with using off-specification enriched uranium in a domestic light water reactor.

We appreciate the opportunity to comment on the draft EIS and are available to meet with DOE to further discuss issues regarding off-specification enriched uranium.

Sincerely,

Kevin O'Sullivan
Senior Associate

cc: Mr. Rod Grow (President, URA)

UTILITY RESOURCE ASSOCIATES CORPORATION
51 Monroe Street • Suite 1600 • Rockville, Maryland 20850 • (301) 294-1940

10.003: Comment noted.

13.006: The Department of Energy expects that there will be a market for some or most of the off-spec material, although some of it may ultimately prove uneconomical to recover.

VIRGINIA POWER, INNSBROOK TECHNICAL CENTER, GLEN ALLEN, VA
PAGE 1 OF 2

January 5, 1996

U. S. Department of Energy
Office of Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

VIRGINIA POWER

COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR DISPOSITION OF SURPLUS HIGHLY ENRICHED URANIUM

This letter provides the comments of Virginia Electric and Power Company (Virginia Power) with respect to the DOE's Draft Environmental Impact Statement (EIS) for Disposition of Surplus Highly Enriched Uranium (HEU). Virginia Power has more than 1.8 million customers located in the Virginia and North Carolina region who receive approximately one third of their electrical energy from nuclear generation, and who will potentially be affected by the outcome of your actions. The scope of the HEU EIS is significant, and it appears to thoroughly address the many environmental and related technical issues associated with disposition of HEU. As an end user of the proposed blended down low enriched uranium (LEU), Virginia Power will, in general, direct its comments to the impact of the proposed government action on the uranium market and related nuclear fuel cycle industries.

Before presenting our specific comments, note that we believe that the blending down of HEU to LEU for commercial use is the correct action to take to reduce the threat of nuclear weapons proliferation in an environmentally safe and timely manner. The U.S. government's actions in this regard will set a nonproliferation example for other nations, while providing a beneficial use and recovery of the economic value contained in the material. In our opinion, it appears reasonable and beneficial to pursue your stated preferred alternative of maximizing the HEU blending and subsequent LEU use as commercial fuel over an approximate eight (8) year period.

With regard to the market impact of your proposed action, you specifically addressed the impact on uranium mining and nuclear fuel cycle industries. In general, we would agree with DOE that the relatively small amount of LEU produced annually through your proposed action, coupled with the long period over which it would be introduced into the market, should have minimal impact on the industry. Although the quantities are relatively small, we believe they are important to the domestic nuclear utilities in that many industry experts are predicting a significant shortfall in production versus demand in coming years. This shortfall is significant with the rapid reduction in excess commercial uranium inventories. The U S. surplus HEU will help to offset this shortfall, and act to keep prices competitive for nuclear generation to the benefit of millions of energy consumers. 12.019

We understand that DOE has already received comments from the domestic uranium industry expressing concern with the depth of analysis performed in evaluating the uranium market impact. We believe your analysis is sufficient, especially when viewed in context with the 28% increase in uranium prices in 1995, and actual and planned increases in U.S. production already in place. To imply that the relatively small amount of material you propose to release will seriously impact the

12.019: The Department of Energy agrees that the domestic HEU disposition program alone is unlikely to have significant adverse impacts on the domestic uranium industry. However, in conjunction with the projected deliveries from Russian HEU disposition actions, the cumulative impacts are more significant, and the HEU Final EIS is therefore revised to reflect these cumulative impacts, as well as the implications of enactment of the *USEC Privatization Act*. DOE also agrees that predictability is important in avoiding adverse material impacts on the uranium industry from its HEU disposition actions.

VIRGINIA POWER, INNSBROOK TECHNICAL CENTER, GLEN ALLEN, VA
PAGE 2 OF 2

domestic uranium producers seems, in our opinion, to be overstated.

The majority of industry consultants predict a steady increase in uranium prices, driven in large part by current world production being only one half of world demand. Your proposed action to bring the surplus HEU slowly into the market over an extended period should act to provide the maximum benefit to the taxpayer as the government realizes a steady return on the material in a period of projected increasing prices. At the same time, the steady and predictable rate at which the material is introduced into the market will minimize its impact with respect to harming domestic producers. 12.019 cont.

Further, we believe your conclusions with respect to the domestic uranium conversion industry are overstated. Convertors have seen an increase of over 70% in the price of conversion services since the fall of 1992, and convertors worldwide are planning to add capacity. This does not sound like an industry that is "oversupplied" and "depressed" as you refer to it. In general, conversion capacity is projected to fall slightly below demand for the foreseeable future, and the conversion component contained in the surplus HEU will help to balance projected supply and demand. 12.020

In summary, we believe the proposed action, and your preferred alternative, is the right thing to do with respect to nonproliferation. At the same time it provides commercial benefit to U.S. utilities and by extension their customers, while minimizing the impact on the uranium mining industry and related fuel cycle industries.

If you have any questions, please contact Mr. H. H. Barker at (804) 273-3438, or me at (804) 273-2202.

Sincerely,

Ron Berryman

R. M. Berryman, Manager
Nuclear Analysis and Fuel

12.020: The Department of Energy has received conflicting comments from different segments of the industry with respect to the current and expected future condition of the uranium conversion industry. We believe the weight of the evidence supports a conclusion that uranium from HEU disposition actions will enter a conversion market that is tightening. The *USEC Privatization Act* requires DOE to avoid adverse material impacts on the uranium industry.

WALTON, BARBARA A., OAK RIDGE, TN
PAGE 1 OF 2

85 Claymore Lane
Oak Ridge, TN 37830
January 11, 1996

To: US DOE, Office of Fissile Materials Division
From: Barbara A. Walton (423) 482-5652
Subject: Disposition of Surplus Highly Enriched Uranium (HEU) Draft Environmental Impact Statement (EIS), October 1995

My review of the subject document reveals several deficiencies:

There is no discussion of impact on the conversion plant, GE Wilmington, NC. 11.001

Tables E.2.3-1 and E.2.3-2 do not have units given. 21.007

The second column printed on page 3-17 belongs after the text printed on page 3-18. 22.011

There is no discussion of accidents in the summary. These are covered on p. 4-13 & 14 for the No Action Alternative, which includes serious chemical risk, and on p.4-31 thru 4-40, 4-55 thru 4-60, 4-68 thru 4-73 and 4-87 thru 4-90 for facility accidents. 21.008

Pages 4-162 and 4-163 need to be updated since ORR is NOT the selected site in the Tritium Supply and Recycling ROD and SRS is the selected site. 22.012

I also note a major flaw in the document which may lead to a faulty conclusion:

I take exception to the timeframes given in Table S-1 (Table 2.1.2-1, p. 2-6 & 2-7). The assumption of 10t/yr. HEU availability may be poor. In any case, there is no reason to delay use of the metal process for waste until after USEC fuel and "additional fuel". The table gives the impression that all 4 sites are needed to get the job done in a reasonable time. 05.007

The 50t of HEU to USEC is most interesting. This is discussed on p. 4-187 which states that "this material is in the form of uranium hexafluoride" at Portsmouth and Paducah plants being leased to USEC. The timeframe for this part of the HEU should, therefore, be independent of the rest of the material.

In addition:

The chemical risk for the uranium hexafluoride process is high in the case of an accident. I recommend that no more than one such commercial site be added to the nations capability. 17.013

Any distinction between alternatives 4 and 5 depends on better characterization of the off spec material. 07.012

Preference should be given to the DOE sites due to the current adverse impact of federal budget cuts. Relative costs for processing material already located at Y-12 should mean that most should be processed there. 10.008

Therefore, my preference is for a new option: Alternative 4/5 e) DOE sites, with emphasis on Y-12, and including the potential for commercial, if cost competitive, limited to no more than one new uranium hexafluoride facility.

11.001: The GE Wilmington Fuel Fabrication Plant is used in the HEU EIS as a representative site where conversion of natural UF_6 blendstock to U_3O_8 for use in UNH blending might occur. This step is not likely to be necessary since DOE has plentiful supplies of natural uranium metal and oxide that can be used as blendstock for the UNH process. In the event that limited conversion of UF_6 blendstock is necessary, the impacts at the conversion facility would be negligible relative to the existing activities at the facility.

21.007: Table E.2.3–1 includes the unit "curies" in its title which is consistent with the style chosen for the HEU EIS. Table E.2.3–2 inadvertently omits curies from the title. This has been corrected in the HEU Final EIS.

22.011: The HEU Final EIS has been revised to correct this discrepancy.

21.008: Results of accident analyses were summarized in the Environmental Justice in Minority and Low-Income Populations section of the Summary in the HEU Final EIS. In addition, Tables S–2 and S–3 in the Summary present a comparison of the potential incremental impacts from accidents for all the alternatives evaluated in the HEU EIS.

22.012: The cumulative impact sections have been revised to eliminate ORR as a candidate site for the Tritium Supply and Recycling program.

05.007: The timeframes presented in the cited table have been substantially revised in the HEU Final EIS to reflect more realistic assumptions about commercial considerations, availability of material, and other factors (such as legislative restrictions concerning impacts on the uranium industry) in addition to processing rates. DOE expects that a realistic estimate of the time needed to blend material for commercial use will be 15 to 20 years. The cited discussion concerning UF_6 at Portsmouth on page 4–187 of the HEU Draft HEU pertains not to the 50 t of HEU that are proposed to be transferred to USEC, but rather to 7,000 t of natural uranium that are proposed to be transferred to USEC as part of the same transaction. The 50 t of HEU that is proposed to be transferred to USEC is in the form of metal and oxides, not UF_6.

17.013: The HEU Final EIS reflects the potentially significant consequences associated with a postulated UF_6 release accident, as well as the low probability of such an accident. See, for example, Tables 4.3.2.6–4 and 4.3.2.6–5. Whether any UF_6 and related blending facilities are developed will be decided by commercial entities based on business considerations and subject to licensing and regulation by NRC.

07.012: The Department of Energy agrees that the ultimate determination of the proportion of surplus HEU that can eventually be sold for commercial use will depend on more detailed characterization of the surplus inventory.

10.008: The Y–12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmakers.

WERTH, KENNETH F., ARVADA, CO
PAGE 1 OF 5

Dear Mr. Stevenson

Thank you for Taking the Time, To forward my proposal and concept to the Nuclear Regulatory Commission for the Disposition, Storage, and Containment of Fissile Nuclear Material's and Spent Nuclear Fuel.

The letter, That was written in a proposal to Greg Rudy April 27, 1995 was a first Time proposal, for a concept, on my part, in trying to solve the Nuclear Waste problem's, that have plagued our nation for the last 40 year's, at The cost of Billions of dollar's.

The reason for this letter, is To update you on my new concept, for the Disposition, Storage, and Containment of Fissile Material's and Spent Nuclear Fuel, by Utilizing a Vitrification process in a borosiliate glass log, That then would be fussed in the 6 To 8 hollowed out core's. The depth of The core is 59 inches, by core diameter of 23 inch core, of (Marble) or (Granite) in hugh block's of 30 To 40 Ton's. These same block's would be cut 1 foot of The Top, and Then replaced, when the Nuclear Waste has been incapsulated in the hollowed out core's, as a added barrier against Terrorism, or theft. — 06.008

These hugh 30 To 40 Ton block's of (Granite) or (Marble) would Then be Transported by rail or truck To remote South western desert area's, or the Salt Flat's of Utah, and stacked 5 or 6 high, That would provide a low cost, low maintenance, and long-Term Containment method for Nuclear Waste, that Then would be monitored by a stationary spy satellite, That would be placed in orbit 22,000 miles above The earth.

Note: These same 30 To 40 Ton (Granite) or (Marble) block's could also be Utilized for low level Nuclear Waste in a flat top pyramid like structure at Rocky Flat's, or any other Nuclear Facility in the United States, that have no way to store there low level Nuclear Waste-

06.008: Comment referred to the Office of Civilian Radioactive Waste Management.

Your letter To the Nuclear Regulatory Commission, has just been received by me, Dated Oct 25, 1995 and was answered by a Sue E. Gagner, Public Affairs Officer, stated in her letter to me that the Nuclear Regulatory Commission is strictly regulatory agency, and generally does not fund or initiate projects to develop new products or systems. NRC does fund confirmatory research, which in the high-level waste area include research to provide the Technical basis needed to independently evaluate specific proposal's, being developed by the DOE for packaging and permanent disposal of high-level wastes. As stated in the letter a copy of my letter has been forwarded to the Nuclear Materials Safety and Safeguard's. My new proposal and concept has never been reviewed by any agency's, so where do I go from here? I'm not a company, but a private citizen with a fixed income, that has taken a interest into this Nuclear Waste problem at Rocky Flat's and other Nuclear facilities.

If we are ever going to solve this Nuclear Waste problem, this government should relax its singleminded focus on irreversible geological underground burial and turn to some form of secure storage, like I have proposed in my new Concept, that would allow both continuous monitoring, and retreival if it had to be. Deep geological burial does not "resolve" waste-management problem's for future generation's, but ironically that entombment, does precisely the reverse.

Please review, and give me your Thoughts and comments on this proposal and concept.

"Please Respound"

Sincerely

Kenneth F Werth

6895 Flower ST

Arvada Co 80004

(303) 424-0790

WERTH, KENNETH F., ARVADA, CO
PAGE 3 OF 5

HEU-M-COOL 10.040 P003
3/5

Criteria: Concept for the Compleat, Disposition, Storage, and Transportation, of high level Nuclear Waste, that would be Contained in hugh blocks of (Granite) or (Marble). Oct 25, 1995

DECISION - MAKING CRITERIA

	Cost: Is the Option feasible? Yes/no, None	Time to accomplish (in years)	Security: Is material safe from theft or diversion? Yes/no, None	Congruence with U.S. Disposition Policy? Yes/no, None	Environment, Safety at Rocky Flats: Is material safe from dispersal in air, land, or water? Yes/no, None	Engineering Feasibility: Does technology exist? Is it feasible to develop? Yes/no, None	Spent Fuel Standard: Does option meet this standard? Yes/no, None
	yes	3 To 4 years	yes	yes	yes	yes	yes
ALTERNATIVES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
FUTURE DISPOSITION ALTERNATIVES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Vitrification	Yes	3 To 4 years	Yes	Yes	Yes	Yes	Yes
Mixed Oxide Reactor Fuel	Out						
Other	(Granite) Blocks					(Granite) Blocks	Vitrification in a borosilicate glass log [illegible]

VITRIFICATION PROCESS: Of Plutonium and Spent Nuclear Fuel and Nuclear Waste, would be Vitrified in borociliate glass log's, and then fused in the 6 to 8 hollowed out Core's of hugh 30 to 40 ton blocks of (Granite) or (Marble), and then seald with a high temperature Ceramic sealer. This concept would solve all of the Container, Disposition, Storage, and Transportation. would be by rail or Trucked to remote area's of the Southwestren desert region's, or the Salt Flat's of Utah, where these hugh 30 to 40 ton blocks of (Granite) or (Marble) could be stacked 5 to 6 high as a added barrier against Terrorism, or Theft, and then be monitored by a spy satellite, that would be placed in a stationary orbit 22,000 mile's above the earth, that was used for Constant surveillance these hugh block's, that would provide a low for encapsulation of this Nuclear Waste, that would provide a low Cost, low maintenance, and long-Term Containment method for Nuclear Waste. Note: These same 30 to 40 ton block's of (Granite) or (Marble) could be Utilized for all of the low level Nuclear Waste in a flat top pyramid like structure at Rocky Flats, or any other Nuclear facility in the United State's, or the World for that matter.

Sincerely
Kenneth F. Werth

10/21/95 08:58 MAIL BOXES ETC + 1

WERTH, KENNETH F., ARVADA, CO
PAGE 4 OF 5

(Questionnaire) Oct 25, 1995

DECISION - MAKING CRITERIA

Cost: Lowest 150 million, Moderate 225 million, Highest 550 million

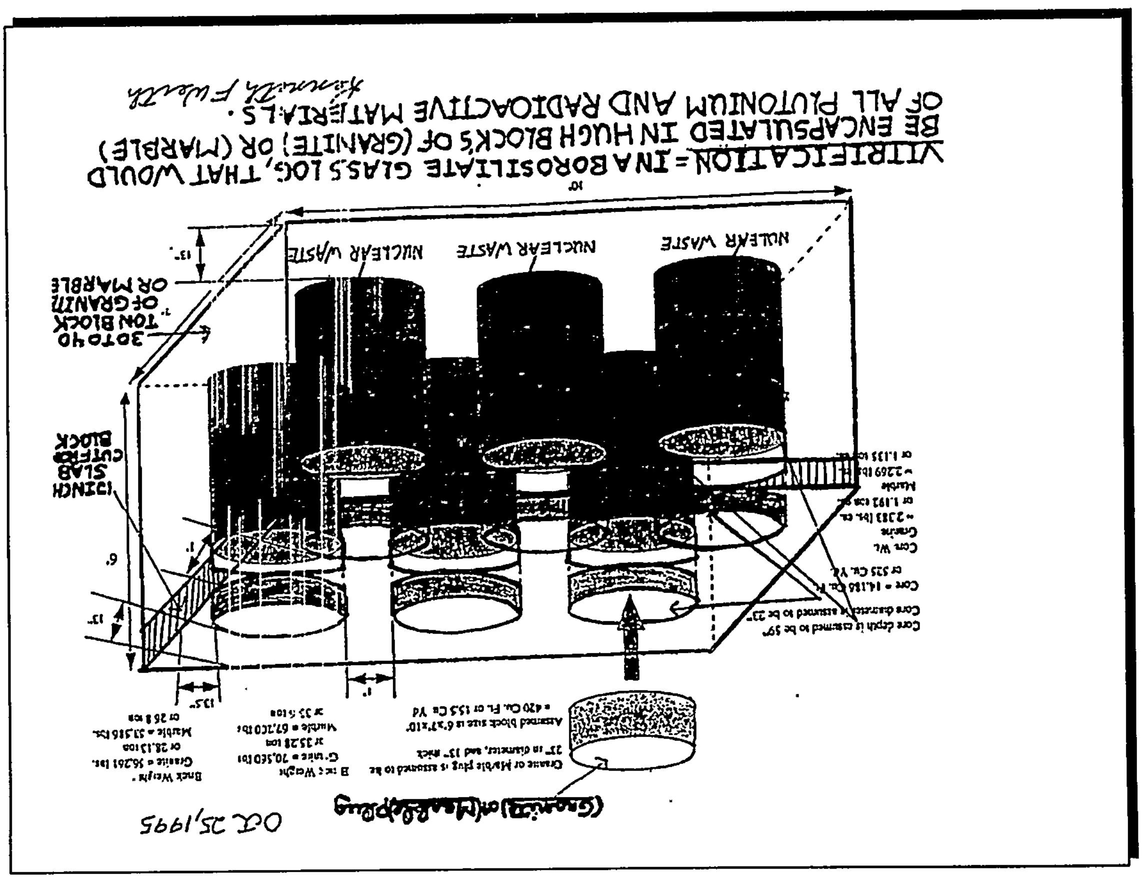
Time (in years): 2 To 3 years

	Cost				Time			Congruence with Ultimate Disposition	Risk Reduction to Workers	Safety from Dangers	Meets Non-proliferation goals?			Meets Security Needs	Uncertainty	Material in form not readily deployable?	Environmental Impacts
	[illegible]	RAIL OR TRUCK	SPY SATELLITE	Time Frame	2 TO 3 YEARS	2 TO 3 YEARS	LONG RANGE	yes	LOW	Lowest	yes	yes	Easy	yes	no	lowest	Lowest
ALTERNATIVES																	
MACRO STORAGE																	
[illegible]	OUT																
[illegible]	OUT																
[illegible]	OUT																
[illegible]	SALT FLATS OR OCEAN AREA																
[illegible]	BLOCKS OF GRANITE																
MICRO STORAGE																	
[illegible]	OUT																
[illegible]	Yes	Yes	SPY SATELLITE	Time Frame	2 TO 3 YEARS	2 TO 3 YEARS	Long Range	Yes	Low	Low	Yes	Yes	Yes	Yes	No	Low	Low

This Concept has been drawed up by me, and all questions and answer's will have to come through me, for implementation

Sincerely
Kenneth F Werth

WERTH, KENNETH F., ARVADA, CO
PAGE 5 OF 5



WESTERN NORTH CAROLINA
PHYSICIANS FOR SOCIAL RESPONSIBILITY
99 Eastmoor Drive
Asheville, N.C. 28805-9211
November 29, 1995

DOE-Office of Fissile Materials Disposition
c/o SSAIC/HEU EIS
P.O. Box 23786
Washington, D.C. 20026-3786

Dear Sirs and/or Madams:

We have considered the various alternatives in the EIS regarding what the U.S. should do with all the surplus HEU from the bombs we are now taking apart. All the options utilizing blending which result in nuclear reactor fuel place in jeopardy the goals of the the proposed Non-proliferation Treaty. The reason for this is when down blended HEU is used as reactor fuel, the resulting spent fuel contains about 4% plutonium. The latter can be extracted without a great deal of difficulty. Therefore, every where in the world such fuel would be utilized, there would be a significant risk of diversion of this deadly byproduct into nuclear weapons. Promotion of the production of spent fuel is unwise. There is no safe, economical or practical means for disposing, storing or transporting it. Because of its available plutonium, it poses a continued weapons threat. Such a scheme is not in the best interests of the people of the United States. 03.016 14.002 03.016 cont.

We recommend that HEU be further blended down to a concentration of 1% or less, so it can be disposed of as low level radioactive waste. In the long range view of things this will be the most economical, environmentally sound and safest option. And it will best serve our nation's nonproliferation policy. 10.009 Furthermore, even as we have required it of other nations, we should allow these actions to be carried out under international inspection. This will send a message to other nations that we are willing to openly demonstrate our intention to comply with the treaties for which we have been so recently negotiating. 03.020

Sincerely yours,

John Cook, MD.
Lewis E. Patrie, M.D.
Terrence P. Clark M.D.
[illegible] DDS
John T. [illegible] MD
Timothy Takaro, M.D.
Tyron Maynard MD
Margaret Bruno MD

03.016: Typical spent fuel actually contains about 1-percent Pu. DOE does not agree that commercial use of LEU fuel derived from surplus HEU increases the proliferation potential, because no incremental spent fuel would be created as a consequence of this program. Spent fuel is considered to have low proliferation potential, because reprocessing of spent fuel to separate Pu is dangerous, difficult, and costly. Although fuel derived from U.S. surplus HEU and sold abroad could conceivably be reprocessed in some countries to separate Pu for commercial (non-military) use in mixed oxide fuel, that LEU fuel derived from surplus HEU would simply replace other fuel, so no incremental Pu would be created as a result of this program.

14.002: It is correct that the use in reactors of nuclear fuel derived from surplus HEU would result in the production of spent fuel. However, this fuel simply supplants nuclear fuel that would be produced from natural uranium anyway, so no additional spent fuel would be generated as a result of this program. Although spent fuel contains Pu, it is extremely hazardous to process and separate the Pu. It is a tenet of U.S. nonproliferation policy, consistent with recommendations of the National Academy of Sciences, that weapons-usable fissile materials be made at least as proliferation resistant as spent fuel.

10.009: Blending down the entire stockpile of surplus HEU to less than 1 percent and disposing of it as waste was evaluated in the HEU EIS as one of the alternatives. The analyses showed that this alternative would generate the highest environmental impact among other alternatives evaluated in the HEU EIS (Table 2.4–2). DOE has developed cost estimates associated with the alternatives analyzed in the HEU EIS and has made them available in a separate document with the HEU Final EIS. The cost analysis indicates that commercial use of LEU fuel derived from surplus HEU makes economic sense and would save billions of dollars. DOE believes that all of the action alternatives (2 through 5) evaluated in the HEU EIS meet the objective of nonproliferation and will send a positive message to other nations.

03.020: The United States has begun to subject its stockpiles of surplus weapons-usable fissile materials to IAEA controls. There is some HEU under IAEA safeguards at the Y–12 Plant, as well as some Pu at the Hanford and Rocky Flats sites. It is DOE's intent to make additional quantities of surplus material subject to international controls to the maximum extent possible.

WILCOX, BOB, SAVANNAH RIVER, SC
PAGE 1 OF 1

Date Received: 1/11/96
Comment ID: P0034
Name: Bob Wilcox
Address: Savannah River, South Carolina

Transcription:

This is Bob Wilcox at the Savannah River Site. I have three comments. Number (1) all things considered, not just environmental impacts, DOE's preferred alternative is the correct one; (2) the calculated consequences of maximum facility accidents are significant, DOE should analyze whether some mitigation measures could be implemented so as to lower these risks independent of which site or sites are chosen for the blending; (3) so far as potential use of the 300M area at SRS is concerned, the DOE preferred alternative and mission guidance provided by DOE appear to be inconsistent. That's the end of my comments. Thank you.

10.003
21.018
23.006

10.003: Comment noted.

21.018: Accident consequences presented in the HEU Draft EIS were estimated using the GENII computer code. GENII is generally used and best suited for modeling impacts of radiological releases under normal operation of facilities because it handles a large number of radiological isotopes and accounts for the ingestion pathway. GENII was used with 50 percent meteorology (average meteorological conditions that would occur 50 percent of the time in any given period) during the accident. It is assumed that the noninvolved worker is placed in the sector that yields the maximum dose calculated by GENII. Latent cancer fatalities were calculated by applying this dose to all workers assuming that they are located 1,000 m away (or at the site boundary if less than 1,000 m) from the accident due to lack of data on site-specific worker distribution. This was done to compensate for a lack of data regarding onsite worker distribution, but yields highly conservative results. Also, this approach yielded disproportionately higher impacts at Y–12 and SRS because of the larger workforce at those sites compared to commercial sites.

In response to public comments, accidental releases of uranium were re-modeled using MACCS computer code with more detailed site-specific information to better estimate noninvolved worker cancer fatalities at each candidate site. MACCS is a widely used code and offers better capabilities than GENII in terms of modeling accident conditions. It uses actual (recorded onsite) meteorological conditions and distributes data recorded over a 1-year period. The worker distribution data for each site were also collected and incorporated into MACCS runs to obtain a more realistic estimate of potential worker accident consequences.

The results obtained from MACCS runs have been incorporated into Section 4.3 of the HEU Final EIS. The methodology for the accident analysis has been added as Section 4.1.9 and Appendix E.5 of the HEU Final EIS.

23.006: Building 321 is in the process of being deactivated and will not be available for metal blending as was stated in the HEU Draft EIS. Therefore, metal blending will not be performed at SRS.

WILCOX, ROBERT, MARTINEZ, GA
PAGE 1 OF 1

READER RESPONSE CARD

The purpose of this card is to encourage communication between readers of the Newsletter and the Office of Fissile Materials Disposition. Your views, comments, and suggestions are appreciated. A

☒ Mr. ☐ Ms. ☐ Dr. ROBERT H. WILCOX
(first name) (last name)

Title: PROJECT MANAGER

Organization: WESTINGHOUSE · SAVANNAH RIVER CO.

Mailing Address: 711 PEVERO ABBEY CIRCLE
(street/post office box) (suite/apartment/mail stop)
MARTINEZ GA 30907
(city) (state) (zip code)

Please check all that apply:

A. Mailing List Request: ☐ Add ☐ Modify ☐ Delete

B. Information Request
- ☐ Highly Enriched Uranium (HEU) EIS Implementation Plan
- ☐ Long-Term Storage & Disposition of Weapons-Usable Fissile Materials PEIS Implementation Plan
- ☒ Draft HEU EIS
- ☐ Other (specify)

Comments: Why no alternative for blending 100 percent of surplus HEU? | 07.001

Please mail response card to: U.S. Department of Energy • Office of Fissile Materials Disposition, MD-4 • Newsletter Editor • Forrestal Building • 1000 Independence Ave., S.W. • Washington, D.C. 20585

07.001: Alternative 2 represents blending 100 percent of surplus HEU to waste for disposal. Alternative 5 represents blending up to 85 percent of surplus HEU for commercial use as reactor fuel. Blending 100 percent for commercial use is not analyzed in the HEU Final EIS because 15 to 30 percent of the currently declared surplus inventory is in forms or assays that may prove uneconomical to develop for commercial use.

WOOD, ADELLE, NASHVILLE, TN
PAGE 1 OF 1

5522 Kendall Drive
Nashville, TN 37209
January 8, 1996

DOE/Fissile Materials Disposition
c/o SAIC/HEU EIS
P.O. Box 23786
Washington, DC 20026-3786

Dear Sir or Madam,

I write to express my opposition to turning highly enriched uranium into nuclear reactor fuel. We already have much nuclear waste, with no safe and permanent means of disposing of it. At least until that problem is resolved, I and many others remain unalterably opposed to creating more toxic and radioactive waste. | 10.024

While I am certainly no expert on this issue, I have grave concerns about the disposal of nuclear wastes, especially since I live in a state that has been proposed as a dumping ground. Transportation and storage of these wastes can not be made safe, and neither I or other citizens should suffer for short-sighted planning. | 14.018

I do support the downblending of highly enriched uranium so that it can not be used in weapons, and developing the capacity to downblend all uranium declared surplus in ten years. The function of government is to protect its citizens, not to expose us to unnecessary risks. | 10.023

Sincerely,

Adelle Wood

Adelle Wood

10.024: The spent fuel that would be created as a consequence of commercial use of LEU fuel (derived from surplus HEU) in reactors would replace spent fuel that would be created in any case from natural uranium-derived fuel. Hence, no incremental spent fuel would result from this program. Although spent fuel contains Pu, because of the high level of radioactivity of spent fuel, it is extremely difficult and costly to separate the Pu. Thus, in accordance with recommendations of the National Academy of Sciences, it is the policy of the United States to make weapons-usable fissile materials at least as proliferation resistant as spent fuel from commercial nuclear reactors.

14.018: Spent nuclear fuel that results from commercial use of LEU fuel derived from surplus HEU will not be in addition to spent fuel that would be generated in the absence of the surplus HEU disposition program. It will be managed and eventually disposed of together with other domestic commercial spent nuclear fuel pursuant to the *Nuclear Waste Policy Act*. The shippers and carriers of radioactive materials must comply with stringent Department of Transportation packaging and transport requirements, as explained in Section 4.4 of the HEU Final EIS. There have been no injuries or fatalities from a radioactive release in DOE's 40-year history of transporting of these materials.

10.023: Existing facilities analyzed in the HEU EIS have sufficient capability to blend down all surplus HEU to LEU in a reasonable timeframe. However, DOE does not anticipate being able to make much more than about 8 t per year available for blending. Therefore, DOE considers that it will likely take 15 to 20 years to blend the entire surplus HEU inventory.

Dept. of Energy
Ms Hazel O'Leary
PO B 23786 DC 20026

Gentlemen:

Urgently request that you blend down to less than 1% spent nuclear fuel and then get rid of it as low level waste.

This would be cheaper, environmentally less damaging, and safer (and should be inspected as other nations' waste is by international inspectors).

Don't delay — downblend and dispose within ten years. And let's not have any more.

Sincerely,

Faith Young
1004 Dixon Springs Hwy
Dixon Springs TN
37057-4031

Nov. 1995

10.009

10.009: Blending down the entire stockpile of surplus HEU to less than 1 percent and disposing of it as waste was evaluated in the HEU EIS as one of the alternatives. The analyses showed that this alternative would generate the highest environmental impact among other alternatives evaluated in the HEU EIS (Table 2.4–2). DOE has developed cost estimates associated with the alternatives analyzed in the HEU EIS and has made them available in a separate document with the HEU Final EIS. The cost analysis indicates that commercial use of LEU derived from surplus HEU makes economic sense and would save billions of dollars compared to the alternative of blending HEU for disposal as waste. DOE believes that all of the action alternatives (2 through 5) evaluated in the HEU EIS meet the objective of nonproliferation and will send a positive message to other nations.

ZARS, PETER, ERWIN, TN
PAGE 1 OF 3

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22 JAN.'96

DOE--OFFICE OF FISSILE
MATERIALS DISPOSITION
C/O SAIC/HEU EIS
P.O.BOX 23786
WASHINGTON, DC 20026-3786

SUBJECT: COMMENTS ON THE DISPOSITION OF SURPLUS HIGHLY ENRICHED URANIUM, DRAFT ENVIRONMENTAL IMPACT STATEMENT, REPORT OF OCTOBER, 1995.

TO WHOM IT MAY CONCERN:

We received a copy of the subject report late December and early January, the latter some days after the last extension had expired and after we had been immobilized by the previous week's snowstorm. Although we are supposedly on the NRC's list of concerned private citizens, no material was given to us by that route. Our comments are therefore brief and force us to request a public hearing to better address the grave issues before deciding between final alternatives. 32.016

Comments

1) Under Alternative 1, "no action but continued storage", we feel this option is to be preferred over all others for the following valid reasons: 10.021

a) All other proposed actions do not address the immediate problem of present proliferation possibilities. It is possible today for a private citizen to purchase an atom bomb from several known or unknown foreign suppliers.

32.016: The availability of the HEU Draft EIS was announced in the *Federal Register (60 FR 54867)* on October 26, 1995. In addition, notice was mailed directly to approximately 3,000 individuals on the mailing list of the Office of Fissile Materials Disposition, and notice of the dates and locations of public workshops on the HEU Draft EIS was published in Erwin-area newspapers at about the same time as the *Federal Register* notice appeared. Notice of the HEU Draft EIS was not provided through the NRC's notice system because the EIS is not an NRC document and does not involve any pending NRC licensing or enforcement actions. The comment period was extended from 45 to 78 days and ended on January 12, 1996. Unfortunately, there is no way for DOE to assure that every interested individual is notified, but we do the best we can. Although your comments were received after the end of the official comment period, they have been fully considered. To reduce costs of complying with the NEPA of 1969, as amended, and due to the geographical proximity of three of the four candidate sites identified in the HEU Draft EIS, DOE determined that two public meetings (Knoxville, TN and Augusta, GA) would be appropriate for this program.

10.021: a) The No Action Alternative is analyzed and will be considered with other alternatives in the ROD. However, it does not satisfy the nonproliferation and economic objective of this program because it leaves the material in weapons-usable form. If it is true that private citizens can purchase atom bombs, it would seem that converting HEU to LEU would improve that situation and set an example for other nations.

b) The U.S. HEU disposition program is not a bilateral action with the nations of the former Soviet Union, but it is intended to reciprocate similar actions Russia has already taken unilaterally to reduce its HEU stockpiles and set an example for others.

c) DOE makes no assumption about abatement of proliferation threats beyond the obvious one that reducing global stockpiles of surplus fissile materials reduces those threats.

d) It is primarily Russian stockpiles of HEU that we wish to see reduced, and they have already taken the first step by agreeing to sell 500 t of weapons HEU to the United States.

e) Once HEU is blended down to LEU, it cannot be used in weapons without re-enrichment. Any of the world's abundant supplies of LEU could conceivably be further enriched to make HEU—at great expense and only with sophisticated technology.

f) Fusion energy is not projected to be a viable source of energy, even by its most ardent proponents, until about the 2040 timeframe. The HEU disposition program proposes to destroy HEU, not proliferate it, and will not extend the life of reactors or cause new ones to be built.

b) The lead time for effectively implementing the proposed alternative(s) depends in too great a measure on the willingness and readiness of former USSR arsenals to come to a meaningful agreement.

c) DOE proposals assume that within a few years of down-blending the threat of proliferation will have been abated. This approach is unwarranted in view of all historical evidence. It is high folly.

d) Even should the United States unilaterally down-blend its warhead stocks, few other countries, France, to single out one, would never participate in a cooperative and parallel enterprise.

e) Down-blending to the levels for power plant use will not assure that such fuels, worldwide, cannot be subverted to re-concentration by hostile foreign governments. Witness Saddam Hussein's ability to buy the requisite facilities.

f) The rapidly approaching era (2010?) of fusion power will likely obviate any large-scale, long-term programs to continue with fission power into the near future. Many of the present nuclear power plants are approaching their decommissioning age due to wear and tear. Why then proliferate HEU into a quadrangle spiderweb of down-blenders in which the chances of catching an accident are quadrupled?

g) The continuing increase of spent fuel wastes, abetted by any program of down-blending weapons-grade uranium to fuel-grade, only prolongs the agony of wastes disposal. Surely the United States has already enough headaches with cleaning up the already contaminated areas such as Hanford, Savannah River, Rocky Flats, etc.,etc., to say nothing about global environmental contamination due to previous shoddy practices, Chernobyl etc.

10.021 cont.

g) The HEU disposition program would not produce additional spent fuel, but rather would replace spent fuel that would be generated anyway. In fact, environmental consequences are less while getting rid of HEU.

h) Economic and environmental justice concerns are addressed in the HEU EIS in response to requirements by the Council on Environmental Quality and DOE NEPA regulations.

i) Some of the sequestration of HEU abroad is inadequate to eliminate it as a serious proliferation concern. Consequently, reducing global stockpiles of surplus HEU is considered the best way to reduce the proliferation threat. If we do not begin to reduce our own stockpiles, Russia will not continue to reduce theirs. Far from being a band-aid solution, eliminating HEU by blending it down to non-weapons-usable LEU is a permanent solution to this problem.

ZARS, PETER, ERWIN, TN
PAGE 3 OF 3

h) Why highlight economic and minority concerns at a time when the general decommissioning of World War II and Cold War facilities has already caused far greater dislocations?

i) A continued sequestration of U.S.and foreign HEU materials, under secure guard here and abroad, would surely be the best interim response to the current crisis. Down-blending would be a BAND-AID® solution to a massive hemorrhage. No one has yet attempted to storm Fort Knox! (But they certainly have been after local banks.) 10.021 cont.

j) Should the weight of other comment dictate the blend-down options decided upon in the subject EIS, we suggest that all such activity be assigned to DOE's Y-12 Plant in Oak Ridge, Tennessee, and nowhere else. There is where the manpower and the nuclear expertise, as well as the stored HEU is presently concentrated. 10.008

We enclose a bibliography of previous problems at NFS, glossed over in the DOE volume, including the curious reference in the 1993 World Almanac and its subsequent deletion, as well as pertinent data as to the flood proneness of that 1957 facility. There have also been enough recent safety incidents at NFS to warrant renewed caution.

Most respectfully submitted,

P.H.Zars

10.008: The Y–12 Plant is one of the four alternative sites evaluated in the HEU EIS as having the capability to provide uranium blending processes. To be in compliance with NEPA, the HEU EIS must assess the environmental impacts of the proposed action and alternatives at all potential candidate sites without favoring one over another and provide this information to the decisionmakers.

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