DOE/EIS-0218F
February 1996

Volume 3

FINAL ENVIRONMENTAL IMPACT STATEMENT

on a

Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Public Comments and Department of Energy Responses
Part 2 – Organizations and Foreign Entities

United States Department of Energy
Assistant Secretary for Environmental Management
Washington, DC 20585

Volume 3 is organized into three sections:

- Section 1 - Overview
- Section 2 - Written Comments and Responses
- Section 3 - Public Hearings

The Overview sets the tone for the document by summarizing the public comment process, by explaining how the receipt of written comments and the public hearing process were handled, and by summarizing the major issues raised by commentors and DOE's responses to these issues.

Section 2 of Volume 3, "Written Comments and Responses" contains all of the written comments received by DOE on the draft EIS. Upon receipt, these documents were assigned a sequential log number to be used in tracking during the comment response process. For presentation in Volume 3, these documents maintained their original log number, but were separated into the following seven distinct "affiliation" categories:

Section 2.1 - Federal Government
Section 2.2 - State Government
Section 2.3 - Local Government
Section 2.4 - Native American Groups
Section 2.5 - Non-Government Organizations
Section 2.6 - Foreign Entities
Section 2.7 - Individuals

Since these documents retained their original log number, the reader should note that while the documents in each respective section are in ascending order, their numbering therein is not sequential.

In order for a reader to find a specific document, a full "List of Commentors" has been included in each book (or part) of Volume 3, immediately following the "Table of Contents." This "List of Commentors" has been compiled alphabetically using either the commentors last name, the name of the submitting organization, or the name of a Federal, State, Tribal, or local government branch. City and State government bodies are listed under "City of" or "State of." Members of Congress are listed by the Senator's or Representative's name, with the government branch following.

To locate a document(s):

1. Find the "List of Commentors" and the name of the individual submitting the comment (or the name of the organization or agency if the comments were submitted on their behalf), and note the page number assigned to the first page of the comment document (i.e., a document from a Native American Group would be number 2.4-1, etc.).

2. Find the Volume 3 book (or part) that contains the section and page number for which you are looking and turn to the appropriate page to find a scanned copy of the document along with the responses to each of the comments delineated therein.

the written comments, the comments received during each of the 17 public hearings. Oral comments provided at these hearings have been summarized, rather than individually identified by each respective speaker. As such, there is not a list of speakers or identification of the commentors at the public hearings. A list of all registered attendees is provided immediately following the summary of each of the public hearings.

Public Comments and Department of Energy Responses

Section 1 Overview

Section 2 Written Comments and Responses

Section 2.1 Federal Government 2.1-1
Section 2.2 State Government 2.2-1
Section 2.3 Local Government 2.3-1
Section 2.4 Native American Groups 2.4-1
Section 2.5 Non-Government Organizations 2.5-1
Section 2.6 Foreign Entities 2.6-1
Section 2.7 Individuals 2.7-1

Section 3 Public Hearings

Section 3.1 Charleston Public Hearing 3.1-1
Section 3.2 Concord Public Hearing 3.2-1
Section 3.3 Galveston Public Hearing 3.3-1
Section 3.4 Hanford Public Hearing 3.4-1
Section 3.5 Idaho Public Hearing 3.5-1
Section 3.6 Jacksonville Public Hearing 3.6-1
Section 3.7 Las Vegas Public Hearing 3.7-1
Section 3.8 Norfolk Public Hearing 3.8-1
Section 3.9 Oak Ridge Public Hearing 3.9-1
Section 3.10 Portland Public Hearing 3.10-1
Section 3.11 Savannah Public Hearing 3.11-1
Section 3.12 Seattle/Tacoma Public Hearing 3.12-1
Section 3.13 Southport Public Hearing 3.13-1
Section 3.14 North Augusta Public Hearing 3.14-1
Section 3.15 Tacoma Public Hearing 3.15-1
Section 3.16 Washington, D.C. Public Hearing 3.16-1
Section 3.17 Wilmington Public Hearing 3.17-1

Attachment 1

Transcript of Public Hearing Held in Tacoma, Washington on June 19, 1995 on the Draft Environmental Impact Statement on the Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel A.1

Attachment 2

Port and Transportation Accident Analyses of Additional Military Ports A.2

A.A.R.P. (Gaster, Minnie) 2.5-102
Ace, Carol A. 2.7-22
Adams, Amanda 2.7-802
Adle, Dorothy R. 2.7-428
Against Nuclear Waste Petition 2.7-195
Agl, M. 2.7-645
Agnello, Evonne 2.7-433
Alexander, Maxine Day 2.7-961
Alfiniece, Dona 2.7-1006
Alfonso, Mary Dudley 2.7-1079
Aliyy-Wms, Trumilla 2.7-25
Allen, Annette E. (Form Letter E) 2.7-415
Allen, Christy 2.7-899
Allen, Helen M., Mayor, City of Concord 2.3-3
Allen, Helen M., Mayor, City of Concord 2.3-93
Allen, Roger E. 2.7-255
Alvarez, Juan 2.7-981
Amdahl, Drew 2.7-933
Amdahl, Oneta 2.7-220
Amdahl, Oneta 2.7-298
Anderson, Dolores E. 2.7-135
Anderson, J.H. 2.7-336
Anderson, S.A. 2.7-108
Andreasen, Florence 2.7-596
Anonymous (Concord, California) 2.7-145
Anonymous (Galveston, Texas) 2.7-1025
Anonymous (Galveston, Texas) 2.7-1043
Anonymous (Tacoma, Washington) 2.7-677
Anonymous (Tacoma, Washington) 2.7-357
Anonymous (Tacoma, Washington) 2.7-358
Anonymous (Tacoma, Washington) 2.7-560
Anonymous (Tacoma, Washington) 2.7-571
Anonymous (Tacoma, Washington) 2.7-647
Anonymous (Tacoma, Washington) 2.7-781
Anonymous (9 total) (Form Letter B) 2.7-123
Anonymous 2.7-240
Armstrong, Krista 2.7-640
Arnestad, Carol 2.7-529
Artuso, Margaret & Anthony 2.7-555
Asbell, Susan 2.7-629
Association of Bay Area Governments (Torlakson, Tom - President) 2.5-283
Association of Washington Cities (Noland, Jane - President) 2.5-288
Atomic Energy Bureau, Science and Technology Agency (Izumi, Shinichiro - Director, Nuclear Fuel Division) 2.6-82
Atomic Energy of Canada (Keely, Frank) 2.6-2
Australian Department of Foreign Affairs and Trade (Luck, Les - Assistant Secretary, Nuclear Policy Branch) 2.6-61
Australian Nuclear Science & Technology Organization (Rolland, John - Director, Information Services) 2.6-16
Austrian Research Centre Seibersdorf (Casta, Jorg, Dipl.-Ing., Head of Reactor Operation) 2.6-39
Avery, John 2.7-319
Axford, Roger W., (Form Letter B) 2.7-123
Baarsma, Bill, Council Member, City of Tacoma 2.3-142
Baarsma, Bill, Council Member, City of Tacoma 2.3-155
Bailey, Mrs. Virgil 2.7-725
Balding, Tim & Sedra 2.7-817
Ball, Lisa 2.7-783
Baltzo, Andy, (Form Letter B) 2.7-123
Barber, Hazel 2.7-836
Barnes, Mrs. Lynn 2.7-879
Barnes, Lynn 2.7-880
Barnes, Margarete 2.7-208
Barnes, Margarete 2.7-281
Barnett, Ginger 2.7-1054
Barrett, Charlene 2.7-1005
Barrett, Harold R. 2.7-702
Bartke, Beth, Mayor, City of Hercules 2.3-88
Bates, Sonnie 2.7-333
Bauml, Barb 2.7-760
Baurdeau, Michelle 2.7-773
Beach, Donna 2.7-449
Beasley, David M., Governor, State of South Carolina 2.2-31
Beck, Joanna 2.7-566
Beckendorf, Jerry 2.7-807
Beeler, John J. 2.7-611
Beherndt, Matilda 2.7-559
Benjamin, Richard W. 2.7-400
Bennett, Rachel R. 2.7-824
Bennett, Steve 2.7-577
Benoy, Bob 2.7-356
Benson, Arden R. 2.7-949
Benson, Teresa 2.7-950
Berg, Arill & Jane 2.7-223
Berg, Donna Mae 2.7-940
Bergamini, Mary 2.7-893
Berger, Dave 2.7-36

Berger, Dave 2.7-37
Berger, Hedy 2.7-190
Bergman, Daryl, Ron & Maya 2.7-909
Berrean, Gina (Form Letter B) 2.7-123
Berry, Mariam M. 2.7-903
Bestrom, Beth 2.7-299
Bestrom, Erin 2.7-300
Bickett, Gary 2.7-154
Bilow, Dennis (Form Letter E) 2.7-415
Bilow, Loretta E. (Form Letter E) 2.7-415
Birdwell, Steven 2.7-998
Bitterling, Mr. & Mrs. C.E. 2.7-724
Blakeslee, Elizabeth E. 2.7-109
Blomberg, Craig 2.7-170
Blose, Charlene J. 2.7-107
Blue Ridge Environmental Defense League
(Hoyle, Janet M.) 2.5-10
Bodenhufer, Paul J. 2.7-497
Boehny, G. E. Martre (Form Letter B) 2.7-123
Boekholt, Conrad J. & Barbara M. 2.7-886
Bonde, Frederick J. 2.7-77
Bordages, Gem 2.7-1001
Bordages, Gem 2.7-979
Boucher, Richard & Martha 2.7-519
Bowman, Chilton A. 2.7-813
Bradford, Fredrick J. 2.7-1031
Bradford, Lauren Ethridge 2.7-999
Bradwood, Oregon Private Port
(Minium, Jess E., Jr. - Attorney at Law) 2.5-23
Brady, Audrey L. 2.7-684
Braucher, Richard Mark 2.7-113
Braunger, Robert M. 2.7-469
Brewer, Alexandrea 2.7-805
Brewer, Doug 2.7-806
Brinkman, Mrs. W.M. 2.7-617
Britton, Luther & Barbara 2.7-539
Brondalils, Philip 2.7-6
Brosman, Larry 2.7-305
Brown, Carleton W. 2.7-1030
Brown, Lu Lu (Form Letter H) 2.7-1050
Brown, Mr. Michael C., Sr. 2.7-1055
Brown, Mrs. Griselda 2.7-1060
Brown, Paula 2.7-14
Brown, Rachel 2.7-28
Bryson, Robert 2.7-663
Buckingham, David 2.7-293
Bundy, Carol 2.7-900
Bunnell, Dianne 2.7-936
Burke, Sandi 2.7-1012
Burkhardt, Leonard B. (Form Letter B) 2.7-123
Burlison, Lauren (Form Letter D) 2.7-211
Burns, Sue 2.7-796
Burwell, Ann & Robert 2.7-634
Bushing, Robyn 2.7-996
Butkey, Tom & Genny 2.7-910
Butler, Dave 2.7-701
Butler, Joel 2.7-162
Butz, Andrew 2.7-549
Byrne, Theo J. 2.7-1035
California Energy Commission
(Imbrecht , Charles R. - Chairman) 2.2-11
Call, Beth 2.7-188
Campbell, Glenn & Roberta 2.7-681
Campbell, John 2.7-1016
Campbell, Tom - Washington State Representative,
2nd District 2.2-9
Canfield, Kerry 2.7-718
Cantini, Armin 2.7-1045
Cantor, Harriet 2.7-579
Canzler, Ron G. 2.7-845
Cardinale, George 2.7-53
Cardwell, Rod & Margaret 2.7-605
Carlson, Charles 2.7-595
Carter, Mary W. 2.7-1039
Casey, Diana L. 2.7-929
Casey, Mary 2.7-287
Casey, Nicelle 2.7-286
Castanha, Leslie 2.7-747
Castano, Arthur 2.7-988
Catton, William R., Jr. 2.7-665
Cauffman, Bette 2.7-758
Ceccanti, Margherit 2.7-490
Center for Disease Control, National Center
for Environmental Health
(Holt, Kenneth W. - M.S.E.H) 2.1-17
Chalk River Laboratories (Keeling, F. - Manager,
Nuclear Materials) 2.6-44
Chamber of Eastern Pierce County
(Moody, Gerry - President) 2.3-82
Chapel, Margaret C. 2.7-943
Chase, Barbara 2.7-19
Chavey (Form Letter H) 2.7-1050
Chesser, Mari 2.7-320
Christiansen, Nina 2.7-301
Christman, Laura 2.7-535
Christwitz, Barbara 2.7-175

Chubb, Walston 2.7-55

Chute, Margaret C. 2.7-942

Ciarrocchi, Ernest F., Mayor, City of Benicia 2.3-114

Cilother, Jaeque L.. (Form Letter H) 2.7-1050

Citizen 2.7-568

Citizen 2.7-691

Citizens (Tacoma Area) 2.7-613

Citizens (Tacoma Area) 2.7-714

Citizens (Tacoma Area) 2.7-858

Citizens (Tacoma Area) 2.7-918

Citizens (Tacoma Area) 2.7-926

Citizens for a Healthy Bay
(Pierce, Doug - President) 2.5-148

Citizens for a Healthy Bay 2.5-93

Citizens of Galveston 2.7-974

Citizens Opposing Polluted
Environments (COPE)
(Caseber, Jami - Director) 2.5-66

City Council of the City of Galveston
(Roberts, Barbara E. - City Attorney) 2.3-184

City of Antioch (Carniglia, Victor -
Deputy Director) 2.3-77

City of Berkeley (Kelly, Sherry M. - City Clerk) 2.3-25

City of Concord (Golick, David - Chief of Planning;
Reeds, Bill - Director of Community
Development; & James, Edward R. -
City Manager) 2.3-31

City of Everett (Gipson, Carl - Council President;
Hansen, Edward D. - Mayor;
Anderson, Frank - Councilmember;
Campbell, Doug - Councilmember;
Overstreet, Bob - Councilmember;
Pope, Dale - Councilmember;
Soine, Mark - Councilmember; &
Weinzierl, Ann - Councilmember) 2.3-201

City of Federal Way (Moore, Gregory D. -
Director of Community Development
Services) 2.3-20

City of Federal Way (Moore, Gregory D. -
Director of Community Development
Services) 2.3-41

City of Martinez City Council
(Menesini, Michael M. - Mayor;
Burt, Harriett - Vice Mayor;
Farley, Timothy J. - Councilmember;
Frazer, Julian M. - Councilmember; &
Woodburn, Barbara J. - Councilmember) 2.3-91

City of Milton (Sanderson, Leonard E. - Mayor) 2.3-36

City of Olympia City Council
(Jacobs, Bob - Mayor;
Foutch, Mark - Mayor Pro tem;
Lux, Mary - Councilmember;
Cole, Pat - Councilmember;
Gadbaw, Holly - Councilmember;
McPhee, Margaret - Councilmember; &
Hawkins, Jeanette - Councilmember) 2.3-137

City of Seattle (Benson - President of the
City Council) 2.3-65

City of Tacoma City Council
(Moss, Harold G. - Mayor;
Evans, Robert W. - Deputy Mayor;
Baarsma, Bill - Council Member;
Crowley, Mike - Council Member;
De Forrest, Dave - Council Member;
Kirby, Steve - Council Member;
McGavick, Sharon - Council Member;
Miller, Paul - Council Member; &
Silas, Dr. Dolores I. - Council Member) 2.3-125

City of Tacoma Fire Department (Johns, Ralph W. -
Deputy Chief, Prevention and Education 2.3-157

City of Tacoma, Environmental Commission
(Eggers, Albert - Co-Chair &
Verburg, Rens - Co-Chair) 2.3-56

Clark, Barbara 2.7-171

Clark, Louise H. 2.7-136

Clayton, P. Marc 2.7-339

Clean Water Fund of North Carolina
(Rupert, Carl - Raleigh Research
Director) 2.5-242

Cleaveland, Robert G. 2.7-194

Clemens, Don 2.7-656

Clemens, Nancy D. 2.7-815

Clements, Florence 2.7-626

Clyde Civic Improvement Association, Inc.
(Alexander, Pat - Secretary) 2.5-131

Clyde Civic Improvement Association, Inc.
(Price, Juanita J.) 2.3-122

Cohen, Ellen 2.7-385

Coleman, G. 2.7-569

Collins, Marshall 2.7-625

Commonwealth Department of Primary
Industries and Energy (Rawson, R.N. -
Assistant Secretary, Uranium & Nuclear
Policy Branch) 2.6-21

Concerned Citizens 2.7-1075

Concord Area Citizens 2.7-361

Conley, D. Jeanne 2.7-875

Connelly, Phylis E. & Jerry E. 2.7-897

Conry, Margaret 2.7-425

Contra Costa County (Bishop, Gayle - Chair,
Board of Supervisors) 2.3-230

Contra Costa County (Zahn, Charles A. -
Assistant Director) 2.3-100

Contra Costa Water District (Jensen, Arthur R. -
Director of Planning) 2.3-168

Conway, Debra A. 2.7-1052

Conway, Steve - Washington State Representative,
29th District 2.2-74

Cool, Mrs. Jean 2.7-840

Cooney, Jerry W. 2.7-379

Cooper, Evelyn 2.7-991

Cooper, Pamela R. 2.7-752

Cooper, Roberta, Mayor, City of Hayward 2.3-200

Couture, Gloria 2.7-704

Craft, James A. 2.7-994
Craft, W.E. & Gladys Rae 2.7-990
Crane, Margie 2.7-659
Crooks, Gregory W. 2.7-396
Crowley, Susan Garrett 2.7-101
Cruz, Edwin C. 2.7-173
CSX Transportation (Stowell, Charles - Market Manager) 2.5-5
Cummings, Mrs. Vikki 2.7-487
Cunningham, Kathryn A. 2.7-854
Cutter, Betty Lou 2.7-137
Dam, Donald A. 2.7-267
Dam, Natalie 2.7-330
Daniel, Cornelius W., IV 2.7-1061
Dauteur, Adele 2.7-463
Davis, Jan 2.7-803
Davis, Randal L. 2.7-447
Davis, Taylor, Mayor, City of Pittsburg 2.3-68
Dawson, Jean F. 2.7-916
Deal, Michael, Mayor, City of Puyallup 2.3-150
DeBellis, Tony B. 2.7-61
Decrer, Marilyn 2.7-1022
Dejonghe, Paul 2.6-74
Delacruz, George (Bay Point Municipal Advisory Council Member) 2.3-9
Demi, R. (Form Letter B) 2.7-123
Denzer, Frederic F. 2.7-734
Deroy, Tiffany 2.7-35
DeShaw, Marjorie (Form Letter E) 2.7-415
Detwiler, Winifred (Form Letter B) 2.7-123
Deutch, John - Deputy Secretary of the Defense 2.1-5
Devik, Barbara & Rudolf 2.7-418
Devik, Rudolf 2.7-592
Dewey, David D. 2.7-409
Dicks, Norm - U.S. Representative 2.1-12
Dicks, Norm - U.S. Representative 2.1-24
Diligard, Nora R. (Form Letter G) 2.7-957
Dimmick, Ed, Mayor, City of Walnut Creek 2.3-128
Dippo, Rosemary (Form Letter C) 2.7-143
Dishong, Mike & Myrt 2.7-712
Divet, Betty H. 2.7-431
Dodge, Chris (Form Letter B) 2.7-123
Dolson, Patricia F. 2.7-746
Doughtry, Walter L. 2.7-904
Dreizen, Diane 2.7-79
Dryden, Evelyn 2.7-280
Dryden, Evelyn B. 2.7-753
du Clair, Kim 2.7-965
Duarte, Hannah 2.7-337
Dudley, Olivia J. 2.7-814
Dunigan, Lisa 2.7-769
Dunigan, Steven R. 2.7-772
Dunigan, Sue 2.7-780
Dunkin, Evelyn 2.7-492
Dupuis, Ruth A. 2.7-692
Durkin, Judy 2.7-562
Eannarino, Tim (Form Letter D) 2.7-211
East Bay Peace Action (Brown, Mrs. Betty - Board Chair) 2.5-41
Eastwood, Susan D. 2.7-360
Ebert, L.C. 2.7-570
Ebert, Mrs. L. A. 2.7-532
Eckard, Dorothy H. 2.7-459
Edlow Group (Edlow, Jack - President) 2.5-1
Edmunds, Mrs. A. L. 2.7-655
Effinger, G. & M. 2.7-540
Egan & Associates 2.5-179
Egeland, Linda 2.7-693
Eiland, A. Craig, Texas State Representative, District 24 ..... 2.2-83
Einert, David & Susan 2.7-484
Eisner, Nancy 2.7-468
Eley, Mrs. J. 2.7-450
Elliott, Mrs. Eleanor 2.7-359
Ells, S. 2.7-249
Ellyson, Mary 2.7-27
EM-SSAB-INEL 2.1-26
Embassy of Greece (Chronopoulos, Dimitris - First Secretary, Political Affairs) 2.6-1
Embassy of the Federal Republic of Germany (Wenzel-Constabel, Peter - Counselor, Science and Technology) 2.6-36
Employee Owners of Fort Vancouver Plywood Company 2.7-397
Employee Owners of Fort Vancouver Petition 2.4-93
Energy Research Foundation (Costner, Brian - Director) 2.5-199
Engel, H.A. 2.7-583
Environmental Protection Agency (Sanderson, Richard E. - Director, Office of Federal Activities) 2.1-20
Erickson, Barbara 2.7-674
Euratom Supply Agency (Goppel, M. - Director-General) 2.6-23
Eureka County, Yucca Mountain Information Office (Green, Sandra L. - Project Coordinator) 2.3-106
Euson, John 2.7-57

Evans, Robert 2.7-318
Fairbanks, Joyce 2.7-608
Fairburn, M.K. 2.7-896
Famcureaux, Norma P. (Form Letter C) 2.7-143
Farm, Clifford L. 2.7-262
Farm, Jerry 2.7-261
Feinstein, Diane - U.S. Senator 2.1-14
Ferguson, Ken 2.7-44
Finsilver, E.J. (Form Letter A) 2.7-95
Fisher, Ruth - Washington State Representative, 27th District 2.2-25
Fissell, Ron (Form Letter H) 2.7-1050
Fitzsimmons, James & Colleen 2.7-179
Fletcher, Sonia (Form Letter B) 2.7-123
Fogg, B.F. 2.7-907
Forde, Phil & Colleen 2.7-471
Foreman, Paula S. 2.7-901
Forskningsministeriet, Ministry of Research (Larsen, Knud - Permanent Secretary) 2.6-57
Foster, Ginny 2.7-66
Foust, Nicholas (Form Letter C) 2.7-143
Fox, Diane 2.7-962
Frank, Lou 2.7-564
Frazer, Julian, Martinez City Council Member 2.3-22
Frederickson-Clover Creek Community Council (Roberts, Laura - President) 2.5-158
Friends of the Earth, Scotland (Stein, Graham - Safe Energy Project Co-ordinator) 2.6-54
Frye, Carolyn 2.7-865
Fudell, Iris 2.7-615
Fuller, Marie B. 2.7-869
Fulton, Thomas L. 2.7-67
Furse, Elizabeth - U.S. Representative 2.1-3
Fuski, M. 2.7-786
Gaffiney, Corey 2.7-792
Galli, Al 2.7-1019
Galloway, Paula 2.7-784
Galveston Bay Foundation (Shead, Linda R. - Executive Director) 2.5-7
Galveston County Commissioners (Yarbrough, James D.) 2.3-193
Gandy, Steve 2.7-139
Ganio, Emily 2.7-127
Ganio, Mario 2.7-138
Gardner, Edward 2.7-131
Gardner, W.B. 2.7-134
Gaspard, Marc - Washington State Senator 2.2-64
Gennow, Terry & Shelia 2.7-417
Georges, Grace 2.7-256
Georgia Department of Natural Resources (Hardeman, James C., Jr. - Manager, Environmental Radiation Program) 2.2-79
Geraghty, Jack, Mayor, City of Spokane 2.3-202
Gerontis, Gary 2.7-906
Gianeli, Greg 2.7-699
Gibbs, Thomas (Form Letter F) 2.7-938
Gibelyou, Sherrie 2.7-421
Giddings, Roxy 2.7-213
Gilmore, Kevin 2.7-811
Gilmour, M. 2.6-63
GKSS Forschungsentrum (Jager, W. & Krull, W.) 2.6-5
Glenn, William 2.7-62
Goeger, Doug 2.7-1021
Goldberg, Ethel E. (Form Letter B) 2.7-123
Golden, Alta M. 2.7-296
Golden, Lisa 2.7-277
Golden, Mike 2.7-276
Golden, Sue 2.7-414
Gooch, Dana 2.7-782
Goodman, L. 2.7-680
Goodwin, Sonya 2.7-1002
Goulette, Walter & Virginia 2.7-739
Graham, Amie-Ruth K. 2.7-106
Graham, Mr. & Mrs. H. 2.7-823
Gramenz, Robert 2.7-850
Grandmothers for Peace, Sacramento Chapter (Kring, Bernice) 2.5-115
Granger, Mark & Rochelle 2.7-114
Gray, Jerri (Form Letter B) 2.7-123
Gray, Teresa M. 2.7-518
Gray, Walter (Form Letter B) 2.7-123
Greater Concord Chamber of Commerce (Azevedo, Larry - President) 2.3-76
Green Party (Harrott, Edita - Member, Coordinating Committee) 2.5-121
Greenebaum, Howard 2.7-16
Greenheck, William T. (Form Letter D) 2.7-211
Greenpeace (Clements, Tom) 2.5-207
Greenpeace International (Burnie, Shaun - Research Coordinator) 2.6-38
Greenpeace, Netherlands (Rodenburg, Taap) 2.6-71
Greer, William A. 2.7-1015
Griessel, Alan E. 2.7-475
Grover, Mike 2.7-39
Gubbe, Kim 2.7-323
Guinn, H.J. 2.7-618
Gulft, Claresa 2.7-799

Gullotte, J.M. 2.7-1014
Gumm, Julia 2.7-193
Gunn, John 2.6-59
Guthrie, Annetta 2.7-440
Haddock-Perryman, Gisela M. 2.7-563
Hagberg, John 2.7-953
Hale, Steven M. 2.7-696
Hales, Charlie, City Commissioner, City of Portland 2.3-163
Hall, Carol M. 2.7-874
Hall, Freya (Form Letter B) 2.7-123
Hall, Tim 2.7-511
Hallberg, Stephanie L. 2.7-521
Halmistion, June 2.7-558
Hamilton, C. 2.7-321
Hammer, Bruce 2.7-103
Hammer, Bruce 2.7-573
Hammer, Stan 2.7-104
Hammett, Evelyn 2.7-841
Hampton Roads/Planning District Commission (Collins, Arthur L. - Executive Director/Secretary) 2.3-46
Hanewald, Karl 2.7-394
Hanford Action of Oregon (Klein, Robin) 2.5-25
Hanford Watch (Knight, Paige - Chairperson) 2.5-43
Hansen, Dick 2.7-10
Hansen, Gertrude C. 2.7-478
Hanson, Janess R. 2.7-381
Harcott, Edita (Form Letter B) 2.7-123
Harrill, William 2.7-54
Harris, Diane & Robert 2.7-335
Harris, Diane 2.7-834
Harris, Phillip Eugene, Jr. 2.7-1032
Harrison, Sandee 2.7-435
Hartough, J.H. 2.7-818
Hartough, Mary 2.7-819
Harvey, Mr. & Mrs. O.T. 2.7-1046
Hasen, Najeea F. 2.7-837
Hauge, Gudrun 2.7-894
Hauge, Helena 2.7-828
Hausauer, Nancy 2.7-600
Hausema, D. (Form Letter H) 2.7-1050
Hawkins, Carl 2.7-324
Hazleton, Deanne 2.7-238
Healey, Barbara 2.7-338
Healey, Joan M. 2.7-227
Healoy, Joan 2.7-316
Heart of America Northwest (Ahouse, Loretta) 2.5-141
Heart of America Northwest (Pollet, G.) 2.5-28
Heart of America NW (Sarthou, Cynthia) 2.5-18
Heath, Bernard J. 2.6-65
Heath, Pamela 2.7-90
Heath, Traci (Form Letter E) 2.7-415
Hedgepath, Dave & Jeanne 2.7-1000
Helmer, Marie 2.7-272
Helmer, Marie A. 2.7-628
Hennum, Karl I. 2.7-720
Herbert, Pat 2.7-121
Herman, E.M. 2.7-1063
Hermanson, Sally 2.7-454
Herrmann, Elizabeth 2.7-184
Hess, B.H. 2.7-302
Hess, George H., M.D. 2.7-228
Hester, Gail 2.7-1010
Hettick, Oliver C. 2.7-247
Hettick, Regina 2.7-248
Hiatt, Nora 2.7-445
Hickel, Tim - Washington State Representative, 30th District) 2.2-75
Hileen, J. Louise 2.7-254
Hill, Earl R. 2.7-260
Hilton, Jennifer 2.7-642
Hinkson, LeRoy 2.7-574
Hinkson, Molly 2.7-616
Hinkson, Nancy 2.7-576
Hinson, James 2.7-984
Hinson, Michelle 2.7-986
Hitson, Mary Jean 2.7-713
Hobbs, Emmett & Patricia 2.7-741
Hodgson, Stephen A. 2.7-911
Hoekwater, Tricia 2.7-133
Hoffman, Linda R. (Form Letter D) 2.7-211
Hokenson, Jeff 2.7-766
Hokenson, Paul 2.7-483
Hokenson, Peggy 2.7-516
Hollander, Leonore D. (Form Letter B) 2.7-123
Hollander, Tara 2.7-1076
Holmes, Olga 2.7-1041
Holmes, Sharon (Form Letter H) 2.7-1050
Holmes, Terry R. 2.7-1040
Homan, Ermond 2.7-658
Howe, Dorothy 2.7-187
Hruza, Ann 2.7-544

Hudson, Rogene 2.7-244
Hull, Margarete A. 2.7-764
Hull, Phillip 2.7-765
Hummel, Mrs. 2.7-1064
Hunt, Bridget & Ross 2.7-847
Huskey, Vasha H. 2.7-1011
Hutchison, William T. & Marianne D. 2.7-83
ICI Tracerco (Green, D. - Environmental & Reactor Services Manager) 2.6-4
Indrebo, Arthur & Ingrid 2.7-755
Institut Max Von Laue (Bauer, Ekkehardt - Chef de la Division Réacteur) 2.6-49
International Atomic Energy Agency (Ritchie Iain - Division of Nuclear Fuel Cycle and Waste Management) 2.6-32
International Longshoremen's and Warehousemen's Union (Marzano, Dick - President Local #23) 2.5-21
Jackson, Bill 2.7-499
Jackson, Georgia F. 2.7-392
Jackson, Terese 2.7-500
Jacksonville Port Authority (Mendoza, C. Cliff - Managing Director) 2.2-3
Jacobs, Bob, Mayor, City of Olympia 2.3-116
Jacobsmeyer, Elizabeth 2.7-405
Jacobson, Denise 2.7-159
Jamerson, Janet 2.7-26
Japan Atomic Energy Research Institute (Shirai, Eiji - Director, Office of Safety and Control) 2.6-30
Japan Atomic Energy Research Institute (Tauruta H. - General Manager, Office of Nuclear Fuel Management, Office of Safety and Control) 2.6-75
Jaquez, John Jr. 2.7-271
Jasmin, Sandy 2.7-646
Jenkins, Matt 2.7-861
Jennings, Mr. & Mrs. Robert V. 2.7-825
Jennings, Sally (Form Letter D) 2.7-211
Jennings, Scott & Renee M. 2.7-829
Jensen, David 2.7-88
Jensen, Kurt & Carol 2.7-130
Jensen, Laura 2.7-504
Jensen, Laura 2.7-630
Jensen, M. 2.7-2
Jensen, Robert J. & Beverly A. 2.7-931
Jewart, Jack E. 2.7-489
Johnson, Anita 2.7-250
Johnson, Candice L. 2.7-59
Johnson, Marjorie 2.7-935
Johnson, Olive E. 2.7-751
Johnston, Anne B. 2.7-81
Johnston, Candice (Form Letter B) 2.7-123
Johnston, Candice 2.7-402
Jones, Betty (Form Letter H) 2.7-1050
Jonker, Janie (Form Letter D) 2.7-211
Jowders, Julia E. 2.7-477
Juaille, Norma 2.7-795
Jurich, George M. 2.7-527
Kaattari, Oscar 2.7-506
Kammiller, Larrain 2.7-283
Karaim, Dennis A. 2.7-1078
Karilanovic, Dorothy L. 2.7-914
Karr, D.L. 2.7-1042
Kaufman, Don 2.7-304
Kearney, Donna 2.7-1053
Keller, Barbara J. 2.7-668
Keller, Beverly 2.7-341
Keller, Beverly E. 2.7-849
Keller, Monty 2.7-270
Kelly, Donald (Form Letter E) 2.7-415
Kelly, Eugene 2.7-289
Kelly, M.L. 2.7-340
Kendall, Dr. Ross S. 2.7-317
Kendall, Raymond 2.7-494
Kendall, Stephanie A. 2.7-703
Kenefick, Virginia (Form Letter E) 2.7-415
Kennedy, Denise 2.7-848
Kennedy, Steve 2.7-461
Kerrone, Clara 2.7-676
Kimball, Glenn W. 2.7-515
Kimball, Joyce 2.7-860
Kimball, Linda 2.7-1058
Kinzner, Delores J. 2.7-673
Kirkland, Kirk 2.7-118
Kittleson, Alberta 2.7-924
Kittleson, Alberta H. 2.7-727
Klausman, Steve 2.7-38
Klein, Carl 2.7-768
Klem, Bill (Form Letter H) 2.7-1050
Knaggs, Carrie L. 2.7-434
Kocian, Craig G., City Manager, City of Oakland 2.3-123
Koehnke, Nan 2.7-651
Komaromy, Margi 2.7-411
Kosche, Charlene 2.7-843
Koski, William A. 2.7-493
Krontz, Ray A. 2.7-288

Krueger, Pat 2.7-92
Kueber, Mary E. 2.7-235
La Force, Norman, Mayor, City of El Cerrito 2.3-89
Lacy, A.J. 2.7-993
Lambert, David & Marti 2.7-386
LaMendola, Roberta 2.7-246
LaMendola, Roberta 2.7-274
Lander, Mr. & Mrs. Leonard Vander 2.7-259
Landis, William D., Mayor, City of Pleasant Hill 2.3-34
Landis, William D., Mayor, City of Pleasant Hill 2.3-98
Landree, Sheri (Form Letter E) 2.7-415
Lantz, Russell J. 2.7-315
Lantz, Shirley A. 2.7-165
Lantz, Shirley A. 2.7-312
Lapaugh, Ralph A. 2.7-1024
Larsin, Carol 2.7-476
Larson, Ivan & Eleanor 2.7-488
Larson, Kristen J. 2.7-793
Larue, Fiern 2.7-1004
Lascelles, Jean & Fred 2.7-717
Lawrence, Dorothy 2.7-503
Lawrence, Robyn (Form Letter E) 2.7-415
Leake, William S. 2.7-669
Lee, A. 2.7-1056
Leonard, Eileen M. 2.7-812
Leung, Edmund 2.7-390
Levin, Edna S. 2.7-1027
Levin, William C. 2.7-1026
Levine, Maxine 2.7-884
Lewis, Barry & Betty 2.7-756
Lewis, Cora 2.7-439
Lewis, Mrs. Edward G. 2.7-297
Lewis, Pamela S. 2.7-842
Lichtblau, Andreas 2.7-749
Lickteig, L. Jeffrey 2.7-666
Lindberg, Don & Jean 2.7-636
Linley, R. 2.7-788
Linquist, Jack 2.7-151
Linville, Othel 2.7-290
Linville, Sue 2.7-291
Linville, Susan J. & Othel L. 2.7-1048
Lister, Dick 2.7-1044
Little, Adam 2.7-269
Litton, L. 2.7-1020
Liu, Denise 2.7-424
Live, Julie 2.7-598
Lochburn Junior High Petition 2.7-197
Lochburn Junior High School 2.7-637
Lopez, G.A. 2.7-809
Lopez, L. 2.7-524
Lorenz, Frank & Louise 2.7-964
Losey, David 2.7-56
Loth, Patricia K. 2.7-735
Lovell, Mrs. Walter R. 2.7-528
Lowry, Mike, Governor, State of Washington 2.2-72
Lucas, Kim 2.7-775
Lucas, Stan 2.7-20
Lund, Shirley 2.7-545
Lund, Stephanie 2.7-342
Lundstrom, Norman & Cynthia 2.7-688
Lvx, Orland (Form Letter B) 2.7-123
Mabry, Diane C. 2.7-407
MacArthur-Pangborn, Sally 2.7-31
Mael, Charles 2.7-891
Mael, Virginia 2.7-816
Magee, C.O. 2.7-992
Maiura, Anthony 2.7-892
Maiura, Sherrill 2.7-853
Mallinson, Valerie 2.7-738
Mann, Harold R. 2.7-808
Manning, Sam P. 2.7-966
Mapass, Mr. & Mrs. W., Jr. 2.7-556
Markiewicz, Michele C. 2.7-694
Mart, Robert & Kathleen 2.7-685
Martin, Wanda 2.7-1023
Martinez, Joe 2.7-983
Martinson, C.M. 2.7-761
Mary, Melinda 2.7-641
Massetti, Guy 2.7-495
Mast, Lawrence 2.7-458
Mathees, Pat 2.7-604
Matin, Jean & Fred 2.7-93
Matlock, Freda 2.7-399
Matson Family 2.7-1057
Mattley, J. 2.7-902
Mattley, Julia 2.7-554
Mattley, Julia 2.7-678
Maxwell, Barbara 2.7-657
McAllister, Phil & Colleen 2.7-546
McClintic, James M. 2.7-687
McClintic, James M. 2.7-927
McConaghy, Helen 2.7-621

McDermott, Jim - U.S. Representative 2.1-12
McElroy, June 2.7-266
McGahee, Berny 2.7-3
McGowan, Tom 2.7-182
McGregor, Darlene 2.7-804
McIntire, Rose L. 2.7-866
McKinnick, Susan G. 2.7-723
McLeod, LouVel 2.7-522
McLeod, Dean L. 2.7-1067
McMaster University (Ernst, Peter C. - Reactor Manager) 2.6-14
McMills, Lauren 2.7-905
McSpadden, Carolynn 2.7-174
McTaggart, Francis & Rosalie 2.7-427
Mears, Betty 2.7-890
Medina, Catherine J. 2.7-982
Melville, Marilyn 2.7-268
Meyer, Sherry 2.7-443
MicAllef, Paul 2.7-18
Michaels, Paul S. 2.7-481
Mickey, Stephen 2.7-408
Milkulski, Yvonne (Form Letter F) 2.7-938
Miller, Brent (Form Letter E) 2.7-415
Miller, Eugene J. 2.7-501
Miller, George - U.S. Representative 2.1-7
Miller, Joyce 2.7-65
Miller, W.T. 2.7-789
Mills, Patricia J. 2.7-944
Mills, Scott 2.7-864
Minton, Mary 2.7-126
Mitchell, Maryann - Washington State Representative, 30th District) 2.2-75
Mizner, Charlene 2.7-593
Mizner, Richard 2.7-594
Molike, Robert A., Mayor, City of Sumner 2.3-196
Moo, Denice 2.7-404
Moore, Peter M. 2.7-1034
Moos, Jessie M. 2.7-794
Morfee, Tom 2.7-251
Morrow, Lillian (Form Letter E) 2.7-415
Mosley, Raechael Ann (Form Letter C) 2.7-143
Mowat, Greg 2.7-432
Mt. Diablo Peace Center 2.5-116
Mueller, Rosemary 2.7-1038
Muhich, Mark 2.7-8
Mull and Iona Waste Watchers (Gardner, A.B. - Secretary) 2.6-29
Mullins, Julie & Steve 2.7-660
Munson, Leona S. 2.7-686
Murray, Margaret L. 2.7-128
Murray, Patty - U.S. Senator 2.1-12
Murray, Peter, Mayor, City of Pinole 2.3-86
Murray, Peter, Mayor, City of Pinole 2.3-166
Myrvik, Mrs. Norman J. 2.7-882
National Centre for Scientific Research "Demokritos" (Papastergiou, C. - Reactor Manager) 2.6-79
National Council, Senior Citizens (Strickland, Calvin) 2.5-120
National Organization of Test, Research, and Training Reactors (Voth, Marcus H.) 2.5-241
Natural Resources Defense Council (Caputo, Andrew P. - Attorney) 2.5-280
Naval Weapons Station Concord (Lanning, R.B. - Captain, U.S. Navy) 2.1-1
Navarro, Rudy 2.7-325
Navmann, Michael 2.7-23
Neal, Jack 2.7-1033
Neighbor, Helen 2.7-744
Nelson, Dayle 2.7-827
Nelson, Linden C. & Diane L. 2.7-389
Netro, Jennifer 2.7-32
Nichols, Debi R. 2.7-479
Nicholson, M. 2.7-279
Nickell, Jean 2.7-923
Niebrugge, Dan 2.7-859
Nieser, Collen (Form Letter C) 2.7-143
Noim, Nicky L. 2.7-787
Noland, Jane, Seattle City Council Member 2.3-60
Nordquist, Greg (Form Letter E) 2.7-415
Norris, Kim 2.7-1036
North Carolina State Clearinghouse (Chrys Baggett) 2.2-33
North End Neighborhood Council of Tacoma Petition 2.5-70
North End Neighborhood Council (Thompson, Christopher N. - Chairman) 2.5-136
North Platte Fire Department (Pedersen, Paul - Fire Chief) 2.3-159
Northern California Psychologists for Social Responsibility (Pilisuk, Marc) 2.5-34
Norton, Geraldine 2.7-878
Norton, Kurt (Form Letter B) 2.7-123
Novosad, Beth 2.7-888
Nuclear Control Institute (Kuperman, Alan - Senior Policy Analyst) 2.5-31
Nuclear Control Institute (Leventhal, Paul - President & Kuperman, Alan - Senior Policy Analyst) 2.5-248

Nuclear Energy Institute (Garrish, Theodore J.) 2.5-126
Nuclear Free Local Authorities (Kemp, Stewart - Secretary) 2.6-46
Nuclear Free Local Authorities (Marr, John A. - Solicitor) 2.6-66
Nuremberg Actions (Getty, Greg) 2.5-13
Nuremberg Actions (Viereck, Jennifer - Coordinator) 2.5-103
Nut, Carlene 2.7-801
Nyugen, Lynn 2.7-520
O'Brien, Raymond J. 2.7-180
O'Connor, Tim (Form Letter A) 2.7-95
Oates, Rose M. 2.7-855
Obe, Paty 2.7-776
Odenthal, Allison A. 2.7-745
Oestrukto, Roland (Form Letter A) 2.7-95
Ogawa, Emily 2.7-644
Oldfield, Joella 2.7-963
Oline, Larry 2.7-762
Olsen, Diane 2.7-480
Omero, Helga 2.7-252
Oregon Department of Energy (Grainey, Michael - Assistant Director) 2.2-5
Oregon Department of Energy (Savage, John - Acting Director) 2.2-20
Osborne, Judy C. 2.7-482
Ostmann, Heather 2.7-507
Otis, Glenn 2.7-210
Otis, Mr. & Mrs. Glenn 2.7-831
Otto, Mary & Eugene 2.7-733
Ottoson, Lisa M. (Form Letter E) 2.7-415
Overbeck, Eugene & Linda 2.7-989
Owen, Douglas E. 2.7-472
Owens, Barbara 2.7-543
Owens, Irene 2.7-513
Pacific Northwest Newspaper Guild (Johnston, William F. - Administrative Officer) 2.5-156
Pacific Stock Exchange Incorporated (Katovich, John C. -Senior Vice President and General Counsel) 2.5-64
Pacini, Paul 2.7-985
Parkinson, Windsor 2.7-777
Pasley, Bill 2.7-987
Patrick, Diana 2.7-69
Patrick, John 2.7-508
Patrick, John & Barbara 2.7-917
Paul Scherrer Institut (Brogli, R.) 2.6-78
Paul, Clarence L. 2.7-177
Pawloski, Berna J. 2.7-122
Pearson, Nancy 2.7-105
Pecha, A. & E. 2.7-565
Peck, Diane 2.7-5
Peck, Robert & Diane 2.7-1047
Pedersen, Douglas 2.7-1077
Pedersen, Mary 2.7-331
Peelle, Robert 2.7-160
Pelesky, Grant Owen - Washington State Representative, 25th District 2.2-60
Pence, Alison 2.7-178
Pendleton, Dolores 2.7-263
Pennington, Valerie (Form Letter D) 2.7-211
Pennock, Joyce E. 2.7-15
Penter, J.C. 2.7-292
People for a New Nuclear Policy (Russell, Bob) 2.5-291
Perkins, Susan J. 2.7-99
Perrin, Betty J. 2.7-721
Perry, John 2.7-754
Perry, Suzanne (Form Letter B) 2.7-123
Perryman, Edward 2.7-652
Peseka, Mabile (Form Letter F) 2.7-938
Peterson, Courtney 2.7-822
Peterson, H.E. 2.7-264
Peterson, H.J. 2.7-258
Peterson, Lawrence C. 2.7-757
Peterson, Marven & Lois 2.7-867
Peterson, Sharon 2.7-838
Peterson, Shawn 2.7-820
Pethbone, Mrs. J. L. 2.7-675
Pfeiffer, Meghan 2.7-821
Philbrick, John 2.7-111
Phillips, Derek 2.7-1028
Physicians for Social Responsibility, Inc. (Smick, Kathryn - Vice-President, Steering Committee) 2.5-122
Physikalisch-Technische Bundesanatalt (Hajek, Walter) 2.6-24
Pidcock, Marvin & Elnora 2.7-743
Pierce County Council (Rainwater, Gerri - Clerk of the Council & Walker, Sally W. - Council Chair) 2.3-26
Pierce, S. 2.7-1003
Piper, Edna 2.7-578
Pitts, Julie Ann 2.7-667
Podmore, Ron 2.7-306
Poe, W. Lee, Jr. 2.7-412
Pohl, Dr. Geraldine L. 2.7-322
Pollet, Gerald (Heart of America, N.W.) 2.5-101
Poppe, Mary Ellen 2.7-654

Port of Anacortes (Barcot, Francis - President; Kurowski, Stan - Vice President; Nelson, Richard T. - Commissioner; Moore, Ken - Secretary; & Thibert, Merrill - Commissioner) 2.3-223

Port of Anacortes (Barcot, Francis - President; Kurowski, Stan - Vice President; Nelson, Richard T. - Commissioner; Moore, Ken - Secretary; & Thibert, Merrill - Commissioner) 2.3-232

Port of Galveston (Connor, Ernest - General Manager & Whorton, Elbert - Trustee, Galveston Wharves Board) 2.3-187

Port of Galveston (Connor, Ernest - General Manager) 2.3-45

Port of Galveston (Notice of Meeting) 2.3-121

Port of Long Beach (Knatz, Geraldine - Director of Planning) 2.3-44

Port of Oakland (McGrath, James - Manager, Environmental Department) 2.3-104

Port of Portland (Thorne, Mike - Executive Director) 2.3-172

Port of Tacoma (O'Malley, Patrick - President of the Port Commission) 2.3-48

Port of Tacoma (O'Malley, Patrick - President of the Port Commission) 2.3-145

Port of Tacoma (O'Malley, Patrick - President of the Port Commission; Fletcher, Mike - Vice President of the Port Commission; Thorpe, Jerry M. - Secretary of the Port Commission; Fabulich, Jack A. - Assistant Secretary of the Port Commission; & Anderson, Stephen R. - Assistant Secretary of the Port Commission) 2.3-203

Porter, Christine 2.7-218

Porter, JoAnne C. 2.7-225

Posey, Jeanne & Charles 2.7-98

Postlethwaite, M.J. 2.7-898

Powell, Tondis 2.7-862

Powers, M. Sheila 2.7-233

Preston, Anita W. 2.7-242

Pricco, Arthur V. 2.7-602

Prior, Rita 2.7-870

Pritchett, Barbara 2.7-872

Probst, Judith L. 2.7-537

Pugh, Pamela S. 2.7-683

Putz, Marlene M. 2.7-514

Puyallup Tribal Council (Richardson, Sherry - Secretary, Payallup Tribal Council) 2.4-4

Puyallup Tribe Fish Commission (Louie, Vernon - Chairman) 2.4-10

Puyallup Tribe of Indians (Sullivan, William C. - Director of Environmental Programs) 2.4-1

Pyfrom, Leon 2.7-698

Pyfrom, Mary 2.7-844

Quaintance, Joe M. 2.7-465

Quaintance, Joe M. 2.7-590

Quinn, Patricia 2.7-155

Quinn, Robert 2.7-11

R.O.B.I.N. Foundation (Evans, Dee - Environmental Activist) 2.5-6

Rainwater, Dan 2.7-158

Ramus, Evelyn 2.7-153

Randle, Dr. Neil 2.7-485

Rankin, Dioginea (Form Letter F) 2.7-938

Rappe, Evelyn P. 2.7-599

Rasmussen, Marilyn - Washington State Senator 2.2-27

Raudebaugh, Rose Marie 2.7-597

Ray, Alice V. 2.7-541

Raymer, Teresa L. 2.7-183

Recareering Institute (Axford, Roger W.) 2.5-46

Redler, Gerald C. 2.7-742

Redler, Jay & Virginia 2.7-169

Reed, Joe 2.7-770

Reenan, Larry (Form Letter F) 2.7-938

Reenan, Andy (Form Letter F) 2.7-938

Reenan, Valorie (Form Letter F) 2.7-938

Reenan, Virginia A. (Form Letter F) 2.7-938

Reeves, Florence P. (Form Letter A) 2.7-95

Regala, Debbie - Washington State Represenative, 27th District 2.2-61

Rehm, Rush (Form Letter B) 2.7-123

Rehn, Emily A. 2.7-557

Reimer, Everett 2.7-736

Reimer, Nancy 2.7-547

Reimer, Nancy 2.7-945

Reiser, James H. 2.7-538

ReMillard, Michele 2.7-502

Resources Agency of California (Burroughs, James T. - Deputy Secretary and General Counsel) 2.2-55

Reynolds, Gregg 2.7-422

Reynolds, Rob 2.7-328

Rhoads, Deborah 2.7-729

Rhone, Rob 2.7-774

Richards, Mary & Warren 2.7-542

Richardson, Margaret J. 2.7-740

Ridenour, Margaret 2.7-517

Ridenour, Margaret A. 2.7-491

Riely, Terry (Form Letter H) 2.7-1050

Rinker, Roy V. 2.7-689

Rinker, Sheila 2.7-623

Ripple, Golen 2.7-332

RISO National Laboratory (Kjems, Jørgen - Deputy Director) 2.6-10

Ritzhaupt, P.J. 2.7-446
RKRI (Robinson, Ray K. - President) 2.5-91
Roark, Don 2.7-1018
Roberts, Elizabeth 2.7-1066
Roberts, Laura 2.7-334
Robertson, Claire Murphy 2.7-444
Robinson, Bob 2.7-40
Roche, Anita F. 2.7-952
Rodreguez, A. (Form Letter H) 2.7-1050
Rogalski, J. 2.7-313
Rogalski, Pauline A. Parr 2.7-314
Rogers, Eleanor 2.7-125
Rogerson, Pete 2.7-33
Rollins, Robert 2.7-759
Roming, Donald C. 2.7-856
Romo, Leo 2.7-619
Ronald, Shannon 2.7-839
Ronan, Bernadette 2.7-732
Rood, Marion 2.7-86
Rose, J. (Form Letter B) 2.7-123
Ross, Patricia 2.7-800
Roth, Laureen 2.7-239
Rubier, Jerry, Mayor, City of Rio Vista 2.3-227
Ruby, Lawrence 2.7-73
Rue, Sharon M. 2.7-525
Russell, Eric 2.7-653
Ryan, Laura 2.7-207
Ryan, Laura 2.7-346
Ryan, Lori 2.7-631
Ryan, Poukie 2.7-344
Ryan, Richard P. 2.7-200
Ryan, Richard P. 2.7-347
Rystedt, Janet 2.7-690
Sabol, Nancy J. 2.7-580
Salas, Natalie 2.7-1037
Sales, Lila 2.7-575
Salter, Annie (Form Letter D) 2.7-211
Salter, Gayle Cord 2.7-1074
Samuelson, Doreen 2.7-700
San Francisco Bay Chapter of the Sierra Club
(Hilder, Lara) 2.5-15
San Francisco Bay Keeper
(Lozeau, Michael R.) 2.5-160
Savannah River Site Citizens Advisory Board
(McClain, Mildred - Co-Chairperson &
Slay, Bob - Co-Chairperson) 2.5-138
Sawhill, Mrs. Merry Jerry Steel 2.7-722
Sayre, Joan W. 2.7-572
Scalph, Zona 2.7-606
Schaefer, Sandra Dee 2.7-895
Schall, E. 2.7-585
Scherer, Ellen 2.7-941
Scheritz, Andrei (Form Letter B) 2.7-123
Schlosstein, Leroy & Anna 2.7-384
Schlotter, Tammy 2.7-1029
Schmalz, Bruce L. 2.7-51
Schmertz, Christine 2.7-326
Schmidt, Rob 2.7-526
Schroeder, Paul C. 2.7-951
Schublom, Carl 2.7-632
Scoggin, Mary A. 2.7-877
Scotland Against Nuclear Dumping
(Baxter, Anne - Convener) 2.6-50
Scotland Against Nuclear Dumping
(Mann, Lorraine) 2.6-86
Scott, Fern R. 2.7-457
Scott, Sally (Form Letter H) 2.7-1050
Scrattish, April 2.7-64
Seabrook, Mary C. 2.7-176
Seattle City Council
(Benson, George - President) 2.3-65
Seattle Women Act for Peace
(Crandall, Kathryn A.) 2.5-16
Seattle Women Act for Peace
(Koppel, Anci - Coordinator) 2.5-39
Seattle Women Act for Peace
(Syracopoulos, Thalia) 2.5-52
Seeno, C.M. 2.7-117
Sefiente, Yessenia 2.7-1007
Sewelson, Bess 2.7-60
Shaughnessy, Robin 2.7-307
Shaughnessy, Robin 2.7-639
Shawl, Sallie E. 2.7-1049
Shea, Roberta 2.7-955
Shetland Islands Council (Hall, Martin R. - Director
of Environmental Services) 2.6-84
Sierra Club, San Francisco Bay Chapter
(Donahue, Tim - Chair, Delta Group) 2.5-62
Sierra Club, Virginia Chapter
(Deegan, Robert P. - Nuclear Waste
Issues Chairman) 2.5-111
Siller, Alberta 2.7-995
Simac, Ann 2.7-303
Simac, John & Annice A. 2.7-451
Simac, John 2.7-311
Simms, Lynn 2.7-41
Sinclair, Barbara 2.7-531
Sirles, Robert N. 2.7-561

Sisters of Saint Dominic 2.7-464
Skea, Jane K. 2.7-550
Skelly, Irene 2.7-278
Sloaghter, Everett 2.7-533
Slusarz, Donna 2.7-209
Slusarz, Donna 2.7-308
Sluser, Betsy 2.7-129
Smith, Anthony 2.7-778
Smith, Helen 2.7-473
Smith, Janie V. (Form Letter C) 2.7-143
Smith, Samuel R. 2.7-960
Smith, Scott - Washington State Representative, 2nd District 2.2-59
Smith, Susan 2.7-21
Smith, William F., Jr. 2.7-423
Smyth, Elizabeth L. 2.7-567
Snake River Alliance (Brailsford, Beatrice - Program Director) 2.5-8
Snortum-Phelps, Tyler 2.7-462
South Carolina State Ports Authority (W. Don Welch) 2.2-1
South End Neighborhood Council of Tacoma Petition 2.5.134
Southern States Energy Board (Hardeman, James C. - Advisory Committee on Radioactive Materials Transportation) 2.5-285
Spaulding, Herma 2.7-711
Spaulding, Kent E. 2.7-868
Sperling, Barbara E. (Form Letter E) 2.7-415
Spillane Family (Form Letter C) 2.7-143
Springer, Michael S. 2.7-956
Sprinker, Patty 2.7-552
Squyres, Deanna 2.7-219
Stakesberry, Cathrew 2.7-265
Stalmaker, Mildred L. 2.7-922
Stalmaker, Roger 2.7-921
Stanford, Matthew, Jr. 2.7-908
Stanley, Francis D. 2.7-798
Stanley, Melody 2.7-797
State of California Department of Transportation (Badal, Phillip - District Branch Chief) 2.2-30
State of Florida Department of Community Affairs (Shelley, Linda Loomis -Secretary) 2.2-8
State of Florida Department of Community Affairs (Shelley, Linda Loomis -Secretary) 2.2-47
State of Idaho Office of the Attorney General (Trever, Kathleen E. - Deputy Attorney General, Natural Resources Division) 2.2-56
State of Tennessee Department of Environment and Conservation (Leming, Earl C. - Director) 2.2-43
State of Washington Department of Ecology (Phillips, Keith E. - Environmental Review Section) 2.2-66
Steckle, Connie S. (Form Letter H) 2.7-1050
Steffens, Donald B. 2.7-456
Stegman, W. Carl, Mayor, City of Fife 2.3-111
Stein, Beverly 2.7-584
Stennick, John 2.7-140
Stettinius, H. 2.7-963
Stewart, Tracey 2.7-643
Stoner, Mike 2.7-767
Strickland (Form Letter B) 2.7-123
Strong, Mary Jane 2.7-1009
Studsvik (Kivikas, Toive) 2.6-26
Sullivan, Maura E. 2.7-253
Sullivan, Maura E. 2.7-706
Sullivant, K. 2.7-1013
Sunde, Judi 2.7-832
Sungar, Virginia (Form Letter C) 2.7-143
Sutherland, Dean - Washington State Senator 2.2-10
Sutherland, Doug, County Executive, Pierce County 2.3-136
Sutherland, Martin A. 2.7-110
Sutherlin, Calvin J. & Jean 2.7-588
Swanson, Margaret 2.7-671
Sweaney, C.P. 2.7-586
Tacoma Fire Fighters Union No. 31 (McElligott, Pat - President) 2.5-154
Tacoma-Pierce County Chamber of Commerce (Brackett, Gary D. - Manager, Business and Trade Development) 2.3-132
Tacoma-Pierce County Visitor and Convention Bureau (Watkins, Nancy - Executive Director) 2.3-62
Taranoff, Irene 2.7-387
Taranovski, T. 2.7-846
Tarver, Ben, Mayor, City of Pleasanton 2.3-80
Tarver, Ben, Mayor, City of Pleasanton 2.3-191
Tate, H. 2.7-436
Tate, H.T. 2.7-627
Tate, Montie 2.7-43
Tate, Randy - U.S. Representative 2.1-21
Tate, Randy - U.S. Representative 2.1-29
Taylor, Inez 2.7-448
Taylor, Kathleen M. 2.7-648
Taylor, Marie A. 2.7-294
Taylor, Monte 2.7-295
Taylor, Nancy 2.7-474
Taylor, Thomas C., Chairman, County Council of Beaufort County, ... 2.3-7

Tennant, Elizabeth M. 2.7-74
Teters, Darlene 2.7-191
Texas Office of State-Federal Relations (Adams, T.C. - State Single Point of Contact) 2.2-58
Tharp, Jenny 2.7-486
Thibodeaux, Pamela 2.7-1008
Thomas Family 2.7-156
Thomas, Henry G. 2.7-1
Thomas, Jamie 2.7-284
Thomas, Nicole 2.7-891
Thomas, Tamlyn 2.7-148
Thomas, Yvonne Isaacson 2.7-876
Thompson, Lori 2.7-587
Thoraldson, Linda J. 2.7-863
Thorndike, Louise W. 2.7-534
Thurston County Board of County Commissioners (Wilson, Judy - Chairman; Oberquell, Diane - Commissioner; & Nichols, Dick - Commissioner) 2.3-161
Tolbert, Robert N. 2.7-391
Torgerson, L. 2.7-883
Trettin, Lillian D. 2.7-954
Triska, Debbie 2.7-650
Troccoli, Vincent P. & Anne Marie 2.7-852
Trotter, Robert E. 2.7-285
Tucker, Genevieve 2.7-442
Tuger, Joyce 2.7-682
Turner, Cathy 2.7-779
Turner, Doug 2.7-146
Turosik, Leona 2.7-329
Turya, Donald & Charlotte 2.7-881
Tyler, Valerie 2.7-257
Uilkema, Gayle B., Mayor, City of Lafayette 2.3-117
Ullman, Beverly R. (Form Letter C) 2.7-143
United Kingdom Atomic Energy Agency (Thom, David - Group Manager, Business Development) 2.6-41
University of Missouri-Columbia (Hultsch, Roland A. - Reactor Physicist) 2.5-65
Van Buskirk, John 2.7-551
van Doorninck, Kitty-Ann 2.7-467
Vance, Rachel 2.7-726
Vandegrift, Ron 2.7-997
VanHorn, Lauri 2.7-58
Varner, Paula 2.7-231
Varner, Paula 2.7-309
Velora, Velma - Washington State Representative, 11th District 2.2-65
Vikon, Shirley J. 2.7-1080
Villa, Dexter 2.7-790
Volkmer, Janda, Mayor, Town of Steilacoom 2.3-120
Vollmer, Carrie 2.7-245
Wachleura, Mildred 2.7-857
Wade, Marianne 2.7-152
Wade, Marianne 2.7-591
Waits, Sherrie (Form Letter H) 2.7-1050
Walker Apartments, The 2.7-919
Walking, Lee 2.7-84
Wardlow, Don & Leitha 2.7-635
Wardlow, Karen (Form Letter E) 2.7-415
Warren, Alicelia & Robert 2.7-670
Watson, Marie 2.7-873
Way, Kelly 2.7-282
Weatherford, James A. 2.7-662
Webb, Gloria O., Mayor, City of Portsmouth 2.3-84
Weber, Denise 2.7-7
Weise, Leslie 2.7-460
Weite, Frank C. (Form Letter G) 2.7-957
Weite, Kimberly E. (Form Letter G) 2.7-957
Wellman, Jean 2.7-582
Werner, Robert T. (Form Letter E) 2.7-415
Werner, Robert T. 2.7-523
West County Toxics Coalition (Thomas, Ahmadia - Board Chairperson; Clark, Henry - Executive Director; & Allen, Lucille - Organizer) 2.5-60
West Lothian District Council (Law, Christine - Assistant Director of Administration) 2.6-56
Western Governors' Association (Ross, Ron & Lawritson, Jon) 2.5-99
Western Governors' Association (Ross, Ronald - Program Manager) 2.5-162
Western States Legal Foundation (Veiluva, Michael L. - Foundation Counsel) 2.5-266
Whitacre, Kathryn & Jim 2.7-199
White Pine County Nuclear Waste, Project Office (Mariani, Ferd - Coordinator) 2.3-130
Whiting, Marcus 2.7-141
Whitney 2.7-536
Wicker, Melanie (Form Letter E) 2.7-415
Wilbert, Gretchen A., Mayor, City of Gig Harbor 2.3-138
Wilcox, Willis (Form Letter E) 2.7-415
Wilhite, Melody R. 2.7-343
Williams, Les 2.7-24
Willis, Kathi 2.7-273
Wilson, Edie 2.7-452
Wilson, Theresa 2.7-887
Winchester, Ellen & John 2.7-186

Winnie, Shirley L. 2.7-441
Withrow, Wayne 2.7-214
Wojahn, Lorraine - Washington State Senator 2.2-29
Wojahn, Lorraine - Washington State Senator 2.2-64
Wong, Tammy 2.7-380
Wood, Chiara 2.7-791
Woodman, Tammy 2.7-771
Woods-Flowers, Cheryll N., Mayor,
Town of Mount Pleasant 2.3-1
Worthington, Majorie 2.7-147
Wright, Arlene 2.7-581
Wright, Curtis 2.7-112
Wright, Curtis 2.7-229
Wright, Darla J. 2.7-420
Wydra, Beverly J. 2.7-889
Wylie, Betty L. 2.7-1017
Wynaus, Neldamae 2.7-679
Yale, Lisa Landkamer 2.7-649
Yomes, Lorraine T. 2.7-731
York, Barbara 2.7-275
Young, Howard & Bernadene 2.7-614
Yu, Elyna 2.7-785
Yurma, R.H. (Form Letter B) 2.7-123
Yurman, Rich 2.7-185
Zarelli, Carmen 2.7-633
Zepeda, Barbara 2.7-30
Zmuda, Michael 2.7-496
Zwickel, Abe (Form Letter B) 2.7-123
Zwickel, Abraham 2.7-437
Zwickel, Jean (Form Letter B) 2.7-123

Section 2.5
Non-Government Organizations

Commentor No. 7: The Edlow Group

STATEMENT BY THE "EDLOW GROUP"
OF FOREIGN RESEARCH REACTORS

on

The Department of Energy's Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy concerning Foreign Research Reactor Spent Nuclear Fuel

May 1995

1. The "Edlow Group" is an association of 14 foreign research reactor facilities from Germany, Japan, Switzerland, Belgium, Sweden, Canada, Greece, the Netherlands, Denmark, Sweden, Austria, Australia, and Italy. These facilities are among the largest and most important research and test reactor facilities in the world. This group is administered by Edlow International Company, an international traffic management firm with more than 30 years of experience in the transport of nuclear materials.

2. The facilities comprising the Edlow Group supply most of the radioisotopes used by U.S. hospitals to treat U.S. citizens with radiopharmaceuticals and other important radio-medical applications. Everyone who has ever had a blood test has relied on services from a research reactor. Nearly every major industry in this country has relied on research reactors for key testing applications.

3. We commend DOE for completing its draft EIS on the management of U.S.-origin highly-enriched foreign research reactor spent fuel. This matter has been under intensive study by DOE now for over 6 years. For the most part, we think DOE has done an excellent job, although we are disheartened that the draft was not completed much earlier.

4. We share DOE's and the State Department's goal of reducing civil inventories worldwide of highly-enriched uranium. Like DOE and the State Department, we regard this goal as vital to global nonproliferation efforts.

5. When we received our highly-enriched fuel from the United States, we relied on the assurances of the U.S. government that the United States would accept the return of our spent fuel.

6. Furthermore, when the United States began its RERTR program for reducing the enrichment of our fuel cycles, we agreed to participate in this program, at great cost to our facilities, but only after we were assured by the United States that our spent fuel could continue to be returned.

Response to Comment
Commentor No. 7: The Edlow Group

Commentor No. 7: The Edlow Group (Cont'd.)

7. We understand that times have changed, and we are preparing now to meet the long term challenges of managing our own spent fuel. We did not create this problem, however, and have relied on repeated assurances by the United States that the problem would be solved. This, in fact, has delayed our finding a solution of our own.

8. In the interim, we have no place to put our spent fuel, and even if we did, it is the policy of the United States not to foster the storage throughout the world of highly-enriched spent fuel which could conceivably be used in nuclear weapons. We have respected that policy.

9. Although delays in renewing DOE's take-back policy have caused one of our facilities to shut down prematurely, for the most part, our facilities are too valuable to our hospitals, universities, industries, and governments to be shut down. Therefore, to keep these facilities operating, we will be forced to reprocess our spent fuel in Europe or elsewhere if the United States cannot receive the spent fuel for at least a limited period of time.

10. Reprocessing in Europe will almost certainly mean that we must continue to rely on highly-enriched civil commerce in uranium. In cases where some of us have already converted our facilities to operate on less-dangerous lower-enriched fuels, it could mean a reversion back to operation on highly-enriched fuels. This result would be contrary to U.S. nonproliferation objectives since 1978.

11. Return shipments of our spent fuel to the U.S. have been occurring for three decades without incident. The risks associated with transport of this material are infinitesimally small. We follow all applicable Department of Transportation and Nuclear Regulatory Commission rules, as well as the requirements of the International Atomic Energy Agency.

12. Receipt of all of our spent fuel for the limited time period proposed by DOE, as well as that from the other foreign research reactors covered in DOE's proposed program, would amount to a minuscule fraction (less than 1%) of the amount of spent nuclear fuel that is already under DOE's auspices. In contrast, the benefits to be achieved by eliminating civil commerce in highly-enriched uranium are too large to be calculated.

13. We will be filing extensive written comments on the draft EIS. Although we generally support its analysis, we have fundamental concerns in the following areas:

Response to Comment
Commentor No. 7: The Edlow Group (Cont'd.)

COMMENTOR NO. 7: THE EDLOW GROUP (CONT'D.)

- **Preferred Alternative:** We are extremely disappointed that the draft EIS does not recommend a preferred alternative. Our understanding is that DOE and the State Department jointly developed a preferred alternative which was subject, of course, to completion of the National Environmental Policy Act review requirements. That preferred alternative was specified in a July 13, 1993 submittal by Secretary O'Leary to Secretary of State Warren Christopher, which has been made public. That preferred alternative was to return the spent fuel to the United States over a ten-year period, and to place it in dry storage until it could be put into the repository. Our understanding is that this proposed alternative, moreover, is the only alternative discussed in the draft EIS that is consistent with President Clinton's classified NonProliferation Policy Directive PDD-13. 7-1

- **Legal Obligations:** The draft EIS is inexplicably silent on DOE's legal obligations to receive the spent fuel. Many of us have contracts, or other documents evidencing written commitments on which we justifiably relied, that DOE will receive our spent fuel. Assurances to this effect were repeatedly published in the Federal Register over the past three decades. Indeed, many of our facilities were purchased from the U.S. with this understanding. 7-2

- **Price:** The draft does not address price issues in any significant way. Obviously, if the price established by DOE for receipt and storage of the spent fuel is prohibitively high, it will make any such alternative illusory. We are willing to pay a truly cost-based price, and are not asking the U.S. taxpayers to subsidize our fuel cycle. DOE's preliminary price estimates, however, have been exceptionally high and appear unjustified on the basis of actual cost. 7-3

- **Further Delays:** We are extremely concerned that any further delays by DOE in completing the final EIS, or in issuing a Record of Decision, would cause several operational emergencies for many of us which absolutely must ship spent fuel early in 1996, at the latest. 7-4

- **"No Action:"** We think DOE's assessment that there will be no adverse U.S. environmental impacts if the U.S. adopts the "no action" alternative is incorrect. "No action" will precipitate both the widespread shutdown of many research reactors and reversion of others to reliance on a highly-enriched uranium fuel cycle. Both will have impacts in the U.S. Research reactor shutdowns will dramatically affect both the availability and the prices of medical radioisotopes for U.S. hospitals and medical testing laboratories. 7-5

More importantly, if those reactors which continue to operate revert to reliance on highly-enriched uranium, this will mean the loss of a major U.S. nonproliferation

RESPONSE TO COMMENT
COMMENTOR NO. 7: THE EDLOW GROUP (CONT'D.)

Response to Comment No. 7-1

The EIS has evaluated several reasonable alternatives including the management of the spent nuclear fuel in the United States. The preferred alternative was not developed until all public comments were received during the comment period for the draft EIS. Sections 2.9 and 4.7 of the final EIS specify DOE's preferred alternative.

Response to Comment No. 7-2

With the exception of cases in which DOE has executed contracts for acceptance of spent nuclear fuel from specific foreign research reactors, DOE considers that neither DOE nor the United States Government has any legal obligation to receive spent nuclear fuel from foreign research reactors.

DOE also considers that it is in the best interests of the United States to implement the proposed action to support long standing U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide. Failure to do so would subject the United States and its allies to the risk that some of the HEU intended for use in research reactors might be diverted into the production of nuclear weapons and used against them, or otherwise harm U.S. nuclear weapons nonproliferation programs.

Response to Comment No. 7-3

Appendix F, Section F.7 of the EIS provides an extensive assessment of life-cycle costs, including discussions of each major cost component, allocation issues (marginal, average, fixed, variable, etc.) sensitivities, uncertainties, and financial accounting. This data will provide the basis for discussions of any fee to be charged for management of spent nuclear fuel from foreign research reactors. DOE is pleased to see that the group of research reactor operators represented by the commentor is not asking the U.S. taxpayer to subsidize their fuel cycle.

Response to Comment No. 7-4

DOE and the Department of State have expedited the completion of the EIS after considering the public comments and evaluating reasonable alternatives to the proposed action. The Record of Decision is scheduled for publication no sooner than 30 days after the release of the final EIS.

Response to Comment No. 7-5

As required by NEPA, Section 4.6 of the EIS does provide adequate analysis on the impacts of the No Action Alternative on the local environments of the U.S. Section 4.6 of the EIS also addresses the detrimental impacts on the RERTR program that could result if the No Action Alternative were adopted.

Commentor No. 7: The Edlow Group (Cont'd.)

program that has succeeded until now, and the reinstitution of civil commerce in materials which can be bought and sold commercially and used directly in nuclear weapons, increasing the risks that nuclear weapons will find their way to terrorist organizations or nations unfriendly to the U.S. This impact dwarfs the minuscule environmental risks associated with returning and storing the fuel in the U.S.

Moreover, "no action" will significantly harm U.S. diplomatic relations with its allies, compromise U.S. negotiations with Euratom and for the Treaty on the Nonproliferation of Nuclear Weapons, and could lead to sizable monetary claims against the U.S. government by foreign reactor facilities.

We look forward to the public input that is necessary for any alternative to be successfully implemented by the Department of Energy.

For additional information or answers to questions, please contact either:

Jack Edlow, President
Edlow International Company
1666 Connecticut Ave. Suite 200
Washington, DC 20009
(202) 483-4959

or

Joseph R. Egan, Esq.
Egan & Associates, P.C.
2300 N Street, N.W.
Washington, DC 20037
(202) 663-9200

Response to Comment
Commentor No. 7: The Edlow Group (Cont'd.)

COMMENTOR NO. 8: CSX TRANSPORTATION

5/11/96

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Charles [redacted] Stowell **Phone:** (904) 359-1765
Title and Organization: Market Manager, CSX Transportation
Address: 500 Water St.
City: Jacksonville **State** FL **Zip** 32258

*** COMMENTS ***

Need to include information on the Price-Anderson Act
- effect on ground transportation modes should there be an incident involving the spent fuel. 8-1
- when Price-Anderson would be implemented 8-2
- who implements Price-Anderson (who makes the decision to implement the Price-Anderson act) 8-3

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 8: CSX TRANSPORTATION

Response to Comment No. 8-1

The Price-Anderson Act does not differentiate among transportation modes in terms of indemnification of contractors against public liability for nuclear incidents arising out of or in connection with contract activities. Price-Anderson neither precludes nor recommends any form of transportation. As long as the transportation activity is being carried out under a DOE contract containing an indemnity agreement, Price-Anderson shall apply if there is a nuclear incident arising out of or in connection with the contract activity.

Response to Comment No. 8-2

The Price-Anderson Act's indemnification requirements pertaining to DOE contract activities must be complied with whenever DOE enters into a contract with a person who will carry out activities under that contract that involves the risk of public liability. The specific language of the indemnification agreement that would be included in the contract is contained in 48 CFR Part 952.250-70. In order for indemnification to take place, there must first be a nuclear incident as defined by the regulations.

Response to Comment No. 8-3

DOE implements the indemnification provisions of the Price-Anderson Act, as amended, that concern DOE contract activities that involve the risk of public liability. DOE implements the indemnification procedures through DOE's regulations found at 48 CFR Part 950.70. If the incident is one that constitutes an extraordinary nuclear occurrence, DOE must comply with regulations found at 10 CFR Part 840.

COMMENTOR NO. 12: R.O.B.I.N. FOUNDATION

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: DEE EVANS **Phone:** (409) 763-5129
Title and Organization: ENVIRONMENTAL ACTIVIST R.O.B.I.N. FOUNDATION
Address: P.O. BOX 3243
City: TEXAS CITY **State** TX **Zip** 77590

*** COMMENTS ***

HOW MANY PEOPLE HAVE TO OBJECT THE PROPOSAL OF BRINGING THE WASTE INTO THE PORT OF GALVESTON - TO HAVE THE SHIPMENT DIVERTED TO ANOTHER PORT OF ENTRY. OR ARE THERE ANY OTHER METHODS THAT CAN BE USED - TO CONVINCE YOU, TO TAKE IT ELSE WHERE. GALVESTON COUNTY HAS BEEN USED AS A TOXIC CHEMICAL DUMP FOR TOO LONG. 12-1

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 12: R.O.B.I.N. FOUNDATION

Response to Comment No. 12-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Port of Galveston is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Port of Galveston, or any port analyzed would have a low impact on workers and the general population. Moreover, the need to manage the covered material to further U.S. nuclear weapons nonproliferation goals is laid out in Section 1.1 of the EIS.

COMMENTOR NO. 14: GALVESTON BAY FOUNDATION

GALVESTON
BAY
FOUNDATION

COMMENTS OF THE GALVESTON BAY FOUNDATION
ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR THE PROPOSED TRANSPORT OF SPENT NUCLEAR FUEL
THROUGH THE PORT OF GALVESTON

May 1995

The Galveston Bay Foundation is a nonprofit organization dedicated to the preservation and enhancement of Galveston Bay for its multiple uses, through education, conservation, research and advocacy. Members of the Foundation represent all of the diverse users of the Bay.

While the Foundation recognizes the importance to the United States of the development of a plan for the disposal of spent nuclear fuel, the proposal to consider the Port of Galveston as a transfer point raises several concerns related to Galveston Bay which do not seem to be adequataly addressed in the Draft Environmental Impact Statement (DEIS) for the project.

1. While the document mentions the bird use and fisheries resources of the bay system, it does not note that Galveston Bay has been named an "estuary of national significance" by the U.S. Congress. As a participant in the U.S. Environmental Protection Agency's National Estuary Program, some $5 million (mostly in federal monies) has been spent to develop a comprehensive conservation and management plan for the Bay, and efforts are currently underway to implement the plan to protect this valuable resource. *14-1*

2. The DEIS notes that there is heavy traffic in the Galveston entrance channel but does not state that the Port of Houston (which uses the same entrance channel through Bolivar Roads) is the third largest port in the country and first in foreign tonnage. This high risk use increases the potential for collision and spills. *14-2*

3. A key consideration which is not examined in the DEIS are the potential risks to the Bay associated with the transshipment of the nuclear fuel via road and railroad causeways which cross the Bay between the island and the mainland. An accident resulting in a spill over such a crossing could have catastrophic impacts on the Bay. *14-3*

Finally, it seems inefficient to ship through Galveston when other ports are much closer to the final storage destination sites. *14-4*

17324-A HIGHWAY 3 • WEBSTER, TX 77598 • (713) 332-3381

RESPONSE TO COMMENT
COMMENTOR NO. 14: GALVESTON BAY FOUNDATION

Response to Comment No. 14-1

The information regarding Galveston Bay as an estuary of national significance has been added to Section 3.2.1.2 of the EIS.

Response to Comment No. 14-2

The fact that the Port of Houston is the third busiest port in the United States in terms of tonnage handled has been added to Appendix D, Section D.2.1.2 of the EIS. Appendix D, Section D.5.3.1.3 includes a discussion of the probability of ship collisions.

The volume or size of the local marine traffic (present or future) was not considered in the calculation of risk associated with the shipment of foreign research reactor spent nuclear fuel. In general, the number of ship mishaps is not proportional to the amount of ship traffic because port ship traffic is slow, and even when heavy, is normally a small number of ships per hour. Historically, increasing the volume does not significantly increase the probability of an accident. Rather, the number of ship mishaps is associated with navigational hazards and distances from the port to the open ocean or a large bay (Appendix D, Section D.1.9.2 of the EIS). Appendix D, Section D.5.3.1.3 presents a discussion of the determination of the probability of ship accidents used in the EIS.

Foreign research reactor spent nuclear fuel in a transportation cask cannot spill because it is solid metallic fuel and is shipped dry. Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, no radioactive material has ever been released from a spent nuclear fuel transportation cask as a result of an accident.

Response to Comment No. 14-3

An accident on a causeway could result in a cask falling into the Bay. The consequences of this accident would be the same as those described in Section 4.2.1.3 of the EIS under the subheading Sunken Cask. This section has been revised in the final EIS specifically to note that it pertains to cask immersion in inland waterways and estuaries such as Galveston Bay, as well as in the open ocean and coastal waters. A discussion has also been inserted into Section 4.2.3.3 of the EIS to refer the reader interested in causeway accidents to the Sunken Cask discussion.

Response to Comment No. 14-4

The distance from the port to the management site is only one of the considerations in selecting ports of entry for the foreign research reactor spent nuclear fuel. Other considerations such as port population, route population, port experience with handling containers, and access to the ocean would be considered in making the final selection of port of entry. Appendix D, Section D.1.9 presents details of the port selection process.

COMMENTOR NO. 16: SNAKE RIVER ALLIANCE

Snake River Alliance
Box 1731 · Boise ID 83701 · 208/344-9161
Box 4090 · Ketchum ID 83340 · 208/726-7271
310 E. Center · Pocatello ID 83201 · 208/234-4782

May 18, 1995

Re: Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

The following comments are made on behalf of the 1,200 individual, family, and business members of the Snake River Alliance, an Idaho-based citizens group that has monitored activities at the Idaho National Engineering Laboratory since 1979. I will confine my remarks to two points, though I am submitting previous comments and additional information.

1. A recent Louis-Harris poll found that 88% of Idahoans are opposed to further spent fuel shipments into Idaho. The pollster characterized Idahoans' stance as "militant unanimity." That attitude might be dismissed as blind NIMBYism, but here in Idaho, we're a lifetime too late to say "Not in my backyard." I suggest Idahoans attitude has grown from direct experience. The Department of Energy, based on its own analyses and standards, has not stored spent fuel safely at INEL or anywhere else. Given the current budget crunch and the bleakness of all projections, how can the DOE guarantee that any spent fuel brought to Idaho from any source, including foreign research reactors, will be stored more safely than spent fuel has been in the past? A proposal to take over management of foreign spent fuel seems to overlook the DOE's history of mismanaging its own. 16-1

2. The Department of Energy seems unable or unwilling to cleave to a coherent set of objectives that make sense in the post-Cold War world. The DOE continues to propose actions that contradict one another and/or its nonproliferation policy, such as it is. An example is the DOE's proposal to build an HEU-fueled tritium production reactor even as it proposes to bring HEU spent fuel to the US based on the proliferation threat it poses. I attach a September 7, 1993, letter from the State Department to the DOE outlining steps to support the Reduced Enrichment for Research and Test Reactor program. The State Department urges the DOE to consider "conversion of DOE's existing research reactors to low enriched fuels." How does a US HEU-fueled production reactor fit with the RERTR program? 16-2

A far more egregious example is found within the foreign research reactor draft EIS itself, particularly when it is read in light of the environmental management memos 16-3

RESPONSE TO COMMENT
COMMENTOR NO. 16: SNAKE RIVER ALLIANCE

Response to Comment No. 16-1

Spent nuclear fuel from foreign research reactors has been safely managed in the United States for over 30 years (Section 1.1 of the EIS). As discussed in Section 2.6.5.3.2 of the EIS, both wet and dry storage facilities at the Idaho National Engineering Laboratory are available for interim storage of foreign research reactor spent nuclear fuel. These storage technologies are described in Section 2.6.5.1 of the EIS. In the event that additional foreign research reactor spent nuclear fuel were to be shipped to the Idaho National Engineering Laboratory, any required new storage facilities would be constructed in compliance with the existing, mature technology for storage of spent nuclear fuel (Section 2.6.5.3.2 and Appendix F of the EIS). As part of the DOE Programmatic Spent Nuclear Fuel and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs EIS (DOE/EIS-0203-F) issued May 30, 1995, identifiable site-specific problems at the Idaho National Engineering Laboratory were addressed in Volume 2 of the EIS.

Response to Comment No. 16-2

The potential tritium production facility would be a part of the U.S. nuclear weapons production complex and would not be a research reactor, such as those addressed by the Reduced Enrichment for Research and Test Reactors (RERTR) program. Thus, the use of HEU in a tritium production facility has no relationship to the proposed action. Rather, the intent of proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide to assist in precluding the spread of nuclear weapons to nonnuclear weapons states.

In any case, the Final Programmatic Environmental Impact Statement for Tritium Supply and Recycling (DOE/EIS-0161) analyzed a number of different technologies for tritium production, including the Heavy Water, Modular High Temperature Gas-Cooled Reactor, Accelerator Production of Tritium, and Advanced Light Water Reactor. Of these, only the Heavy Water Reactor and the Modular High Temperature Gas-Cooled Reactor would be fueled by HEU. The DOE preferred alternative for that EIS is not to select a tritium supply source that is fueled by HEU.

Response to Comment No. 16-3

Regionalization by fuel type would facilitate chemical separation, as the commentor states. It is not true, however, that this is the only rationale. The regionalization by fuel type alternative would also facilitate safe handling and storage. The Savannah River Site has the most experience in managing aluminum-based fuels and the Idaho National Engineering Laboratory has the most experience in managing other kinds of fuels.

COMMENTOR NO. 16: SNAKE RIVER ALLIANCE (CONT'D.)

and position paper I have attached and against the background of the DOE's preferred alternative for the spent fuel programmatic EIS.

Even though the DOE describes US chemical processing as a nonpreferred alternative, it has not shut the door on that activity. In fact, the only rationale for regionalizing spent fuel by cladding type is to facilitate processing it. That is an unacceptable option. Restarting spent fuel processing here or supporting it abroad violates our own policy and undercuts our ability to persuade other countries to forego the separation of weapons-usable fissile materials. Furthermore, the DOE's past chemical processing has led to significant environmental degradation, worker exposure, and a substantial increase in the quantity and forms of waste to be managed. Finally, it cost a lot of money then, and it will cost even more now.

The draft EIS before us now seems to leave the door open for a later political decision to be made by the likes of Strom Thurmond. The DOE has a grave responsibility to the communities that continue to bear the burden of the Cold War. Spent fuel processing and initiatives that encourage it can only increase that burden. They must be rejected. *16-3 (Cont'd.)*

Respectfully submitted,

Beatrice Brailsford
Program Director

Attached:
9.7.93 State Department letter
4.20.95 Jill Lytle memo
12.28.94 Tom Grumbly memo
undated reprocessing position paper
2.12.95 group letter to T. Grumbly
3.7.94 Alliance emergency EA comments
11.9.93 Alliance FRREIS scoping comments
5.95 Alliance newsletter
3.95 Alliance bulletin
12.93 Alliance bulletin
5.8.95 Alliance hearing request
5.5.95 Mike Crapo hearing request

RESPONSE TO COMMENT
COMMENTOR NO. 16: SNAKE RIVER ALLIANCE (CONT'D.)

The commentor's opposition to chemical separation is noted. DOE's estimates of environmental impacts, worker exposures, waste generation, and costs are all presented in Section 4.3.6, 4.5, and 4.9 of the EIS .

Commentor No. 17:
Blue Ridge Environmental Defense League

BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

Central office: PO Box 88 Glendale Springs, NC 28629 (910) 982-2691 fax: (910) 982-2954

COMMENTS OF JANET M. HOYLE ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ON A PROPOSED NUCLEAR WEAPONS NONPROLIFERATION POLICY CONCERNING FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL

May 22, 1995, Wilmington, NC

The Draft Environmental Impact Statement on proposed high-level nuclear waste imports is inadequate and misleading. The foreign waste import program is itself contradictory, unsound, and dangerous.

1. Having shown no capability of dealing with high-level nuclear waste produced by nuclear utilities and the nuclear weapons program in this country, the US Department of Energy is planning to bring in high-level nuclear waste from 41 countries. No final waste management technology exists; no final place or method of disposition has been developed. Importing foreign wastes is ill-conceived and ill-timed at best when our own nuclear waste management program is in disarray. We would be moving this highly dangerous material around the globe with no end game in site. *17-1*

2. Shipping high-level nuclear waste over sea and over land is a proliferation risk. The emergence of domestic terrorism makes the DEIS obsolete. If members of grassroots environmental organizations can track the shipments, *as we did with the Maris and the Marcus last September*, there isn't enough money in the US Treasury to make these shipments secure. Moving this waste gives terrorists thousands of miles of opportunities to secure nuclear weapons capability. Americans are afraid now. Uneasiness will become panic when our home-grown terrorists are armed with nuclear weapons. The rise of domestic terrorism and the tragic example of Oklahoma City make Denmark, Sweden, and Switzerland much safer places than our country to store high-level nuclear waste. *17-2*

3. The DEIS has gaps in information and logic. The tiny differential in radiation risk between the non-accident and an accident situation defies reason. The use of statistics to spread the risks across all the shipment miles is designed to give a false sense of security to a transport corridor community. The reality is that the waste containers have never been tested in real world conditions. The truth is that a high-level nuclear waste transport accident will *17-3* *17-4*

Response to Comment
Commentor No. 17:
Blue Ridge Environmental Defense League

Response to Comment No. 17-1

The impacts of ultimate disposition of the foreign research reactor spent nuclear fuel are discussed qualitatively in Section 4.2.7 of the EIS. DOE is currently evaluating the feasibility of construction of a disposal site at Yucca Mountain, NV. In the meantime, support for U.S. nuclear weapons nonproliferation policy requires DOE and the Department of State to consider other means of dealing with the foreign research reactor spent nuclear fuel (Section 1.1. of the EIS).

Response to Comment No. 17-2

Weapons-grade uranium in some of the spent nuclear fuel from foreign research reactors is a nuclear weapons nonproliferation threat because that uranium could conceivably be removed from the spent nuclear fuel and used in production of one or more nuclear weapons. However, to do so would require that the spent nuclear fuel be reprocessed to chemically separate the uranium from the structure of the spent nuclear fuel elements, fission products in the uranium, and other impurities that are integral parts of the spent nuclear fuel. This separation requires a sophisticated chemical processing plant as well as time and money.

Chemical separation of the weapons-grade uranium could conceivably be accomplished if the spent nuclear fuel were left in an irresponsible nation having the required technology, time, and financial resources, or if it were released to a well-funded terrorist organization. However, such actions are not possible in the relatively short time that the spent nuclear fuel would be in transit. During transit, the spent nuclear fuel would be sealed in transportation casks weighing 25 tons or more. The sheer size and weight of these casks, coupled with the radioactive nature of the spent nuclear fuel itself, make movement of spent nuclear fuel a time consuming, difficult task. Conversely, these characteristics make spent nuclear fuel an unattractive target for theft during transit, thus, a low proliferation risk during transportation. Furthermore, since spent nuclear fuel shipments are guarded and their schedules are not announced, these shipments are also resistant to terrorism. During the past 40 years, hundreds of shipments have been made in similar casks. There have been no terrorism or proliferation problems with any of these shipments. The physical security provisions used during transit have proven to be effective.

Appendix H was added to the final EIS in response to public comments to better describe the security and emergency preparedness associated with transportation of the foreign research reactor spent nuclear fuel. This appendix presents the general provisions of the Transportation Plan, which is a document that provides all of the details associated with the transportation of the foreign research reactor spent nuclear fuel, including the security arrangements in port and in transit to the management sites.

COMMENTOR NO. 17:
BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE (CONT'D.)

page 2 COMMENTS-Janet M. Hoyle

happen somewhere. It is only a matter of time. No one knows how these untested containers will perform in an accident situation. The reliance on the shippers for route selection and other decisions places communities in grave danger. The cheapest way may not be the safest way. *17-4 (Cont'd.)*

The claims of little or no cancer risk to people who live near the transport routes are ridiculous. The nuclear industry and the DOE are not held to the same one-in-a-million standards that EPA mandates for hazardous materials. *17-5*

Further, the DEIS does not delineate the non-cancer risks to affected populations. Its risk assessment is based solely on latent cancer fatalities. Acute effects from radiation exposure are simply dismissed. *17-6*

The handling of environmental justice issues is insulting. Despite claims of no effect, rail shipments would travel through poor and minority communities. Last March, when I posed the question of disproportionate risk, a DOE official stated,"We can't move the tracks." The response of the Blue Ridge Environmental Defense League is "Don't move the wastes." *17-7*

4. Last fall the people of southeastern North Carolina were sneaked up on by the so-called urgent relief rail shipment of imported wastes. Many of these people are being sneaked up on again. The mere publication of a DEIS and the holding of hearings long distances from many transport corridors are just not enough. We request at least four additional hearings in North Carolina. *17-8*

RESPONSE TO COMMENT
COMMENTOR NO. 17:
BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE (CONT'D.)

Response to Comment No. 17-3

The small differential in radiation risk between the incident-free and accident scenarios is accurate. The analysis to support this judgment is presented in Section 4 and Appendices C, D, E, and F of the EIS.

Response to Comment No. 17-4

If a policy to accept and manage spent nuclear fuel from foreign research reactors is adopted (Management Alternative 1 or 3; Sections 2.2 and 2.4 of the EIS), the foreign research reactor spent nuclear fuel would be shipped in "Type B" casks (Section 2.6.2 and Appendix B.2 of the EIS). Spent nuclear fuel has been transported in "Type B" transportation casks on highways and rail lines in the United States for over four decades. During that time, no "Type B" cask has ever been punctured or released its contents, including "Type B" casks involved in highway accidents. The likelihood of an accident during transport of spent nuclear fuel is low, the likelihood of cask failure during transport is lower yet (Section 4 of the EIS).

The shipper of record must comply with applicable U.S. Department of Transportation and NRC regulations discussed in Section 5 of the EIS. Routes for transport of spent nuclear fuel from foreign research reactors are selected in compliance with U.S. Department of Transportation regulations and approved by NRC.

Response to Comment No. 17-5

The estimates in the EIS of cancer risk to people who live near the transport routes are accurate. The analysis to support this judgment is provided in Section 4 and Appendices D and E of the EIS.

Response to Comment No. 17-6

The EIS discusses noncancer risks in Section 4.1.3, General Radiological Health Effects. A large dose of radiation can cause prompt death, but such a dose of radiation is not possible in any reasonable accident scenario involving the transport of foreign research reactor spent nuclear fuel.

Response to Comment No. 17-7

It is evident from the analysis provided in Appendix A and Sections 4.2.2.6, 4.2.3.7,

Commentor No. 17:
Blue Ridge Environmental Defense League (Cont'd.)

Response to Comment
Commentor No. 17:
Blue Ridge Environmental Defense League (Cont'd.)

and 4.2.4.5 that despite the potential for transport of the spent nuclear fuel by truck , barge or rail through minority, as well as non-minority communities, no disproportionately high and adverse human health or environmental effects were found to result from implementation of the proposed action.

Response to Comment No. 17-8

Seventeen public hearings were held on the draft of this EIS in the locations determined most likely to be directly affected by the EIS alternatives, specifically in the ports of entry and at the potential management sites. In addition to accepting comments from the public during these hearings, written comments were also welcomed, and encouraged. DOE considers that these actions have provided ample opportunity for the public to comment on the draft EIS.

COMMENTOR NO. 23: NUREMBERG ACTIONS

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Gene Cretty **Phone:** 510-746-1168
Title and Organization: Nuremberg Actions
Address: PO Box 1637
City: Pittsburg **State** Ca **Zip** 94565

**** COMMENTS ****

* 100 accidents (including w/ nuclear materials) exposed in Ch. 2 story by Roland DeWolk a couple years ago. 23-1

* Where is it going? Most of the proposed sites are native land where people are fewer because of policies like forcing 'radioactive smallpox blankets' on them. Must we cooperate w/ further genocide? 23-2

* If they can succeed in forcing this on others it will encourage the continued production and dissemination of the most ~~poisonous~~ substance on Earth, a single molecule of which can kill w/ cancer or mutation 23-3

* On July 17, 1944 & Sept. 1, 1987 their excuse was that they were accidents. They weren't, but they have lots of accidents. 23-4

* Nuclear Power is a cover for Nuclear weapons programs Cover 23-5

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 23: NUREMBERG ACTIONS

Response to Comment No. 23-1

The commentor's assertion that 100 accidents were exposed in a Channel 2 story by Ronald DeWolk a couple of years ago, is noted. Several accident scenarios, including severe accidents, were analyzed during preparation of the EIS. Results of the accident analysis at the ports are given in Section 4.2.2 of the EIS with supporting detail in Appendix D, Section D.5. The risk to health and safety of the public from these accidents is assessed to be low.

Response to Comment No. 23-2

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE will be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE will be managed at the Idaho National Engineering Laboratory. Proposed management sites do not have low populations because of spent nuclear fuel management activities were forced on them in the past.

Response to Comment No. 23-3

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide (Section 1.2 of the EIS). The analysis demonstrates that acceptance of this foreign research reactor spent nuclear fuel in the U.S. would not pose a significant radiological risk (Section 4.8.3 of the EIS) either to the human population or the environment. In fact, the reduction of potential availability of the HEU outside the U.S. is a primary goal of our nuclear weapons nonproliferation policy.

Response to Comment No. 23-4

As the result of public concern born from a September, 1993 television report, the Contra Costa County Board of Supervisors initiated an investigation of the safety at Concord NWS. Their report on the subject, Safety at the Concord NWS dated November 2, 1993, concluded in part, "There were no incidents involving explosions or radiation exposure....Many of the reported incidents were not accidents caused by Weapons Station employees but, rather, were discoveries by employees that materials being received had been damaged during loading or transit. In some cases the shipments had not been properly blocked, braced or banded."

COMMENTOR NO. 23: NUREMBERG ACTIONS (CONT'D.)

and the criminality inherent in preparing for indiscriminate mass annihilation. 23-5 (Cont'd.)

RESPONSE TO COMMENT
COMMENTOR NO. 23: NUREMBERG ACTIONS (CONT'D.)

In fact, the safety record at Concord NWS is significantly better than that of ports in the private sector with similar activities. According to the Department of Labor statistics, for the category of marine cargo handling, the number of lost workday cases per 100 full-time workers for 1993 was 7.1 nationwide (current data not available), which is typical. The number of lost workday cases per 100 workers at Concord NWS for the first three quarters of fiscal year 1995 was 5.3, which is also typical for Concord.

Response to Comment No. 23-5

Foreign research reactors are used for medical therapy, analysis, and research. They are also used to conduct research on materials and the environment, and to produce radioisotopes for leak detection. Foreign research reactors are not used for weapons or commercial power production. Section 1.1 of the EIS describes medical and commercial applications of foreign research reactors.

COMMENTOR NO. 32:
SAN FRANCISCO BAY CHAPTER OF THE SIERRA CLUB

Text of oral comments by Lara Hilder on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, Concord, CA, 22 May 1995. Lara Hilder is Chair of the Disarmament Subcommittee of the San Francisco Bay Chapter of the Sierra Club and has served as a member of the national Military Impacts on the Environment Committee (1990-1995).

The Sierra Club supports the goals of the Nuclear Non-Proliferation Treaty. The Club also has serious concerns about transportation, storage and potential environmental impacts of nuclear materials. For a long time the Sierra Club has been involved with the issue of with shipment of spent nuclear reactor fuel into the US. For example, several years ago the Club pursued legal action to force DOE to prepare this Environmental Impact Statement before accepting spent fuel rods (of US origin) from countries with research reactors.

Because permanent disposal methods are not yet available, the Club urges DOE, whenever possible, to pursue continued secure storage of the spent fuel rods in the countries where they have been used. More than three quarters of the source countries are affluent nations that are strong allies of the US, and they already have experience with nuclear materials: Canada, Austria, Japan, Sweden, Finland, Netherlands, Germany, Denmark, the United Kingdom, for example. With appropriate input from the US, proliferation risks can be minimized. 32-1

The Club is concerned that, by continuing to accept these spent fuel rods, the US encourages other nations to recklessly pursue nuclear power and the production of medical and industrial isotopes without accepting the consequences of confronting the need for permanent disposal of both high and low level enriched wastes. 32-2 The situation is especially bizarre with respect to the United Kingdom. Under the proposed action the UK will ship spent fuel rods to the US for permanent storage; however the UK would be happy to accept such material from other countries for reprocessing as long as the country of origin were to accept the final vitrified waste products! 32-3

The Sierra Club has an umbrella structure, with a national organization and local chapters. As such, each chapter may raise specific concerns with the DEIS. For example, the San Francisco Bay Chapter shares with many other citizens, legislators, officials and groups numerous concerns about safe handling and transportation of the spent fuel rods in boats through the heavily traveled San Francisco Bay and in trucks and trains through populated areas of the western states. 32-4 But merely transferring the risk to other areas of the country will not solve the long term problem of disposal. Souce reduction and permanent disposal methods are essential. 32-5

Further written comments on the DEIS will be submitted.

RESPONSE TO COMMENT
COMMENTOR NO. 32:
SAN FRANCISCO BAY CHAPTER OF THE SIERRA CLUB

Response to Comment No. 32-1

The commentor's preference for the alternative of overseas storage is noted. This is Management Alternative 2, Subalternative 1a, which is discussed in Sections 2.3 and 4.4.1 of the EIS.

Response to Comment No. 32-2

An objective of the proposed action is to reduce the risk of nuclear weapons proliferation (Section 1.2 of the EIS). Because of the research, medical, commercial, and educational benefits available from research reactors, foreign nations are reluctant to shut down their research reactors. Thus, the intent of the proposed policy is to remove as much U.S.-origin HEU as possible from civil programs worldwide and give foreign research reactor operators time to convert their reactors to the use of LEU fuels and to make arrangements for disposition of their LEU spent nuclear fuel (Section 1.2 of the EIS). In addition, the U.S. accrues significant benefits from the operation of foreign research reactors - including Moly-99 and other medical isotopes.

Response to Comment No. 32-3

The EIS discusses the acceptance of spent nuclear fuel from the United Kingdom and it also discusses the possibility of assisting other nations in shipping their spent nuclear fuel to the United Kingdom to be reprocessed there. These actions are included among the wide range of reasonable alternatives in this EIS because such alternatives accomplish the goal of reducing the risk of nuclear weapons proliferation. The Department of State is currently negotiating with the United Kingdom in an effort to assure that any of the HEU spent nuclear fuel that might be reprocessed there would be blended down to LEU at the reprocessing site, which would support the goal of nuclear weapons nonproliferation.

Response to Comment No. 32-4

The passage from San Francisco Bay to Concord NWS meets the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2 of the EIS). Favorable transit from open ocean is only one of the considerations in selecting ports of entry for the foreign research reactor spent nuclear fuel. The population distribution within the port(s) and along truck and rail routes was considered in the EIS (Appendix D, Section D.1.9.5 and Attachment D3 of the EIS). Other considerations, such as port population, port experience with handling containers, and port facilities, have also been considered in making the final selection of ports of entry. Appendix D, Section D.1.9 presents details of the port selection process.

Response to Comment No. 32-5

DOE agrees with this comment. Source reduction and permanent disposal methods are essential, but these subjects are outside the scope of this EIS.

COMMENTOR NO. 36: SEATTLE WOMEN ACT FOR PEACE

To: Charles Head, Program manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

From: Kathryn A. Crandall — representing for Seattle Women Act for Peace
1215 Queen Anne Ave. No. #5
Seattle, WA 98109

Date: May 24, 1995

Comments on **Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel**

This hearing and current Environmental Impact Statement (EIS) process is another round in an elaborate shell game USDOE is playing with some of the most lethal stuff on earth. Shipping high level nuclear waste through the Puget Sound has been proposed several times - and each time we have said no, and we have asked that minimal common sense safety issues be addressed. The citizens of Washington State have said no, elected officials have said no, the longshoremen have said no and a federal court has said no to high-level waste imported this way. Still with arrogance and lack of common sense this plan has been resurrected again, Leaving us to ask: What part of NO is it hat USDOE does not understand? Again we are asked to accept the world's nuclear waste, at our taxpayer expense, via commercial transport with little to no preparation for major safety problems - like a shipboard fire. 36-1

Worse, USDOE does not present in this EIS credible plans for the long-term storage and management for this spent nuclear fuel (SNF). USDOE's management is akin to saying, "Quick the elephants are here, should we build a zoo?" Now, Hanford and all the other "zoos" are overcrowded and there's no funding for more. Hanford has significant complicated problems dealing with the fuel rods and other nuclear waste it has now. It is completely unacceptable to just pile SNF higher and deeper at the same time USDOE is in the process of turning its back on the commitment to cleanup the mess its already made at Hanford and other sites. Further, if USDOE plans (as one option states) to transport the SNF all the way across the country to Savannah River, or another Eastern site, hearings should be held in every single community between here and there along the transport route. 36-2 36-3 36-4

RESPONSE TO COMMENT
COMMENTOR NO. 36: SEATTLE WOMEN ACT FOR PEACE

Response to Comment No. 36-1

The commentor's opposition to the proposed action is noted. DOE is considering accepting the foreign research reactor spent nuclear fuel at any of 10 ports selected on the basis of specific criteria described in Section 2.6.3.1 of the EIS. For each port selected, the impacts from activities related to the shipments of foreign research reactor spent nuclear fuel were evaluated in Section 4.2.2. The evaluation includes impacts from routine activities, credible accidents (including shipboard fires), emergency management and response, cumulative impacts, mitigation measures, and environmental justice concerns. The risk to the environment and the health and safety of workers and public resulting from the proposed action for all candidate ports was determined to be low.

Response to Comment No. 36-2

Ultimate disposition of DOE's spent nuclear fuel, including the foreign research reactor spent nuclear fuel that may be accepted into the United States, is a high priority. For planning purposes, DOE has determined that its spent nuclear fuel, including foreign research reactor spent nuclear fuel, that is not otherwise dispositioned (e.g., chemically separated, with the high-level waste being converted into a vitrified glass for repository disposal) is authorized for disposal in a geologic repository. However, since the repository characterization program is in its early stages, the waste acceptance criteria for deposit of DOE's spent nuclear fuel in a repository have not been developed. Thus, a determination cannot be made at this time as to the requirements that must be met to allow placement of the foreign research reactor spent nuclear fuel in the repository. As a result, the analysis in the EIS for the time period beyond 40 years is qualitative rather than quantitative. The impacts due to ultimate disposition are discussed qualitatively in Section 4.2.7 of the EIS.

Response to Comment No. 36-3

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE will be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE will be managed at the Idaho National Engineering Laboratory. Accordingly, no foreign research reactor spent nuclear fuel would be shipped to the Hanford Site.

COMMENTOR NO. 36: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

The richest irony in this EIS is USDOE's justification that this importation plan furthers nonproliferation goals. It sounds good, since we all want to prevent nuclear weapons proliferation, but this goal is not met by USDOE's plans to import nuclear waste. First, many of the countries we are taking SNF from do not pose any threat of pursuing increased nuclear arms development (Sweden, Australia, Denmark, for example.) Second, much of the SNF is low enriched uranium which is difficult, at best, to divert into a nuclear weapons program. Otherwise, would we really be providing nuclear reactors to countries like North Korea? Finally, Nitric Acid laced with nuclear waste is right now, today in fact, being shipped from Hanford to Britain, to be reprocessed by British Nuclear Fuels. Britain is among the countries that we are taking SNF back from. Talk about two ships passing in the night. With our right hand we are taking poisonous candy (SNF) away from Britain, and with our left hand we're giving it back. 36-5

Moreover, problems with a nitric acid sample last Fall demonstrate the problems in shipping weapons useable and lethal nuclear material. The sample shipment was miss-directed or as the British press stated "lost in the Post." USDOE has done little to prevent diversion by terrorists in this transport of these SNF shipments. After Oklahoma City, we should be especially concerned about diversion of weapons useable material in this country.

If the U.S. really wants to strengthen the non-proliferation regime, we would get busy at Hanford and share cleanup and safe management technologies with other countries. Already technology is available to safely store their nuclear waste where it is - alleviating any need to reprocess it or ship it all around the world , inviting accidents or terrorist diversion. By opening Hanford and other sites to full inspection by the International Atomic Energy Association, and encouraging other countries to do the same, we can create the transparency and verification needed for a strong non-proliferation regime. Most importantly the U.S. really ought to redouble its efforts to adhere to its treaty obligation under Article VI of the Non-proliferation Treaty, and work toward nuclear disarmament. 36-6

RESPONSE TO COMMENT
COMMENTOR NO. 36: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

Response to Comment No. 36-4

It would not be feasible, nor does NEPA require, a hearing be held in every community along a potential transportation route. As such, a total of seventeen public hearings were held on the draft EIS in the locations determined most likely to be directly affected by the EIS alternatives, specifically in the ports of entry and at the potential management sites.

Response to Comment No. 36-5

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly-enriched (weapons-grade) uranium in civil programs worldwide. Successful implementation of the proposed policy would remove as much U.S.-origin HEU as possible from civil programs worldwide while giving foreign research reactor operators time to convert their reactors to the use of LEU fuels and to make arrangements for disposition of their LEU spent nuclear fuel (Section 1.2 of the EIS).

Overseas management of spent nuclear fuel is one of three management alternatives under consideration (Sections 2.2 through 2.4 of the EIS). The option of overseas reprocessing will be evaluated in terms of actions which support the reduction of international commerce in HEU.

Response to Comment No. 36-6

International Atomic Energy Agency inspection efforts at the Hanford Site and other candidate management sites are outside the scope of this EIS. Section 2.6.5 describes storage technologies and site management options that would be used if a policy of acceptance into the United States were adopted.

The proposed action lends important support to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the nuclear weapons nonproliferation efforts of the United States because it would reduce international commerce in highly enriched (weapons-grade) uranium and encourage the use of LEU in civil programs worldwide. Removing HEU from commerce and supporting peaceful uses of nuclear energy as stated in Article 4 of the NPT would help further the cause of nuclear disarmament as called for in Article 6 of the NPT.

COMMENTOR NO. 37: HEART OF AMERICA NW

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: CINTHIA SARTHOU **Phone:** 382-1014

Title and Organization: HEART OF AMERICA NW

Address: 1305 4th St., SUITE 208

City: SEATTLE **State** WA **Zip** 98101

*** COMMENTS ***

RESPONSE TO COMMENT
COMMENTOR NO. 37: HEART OF AMERICA NW

COMMENTOR NO. 37: HEART OF AMERICA NW (CONT'D.)

Presentation on Spent Fuel

Transport Risks One option listed in the EIS is to truck the foreign spent fuel from the Port of Entry to either INEL or Savannah River. From Tacoma, this would require transport down I-5 to Portland and then across the Columbia River Corridor.

Trucks are not an extremely safe method of transportation of this material. This material would be hauled by Commercial Carriers. The 1991, Washington State Department of Health's compilation of data on commercial haulers of radioactive waste showed that up to 50% of the firms in this state handling this material has been cited for major safety deficiencies when inspected at the state border. Nevertheless, because of the government veil of security surrounding these shipments, they will not be inspected at the state border or anywhere else along the route. 37-1

Just as importantly,USDOE has failed and refused to assist communities along these transportation routes in equipping themselves to handle a possible accident. In fact, USDOE has, in the past, resisted efforts by communities to obtain USDOE funding for monitoring, training and equipping local emergency responders. Local fire fighters simply do not presently have the necessary radiation training and equipment necessary to respond to an accident involving spent fuel shipments. 37-2

So in this hearing, we must insist that if USDOE continues with its plans, they pay the full costs of training, equipment and monitoring required by local emergency responders to safeguard the health and safety of the public along the transportation routes. And, that this be provided before the begin shipment of this material.

Hanford as the Storage Site USDOE's proposal includes Hanford as a possible site for storage of this fuel after receipt. The EIS speaks in terms of Hanford as a Phase II storage facility, that is, the fuel would be shipped to INEL and/or Savannah River until a new facility, on the 200 Area Plateau intended for long term storage, could be constructed at Hanford (est. at approx. 10 years). Then it would be shipped from Savannah River and/or INEL to the Hanford facility.

Hanford is clearly not an acceptable site for the storage of foreign reactor fuel. Hanford already has a leaking storage pool of High Level spent fuel, known as the K Basin, which sits alongside the Columbia River. Although USDOE has conceded that K Basins are a major problem at Hanford, they are having difficulty coming up with the money to solve that problem. They have proposed construction of a new facility at Hanford to hold the K Basin fuels. Construction of this facility and removal of the spent fuel from K Basins is, and should remain the number one priority of USDOE at Richland. This facility should not be expanded, and transfer of spent fuel from K Basins delayed, so that Hanford can become the garbage can for the worlds nuclear waste. 37-3

The time estimates for storage of this spent fuel are unknown, but the EIS speaks in terms of storage until final disposition. The only options for disposition being considered are Yucca Mtn. Since the House Budget Resolution zero funds Yucca Mtn., this is probably no longer an option. In fact, the Congress is considering an "existing USDOE Site" for storage of the commercial fuel intended for Yucca Mtn. So if Hanford gets the foreign spent fuel you can bet your bippie that we will get the Commercial spent fuel as well. 37-4

The second option being discussed is reprocessing. Hanford's processing facilities are antiquated and cannot safely be restarted. Moreover, USDOE is already having extreme trouble attempting to handle and dispose the waste produced by its last efforts at reprocessing. (In fact, we still have 144 tanks full of that waste that has not been adequately addressed.) Clearly, USDOE should not consider reprocessing as an option. 37-5

RESPONSE TO COMMENT
COMMENTOR NO. 37: HEART OF AMERICA NW (CONT'D.)

Response to Comment No. 37-1

DOE contacted the Commercial Vehicle Division of the Washington State Highway Patrol in response to this comment, but was not able to ascertain the source of the commentor's statistic about 50 percent of the trucking firms having serious safety defects. From January 1 through August 15, 1995, out of 301 radioactive shipment inspections performed by the Highway Patrol at Plymouth, WA, only ten vehicles were issued citations. This is a citation rate of only three percent, not fifty percent. Furthermore, none of the ten citations were for serious safety defects. DOE would not attempt to prevent the State from conducting inspections. DOE recognizes its responsibility to assure that its hazardous materials are transported safely. DOE has developed and implemented a mandatory Motor Carrier Evaluation Program (MCEP). The criteria for evaluating motor carriers in the MCEP include checks of the following attributes:

- Hazardous Material Transport Experience,
- Equipment Profile,
- Insurance Requirements,
- Financial Stability,
- Carrier Safety Programs,
- Drivers (including: Training Program, Selection Criteria, Turnover Rate, and Incentive Program),
- Carrier Management,
- Equipment Maintenance Program,
- Hazardous Material Routing Policy,
- Security,
- U.S. Department of Transportation OMC Safety Rating, and
- Carrier Interviews.

Trucking firms with poor safety records would be excluded from transporting the foreign research reactor spent nuclear fuel under the mandatory MCEP, which is described above.

Response to Comment No. 37-2

DOE considers that there is adequate regulatory and emergency preparedness infrastructure to ensure the safe acceptance and transport to designated management sites if the foreign research reactor spent nuclear fuel is managed in the United States. Federal funding to State, Tribal, and local governments for maintaining emergency response programs is discussed in Section 2.7.1. There are three national emergency response plans under which DOE provides radiological monitoring and assessment assistance. Under these plans, DOE provides technical advise and assistance to the State, Tribal and local agencies involved with a radiological incident. Emergency preparedness, security, and coordination

COMMENTOR NO. 37: HEART OF AMERICA NW (CONT'D.)

RESPONSE TO COMMENT
COMMENTOR NO. 37: HEART OF AMERICA NW (CONT'D.)

of DOE with local emergency response authorities, and security are discussed in general in Sections 2.7 and 2.8 of the EIS. Details would be contained in the Transportation Plan, that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments.

Response to Comment No. 37-3

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE will be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE will be managed at the Idaho National Engineering Laboratory. Accordingly, no foreign research reactor spent nuclear fuel would be shipped to the Hanford Site.

Response to Comment No. 37-4

If it is accepted into the United States, the foreign research reactor spent nuclear fuel would be managed until ultimate disposition in a geologic repository. This is Management Alternative 1 or 3, as discussed in Sections 2.2 and 2.4 of the EIS. A repository may be ready as early as 2015, but the environmental impact calculations in this EIS are based on an assumed management period of 40 years. DOE did not examine the possibility of management for longer periods of time because the scope of the EIS is limited to 40 years. The candidate repository at Yucca Mountain, NV, is still under consideration.

The potential acceptance of commercial spent nuclear fuel at the Hanford Site is outside the scope of this EIS.

Response to Comment No. 37-5

See response to comment 37-3, above.

COMMENTOR NO. 38: INTERNATIONAL LONGSHOREMEN'S AND WAREHOUSEMEN'S UNION

International Longshoremen's and Warehousemen's Union
LOCAL 23
(206) 383-2468
1710 MARKET STREET
TACOMA, WASHINGTON 98402

May 24, 1995

Gentlemen;

When our union was informed that we may be chosen as a port of entry for the spent nuclear waste, many questions immediately came to mind. The natural fear of what would happen if there was an accident, and what precautions would be taken in order to prevent this from occurring. The Longshore Union in Tacoma is not only concerned about possible exposure to themselves if an accident were to occur, we are also concerned with what devastation could happen to our community, and what local agencies are trained to handle such an accident. *38-1*

Security is another concern. The Port of Tacoma has relatively easy access, whereas the security in the two government ports under consideration, Military Ocean Terminal, Sunny Point, North Carolina, and Navel Weapons Station, Concord, California, have a far superior degree of security already in place. This must be considered with today's social climate with regard to acts of terrorism against the government. *38-2* The Puget Sound has two of the busiest ports in the nation, Tacoma and Seattle; both being in the top ten in the country, therefore the amount of ship traffic should have been a consideration when choosing possible sites and we feel this was not done. *38-3*

Tacoma is proud of its Port and the Longshore Union is equally as proud of its accomplishments. I started working on the Tacoma Docks in 1964, and I have seen and been a small part of the growth since then. It has taken years of dedication, cooperation, and hard work from City Officials to laborers from Port Officials to shipping companies. The entire community has contributed to making the Port of Tacoma achieve its "Major Port Status" worldwide. We believe to choose Tacoma as a Port of Entry for spent nuclear waste would turn that completely around, and this could make companies take a second look at relocating their business in the Port of Tacoma. *38-4*

You have mentioned cost as being a factor and we wonder if you have given any consideration to what price we in Tacoma may have to pay. We loudly say the price is to high!

Sincerely,

Dick Marzano
President Local #23

nuclear/wd/ns/DM

RESPONSE TO COMMENT
COMMENTOR NO. 38: INTERNATIONAL LONGSHOREMEN'S AND WAREHOUSEMEN'S UNION

Response to Comment No. 38-1

Several accident scenarios, including severe accidents, were analyzed during preparation of the EIS. Results of the accident analysis at the ports are given in Section 4.2.2 of the EIS with supporting detail in Appendix D, Section D.5. No catastrophic effects were found to result from severe accidents involving foreign research reactor spent nuclear fuel at any of the ports analyzed.

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Appendix H, which was added to the final EIS in response to public comments, contains the general provisions for emergency preparedness and security measures associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. These issues include capabilities and training of first emergency responders. Funding for special needs, if necessary, would be addressed during this interface.

Response to Comment No. 38-2

Section 2.8 of the EIS addresses the security measures that would be taken to ensure that there would be no unacceptable risks of terrorism or theft of materials. DOE considers that foreign research reactor spent nuclear fuel could safely be received at commercial ports, as it has in the past, without additional security that might be present at military bases. The security provided for the spent nuclear fuel shipments would be required to meet or exceed all the applicable security requirements in the Code of Federal Regulations (10 CFR Part 73). If any port did not already provide security sufficient to satisfy these requirements, it would be the responsibility of the shipper to provide the required additional security. Nevertheless, the commentor's preference for the use of military ports is noted.

Neither acts of terrorism nor theft of materials by a determined group or individual can be completely precluded. However, proper security measures can greatly reduce the risk of such actions. Security would be provided for all shipments of foreign research reactor spent nuclear fuel, as required by the Code of Federal Regulations (10 CFR Part 73). The

COMMENTOR NO. 38: INTERNATIONAL LONGSHOREMEN'S AND WAREHOUSEMEN'S UNION (CONT'D.)

RESPONSE TO COMMENT
COMMENTOR NO. 38: INTERNATIONAL LONGSHOREMEN'S AND WAREHOUSEMEN'S UNION (CONT'D.)

security provisions are summarized in Appendix H of the EIS. This appendix presents the general provisions of the Transportation Plan, which is a document that would be prepared for each foreign research reactor spent nuclear fuel shipment to specify details of the transportation process, including security provisions in port and during transit.

Response to Comment No. 38-3

The port selection process does not specifically consider the amount of marine traffic as a criterion. The volume or size of the local marine traffic (present or future) was not considered in the calculation of risk associated with the shipment of foreign research reactor spent nuclear fuel. In general, the number of ship mishaps is not proportional to the amount of ship traffic because port ship traffic is slow, and even when heavy, is normally a small number of ships per hour. Historically, increasing the volume does not significantly increase the probability of an accident. Rather, the number of ship mishaps is associated with navigational hazards and distances from the port to the open ocean or a large bay (Appendix D, Section D.1.9.2 of the EIS). Appendix D, Section D.5.3.1.3 presents a discussion of the determination of the probability of ship accidents used in the EIS.

Response to Comment No. 38-4

DOE considers that the use of any of the ports indicated by the port selection process, including Tacoma, would not impact normal commercial operations, and therefore not endanger the ports' status with respect to their clients. This is based on the fact that the foreign research reactor spent nuclear fuel would be accepted into the United States in standard shipping containers that would require no special handling or precautions. As such, there should be no adverse commercial or economic reaction to the use of the port. Historically, there were no adverse commercial impacts to the ports that received foreign research reactor spent nuclear fuel for the 30 plus years it was received.

COMMENTOR NO. 45:
BRADWOOD, OREGON PRIVATE PORT

Jess E. Minium, Jr.
Attorney at Law
P.O. Box 120
Kelso, WA., 98626
Phone: (360) 577-5606
Fax: (360) 577-5606
(Phone before faxing)

May 25, 1995

Director
U.S. Department of Energy
Washington D.C.

RE: Public Hearing for environmental impact statement on use of Port of Portland, Oregon for return of foreign nuclear reactor rods to United States.

Dear Sir:

Please enter this letter as part of the written responses to the public hearing on the above referred matter and note that the following objections are made:

1. Port of Portland is a PUBLIC port. All decisions are subject to the Committee process. As a public port, many varied interests will compete for a decision for or against any question. Timely decisions are impossible. 45-1

2. The Port of Portland is in a heavily populated center. The citizens see great danger in this project. Approval of the citizens could only be accomplished by placing the project somewhere else, i.e., not in my back yard. 45-2

3. The Port of Portland is controlled by existing labor contracts. All decisions are subject to labor contract inter-meddling. The project would be held hostage to their demands. 45-3

These three factors are controlling to a proper decision on the matter. It would seem that all of the above objections would apply to not only to the Port of Portland, but also to the other Ports under consideration.

The best alternative and safest solution is a PRIVATE Port.

A Private Port would be away from the population center, able to make decisions by the authority of owner without Public interaction, and would not be under existing contract to the labor unions. Such a Port exists at historic BRADWOOD, OREGON, on the Columbia River. 45-4

Dept. of Energy/Nuclear Port.
Page 1 of 2 pages.

RESPONSE TO COMMENT
COMMENTOR NO. 45:
BRADWOOD, OREGON PRIVATE PORT

Response to Comment No. 45-1

The comment that the Port of Portland is a public port and that its decisionmaking process may be slow as a result, is noted.

Response to Comment No. 45-2

DOE considers that the port selection criteria successfully indicates ports that can safely handle foreign research reactor spent nuclear fuel. The analysis in the EIS indicates that the use of any of the ports indicated by the port selection process, including the Port of Portland, would not pose any significant risk to either the port personnel or the population near the port (Section 4.2.2 of the EIS). The port selection process only identifies ports that are acceptable for the receipt and handling of foreign research reactor spent nuclear fuel, it does not determine which port is best. The decision as to which port or ports would be used in the case that foreign research reactor spent nuclear fuel is accepted into the United States, will be in the Record of Decision. The population in the port, surrounding areas, and along the route to the management site(s) is only one of the many factors that must be considered in determining the best port. All population in the area of the port, including the population in close proximity of the terminal, was considered when the effects of possible accidents were calculated (Appendix D, Section D.5 of the EIS). These calculations demonstrate that the risk from accidents to all individuals is low.

Response to Comment No. 45-3

Although many ports are involved with unionized labor, this was not a consideration in selecting which ports could safely handle foreign research reactor spent nuclear fuel. If the decision is made to accept foreign research reactor spent nuclear fuel into the United States, DOE would work with ports and their labor unions to carry out the policy.

Response to Comment No. 45-4

The port selection process did consider public and privately owned commercial ports.

Commentor No. 45:
Bradwood, Oregon Private Port (Cont'd.)

This Private Port's location near the mouth of the Columbia River, away from population centers, with it's zoning status for Marine Industrial, with the absence of existing labor union contracts, makes Bradwood uniquely suited and the best alternative, for a hazardous and nuclear products terminal.

The property has historic use between 1842 and 1965, as the site of a lumber mill and deep river port consisting of approximately 400 acres, 75 acres presently zone for Marine Industrial, with an waste deposit site designation, located on the Columbia River at Bradwood, Oregon, between Columbia River milepost 37 and 39, about 30 miles east of the mouth of the Columbia River and about 70 miles down river from Portland, Oregon.

On the river side, the property line extends to the navigable channel of the Columbia River, affording 7000 of River frontage. The channel is 40 feet deep and is regularly maintained by the U.S. Army Corps of Engineers.

The property is served by the Burlington Northern railway with a direct line to the Portland hub and all states in the continental U.S.A. It is also accessible to and from Oregon State Highway 30, leading to Portland, Oregon, by a two mile county road. Bridge access to the State of Washington canbe had 20 miles northeast and 30 miles west of the property.

The property has a rock quarry with an estimated 11 million tons of high quality rock, suitable for jettyrock.

The owners of Bradwood are ready, and willing to enter into a substantial contract with the Department of Energy. Such a contract would require the construction of proper terminals. Although this would take time and money, any belief that the project can be maintained at a public port, ignores the public interest that would be provoked by such a project, the expensive, inflexible, and controlling interests of the labor unions, and the local political decisions by committee of the port districts.

After due considerations, I believe the best alternative for this project is a Private Port controlled by a reasonable contract.

All inquiries are to be make through my office.

Sincerely,

JESS E. MINIUM, JR.
Attorney at Law

cc: Ken G. Niles
Oregon Dept. of Energy.

Dept. of Energy/Nuclear Port.
Page 2 of 2 pages.

Response to Comment
Commentor No. 45:
Bradwood, Oregon Private Port (Cont'd.)

COMMENTOR NO. 46: HANFORD ACTION OF OREGON

Robin Klein, Hanford Action of Oregon
PO Box 42633
Portland, OR 97242
(503) 235-2924

Spent Fuels Public Hearing
Portland, OR

May 25,1995

I have no new wisdom to offer here. I can only say that what we've said before, we now say even more strongly. Hanford Action of Oregon opposes acceptance of foreign spent nuclear fuels. There are primarily two compelling reasons.

1) Transportation risks are unacceptable. Accidents can never be fully prevented. The potential harm from just one malady is just too terrible to risk. Furthermore, it is almost impossible to completely safeguard against terrorism or theft of the cargo. It is well accepted that, it is during transit that a shipment is most vulnerble to interception or easy attack. If we agree to accept back spent fuels from foreign lands, these shipments will have to travel great distances across the seas. As physician Helen Caldicott, founder of Physicians for Social Responsibility, expressing her concern about shipping spent fuel rods from Japan to Britain and France for reprocessing, said "if the 1.7 tons of plutonium (on a single ship) burned, depending on wind currents, most inhabitants of the globe could be in peril". . . and, "If the ship had to dock in an emergency, any port along the route would be vulnerable." 46-1

Clearly, if Hanford is the destination, and the Port of Portland the port of entry, we here, in the greater Portland/Vancouver area, will be at the greatest risk of all, as shipments sail down our Columbia River, through our cities. Needless to say a catastrophic accident or sabotage could be devastating to our population and environment. We also reject transportation, by rail or highway, of such spent fuels, for safety reasons as well. 46-2 46-3 46-4 46-1 (Cont'd.)

The Nuclear Free Port Coalition, a coalition of labor, community, and environmental organizations here in Portland, has said NO shipments of spent nuclear fuel through our port. The longshoremen don't want to handle these dangerous cargos, environmentalists don't want to subject the environment to possible releases of longlived radionuclides, and above all the public doesn't want these threatening cargos on their rivers, passing through their cities. 46-5

RESPONSE TO COMMENT
COMMENTOR NO. 46: HANFORD ACTION OF OREGON

Response to Comment No. 46-1

The commentor's opposition to transportation of spent nuclear fuel by rail or highway is noted. Nuclear weapon nonproliferation is important, however, and the calculations in Section 4 of the EIS demonstrate that any environmental impacts for both accident and incident-free activities would be low.

Response to Comment No. 46-2

Section D.5.9 has been added to Appendix D of the EIS to address the issue of terrorism and sabotage. One of the attack scenarios postulates hijacking a transportation cask full of spent nuclear fuel.

Appendix H was added to the final EIS in response to public comments to better describe the security and emergency preparedness associated with transportation of the foreign research reactor spent nuclear fuel. This appendix presents the general provisions of the Transportation Plan, which is a document that provides all of the details associated with the transportation of the foreign research reactor spent nuclear fuel, including the security arrangements in port and in transit to the management sites.

Response to Comment No. 46-3

The probability of an accident at sea is discussed in Appendix C, Section C.5.5 of the EIS, while the port accident probabilities are found in Appendix D, Section D.5.3.1.3. The analysis in the EIS indicates that the risks associated with an accident are low (Sections 4.2.2.3 and 4.5). With respect to accidents involving a fire as mentioned by the commentor, the EIS contains the results of an analysis of the effects of an accident that involves a severe fire (severity category 6), during which an airborne release of radioactive material results. The results of the analysis of these accidents can be found in Appendix D, Section D.5.4. The analysis indicates that even in the event of a severe ship fire, neither the consequences nor risks are great (Appendix D, Section D.5.5). Although the nonradiological effects of such a catastrophic accident would obviously impact the local environment, no additional impacts are predicted due to the presence of foreign research reactor spent nuclear fuel. If a ship were forced to dock in an emergency, the analysis of the consequences associated with an accident in port involving foreign research reactor spent nuclear fuel determined that no decontamination, interdiction, or condemnation of property would result from the worst plausible accident (Section 4.2.2.3 and Appendix D, Section D.5 of the EIS).

Response to Comment No. 46-4

The analysis of the consequences and risk associated with an accident in port involving foreign research reactor spent nuclear fuel determined that no decontamination,

COMMENTOR NO. 46: HANFORD ACTION OF OREGON (CONT'D.)

Furthermore, Senator Wyden points out that "DOE's analysis of potential hazards . . . minimizes the risks to US workers and the general public." 46-6

The second reason,

2) The US has yet to establish a national plan for disposition of fissile materials. In other words, we don't know what to do with our own nasty stuff. Safety and transportation issues aside, if that were possible, we have no business considering importation of foreign spent fuels in the absence of an adequate plan for managing them. 46-7

Not to mention the absence of adequate dollars. Hanford, a prime destination candidate for foreign spent fuels has lost a lion's share of its own cleanup budget. Clean up goals, for the existing mess at Hanford, already threatening our waterways and health -- will be more difficult than ever to meet, if possible at all, given the most recent government cuts. Is the intention here to dump and forget, calling Hanford a national sacrifice zone? Problem is all that waste doesn't stay in one place, it moves, it leaks, and it becomes unstable, and it needs to be dealt with or the "national sacrifice zone" will include our homes and the Columbia River as well. 46-8

We do not believe reasons given for importation are sound. 46-9

It would be cost effective, and far safer, to aid foreign countries in managing spent fuels on-site, and avoid dangerous shipping. No DOE facility currently accepts domestic spent fuels at this time. Why should we accept foreign spent fuels? Our government is still in the process of establishing a national policy on plutonium and other fissile materials dispositon -- hopefully this year. But this spent fuels EIS is putiing the cart before the horse and makes no sense. 46-10

RESPONSE TO COMMENT
COMMENTOR NO. 46: HANFORD ACTION OF OREGON (CONT'D.)

interdiction, or condemnation of property would result from the worst plausible accident (Section 4.2.2.3 and Appendix D, Section D.5 of the EIS) and that the risk associated accidents in port for the entire proposed action, was low. Likewise the consequences and risks associated with marine transport were found to be low (Section 4.2.1.3 of the EIS).

DOE is confident that the foreign research reactor spent nuclear fuel can safely be transported to the management site(s), if the foreign research reactor spent nuclear fuel is accepted into the United States. The security measures employed would meet or exceed all the security requirements in the Code of Federal Regulations (10 CFR Part 73). DOE supports these regulations as being adequate to protect the foreign research reactor spent nuclear fuel. If any port did not already provide security to satisfy these requirements, it would be the responsibility of the shipper to provide the required additional security.

See also the second paragraph of the response to Comment 46-2, above.

Response to Comment No. 46-5

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Port of Portland is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Port of Portland, or to any of the ports analyzed in the EIS, is low.

Response to Comment No. 46-6

The analysis in the EIS is conservative, which means that it tends to overstate the risks. Since the commentor did not provide any specific examples of minimized risk estimates in the EIS, DOE cannot respond in specific terms.

Response to Comment No. 46-7

The Nuclear Waste Policy Act of 1992, enacted as Public Law 97- 425, specifies that the Federal policy of the United States of America is to dispose of spent nuclear fuel and high-level radioactive wastes in geologic repositories. This Act, as amended, specifies the process whereby such geologic repositories are to be sited and brought into operation. The process of implementing the requirements of Public Law 97-425 is well advanced and is proceeding expeditiously. As noted in Section 4.2.7 of the EIS, DOE has determined that the foreign research reactor spent fuel is authorized for disposal in a geologic repository.

Response to Comment No. 46-8

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho

National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE would be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE would be managed at the Idaho National Engineering Laboratory. Accordingly, no foreign research reactor spent nuclear fuel would be shipped to the Hanford Site.

Response to Comment No. 46-9

The commentor's opposition to management in the United States of spent nuclear fuel from foreign research reactors is noted. As discussed in Section 1.2 of the EIS, there are several compelling reasons to manage foreign research reactor spent nuclear fuel. The key reason is to advance U.S. and worldwide interests in nuclear weapons nonproliferation. By managing the foreign research reactor spent nuclear fuel, the United States can continue and expand its widely supported policy of removing HEU from civilian programs worldwide. Management in the United States is one of the management alternatives under consideration and would be technically, politically, and economically more advantageous than management in as many as 41 separate countries. Other policy options include overseas management of some or all of the spent nuclear fuel, and no action. Issues relating to the cleanup at the Hanford site are outside the scope of this EIS.

Response to Comment No. 46-10

The commentor's preference for Management Alternative 2 (overseas management) is noted. Spent nuclear fuel from domestic research reactors is currently accepted for interim storage at the Savannah River Site and Idaho National Engineering Laboratories. As stated in Section 1.2 of the EIS, the intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons grade) uranium in civil programs worldwide.

COMMENTOR NO. 56: HEART OF AMERICA NORTHWEST

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: G. Pollot Phone:

Title and Organization: Heart of America NW

Address: see other

City: State Zip

*** COMMENTS ***

Does basis of claim regarding less radiation [redacted] to person within 50 miles of "management sites" w/ light include: 1) dose along Hanford Reach of Columbia River to person exercising Treaty Right to be on Reach 365 days a year or 2) exercising public right to be on State land below bluff / along shore, or 3) credible accident involving loss of coolant or SNF / fuel sludge fire in K-Basins SNF "management site"? These doses must be considered. 56-1

You Must Consider explicitly the impact of diverting resources from K Basin Upgrades or replacement facility from cost of enlarging storage facility, treating FRRSNF or adding FRRSNF to K-Basins. 56-2

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 56: HEART OF AMERICA NORTHWEST

Response to Comment No. 56-1

Receptors evaluated in the EIS for chronic releases included the maximally exposed offsite resident and the population within 50 miles. Individuals who might use the Hanford Reach of the Columbia River for recreational purposes or subsistence fishing were not explicitly evaluated as receptors because their exposure to normal facility emissions would be lower than those of the maximally exposed offsite resident. For all potential management facilities, the offsite residents were located essentially on the far bank of the river, and the dose evaluation of these individuals assumed full time exposure to facility emissions from all pathways. The distance to the source for an individual on the river is essentially the same as that for the offsite resident, the exposure time for use of the river would be lower than that of the offsite resident, and the applicable exposure pathways for the offsite resident include ingestion of locally grown food whereas those for use of the river would not.

A loss of coolant accident was not evaluated in this EIS because the foreign research reactor spent nuclear fuel does not require liquid coolant. It is shipped dry.

The evaluation of fire involving spent nuclear fuel at the K-Basin is outside the scope of this EIS, because the K-Basins were not considered as potential storage sites for foreign research reactor spent nuclear fuel. Accidents involving K-Basin spent nuclear fuel are being considered in a separate EIS for management of that fuel at the Hanford Site.

Response to Comment No. 56-2

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE will be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE will be managed at the Idaho National Engineering Laboratory. Accordingly, no foreign research reactor spent nuclear fuel would be shipped to the Hanford Site.

COMMENTOR NO. 56: HEART OF AMERICA NORTHWEST (CONT'D.)

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: G. Pollet Phone: _____

Title and Organization: Heart of America Northwest

Address: _____

City: _____ State _____ Zip _____

*** COMMENTS ***

Address how DoE will select trucking firms to move casks from Port, and Washington State Patrol inspection statistics showing some firms with which USDoE has contracted and or which truck waste to Hanford's LLW site have "arrest" records of up to 50% for serious safety defects.

Will USDoE exclude firms from selection, based on bid qualifications, due to poor inspection records? 56-3

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT COMMENTOR NO. 56: HEART OF AMERICA NORTHWEST (CONT'D.)

Response to Comment No. 56-3

DOE recognizes its responsibility to assure that its hazardous materials are transported safely. DOE developed and implemented in 1992 a mandatory Motor Carrier Evaluation Program (MCEP). The MCEP is revised every year to keep it up to date with changing regulations. The criteria for evaluating motor carriers in the MCEP are:

- Hazardous Material Transport Experience,
- Equipment Profile,
- Insurance Requirements,
- Financial Stability,
- Carrier Safety Programs,
- Drivers (including:
  - Training Program,
  - Selection Criteria,
  - Turnover Rate, and
  - Incentive Program),
- Carrier Management,
- Equipment Maintenance Program,
- Hazardous Material Routing Policy,
- Security,
- U.S. Department of Transportation OMC Safety Rating, and
- Carrier Interviews.

DOE contacted the Commercial Vehicle Division of the Washington State Highway Patrol in response to this comment, but was not able to ascertain the source of the commentor's statistic about 50 percent of the trucking firms having serious safety defects for low-level waste shipments to the Hanford Site. From January 1 through August 15, 1995, however, out of 301 radioactive shipment inspections performed by the Highway Patrol at Plymouth, WA, only ten vehicles were issued citations. This is a citation rate of only three percent, not fifty percent. Furthermore, none of the ten citations were for serious safety defects. DOE is committed to ensure safe transportation through the implementation of the MCEP.

Trucking firms with poor safety records would be excluded from transporting the foreign research reactor spent nuclear fuel under the mandatory MCEP, which is described above.

COMMENTOR NO. 56: HEART OF AMERICA NORTHWEST (CONT'D.)

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Gerald Pollet Phone: 206 382 1014
Title and Organization: Heart of America Northwest
Address: 1305 – 4th Ave #308
City: Seattle State WA Zip 98101

*** COMMENTS ***

You were requested to record comments by recording or by court reporter.
Please: identify, & respond in writing via mail to us:
a) Cost of transporting, pay, per diem and all other costs associated with 2 SAIC note takers at Seattle and Portland; and,
b) Cost of local court reporter service for 3½ hour hearing and transcript;
c) Cost of hired security or USDOE security for Seattle and for Portland; and
d) Cost for Soda, Coffee, Cookies, cakes for each hearing as broken down on Hotel Porder and charge to SAIC or USDOE. 56-4

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT COMMENTOR NO. 56: HEART OF AMERICA NORTHWEST (CONT'D.)

Response to Comment No. 56-4

Issues such as the per diem paid under DOE support contracts, costs of security for public hearings, etc., are outside the scope of the EIS review process and do not relate to the purpose. The format adopted by DOE for the public hearings held on the draft EIS are fully in compliance with the requirements of the NEPA implementing regulations and DOE's requirements for conducting such hearings. This public hearing format provides opportunity for an increased interaction between DOE and the public, thus serving to facilitate communication. In the large majority of cases, this public hearing format has been well received by the public. Nevertheless, in addition to the public hearings, several other redundant avenues were also provided through which members of the public could make their comments on the draft EIS known.

COMMENTOR NO. 59: NUCLEAR CONTROL INSTITUTE

NUCLEAR CONTROL
INSTITUTE

1000 CONNECTICUT AVE. NW SUITE 804 WASHINGTON DC 20036 202•822•8444 FAX 202•452•0892

Comments of Alan Kuperman
Senior Policy Analyst
Nuclear Control Institute
at
DOE Public Hearing on Draft Environmental Impact Statement (DOE/EIS-0218D)
on a
Proposed Nuclear Weapons Nonproliferation Policy Concerning
Foreign Research Reactor Spent Nuclear Fuel
Omni Shoreham, Washington, DC
Wednesday, May 31, 1995

Thank you for the opportunity to speak today on behalf of the Nuclear Control Institute, a private, non-profit organization dedicated to stopping the spread of nuclear weapons, with particular emphasis on ending world commerce in weapons-usable nuclear materials -- plutonium and highly enriched uranium.

For some here today, who come to this issue recently, it may seem illogical, unnecessary and even offensive that the U.S. would accept spent nuclear fuel from abroad. I would like to offer some historical perspective, to explain how we got here, where we should go, and why.

First, what is the goal of this U.S. policy? In large measure, it is to ensure that the next terrorist bombing is not nuclear. If the Oklahoma City bombers had used a nuclear weapon instead of conventional explosives, they would have killed many thousands and destroyed not just a building, but a city. If the World Trade Center bombers had used a nuclear weapon, they would have killed even more innocent Americans and possibly triggered a worldwide economic collapse by destroying the world's financial center.

To the credit of U.S. officials, they foresaw such threats 20 years ago. They recognized that the easiest path for terrorists to obtain a nuclear weapon would be to steal bomb-grade uranium -- also known as highly enriched uranium, or HEU -- which was then commonly used as fuel at research reactors around the world. As one U.S. weapons designer, Luis Alvarez, wrote: "With modern weapons-grade uranium . . . even a high school kid could make a bomb in short order." In 1978, the U.S., which was the major exporter of this fuel, set out to eliminate bomb-grade uranium from world commerce by developing substitute, non-weapons-usable reactor fuels of low enriched uranium, or LEU.

Strategies for stopping the spread and reversing the growth of nuclear arsenals

Paul L. Leventhal, *President*, Peter A. Bradford, David Cohen, Victor Gilinsky, Denis A. Hayes, Julian Koenig, Sharon Tanner, Roger Richter, Dr. Theodore B. Taylor
BOARD OF DIRECTORS

RESPONSE TO COMMENT
COMMENTOR NO. 59: NUCLEAR CONTROL INSTITUTE

COMMENTOR NO. 59: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Once the U.S. developed the substitute fuels in the Reduced Enrichment for Research and Test Reactors (RERTR) Program, the question became how to persuade foreign reactor operators to convert to them. Most operators were reluctant because the new fuels caused slight increases in cost and slight decreases in performance. To persuade the foreign operators, the U.S. pursued a two-prong strategy focusing on both supply and demand. To reduce foreign *demand* for HEU, the U.S. offered foreign operators a *quid pro quo* -- if you convert, the U.S. will continue to take back your spent fuel -- a policy made explicit in the draft EIS. For the foreign operators, sending spent fuel to the U.S. is easier and cheaper than any other alternative, so this conditionality gave them strong incentives to convert to the non-weapons-usable, LEU fuels.

The U.S. also eventually attacked the *supply* side, by refusing to send fresh HEU fuel to reactors capable of converting to the substitute fuels -- a policy made explicit in the 1992 Schumer Amendment to the Energy Policy Act. Since the U.S. remains virtually the only producer of HEU for research reactors besides Russia, this supply restriction gave foreign operators yet another strong incentive to convert.

The dual strategy has been very effective. Of the 42 foreign reactors (with power above 1 MW) originally supplied by the U.S., 37 have converted to the substitute fuels, are in the process of doing so, or soon will have shut down. U.S. annual exports of HEU have dropped from 750 kilograms in the mid-1980s (sufficient for several dozen nuclear weapons if stolen or diverted), down to virtually zero over the last few years. 59-1

But all of this progress could be lost if the take-back policy is abandoned or compromised. Of the options identified in the EIS, by far the worst would be to facilitate or allow the reprocessing of the spent fuel overseas (Management Alternative 2/Subalternative 2, alone or as an element of hybrid Management Alternative 3). This alternative would undermine *both* the supply and the demand strategies. Here's how:

First, the demand side. If foreign reactor operators are forced to reprocess their spent fuel overseas, they will suffer two penalties. The price of foreign reprocessing is higher than U.S. take-back, and foreign reprocessors insist that the operators accept the return of recovered radioactive wastes. If foreign operators were forced to absorb these two new penalties, they likely would refuse to use the alternate fuels, given their inherent cost and performance penalties, and once again demand HEU.

Second, the supply side. HEU spent fuel remains highly enriched and usable in weapons. Thus, if spent fuel is reprocessed overseas, foreign reprocessors will recover HEU. Although this uranium originated in the United States, the U.S. would have no control over it so long as it remains in Europe. *Therefore, foreign reprocessing would not only increase the demand for HEU, it would also create a ready supply.*

With both increased supply of and demand for HEU, it is inevitable that commerce would rise. As the norm against HEU fuel disintegrated, developing countries would demand that their new reactors also use HEU. (Germany is already threatening to exacerbate this

RESPONSE TO COMMENT COMMENTOR NO. 59: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment 59-1

The commentor's support for the RERTR program is noted. DOE agrees that all the progress made over the past two decades could be in jeopardy if a policy concerning foreign research reactor spent nuclear fuel is not adopted soon.

DOE and the Department of State disagree, however, with the commentor's statement that foreign reprocessing would necessarily increase the supply of HEU. If the foreign reprocessors agree to blend down the foreign research reactor HEU to LEU, as discussed in Section 2.3, then the supply of HEU would continue to decline.

DOE and the Department of State also disagree with the commentor's statement that it is unrealistic to expect foreign reprocessors to accept the three conditions in Section 2.3. Diplomatic discussions with the foreign reprocessors are continuing and may be successful. Only if the necessary conditions were in place, however, would foreign reprocessing be consistent with United States nonproliferation policy.

COMMENTOR NO. 59: NUCLEAR CONTROL INSTITUTE (CONT'D.)

problem by proposing to build the first new HEU-fueled research reactor in 20 years). Russia and China, which are now in negotiations with the U.S. to establish their own reduced-enrichment programs, would surely drop out and refuse to convert -- unwilling to relegate their reactors to second-tier status. Russia, which so far has respected U.S. requests to refrain from exporting HEU, might well begin to supply HEU abroad in search of hard currency.

In short, we would move from where we are today -- on the cusp of eliminating world commerce in HEU and blocking the easiest path to the bomb -- to re-legitimating global trade in bomb-grade uranium and making every HEU-fueled reactor a potential source of nuclear weapons for terrorists. *59-1 (Cont'd.)*

Incredibly, the EIS' Management Alternative 2 actually proposes to subsidize foreign reprocessing, facilitating this disastrous outcome. The EIS states that the U.S. would insist that three conditions be attached to foreign reprocessing to mitigate these negative effects, but it is unrealistic that these conditions would be accepted. Britain has been telling the United States not to interfere in their policy of reprocessing power-reactor spent fuel to obtain plutonium. Why should they submit to U.S. demands on reprocessing research reactor fuel to obtain HEU. As officials from the UK's Dounreay reprocessing plant have repeatedly said, their job is to serve their customers, who in this case would demand HEU fuel in return.

Clearly, the overwhelming nonproliferation interest is for the United States to accept the return of research-reactor spent fuel. Indeed, the U.S. has a moral responsibility to do so. We produced this atom-bomb material. We originally sent it overseas without thinking through the proliferation consequences. Refusing to take back the spent fuel now would invite nuclear proliferation and nuclear terrorism just at the moment when we can slam the door shut on the threat posed by bomb-grade uranium. Inevitably, someone would get hold of it and do unthinkable harm. *59-2*

As for what the United States should do with the returned spent fuel, the Nuclear Control Institute strongly favors permanent disposal, after interim dry or wet storage and stabilization, if necessary. Reprocessing the spent fuel in the United States is unnecessary and would send the wrong signal to other countries, because U.S. nonproliferation policy states that we do not reprocess civilian spent fuel or encourage others to do so. However, if a decision were made to reprocess any of the HEU spent fuel in the U.S., in conjunction with a program to stabilize U.S. military nuclear residues and wastes, it is imperative that any recovered HEU be blended down to non-weapons-usable LEU -- thereby eliminating the HEU from commerce and serving as a model for any other country that might contemplate such reprocessing. *59-3* *59-4*

Those are NCI's main comments at this time. Our more detailed comments on the EIS will be submitted separately. Thank you.

NCI

3

RESPONSE TO COMMENT COMMENTOR NO. 59: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment 59-2

The commentor's support for United States acceptance of spent nuclear fuel from foreign research reactors is noted. This is Management Alternative 1 or 3, which are discussed in Sections 2.2 and 2.4 of the EIS.

Response to Comment 59-3

The commentor's preference for storage, stabilization, and permanent disposal is noted. These are included in the basic implementation of Management Alternative 1 which is discussed in Sections 2.2.1 and 4.2 of the EIS. It should be noted that the U.S. policy on not chemically separating civilian spent nuclear fuel also covers power reactor fuel.

Response to Comment 59-4

The commentor's opposition to domestic chemical separation is noted. This is Management Alternative 1, Implementation Alternative 6, which is discussed in Sections 2.2.2.6 and 4.3.6 of the EIS. It is also part of Management Alternative 3, which is discussed in Sections 2.4 and 5.5 of the EIS.

DOE agrees with the second part of this comment. As stated in Sections 2.2.2.6 and 4.3.6.2 of the EIS, it would be DOE's preference to blend down any separated HEU to LEU and thus preclude the possibility of it ever being used in a nuclear weapon.

COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY

494 Cragmont Ave.
Berkeley, CA. 94708
5/22/95
Phone and Fax: (510) 526-0876

U.S. Department of Energy
1000 Independence Ave. SW.
Washington, DC 29585-0001
Attention Charles R. Head
Office of Spent Fuel Management

Testimony prepared for the U.S. Department of Energy Regarding the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Materials Nuclear Weapons Nonproliferation Policy Concerning Foriegn Research Reactor Spent Nuclear Fuel
Draft EIS Hearing. May 22.1995

By Marc Pilisuk, Ph.D.*
Dept. of Applied Behavioral Sciences
University of California, Davis
The Saybrook Institute and Graduate Center
San Francisco, CA.

I am writing on behalf of the Northern California Psychologists for Social Responsibility, an organization dedicated to the application of knowledge of human behavior to the amelioration of larger social problems. We have been concerned with the human costs that have followed the development and testing of nuclear weapons and the radioactive wastes generated by both military and civilian uses of radioactive materials. We are concerned about the plans to send spent fuel rods through the area of Concord California and with absence of satisfactory alternatives for the disposition of weapons grade fissile materials.

As psychologists we are not able to speak to the technical issues of safe designs for radioactive storage. We can, however, speak to the public's concerns about safety. This hearing comes at a time of great suspicion of the Department of Energy. It follows the recently publicized history of involuntary and dangerous medical experiments and numerous examples of 77-1

RESPONSE TO COMMENT COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY

Response to Comment No. 77-1

Foreign research reactors are not used for the development of nuclear weapons or weapons research. Research, medical, commercial, and educational applications of foreign research reactors are described in Section 1.1 of the EIS. The purpose of this EIS is to evaluate the environmental effects of various alternatives for managing spent nuclear fuel from foreign research reactors and to inform government officials and the public of the results of the evaluation.

COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

callous disregard for public health and safety. The public image is of a zealous war research machine that will expose people to dangers without informing them. In a recent case of the manufacture of plutonium triggers, the public was informed about the potential risks in the development of plutonium pits only after the fact. 77-1 (Cont'd.)

Environmental Impact Statements are mandated to include a social impact assessment. The absence of appropriate attention to social impacts has contributed to an adversarial stance between the Department of Energy on one hand, and the general public including residents of the communities in which nuclear weapons facilities are found, on the other. As long as the purpose of the EIS is restricted to technical assessments of documented environmental risks of particular programs, the report will prove entirely ineffective in addressing public concerns. Social impacts have been studied in both opinion polls of the general public and in specific case studies of communities affected by the presence, or by the projected presence, of radioactive wastes. The evidence shows that the American public is concerned about such wastes, opposed to their further accumulation, and deeply distrustful of governmental assurances about the level of risk involved. The distrust is born of a long history of secrecy, withholding of information, and callous disregard for consequences to human health and to the environment. 77-2

The public is dubious of studies of the risks to individuals that do not consider all of the dangers. For example, off-site risks involved in the transportation and handling of radioactive wastes lie at the heart of why communities have voted to be nuclear free zones. 77-3 The risks from attempting to convert these materials for use in commercial reactors poses additional risks not only for safety but of international dangers as nations may acquire materials for commercial use and employ them for development of nuclear weapons. 77-4

The proposal to ship and store radiactive wastes in heform of spentfuel rods is one that will augment the social and psychological impacts that have already resulted from earlier practices. Studies of citizen concerns regarding nuclear weapons facilities and facilities producing or storing radioactive materials in other communities have been completed. Such studies show 77-5

RESPONSE TO COMMENT COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

Response to Comment No. 77-2

Social and economic conditions of potentially affected areas are described in Section 3 of the EIS. Implementation of the proposed action was found to result in no significant social and economic effects (Section 4.2.4.2 of the EIS). Technical assessments are the foundation for evaluations of health and safety impacts. An objective of this EIS is to present technical assessments in an understandable format which includes the EIS and associated public outreach materials. Conservative estimates of radiological and nonradiological effects presented in Section 4 of the EIS indicate that no significant risks are associated with implementation of the proposed action.

Response to Comment No. 77-3

The analysis in the EIS has considered all the important dangers and these have been presented in a straightforward, understandable format. The offsite risks due to transportation and handling of radioactive materials are discussed throughout Section 4 of the EIS.

Response to Comment No. 77-4

DOE interprets the words, convert these materials for use in commercial reactors to refer to chemical separation. The risks posed by chemical separation are discussed in Section 4.3.6 of the EIS.

DOE interprets the international dangers to be the risk of nuclear proliferation and agrees that this is the greatest risk of all. The whole purpose of the proposed policy is to prevent foreign civilian-controlled nuclear material from being diverted into a weapons program.

Response to Comment No. 77-5

The commentor's concern over the social and psychological impacts associated with storage of this spent nuclear fuel is noted. DOE is currently working towards greater involvement from the public into its current and future decision making process. This EIS is one of the forms that DOE is using to get the information back to the public to negate any unrealistic perceptions and present risks to the public in relation to everyday activities. Estimates of radiological exposure in this EIS are based on the conservative assumptions described in Section 4 of the EIS. Radiological risks at candidate ports, along transportation routes, and at interim management sites were found to be low (Sections 4.2.2, 4.2.3, and 4.2.4 of the EIS, respectively).

COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

rates of 70 to 80% opposition by local citizens to proposals regarding the prospective introduction of radioactive materials in their community. They show widespread belief that the new facilities will increase their health risks (69% of the people), will contaminate groundwater (81%), adversely affect agriculture (65%), and undermine property values (73%). Also 73% in one study saw a high likelihood of accident and 78% did not trust the facility to advise them of changes in operations or types of waste handled. One study in *Science* suggests that the only publicly acceptable form of storage would be on the site where the wastes are produced and above ground where they can be continuously watched for safety. *77-5 (Cont'd.)* *77-6*

In communities where toxic contamination has already been found, a serious community concern often arises regarding cancer and mutagenic birth defects and a wide array of family mental health consequences reflect the trauma of living with unknown and invisible dangers. Such findings of psychological impacts have been the basis for successful legal actions against the administrative entities responsible for the contamination. The proposal to sell recycled radioactive materials in the United States and to other countries will augment these impacts. *77-7*

Radioactie wastes in any quantity pose dangers of leukemia and other cancers, genetic mutation, diabetes, sterilization, and circulatory disorders. The spent fuel poses other risks shipping accidents, of nuclear weapons proliferation, and of acts of terrorism. *77-8*

The study of people's reactions to hazardous wastes suggests that they cannot be understood as mirror images of technical measurements of the release of toxic substances. They show that risk perceptions are not effectively changed by showing people comparisons among known levels of excess deaths from a variety of other causes. The reactions are part of deeply rooted concerns about their work, their home and the health of their children. Frequently citizen responses reflect whether they were duly consulted in decisions about levels of acceptable risk before rather than after exposure. People's estimates of risk depend heavily upon whether they perceive the source of information to be a disinterested as well as an expert party. Some are concerned with whether the particular hazard is one that should have been produced in the first place *77-9*

RESPONSE TO COMMENT
COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

Response to Comment No. 77-6

The commentor's reference to documentation suggesting that the only publicly acceptable form of storage would be on the site where the wastes are produced and above ground, is noted. The intent of the proposed action to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate the use of highly enriched (weapons-grade) uranium in civil programs worldwide would not be served by continued storage of the foreign research reactor spent nuclear fuel at the sites where it is generated. The effects of implementing this option (Management Alternative 2, Subalternative 1a, described in Section 2.3), on U.S. nuclear weapons nonproliferation policy are discussed in Section 4.4.1. Also under consideration for implementation of the proposed action, however, is storage above ground under Management Alternatives 1 and 3 (Sections 2.2 and 2.4 of the EIS).

Response to Comment No. 77-7

The commentor's suggestion that the acceptance of spent nuclear fuel into the United States would augment the public's psychological fears associated with toxic (or radiological) contamination, is noted. DOE acknowledges that, in many instances, the perception by the public of the risks associated with spent nuclear fuel may be greater than the actual risk, or the risk from other even more hazardous activities. However, adverse impacts have not been observed during the 30 plus years foreign research reactor fuel was accepted into the United States in the past. Under NEPA regulations, the environmental effects evaluated for this EIS do not include those associated with psychological fear.

Response to Comment No. 77-8

It is a scientific fact that exposure to radioactive materials poses a risk of developing cancer. As discussed in Section 4.1.3 of the EIS, the risk of developing a genetic mutation is low. Diabetes, sterilization, and circulatory disorders are not caused by low doses of radiation (See also the response to Comment 1125-4).

Section 4.2.3 of the EIS demonstrates that the risks of transporting the foreign research reactor spent nuclear fuel, even if an accident were to occur, would be low. The risk of nuclear weapons proliferation would be reduced by adopting a policy to manage the foreign research reactor spent nuclear fuel (Section 1.2 of the EIS). Section D.5.9 has been added to Appendix D of the EIS to address the issue of attack by disgruntled persons or terrorists.

COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

and many are affected by whether the purpose of the exposure, however slight, has been for their benefit, as in xrays, or for some other less justifiable reasons. 77-9 (Cont'd.)

The concern must be understood against a background of larger public concerns. A CBS/New York Times survey of the voting public asked respondents the following question: "Do you agree or disagree with the following statement: Protecting the environment is so important that requirements and standards cannot be too high and continuing environmental improvements must be made regardless of costs." 80% agreed while only 13% disagreed. A National Opinion Research Center poll, that same year, showed 75% of the respondents rating nuclear waste disposal as the top environmental problem. 77-10

At the heart of citizen concern over risks from radioactivity lies a great gulf between the way some experts assess risks and the way the public makes such estimates. Health risk assessments require the investigator to make estimates regarding levels of exposure, duration of exposure, concurrent exposure to other substances and latency of the consequences. The relationship between dosage and latency is often uncertain. Dose response curves for known carcinogens have been shown to differ by six orders of magnitude. Moreover, studies of human consequences are limited by job turnover and geographic mobility and models of risk rarely take into account the synergistic effects of multiple hazards or the generic effects of radiation on immune system impairment or generalized susceptibility. These uncertainties mean that reasonable people have a basis for fear and that social and psychological impacts must be determined. 77-11

The EIS cannot address social and psychological impacts without admitting that it has a history of being unable to prevent accidents and casualties from the handling and transfer of nuclear wastes. 77-12 The EIS must first acknowledge that the opposition to such wastes is reflected in legislation making Oakland and other cities nuclear free zones . Second, it must include a plan for an independent assessment of the social and psychological, as well as the physical, health impacts that the sites selected for shipping and storage facilities will have upon the communities. 77-13

RESPONSE TO COMMENT COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

Response to Comment No. 77-9

The EIS has addressed all of the pertinent health and safety risks associated with U.S. acceptance of the foreign research reactor spent nuclear fuel and the public has been provided numerous opportunities to express their concern at public meetings and by submitting written comments on the draft EIS. Every comment has been carefully and thoroughly reviewed by technical experts to ensure that the DOE responses contained in the final EIS address the commentor's concerns.

Response to Comment No. 77-10

Although ultimate disposition of spent nuclear fuel from foreign research reactors is outside the scope of this EIS, it is an important concern which is discussed in Section 4.2.7 of the EIS. Isolation in a geologic repository is a candidate method of disposition currently under consideration. Ultimate disposition of spent nuclear fuel will be conducted only after appropriate review under NEPA.

Response to Comment No. 77-11

Based on the evaluation of impacts presented in Section 4 of the EIS, the risk associated with acceptance of foreign research reactor spent nuclear fuel in the United States would be low. See also the response to Comment 77-7, above.

Response to Comment No. 77-12

Spent nuclear fuel has been transported over the highway and rail systems of the United States for over 40 years. During that time, there were twenty-one incidents involving vehicles transporting irradiated spent nuclear fuel elements. None of these incidents resulted in a breach of the spent nuclear fuel transportation cask or release of its contents. Section 4.2.3 of the EIS describes the environmental effects evaluated for ground transport of spent nuclear fuel from foreign research reactors.

Response to Comment No. 77-13

The public's opposition or support for DOE's proposed policy is included in Volume 3 of the EIS which includes all public comments (oral and written) received by DOE in response to the publication of the draft EIS. Physical health impacts associated with the proposed action have been adequately addressed in Section 4 of the EIS, in accordance with NEPA. Under these regulations the environmental effects evaluated for this EIS do not include social and psychological impacts associated with perceived risks.

COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

Third, the scope of the EIS should include the study of whether people are willing to accept the dangers from increased likelihood of accidents and from exposure. It should assess whether people believe that these risks or worth continuation of a policy of selling nuclear materials to the world even if it means the return to this country of the radioactive wastes. 77-13 (Cont'd.)

Fourth, the report will have to take some step toward assuring the public and the affected communities that plans include consideration of how the DOE may safely change from its major activities--the inherently dangerous development of nuclear weapons and sale of nuclear materials.

The DOE is seriously in need of a process by which citizens, scholars, and public interest groups who fear the dangers of this activity know that their concerns are a direct part of the dialogue about the future direction of nuclear policy. To divorce this issue from the scope of the EIS report would be to ignore a major and continuing social impact of nuclear waste management. 77-14

What some within the DOE appear loathe to hear is that the continued effort to find uses and rationales for work (other than clean-up) on these powerful materials, reflects a commitment to a way of life that is no longer in the national interest. The economic benefits, the research funding, the status, the challenge to mastery of power and danger, and even the masculine identification with immeasurable explosive power, all provide an incentive to keep some within the DOE from envisioning the possibility of an alternative mission. For psychologists, the rigid sticking to an old and unneeded course of action looks very much like an addiction. 77-15

Psychologists understand that the building of public trust requires a willingness to provide full disclosure of the potential as well as the already documented risks. Trust also depends upon a willingness to discuss impacts of the full range of alternatives including the disposition of fissile materials in ways that make reclamation of these deadly products, for any purpose, as difficult as possible. We do need creative work on alternative energy from the DOE. We do not need to find new uses for inherently dangerous technologies or for old bombs.

RESPONSE TO COMMENT COMMENTOR NO. 77: NORTHERN CALIFORNIA PSYCHOLOGISTS FOR SOCIAL RESPONSIBILITY (CONT'D.)

Response to Comment No. 77-14

NEPA emphasizes public participation and disclosure during evaluations of the environmental effects of federal actions (Section 5.2.1 of the EIS). The public comment process, which includes this comment response document, provides a forum in which individuals and organizations can voice their concerns and positions on the proposed action. In addition, DOE has worked towards greater involvement of the public in its present and future activities. The seventeen public hearings conducted by DOE for the draft EIS reflect DOE's understanding of the importance of meaningful participation by the public in its planning process.

Response to Comment No. 77-15

The commentor's position regarding these matters is noted. Section 4 of the EIS describes the calculational techniques, assumptions and results of the evaluation of radiological and nonradiological health effects. More detailed discussions of the calculations and results are given in Appendices A through F.

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide (Section 1.2 of the EIS). As discussed in Section 1.1 of the EIS, this is an important component of U.S. nuclear weapons nonproliferation objectives. Ultimate disposition is discussed qualitatively in Section 4.2.7 in the EIS.

COMMENTOR NO. 85: SEATTLE WOMEN ACT FOR PEACE

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Anci Koppel **Phone:** 206-522-6789

Title and Organization: Co-ordinator Seattle Women Act for Peace

Address: 5411 Ravenna Ave NE

City: Seattle, **State** Washington **Zip** 98105

*** COMMENTS ***

When on Friday May 26 1995, you, Mr. Head, presented the transportation system of radioactive spent rods from over-seas countries, it seemed very harmless, more like a pic-nic. As you said ,'we load the ship(s), then unload at the port of entry unto trucks or rails which take the casks to the depository'. In our case it would b e Han ford. When the question was raised whether special loading rules were followed and whether the casks were isloated on the ships from other freight, you told us that this was not part of your field of expertese. 85-1

The proven facts that 50% of radioactsve trucks in Washington State have been cited for major safety defi-ciencies when inspected at the state border, casks emit 200 millirem per hour at surface, the equivalent of about 10 full body Xrays per hour. Longshoremen, the public and truckers will experience large doses of radio active material. In addition driving thru city streets it multiplies the exposure. We were told that expertise are in 85-2

Hanford, that is of doubtful help if a truck loaded with this dangerous material has an accident ab.out 200 to 300 m 85-3

miles away . In conlucsion it is my opinion that this material should b e disposed at the country where this material has been used 85-4

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

Anci Koppel

P.S. I hope this and other written statements will be called to the attention of our Secretary of Energy, Hazel O'Leary! 85-5

RESPONSE TO COMMENT COMMENTOR NO. 85: SEATTLE WOMEN ACT FOR PEACE

Response to Comment 85-1

No special handling or loading/unloading procedures would be required for the foreign research reactor spent nuclear fuel when it is contained in a spent nuclear fuel transportation cask that is inside of an ISO container. As to isolating the casks from other freight, this is not necessary for radiation or any other reasons. The small amount of radiation coming from the transportation cask is gamma radiation which does not irradiate nor contaminate other materials, so there is no need to isolate it.

Response to Comment 85-2

See the response to Comment 56-3 on the allegation about 50% of radioactive trucks being cited for major safety deficiencies.

The two regulatory limits (200 mrem/hr at the cask surface and 10 mrem/hr at two meters away from the vehicle) would both apply simultaneously. For shipments of certain radioactive materials (e.g., small, intense cobalt-60 sources), the 200 mrem/hr at the cask surface limit is the more stringent limit. For shipments of spent nuclear fuel, however, the 10 mrem/hr at two meters regulatory limit turns out to be more stringent because the source of radiation is large and distributed throughout the internal volume of the cask. Casks loaded with spent nuclear fuel up to the 10 mrem/hr at two meters limit radiate at a level well below the 200 mrem/hr level at the cask surface. (Sections 4.1.5 and Appendix F, Section F.5 of the EIS.)

Response to Comment 85-3

Each port considered in the EIS has developed an Area Contingency Plan. This plan outlines response capabilities, procedures and authorities for responding to and recovering from hazardous material incidents. Additionally, DOE would provide assistance to local authorities to ensure that appropriate measures are taken in the unlikely event of an accident. As part of this assistance, DOE's Radiological Assistance Program teams, from eight offices strategically located throughout the country, would be used to coordinate and to provide remediation assistance. This type of assistance and coordination would be specified in the Transportation Plan that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. The issues would include capabilities and training of first emergency responders.

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive

Commentor No. 85:
Seattle Women Act for Peace (Cont'd.)

Response to Comment
Commentor No. 85:
Seattle Women Act for Peace (Cont'd.)

Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Response to Comment 85-4

The commentor's preference for overseas disposition of spent nuclear fuel from foreign research reactors is noted. Due to financial or regulatory constraints, some research reactor operators may not be able to store spent nuclear fuel in their own country. Options such as storage in other foreign countries and overseas reprocessing are described in Section 2.3 of the EIS.

Response to Comment 85-5

While it would be impractical for the Secretary of Energy to personally review and respond to all of the written and oral comments concerning this EIS, this information was reviewed by the Program Manager and his staff. The Program Manager is responsible for relaying public concerns and issues to the Secretary of Energy and her staff. As indicated by this document, all comments received from the public were noted and taken seriously. Under NEPA and DOE's environmental regulations (Section 5 of the EIS), public participation and comments are an integral component of the environmental process.

COMMENTOR NO. 99: EAST BAY PEACE ACTION

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Mrs. Betty Brown **Phone:** (510) 524-6071
Title and Organization: Board Chair for East Bay Peace Action
Address: P.O. Box 6574
City: Albany **State** Ca. **Zip** 94706

*** COMMENTS ***

Though I had driven over 45 minutes and waited until nearly 10 pm on 5/22/95, I was unable to present the attached testimony orally. Please consider the statement as our comment on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 99: EAST BAY PEACE ACTION

COMMENTOR NO. 99: EAST BAY PEACE ACTION (CONT'D.)

East Bay Peace Action

for a sane world

P. O. Box 6574
Albany, CA 94706
Phone (510) 233-0915

EAST BAY PEACE ACTION BOARD
Gary Dobson
Betty Brown
Andrea Turner
Fundi
Peter Roeper
Rita Perry
John Mihalaros
Judy Pollard
Dolores Rodriguez

NATIONAL ADVISORY BOARD
The Rev. William Sloane Coffin, Jr.
Andrea Ayvazian
Rabbi Leonard Beerman
Harry Belafonte
Walden Bello
Rabbi Balfour Brickner
Robert S. Browne
Noam Chomsky
Barry Commoner
David Cortright
Ossie Davis
The Hon. Ronald Dellums
Marian Wright Edelman
The Rev. F. Forrester
Bishop Thomas J Gumbleton
Dennis Hayes
David R. Hunter
Anne Jackson
Michio Kaku
David Keppel
Corretta Scott King
Michael Klare
George J. Kourpias
Betty Lall
Frances Moore Lappe
Sally Lilienthal
Dr. Joseph E. Lowery
The Hon. Hilda Howland M. Mason
David McReynolds
Marcus Raskin
Tom Schlesinger
Pete Seeger
Toshi Seeger
John Simmons
Pam Solo
Dr. Benjamin Spock
detsy Taylor
Prof. George M. Tenniner
Peter Yarrow

May 22, 1995

My name is Mrs. Betty Brown and I'm speaking on behalf of the Board of East Bay Peace Action, an affiliate of the nation's largest grassroots peace organization, Peace Action, formerly known as SANE/Freeze.

We wish to protest the Dept. of Energy's proposal to ship nuclear fuel rods through the Concord Naval Weapons Station. We join with others who support the sequestration of spent fuel within the user nation under international supervision until a permanent safe disposal option is realized. This option is particularly relevant in that there exists no permanent U.S. disposal site. Hanford, the Nevada Test Site or other alternatives will only be temporary. Further transportation would be necessary. All of the proposed U.S. sites already have enoumous existing environmental problems. 99-1 99-2 99-3

The Department of Energy should discontinue selling user countries low energy uranium fuel and encourage these nations to decommission plants utilizing such fuel. The dangers inherent to transportation would thus be avoided. 99-4

The safety and health of the citizens of Concord, Contra Costa, and the world should be our first concern. 99-5

RESPONSE TO COMMENT
COMMENTOR NO. 99: EAST BAY PEACE ACTION (CONT'D.)

Response to Comment No. 99-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through Concord NWS is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to Concord NWS, or to any of the ports analyzed in the EIS, is low.

Response to Comment No. 99-2

The commentor's preference for the alternative of overseas storage is noted. This is Management Alternative 2, Subalternative 1a, which is discussed in (Sections 2.3 and 4.4.1 of the EIS).

Response to Comment No. 99-3

The impacts of ultimate disposition of foreign research reactor spent nuclear fuel are discussed qualitatively in Section 4.2.7 of the EIS. DOE is currently evaluating the feasibility of construction of a disposal site at Yucca Mountain, NV. In the meantime, support for U.S. nuclear weapons nonproliferation policy requires DOE and the Department of State to consider other means of dealing with the foreign research reactor spent nuclear fuel (Section 1.1. of the EIS).

Response to Comment No. 99-4

High density LEU research reactor fuels were developed to allow research reactors to operate with fuels that pose no threat of proliferation of nuclear weapons (Section 1.1 of the EIS). The primary problem to be addressed is to complete the conversion of the foreign research reactors from high enriched (weapons grade) uranium fuels to proliferation proof LEU fuels, thus supporting the United States nuclear weapons nonproliferation policy of reducing and eventually eliminating the use of HEU in civil programs worldwide. LEU is widely available and would be used independent of whether the United States sold it or not. Furthermore, due to the research, medical, commercial and educational benefits that result from operation of the foreign research reactors (Section 1.1 of the EIS), it is unlikely that foreign research reactor operators would be willing to cease operation of their reactors. In addition, the U.S. accrues significant benefits from the operation of foreign research reactors including Moly-99 and other medical isotopes.

Response to Comment No. 99-5

Sections 4.2.2, 4.2.3 and 4.5 of the EIS demonstrate that the risks of receiving and transporting foreign research reactor spent nuclear fuel through Concord NWS would be low. Citizens of the world would be safer if the risk of nuclear weapons proliferation is reduced via implementing the proposed action. The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide (Section 1.2 of the EIS).

COMMENTOR NO. 111: HANFORD WATCH

HANFORD WATCH
2285 SE Cypress
Portland, OR 97214
(503) 232-0848

Charles head
Office of SNF Mngmnt. EM-37
U.S. Dept. of Energy
1000 Independence Ave.
Washington, D.C. 20585

COMMENTS ON DRAFT EIS ON PROPOSED NUCLEAR WEAPONS POLICY
CONCERNING FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL

I will begin my statement with three complaints: I and others in the Portland area received absolutely NO materials on this Draft EIS. What is appalling about this is that we all attended the scoping meeting on this issue in Portland a year ago and all signed up for the documents. *111-1*

Second, the format for this meeting was an overt attempt to thwart the intent of the EIS process--our comments were not recorded, only summarized by people not able to keep up with the pace of speakers and humanly erring in capturing the true intent and feeling of our comments. The purported attempt at "dialogue" was a sabotage of true public participation in that the DOE official, Mr. Charles Head, seemed interested in giving a rebuttle to each and every comment, trying to prove our fears ill-founded and assuring us that all is well, when in fact, it was pointed out by citizen after citizen , with expertise in many areas (port handling, policy perspectives, environmental laws and regulations, safety, etc.) that all is NOT well and we are not satisfied with the DOE 's presumptions and conclusions. This meeting harkened back to the DOE I had hoped we were beginning to leave behind--full of secrets, done deals, disregard for human intelligence, health and safety, etc., etc. The 100 plus citizens who attended this meeting were outraged, to say the least. *111-2*

My third complaint is that one of the DOE officials was overheard by participants to say, "These people are just a bunch of professional protestors." Who is professional? Certainly not this man. All in all this "hearing" has left a bitter taste in our mouths. You will be receiving a video-taped recording of the proceedings and our REAL comments in the mail before the June 15th deadline. I hope you will give them the full attention and consideration they are due. *111-3*

RESPONSE TO COMMENT
COMMENTOR NO. 111: HANFORD WATCH

Response to Comment No. 111-1

DOE apologizes to the commentor for any oversight in providing copies of the draft EIS. Availability of the draft EIS was announced in the Federal Register on April 21, 1995; along with information concerning how to obtain a copy. Hanford Watch is included on the database to receive a full copy of the final EIS once it is issued.

Response to Comment No. 111-2

DOE did request that comments be submitted in writing, however, all oral comments presented at each hearing were summarized and have been addressed along with the written comments in this Volume 3 of the EIS. All comments, written and oral, are part of the public record. The format adopted by DOE for the public hearings held on the draft EIS is fully in compliance with the requirements of NEPA implementing regulations and DOE's requirements for conducting such hearings.

Response to Comment No. 111-3

DOE fully supports the NEPA process and encourages comments made by individuals who attend the public hearing on the proposed action and other activities, as well as any written comments. All comments received were considered during preparation of the final EIS.

COMMENTOR NO. 111: HANFORD WATCH (CONT'D.)

This proposal to manage Foreign Reactor Spent Fuel is based on a faulty presumption, namely, that we can manage our own spent fuel in this country. We have failed to do so thus far. We use the economics of the wealthy (corporations) to corner the market on plutonium and uranium, the new gold of the 21st century, and we use poor science based on short-sited greed to drive the Yucca Mountain project, the MRS on Native Lands Fiasco, and now this. We are certainly aware also, at this time, that congress is considering dumping commercial reactor spent fuel at Hanford so that the nuclear industry can continue to create deadly waste in the name of progress. The question is "Who's progress?" It certainly doesn't feel like progress for us ordinary, honest working citizens. *111-4*

I believe that this proposal has been concocted fully for the economic benefits and "ultimate power trip" of the United States government, in particular the Defense Department. There is NO true concern for environmental and human health and safety. The government is only concerned with non-proliferation if it is in the government's economic interests. *111-5*

The only acceptable action in this EIS is NO ACTION. Before any of the potential positive plans can be considered any semblance of reason, President Clinton must convene a Blue Ribbon Task Force to establish a comprehensive Nuclear Waste Policy, with full public debate. It is time for us to stop shipping fissile nuclear materials around the country and the world; it is time for us to stop producing all nuclear materials that continue shoving the centuries-long flow of deadly waste into our water, food and air. *111-6* *111-7*

Science is imperfect. Scientists often play God, taking power into their own hands, determining who is expendable, how many can die from "latent cancers", etc. in order for the corporate powers to have a short life-time of wealth. The DOE has presented us in this 8 inch thick draft document with theoretical "knowledge", while we, the public, have tried to bring to your ears and hearts the practical, and heartfelt side of the equation. *111-8*

Re-processing was referred to many times in this document. This is unacceptable to most citizens in this country because of the continued production of more waste. The present congress and DOE officials seem uncommitted to the cleanup mission that was proudly touted a mere two years ago and that is still the subject *111-9*

RESPONSE TO COMMENT
COMMENTOR NO. 111: HANFORD WATCH (CONT'D.)

Response to Comment No. 111-4

Spent nuclear fuel from foreign research reactors has been safely managed in the United States for nearly four decades (Section 1.1 of the EIS). Storage technologies and site management options are discussed in Sections 2.6.5.1 and 2.6.5.3 of the EIS, respectively.

Response to Comment No. 111-5

An objective of the proposed action is to aid in safeguarding the citizens of the United States against threats posed by the proliferation of nuclear weapons (Sections 1.1 and 1.2 of the EIS). The Department of Defense has not been and will not be involved in this proposed action, other than through voicing its support for the necessity of action by the United States, and possibly through use of one or more of its ports as ports of entry for the spent nuclear fuel, if accepted into the United States. The financial implications of the proposed action are disclosed in the EIS (Section 4.9 of the EIS). The human health and safety considerations associated with the proposed action are also fully addressed in Section 4 of the EIS.

Response to Comment No. 111-6

The writer's position on the No Action Alternative is noted. Sections 2.5 and 4.6 of the EIS discuss the potential impacts of the No Action Alternative on the U.S. nuclear weapons nonproliferation policy.

Response to Comment No. 111-7

The commentor's position on a comprehensive nuclear waste policy is noted. Environmental effects of transportation and interim management of spent nuclear fuel from foreign research reactors were evaluated and found to have no significant environmental impacts (Section 4 of the EIS).

Response to Comment No. 111-8

The purpose of the EIS is to provide the decisionmakers and the public with the important environmental information needed to make a decision and to identify significant adverse consequences so that they can be avoided or mitigated. The EIS process provides for public input, through scoping, so that all important issues, consequences, and concerns can be addressed in a rational, objective manner. Among the concerns raised during scoping were the need to analyze the potential risks and consequences of accidents involving the foreign research reactor spent nuclear fuel. These risks and consequences are not just theoretical and they are useful information to the public and decisionmakers.

COMMENTOR NO. 111: HANFORD WATCH (CONT'D.)

of slick brochures from the DOE. We seem to be unable to hold DOE and DOD accountable for cleaning the thousands of sites that suffer from the worst toxic damage known to mankind. We have not seen any accountability from the government for the hundreds of thousands of people who have suffered at the hands of the nuclear minds of the atomic age. Thousands of documents have been declassified in the past year about the experimentation on and negligence of the citizens by their government, yet risk assessment based on who will gain the most economically, and denial in the face of these declassified documents still reign supreme. Your representatives use outrageous comparisons of radiation exposure from your programs to a ride in an airplane. In one instance we have informed consent, in the other we are put at risk without our knowledge and consent. *111-9 (Cont'd.)* *111-10*

We won't take it anymore!!! We do not want nuclear transport of any sort coming through our communities or through anyone else's.

Sincerely,

Paige Knight

Paige Knight
Chairperson, HANFORD WATCH

RESPONSE TO COMMENT
COMMENTOR NO. 111: HANFORD WATCH (CONT'D.)

Response to Comment No. 111-9

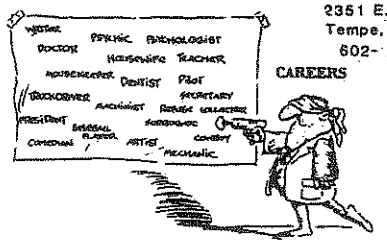
The commentor's opposition to chemical separation is noted. Please note, however, that if chemical separation is used in the context of managing the foreign research reactor spent nuclear fuel, it would be used as a waste management technique that would allow DOE 1) to blend down the HEU in the foreign research reactor spent nuclear fuel to non-weapons grade levels; and 2) to convert the foreign research reactor spent nuclear fuel into a more stable waste form that is more likely to be accepted for ultimate disposal in a geologic repository.

Response to Comment No. 111-10

The comparison of various risks provided in the EIS is valid and the public can use it to put the risks from the proposed action into perspective. For more such risk comparisons, see Section 4.10 of the EIS. DOE considers this information appropriate to share with the public. Those members of the public who do not wish to compare voluntary risks to involuntary risks do not have to do so.

COMMENTOR NO. 135: RECAREERING INSTITUTE

THE RECAREERING INSTITUTE
Dr.Roger W.Axford Ph.D.
2351 E.Pebble Beach
Tempe, Arizona 85282
602-831-7381



6/7/95

BOARD OF ADVISERS

Millard Abraham, Ph.D. Author, Pro
Dr. Doris Carlson, Ex. Dir., O.O.A
Robert E. Chubrich, Ph.D. Prof. AS
Dr. Richard S. Deems, Consultants in Career Development, Ames, Iow
John M. Eaton, Ph.D. Emeritus, College President, Michigan
Dr. Steven W. Forney, D.O.S.
Donna Killoughey, Attorney, McGowan & Johnson, Phoenix
Madeleine Lutz, Ph.D. Boswell Hospital, Continuing Education
Fred L. Miller, Ph.D. Prof. ASD
Kenneth Patch, Ph.D. Counselor
Jane J. Towner, Exec. Vice-Pres. Front Line Associates, Phoenix
Darlene J. Winter, Ph.D. Gerontologist, Counselor

Dr. Charles Dexter

Primary among citizen concerns were:

135-1 • Additional time to consider the six inch documents outlining the DOE plan which most participants had only received one or two weeks ago, and to conduct independent research and community discussions;

135-2 • Advance notice of all local routes out of CNWS intended for transportation of nuclear materials;

135-3 • Whether closing the Port Chicago Highway through the CNWS in February, new crane installations and dredging currently going on signified a predisposition to using the CNWS port regardless of public opinion;

135-4 • Why only the city planner of Concord was informed of the plan and not other poorer and minority neighborhoods closer to the CNWS,

135-5 • Whether the use of a military port was to preclude citizen's groups from doing independent radiation monitoring and testing;

135-6 • How citizens were to be expected to trust a governmental body that had been operating freely in total secrecy, bombing its Native Nations and experimenting on its own veterans for forty five years;

135-7 • Whether separation of classes of fuel rods for different destinations as stated by Mr. Head indicated plans by the DOE to restart former programs to reprocess spent fuel into weapons-grade material;

135-8 • Why DOE statistics on health hazards differed so greatly from information independently available;

135-9 • Why no concern about earthquake hazards in the Bay Area were included in the DOE assessment;

135-10 • Why the Bay Area was being assessed, when it is one of the most highly populated areas in the US, has numerous bridges and seven oil refineries in the Carquinas Straits alone, with 240 shiploads of petroleum products a year in the Bay;

135-11 • The contradiction between the DOE wanting to remove the waste material from such stable and solvent countries as Sweden and Belgium to keep it safe from revolutionaries and terrorists, and scoffing at any concerns over safety from seizure to US communities along the routes;

135-12 • Who would monitor the quality of handling of said materials (one local resident stated that CNWS had "the worst trained and worst paid drivers handling equipment at the piers" anywhere);

135-13 • Why the DOE was apparently ignoring federal law on siting such operations in a way that jeopardized the safety of minority and low-income neighborhoods (not even included in DOE maps or comments) more than others;

135-14 • Whether any federal assistance would be given to improve very degraded roads and railway beds under question; and

135-15 • Whether any special training or funding would be given to local emergency response teams to handle such accidents.

Figure 2-3 Countries which Have the Research Reactors

Dr. Roger W. Axford President

"The Re-careering Institute is a timely and creative response to the demographic and technological revolutions of the 80's which have changed the way we live, learn, work, and communicate" Maggie Kuhn
THE GRAY PANTHERS

RESPONSE TO COMMENT
COMMENTOR NO. 135: RECAREERING INSTITUTE

Response to Comment No. 135-1

The deadline for submission of comments in response to the draft EIS was extended from June 20 to July 20, 1995. DOE considers the comment period (90 days total) to be sufficient for public comment.

Response to Comment No. 135-2

As discussed in Section 2.6.4.2 of the EIS, the NRC regulations concerning route notification are set forth in 10 CFR Part 73. Shippers are required to submit proposed routes for spent nuclear fuel shipments to NRC for approval, and NRC publishes a public information circular that lists routes that have been evaluated and approved for specific spent nuclear fuel shipments.

The regulation also requires DOE to inform the Governor of each State and any Tribal chair, or their designee, along a transportation route at least seven days prior to shipment of hazardous cargos, including radioactive materials.

Response to Comment No. 135-3

The closures of Port Chicago Highway and Waterfront Road and the expansion of capabilities at Concord NWS, including the new cranes, were planned before the proposed policy on foreign research reactor spent nuclear fuel was formulated. Dredging of the dock area of Concord NWS is a periodic function, which is also independent of the proposed policy.

Response to Comment No. 135-4

Due to nationwide interest in the draft EIS, it was not feasible to contact potentially interested groups on a neighborhood-by-neighborhood basis. A Notice of Availability for the draft EIS was published in the Federal Register dated April 21, 1995. Copies of the draft EIS were placed in libraries and reading rooms near each candidate port and potential interim management site. More than 2,000 copies of the draft EIS or Summary of the draft EIS were mailed to potentially interested citizens and organizations. Seventeen public hearings, announced in the local news media, were conducted at locations near each candidate port and potential management site.

Environmental justice in potentially affected areas, including those neighborhoods near the Concord NWS, is discussed in Section 4 and Appendix A of the EIS.

Response to Comment No. 135-5

Federal, State, and local governments may (and sometimes do) measure the radiation levels associated with transportation casks carrying nuclear material in their jurisdiction. This is true for any of the commercial and military ports that might receive the foreign research reactor spent nuclear fuel. Allowing citizen's groups into the port to also measure the radiation levels would be the decision of the State and/or the local authorities (and military authorities for military bases). DOE has no objection to citizen groups performing independent measurement of radiation levels.

Response to Comment No. 135-6

Past activities of the United States Government, other than those that pertain to and are described in this EIS, are outside the scope of this EIS (Section 1.3 of the EIS). This EIS deals with a policy that would eliminate many of the nuclear proliferation problems that could concern the citizens of this country, and does not include bombing or experimenting with veterans.

Preparation of this EIS was conducted in an open manner, from the public scoping meetings prior to the implementation plan to the seventeen public hearings held to discuss the draft EIS in locations determined most likely to be directly affected by the EIS alternatives. In addition to accepting oral comments from the public during these meetings and hearings, written comments were also encouraged and accepted, as evidenced by this document.

Response to Comment No. 135-7

DOE is considering the consolidation of all its spent nuclear fuel inventory, such that the aluminum-based fuel would be consolidated at the Savannah River Site and other kinds of fuels would be consolidated at the Idaho National Engineering Laboratory. This action is being considered because the Savannah River Site personnel have the most experience with aluminum-based fuels and the special technologies necessary to manage it safely. Similarly, the Idaho National Engineering Laboratory has more experience with safely managing a variety of other fuels. (Section 2.6.5 of the EIS.)

In the near future, the chemical separation facilities at the Savannah River Site might resume operations for the foreign research reactor spent nuclear fuel or for another purpose. These options are discussed in Section 2.2.2.6 of the EIS. In this situation, the trace amounts of plutonium in the foreign research reactor spent nuclear fuel would not be recovered. The HEU would be recovered, but it would be DOE's preference to blend down the recovered HEU into LEU to prevent its use in a nuclear weapons program.

DOE announced a Record of Decision on May 30, 1995 for the Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental

COMMENTOR NO. 135: RECAREERING INSTITUTE (CONT'D.)

RESPONSE TO COMMENT
COMMENTOR NO. 135: RECAREERING INSTITUTE (CONT'D.)

Restoration and Waste Management Programs EIS. Chemical separation at the Idaho National Engineering Laboratory was not included in this Record of Decision, so additional site-specific NEPA documentation would be required to restart the chemical separation facilities at this site.

Response to Comment No. 135-8

General radiological health effects are discussed in Section 4.1.3 and the specific impacts of each alternative are presented throughout Section 4 of the EIS. Since the commentor did not mention specific examples of different statistics on radiological health effects or impacts, DOE cannot perform a comparison.

Response to Comment No. 135-9

Earthquakes were not analyzed separately in the EIS because seismic activity would not result in greater damage to a transportation cask than that caused by a ship collision and subsequent fire. Rather, the consequences from the worst plausible accidents involving foreign research reactor spent nuclear fuel transportation casks were evaluated, regardless of what initiated them. An earthquake could be the initiator of either a ship or road accident and thus effect the probability of such accidents, however, the number of earthquake-induced ship and road accidents is small compared to other causes.

Response to Comment No. 135-10

The port selection process that determined Concord NWS was an acceptable port, considered the population of the port and surrounding areas, (Appendix D, Section D.1.9.5 of the EIS).

The physical constraints of the passage from San Francisco Bay to Concord NWS were considered as part of the port selection process. The passage was determined to meet the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2 of the EIS). Also, the port selection criteria do not consider the existence of land-based facilities such as refineries because the addition of some mishap at a land-based facility would not add to the severity of the worst plausible accident, which is considered to be the collision of the ship carrying the foreign research reactor spent nuclear fuel with a petroleum tanker.

The volume or size of the local marine traffic (present or future) was not considered in the calculation of risk associated with the shipment of foreign research reactor spent nuclear fuel. In general, the number of ship mishaps is not proportional to the amount of ship traffic because port ship traffic is slow, and even when heavy, is normally a small

number of ships per hour. Historically, increasing the volume does not significantly increase the probability of an accident. Rather, the number of ship mishaps is associated with navigational hazards and distances from the port to the open ocean or a large bay (Appendix D, Section D.1.9.2). Appendix D, Section D.5.3.1.3 presents a discussion of the determination of the probability of ship accidents used in the EIS.

Response to Comment No. 135-11

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide. If the United States does not include its stable, developed allies in this program, then many of the research reactors in these countries are likely to switch back to (or continue) the use of HEU as fuel, or would have to shut down.

As stated in the EIS, the U.S. has an obligation under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to assist nonnuclear weapons states with peaceful applications of nuclear energy. Actions which compel a country to shut down a peaceful nuclear research program, or to seek reprocessing, could cast doubt on U.S. commitment to NPT principles. Any perception that the U.S. does not support the NPT, which is the foundation of the entire international nuclear nonproliferation regime, would make it that much harder to negotiate further nuclear nonproliferation agreements.

If the research reactors are forced to shut down, the United States would likely be accused, rightly or wrongly, of failing to live up to its obligations under the Treaty on the Non-Proliferation of Nuclear Weapons to assist nonnuclear weapons states with peaceful applications of nuclear technology. If the reactors switch back to (or continue) the use of HEU as fuel, the move towards elimination of the civil use of HEU will be severely diminished. While it is true that these countries do not pose a threat of nuclear weapons proliferation themselves, they serve as examples for other countries. If our stable allies continue to use HEU as fuel for their research reactors, then the countries which buy reactors from them would demand reactors fueled in the same manner.

Finally, the United States is currently attempting to persuade Russia and China to implement programs, similar to that of the United States, to convince their client states to switch their research reactors to LEU fuel. If, through action or inaction, the United States is unable to persuade its allies to discontinue the use of HEU as fuel, then we are unlikely to convince Russia and China that they should treat their allies any differently.

Weapons-grade uranium in some of the spent nuclear fuel from foreign research reactors is a nuclear weapons nonproliferation threat because that uranium could conceivably be removed from the spent nuclear fuel and used in production of one or more nuclear weapons. However, to do so would require that the spent nuclear fuel be reprocessed to

COMMENTOR NO. 135: RECAREERING INSTITUTE (CONT'D.)

RESPONSE TO COMMENT
COMMENTOR NO. 135: RECAREERING INSTITUTE (CONT'D.)

separate the uranium from the structure of the spent nuclear fuel elements, fission products in the uranium, and other impurities that are integral parts of the spent nuclear fuel. This separation requires a sophisticated chemical processing plant as well as time and money.

Chemical separation of the weapons-grade uranium could conceivably be accomplished if the spent nuclear fuel were left in an irresponsible nation having the required technology, time, and financial resources, or if it were released to a well-funded terrorist organization. However, such actions would not be possible in the relatively short time that the spent nuclear fuel would be in transit. During transit the spent nuclear fuel would be sealed in transportation casks weighing 25 tons or more. The sheer size and weight of these spent nuclear fuel transportation casks, coupled with the radioactive nature of the spent nuclear fuel itself, make movement of spent nuclear fuel a time consuming, difficult task. Conversely, these characteristics make spent nuclear fuel an unattractive target for theft during transit, making it a low proliferation risk during transportation. Furthermore, since spent nuclear fuel shipments would be guarded and their schedules would not be announced, these shipments would be also resistant to terrorism. During the past 40 years, hundreds of shipments have been made in similar casks. To date, there have been no terrorism or proliferation problems with any of these shipments. The physical security provisions used during transit have proven to be effective.

Response to Comment No. 135-12

As the result of public concern born from a September 1993 television report, the Contra Costa County Board of Supervisors initiated an investigation of the safety at Concord NWS. Their report on the subject, Safety at the Concord Naval Weapons Station dated November 2, 1993, concluded in part that, "There were no incidents involving explosions or radiation exposure, and that many of the reported incidents were not accidents caused by Weapons Station employees but, rather, were discoveries by employees that materials being received had been damaged during loading or transit. In some cases the shipments had not been properly blocked, braced or banded."

In fact, the safety record at Concord NWS is significantly better than that of similar activities in ports in the private sector. According to the Department of Labor statistics, for the category of marine cargo handling, the number of lost workday cases per 100 full-time workers for 1993 was 7.1 nationwide (1994 data not available), which is typical. The number of lost workday cases per 100 workers at Concord NWS for the first three quarters of fiscal year 1995 was 5.3, which is also typical for Concord.

Response to Comment No. 135-13

Estimates of radiological and nonradiological impacts at candidate ports, along transportation routes, and at interim management sites show that no disproportionately high and adverse effects are expected for any segment of the population, including minority populations and low-income populations. Figures A-1 through A-10 and A-21 through A-25 of Appendix A show distributions of minority populations surrounding candidate ports and interim management sites, respectively. Figures A-11 through A-20 and A-26 through A-30 of Appendix A show distributions of low-income households surrounding candidate ports and interim management sites, respectively. Environmental justice is discussed in Sections 4.2.2.6, 4.2.3.7, 4.2.4.5, and Appendix A of the EIS.

Response to Comment No. 135-14

The EIS evaluated the potential shipment of foreign research reactor spent nuclear fuel over the existing road and rail line infrastructure and determined that the risks and potential impacts associated with the shipments would be low. No need for upgrades were identified. Other upgrades of these roads and rail lines is outside the scope of the EIS (Section 1.3 of the EIS).

Response to Comment No. 135-15

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Appendix H, which was added to the final EIS in response to public comments, contains the general provisions for emergency preparedness and security measures associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. These issues include capabilities and training of first emergency responders. Funding for special needs, if necessary, would be addressed during this interface.

Commentor No. 143:
Seattle Women Act for Peace

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Thalia Spyropoulos **Phone:** (206) 282-0810
Title and Organization: Seattle Women Act for Peace
Address: (home) 1607 Bigelow Avenue, North
City: Seattle **State** WA **Zip** 98109

*** *COMMENTS* ***

Please see attached

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

Response to Comment
Commentor No. 143:
Seattle Women Act for Peace

COMMENTOR NO. 143: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

Thalia Syracopoulos
1607 Bigelow Avenue, North
Seattle, WA 98109

SUMMARY OF TESTIMONY ON DRAFT ENVIRONMENTAL IMPACT STATEMENT ON A PROPOSED NUCLEAR WEAPONS NONPROLIFERATION POLICY CONCERNING FOREIGN RESEARCH REACOR SPENT NUCLEAR FUEL

Testimony given May 25, 1995 at Raddison Hotel, Seatac, WA.

Prior to beginning my testimony I would like to register my disapproval of the way in which this hearing was organized. I have testified at other EIS hearings and never have I had to listen to a federal apologist lecture myself and numerous others every time testimony was given that he wished to refute. In addition, those who asked questions were not afforded the dignity of having reasoned, written responses provided in the final EIS statement. No person who testified was asked to identify themselves in order to have that information included in the documentation of the hearing. Mr. Beard was officious, testy and rude. Despite the fact that the hearing was scheduled for a specific time period and many persons had travelled there with the expectation of providing important testimony within that time frame, we found that our valuable time was taken with watching movies, listening to lectures and providing Mr. Beard endless opportunities to explain the DOEs position. 143-1

In light of the fact that the DOE had already spent substantial amounts of money publishing not only the Draft EIS, the Summary of the Draft EIS, but also the numerous copies of the 1993 public relations booklet, "Transporting Radioactive Materials" I feel that the DOE had every ample opportunity to state their case and provide information. I will acknowledge that the inadequacy of the information provided in the draft EIS was appalling, but Mr. Beard's comments provided very little substantive elaboration of that inadequate report. The hearing should have been just that, an occasion on which the DOE would HEAR what those who will be most directly affected by the DOE's decision had to say.

I would, in addition, like to protest the use of scribes to take notes on testimony given. For historical and legal purposes, such hearings should have an accurate record of comments made. The purchase of a tape recorder and several blank tapes would have been more efficient, more accurate and less expensive than DOE employees taking notes.

To the best of my recollection from my notes, my testimony on this occasion was as follows:

I am asking that DOE take the "no action" alternative to this 143-2

RESPONSE TO COMMENT COMMENTOR NO. 143: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

Response to Comment No. 143-1

DOE did request that comments be submitted in writing, however, all oral comments presented at each hearing were summarized and have been addressed along with the written comments in this Volume 3 of the EIS. All comments, written and oral, are part of the public record. The format adopted by DOE for the public hearings held on the draft EIS is fully in compliance with the requirements of NEPA implementing regulations and DOE's requirements for conducting such hearings.

Response to Comment No. 143-2

The commentor's preference for the No Action Alternative which is described in Section 2.5 of the EIS is noted. Environmental effects and policy implications resulting from adoption of the No Action Alternative are discussed in Section 4.6 of the EIS.

COMMENTOR NO. 143: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

proposal. 143-2 (Cont'd.)

I am completely and unequivocally against the bringing of spent nuclear fuel rods into Puget Sound for transportation, by any means [rail, truck] to Hanford. I have grandchildren and I hope to have great-grandchildren and it is our responsibility to maintain the environment so that they and generations to come will be able to use Puget Sound for their recreation, for their livelihood and for their food and water. 143-3

This country has, for almost exactly 50 years, been creating nuclear waste and we have heretofore neither devised nor implemented a safe method for the disposal or even the storage of this nuclear waste. If, in addition to creating our own nuclear waste, we take on the responsibility of maintaining and storing the spent fuel rods for all of the world's research reactors, none of those countries will ever have any reason to diminish, much less stop, their contribution to the world's ever-growing piles of nuclear waste. 143-4

In addition, to have chosen Hanford for the disposal site while simultaneously denying the serious, health-threatening problems already present at Hanford and, again in addition, to have done this at a time when it appears almost inevitable that funds for clean up at Hanford will be cut, if not eliminated is unconscionable. 143-5

If, despite the above, it is necessary to transport these fuel rods in this country, then the DOE has a responsibility to maximally protect and maximally inform all individuals and communities which would and/or could be impacted by this transportation. 143-6

An accident is, by definition, unexpected and unplanned. Even assuming, as the DOE apparently does, that a serious accident could not happen, they do acknowledge that some very low levels (allegedly) of radiation will be detectable at the surface of these containers. Even if it is true that very little radiation is emitted from these allegedly indestructible shipping containers, it should be remembered that modern medical science has never identified a safe level of radiation exposure. In addition, there are substantial disagreements already about the amount of radiation the stevedores, sailors and truckers will be exposed to when they handle or are in proximity with these containers for greater or lesser periods of time. 143-7

This information is very important because the testing that is described in the brochure, "Transporting Radioactive Materials" (pages 12-14), is inadequate and the results are suspiciously perfect. Even if Type "B" containers are used, who is to guarantee that in the transfer process the container will never drop from the top of a crane down more than 30 feet on to a dock or the sturdy 143-8

DRAFTEIS/TACOMA/FUEL RODS -2- 6/6/95 10:54am

RESPONSE TO COMMENT COMMENTOR NO. 143: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

Response to Comment No. 143-3

The commentor's preference for the No Action Alternative and opposition to the use of the Port of Tacoma is noted. However, on the issue of air and water quality as it pertains to the proposed policy of managing foreign research reactor spent nuclear fuel, the analysis in the EIS indicates that there would be no significant adverse impacts to either the Puget Sound or the Port of Tacoma. Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 30 years of spent nuclear fuel shipments, no radioactive contents have ever been released from a spent nuclear fuel transportation cask, nor has a spent nuclear fuel transportation cask ever been punctured, even as a result of an accident. Based on this experience, DOE considers that transportation casks passing through Puget Sound, the Port of Tacoma, or any other port, would not release their radioactive contents, or affect either the air or water quality.

Response to Comment No. 143-4

Both wet and dry storage technologies have been used in the past and could be used in the future to safely store spent nuclear fuel from foreign research reactors (Section 2.6.5.1 of the EIS). As noted in Section 1.2 of the EIS (last paragraph), DOE has put the foreign research reactor operators on notice that any policy established after completion of this EIS would be the last instance in which the U.S. would assist them in management of their spent nuclear fuel, and that they would have to use any time provided by the proposed policy to make their own arrangements for spent nuclear fuel disposition.

Response to Comment No. 143-5

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE will be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE will be managed at the Idaho National Engineering Laboratory. Accordingly, no foreign research reactor spent nuclear fuel would be shipped to the Hanford Site.

Response to Comment No. 143-6

Security of the foreign research reactor spent nuclear fuel while in transit is discussed in Sections 2.7.5 and 5.4.2 of the EIS.

COMMENTOR NO. 143:
SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

metal hold of a ship? Who is to guarantee that at no time will such a container drop more than 40 inches on to a steel rod? We already know that a ship fire reaching more than 2000° F burned for more than 24 hours recently in Seattle. Even the DOE cannot say this will never happen, because it already did happen. And yet, somehow, the DOE expects us to be totally reassured by the fact that the package was tested at 1475° F for 30 minutes. We are not reassured. 143-8 (Cont'd.)

Puget Sound is one of the world's deepest natural harbors. Indeed, very little of the water over which these ships will sail is only 50 feet deep and some areas are so deep that it would not only take more than 8 hours to retrieve the package, it is possible that it might never be retrievable. It is impossible to rationally counter the DOEs assumption (Draft EIS, pg. 34) that: "If a cask was to sink in the deep ocean and could not be recovered, seawater would penetrate the cask seals and corrode the spent nuclear fuel. There is no mechanism, however, by which the seawater entering the cask could be forced out of the cask. Thus the radioactive material would escape from the cask at a very low rate and would have a negligible effect on the marine environment." I and many others ask, "where is it written" that seawater will penetrate the cask seals in only one spot thereby blocking egress of the now-contaminated seawater? Again, we are not reassured. 143-9

The dramatic photos of the truck driving full speed into the wall (page 14) is quite impressive. Mr. Beard also told us that even if the truck was broadsided right at the container by a locomotive it would be intact. This seems odd in the context of the information that the simulated truck accident at 84mph succeeded in denting the container although we are reassured that "it did not release its simulated radioactive material". It is hard to give credence to the information about the train when a truck cab which has the container on the bed behind the cab, hitting a surface that yields, still results in denting, if not violating the full structural integrity of the cask. 143-10

The summary of the EIS is 48 pages long. Of that, 47 typed lines are devoted to the impacts of accidents during marine transport, port activities and ground transport. In addition to this obvious short shrift of the issues, the DOE must understand that these reassurances of how "safe" this all is fall on ears that are well tuned to the 50 years of being lied to about nuclear impact, dangers and accidents. 143-11

The assumption that the DOE will do what it wants no matter what we say in opposition, combined with your history of deception, poor decision-making and inadequate preparation for untoward events due to a denial that they could happen, leads me to make the following requests.

RESPONSE TO COMMENT
COMMENTOR NO. 143:
SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

The requirements for physical protection of the foreign research reactor spent nuclear fuel during shipments are specified in 10 CFR Part 73.37. The principal points are (1) cooperation with local law enforcement agencies, (2) armed escorts, and (3) communications with a communications center that is staffed 24 hours per day. (Section 5.4.2 of the EIS.)

For truck shipments in heavily populated areas, one escort vehicle containing an armed guard would lead the truck and another escort vehicle containing another armed guard would follow the truck. In less populated areas, there would be only one escort vehicle instead of two. For rail shipments, the escort would ride on the train in a location that permits observation of the shipment car while the train is in motion.

DOE is required to inform the Governor of each State and any Tribal chair, or their designee, along a transportation route at least seven days in advance of the shipment of hazardous cargos, including radioactive materials.

Response to Comment No. 143-7

The risks of radiation exposure from the proposed action and from common sources are discussed in Section 4.10 of the EIS. The estimated health risks to sailors, port workers, and truck drivers are presented in Sections 4.2.1, 4.2.2, and 4.2.3, respectively. DOE is not familiar with the substantial disagreements cited by the commentor.

Response to Comment No. 143-8

The sequence of testing scenarios (i.e., cask drop onto unyielding surface, cask drop on a steel post puncture, and cask fire) mentioned by the commentor is required by the Nuclear Regulatory Commission as part of the certification of "Type B" spent nuclear fuel transportation casks as given in 10 CFR Part 71.73 and elaborated in the EIS (Section 2.6.2 and Appendix B of the EIS). These tests conservatively represent a wide range of accident conditions that could occur during transport. The test results indicate that if such accidents were to occur, the cask, most likely, would not fail, and would not lead to a loss of containment. The EIS evaluated the consequences of such accidents (Section 4 and Appendix D). Note, the cask drop and puncture tests evaluate the resulting impact on the most vulnerable orientation of the cask, which would be very unlikely to occur while the cask was being transported in an ISO container. In addition, a drop onto a dock or a sturdy metal hold of a ship is not equivalent to a drop onto an unyielding surface.

These certification standards were developed for use of the transportation cask on land, hence the 30 minute fire test, which is considered to be the extent of a high intensity fire resulting from a collision with a tanker truck. The duration of a ship fire is directly related to the amount of combustibles carried on board. The number of severe fires on ships is relatively small. Data available on the last 15 years from Lloyd's of London

COMMENTOR NO. 143: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

1. Because there is disagreement about the amount of surface radiation emitted by these casks and disagreement about the danger of even low-level radiation exposure I would request that each ship carrying one or more of these casks/containers carry no other cargo other than these casks/containers. In this way clothing, children's toys, furniture or whatever else is shipped would not inadvertantly absorb (and later spread) radiation as a result of being in proximity to that surface radiation for the amount of time that is required for the sea journey to Tacoma. *143-12*

2. Every worker, whether a stevedore on the docks, a sailor on the ships or the trucker who drives the container to or from its point of origin/destination, who will handle or be in the vicinity of these casks/containers must sign a fully informed consent which specifies all of the actual and potential hazards of working with such a cargo. This informed consent must span the full spectrum of information from the already-accepted "minimal" unavoidable radiation exposure to the consequences of an absolute worst-case scenario in which the container was violated and those in proximity received the full, unprotected radiation exposure. It must also contain the information, expanded upon in #5 below, that no life-saving activity which might jeopardize the integrity of the cask/container would be undertaken to save that worker's life. *143-13*

3. Each and every community through which these shipments must pass must be notified publicly and well in advance of the passage of each shipment. The feasibility of this is apparently relatively easy since, it was explained this evening, the "tracking system" of such cargo is such that it can be specifically located within any 15-minute time period during transit. This would enable impacted communities to prepare for any untoward events and would allow those who wish to absent themselves from proximity to the potential hazard time in which to leave. *143-14*

4. Each transport vehicle, truck, ship and each container/cask must be well and visibly marked so that it can be readily identified from all sides on the sea/ground level and from the air. This would facilitate the accuracy and appropriateness of any required emergency or supportive response. *143-15*

5. Each dock and each ship/truck should have present, AT ALL TIMES, a team of persons fully and effectively trained in the handling of radioactive material and in the techniques of damage abatement should an accident or "worst case scenario" occur. To rely on local community hazardous material response teams, which most communities do not have, is insufficient. For instance, in a worst case scenario, let us imagine the possibility that an accident occurred in which the integrity of the cask/container was not violated, but an individual (stevedore, sailor, driver, pedestrian, locomotive engineer) was pinned under the cask/container. There has to be someone present with the *143-16*

DRAFTEIS/TACOMA/FUEL RODS -4- 6/6/95 10:54am

RESPONSE TO COMMENT COMMENTOR NO. 143: SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

indicate that of 1,073 ship collisions in port worldwide, only eleven led to fires, and of those, only five caused extensive damage, with only one actually causing buckling of structures. Hence, contrary to the commentor's assertion, long duration fires are not usual.

In respect to the impact a ship fire might have on a spent nuclear fuel transportation cask, there are three facts that would mitigate the potential damage. First, ship fires tend to move to different areas of the ship as the combustible material is consumed, so the transportation cask would not be exposed for the entire duration of the fire. Second, a ship fire's intensity is normally limited by the amount of oxygen that can reach the interior of a hold. Third, all ships that would be used to transport foreign research reactor spent nuclear fuel have built-in fire suppression equipment, which at a minimum would keep fires well below the extreme temperatures needed to damage the transportation cask. For these reasons, it would be almost impossible for spent nuclear fuel inside the transportation cask to reach 900 degrees Kelvin (1,160 degrees F), the melting point of research reactor spent nuclear fuel. The probability of reaching such a temperature was calculated to be less than one in a billion (Attachment D5 to Appendix D of the EIS). To put this temperature into perspective, steel used in a ship's structure buckles at around 700 degrees Kelvin (800 degrees F).

The EIS contains the results of an analysis of the effects of an accident that involves a severe fire (severity category 6), which does not reach the temperature to melt research reactor nuclear fuel. Appendix D, Sections D.5.3 and D.5.4 of the EIS present a detailed discussion of accident probabilities and radioactive material source terms and the results of the analyses, respectively.

In conclusion, although long duration ship fires are possible, and have occurred, they are uncommon events. Analyses in the EIS indicate that even in the event of a severe ship fire involving a transportation cask, neither the consequences nor risks are great (Appendix D, Section D.5.5 of the EIS).

Response to Comment No. 143-9

The EIS evaluated the consequences of accident scenarios resulting in the sinking of a transportation cask in the continental shelf (water depth of about 200 meters), and in the deep ocean (water depth of more than 200 meters). DOE acknowledges that some parts of the Puget Sound could be as deep as 305 meters (1000 feet). The analysis in the EIS does not require the cask to be recovered in less than 8 hours. The cask immersion test in 50 feet of water for 8 hours is the last part of a series of tests; i.e., free drop onto an unyielding surface, puncture (drop onto a steel post), fire, and water immersion (Section 2.6.2 and Appendix B, Section B.2 of the EIS). The representative transportation casks identified for marine transport use (Table B-13 of Appendix B of the EIS) would not buckle if one were to sink in Puget Sound. The water could leak into the cask, however, if it were to fall in the deepest part. DOE would recover any cask that might sink in Puget Sound regardless of water depth.

COMMENTOR NO. 143:
SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

knowledge, the responsibility and the courage to explain to that inadvertent victim that they will only be freed from the cask/container if that process does not involve violating the integrity of the cask/container. Such techniques as cutting away the container with a torch or the "jaws of life" which might violate the integrity of the cask/container could not be utilized to save the truck driver or the sailor who is pinned and whose life is in danger. Someone who knows this and who has the authority to communicate it must be present at all times to ensure that even greater damage is not done in the process of trying to save one or two lives. *143-16 (Cont'd.)*

Once again I firmly state that I oppose the entire plan to transport this material from its reactor-of-origin to Hanford. I urge the DOE to adopt a policy of non-action and to allow each country of origin to deal as effectively and responsibly as they choose with such hazardous waste. *143-17*

As a minor addendum, Mr. Beard addressed several of these points after I finished. Prior to my presentation, Mr. Beard had given a detailed and extremely reassuring account of the closeness with which the transport of these casks/containers would be tracked. However, in response to #3 above, he informed me that it was illegal for anyone other than the governor of each state to be informed about the transit of these shipments through any community. In addition, while the governor might be informed, it is apparently illegal for the governor to provide this information to the communities through which such shipments will pass. It is verily this type of deceptively inaccurate "reassuring" manipulation and dishonesty on the part of the DOE that makes it impossible for people to believe that you will act in a responsible manner. *143-18*

MAILED TO: Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 143:
SEATTLE WOMEN ACT FOR PEACE (CONT'D.)

The EIS assumes that if a cask were to sink in the continental shelf it would be recovered. In the deep ocean, if a cask were to sink and could not be recovered, seawater would enter the cask, as noted in the EIS Summary. Since the cask internal pressure is atmospheric, the seawater would be driven into the cask due to the existence of a large pressure differential across the cask seals. Once the cask was filled with seawater and pressurized, the pressure would equalize across the seals, and the water inside the cask would then have a chance to egress. It is only after the pressure equalizes across the cask seals, the contaminants (radioactive materials) would diffuse out of the sunken cask. The EIS evaluated the consequences and risks associated with a nonrecoverable spent nuclear fuel transportation cask in the deep ocean (Section 4 and Appendix C).

Response to Comment No. 143-10

It is important to note that even though the spent nuclear fuel transportation cask dented as expected, in the truck and locomotive crash tests, that does not mean that the cask failed. Cask failure is defined as a rupture of the cask that leads to release of radioactive material in excess of the amount indicated in 10 CFR Parts 71.41, 71.47, and 71.51. The transportation cask denting during a truck crash accident at 84 miles per hour did not violate the full structural integrity of the cask. The cask rammed through the cab and onto the wall. The required test of free fall from 30 feet onto an unyielding surface is comparable to a 52 mile per hour crash onto a hard surface. The final conclusion is that the spent nuclear fuel transportation casks are built to withstand a very high impact energy without losing their containment integrity.

With regards to a test involving a locomotive traveling at 80 miles per hour and broadsiding a cask mounted on a truck trailer, yes it happened. The cask was dented as expected, the locomotive was destroyed, but the cask containment remained intact.

Response to Comment No. 143-11

Sections 4.2.1.3, 4.2.2.3, 4.2.3.3, and 4.2.4.1 of the EIS discuss the risks and consequences of potential accidents involving the foreign research reactor spent nuclear fuel. In addition, Appendix C of the EIS discusses marine transport and associated environmental impacts in detail. These sections demonstrate that the risks and impacts from accepting foreign research reactor spent nuclear fuel into the United States are low.

Response to Comment No. 143-12

Any spent nuclear fuel transportation casks shipped to the United States would be required to emit no more than 10 mrem/hr at 2 m from the cask (Appendix E, Section E.3.1 of the EIS). Any variation in the emitted radiation levels would be below the regulatory maximum limit and would be due to variations in the design, use, and storage history of the foreign research reactor spent nuclear fuel.

Commentor No. 143:
Seattle Women Act for Peace (Cont'd.)

Response to Comment
Commentor No. 143:
Seattle Women Act for Peace (Cont'd.)

There need be no additional requirements to use dedicated ships, nor any adverse consequences to the use of the commercial ships or facilities because the foreign research reactor spent nuclear fuel is shipped in standard ISO containers and because the radiation levels are below the limits that would require special precautions. Although transportation casks carrying foreign research reactor spent nuclear fuel would emit a low level of gamma radiation (Appendix F, Section F.5), this type of radiation cannot contaminate or spread to other cargo. As such, this cargo is compatible with other cargos and can be safely carried on commercial ships.

Response to Comment No. 143-13

The radiation dose that anyone would receive handling or working near a cask is below the limit that is allowed to the public in an unrestricted area by NRC regulations (10 CFR Part 20). As such, no signed consent form is required from anyone associated with the transportation cask carrying foreign research reactor spent nuclear fuel.

Response to Comment No. 143-14

As discussed in Section 2.6.4.2 of the EIS, the NRC regulations concerning route notification are set forth in 10 CFR Part 73. Shippers are required to submit proposed routes for spent nuclear fuel shipments to NRC for approval, and NRC publishes a public information circular that lists routes that have been evaluated and approved for specific spent nuclear fuel shipments.

The regulation also requires DOE to inform the Governor of each State and any Tribal chair, or their designee, along a transportation route at least seven days prior to shipment of hazardous cargos, including radioactive materials.

Response to Comment No. 143-15

The regulations for marking the transport vehicles are published in 49 CFR Part 172. DOE complies with these regulations. The containers holding the spent nuclear fuel transportation casks would be marked while onboard ship, but the ships themselves would not be required to have any special markings. The trucks and/or railroad cars would be visibly marked on all sides, but not on the top.

Response to Comment No. 143-16

Neither NRC, U.S. Department of Transportation, nor DOE regulations require an emergency response team to escort shipments of spent nuclear fuel. DOE considers that if foreign research reactor spent nuclear fuel is managed in the United States, there is adequate regulatory and emergency preparedness infrastructure to ensure its safe acceptance and transportation to the designated management site. As discussed in Section 2.7.1 of the EIS, Federal funding to State, Tribal, and local governments is being provided for maintaining emergency response programs. There are three national emergency

Commentor No. 143: Seattle Women Act for Peace (Cont'd.)

Response to Comment Commentor No. 143: Seattle Women Act for Peace (Cont'd.)

response plans under which DOE provides radiological monitoring and assessment assistance. Under these plans, DOE provides technical advice and assistance to the State, Tribal and local agencies involved with a radiological incident. DOE is also required to inform the Governor of a State and any Tribal chair, or their designee, along a ground transportation route at least seven days in advance of the shipment of hazardous cargos, including radioactive materials. It would be the responsibility of the Governor to provide any further notification to State and local officials.

Emergency preparedness, security, and coordination of DOE with local emergency response authorities that would be involved with the acceptance and transportation of foreign research reactor spent nuclear fuel will be discussed in detail in the Transportation Plan, that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments.

If an individual were to be pinned by the transportation cask, cutting the cask with a torch or jaws of life would be an ineffective rescue technique anyway, due to the weight and thickness of the cask. The most appropriate response would be to lift the cask, an action that does not require a special response team.

Response to Comment No. 143-17

The commentor's opposition to the entire plan to transport this material from overseas to the Hanford Site is noted. If the United States adopts a No Action Alternative, our credibility with foreign research reactor operators would likely be so diminished that the United States would have no substantive influence on dispositions of spent nuclear fuel from foreign research reactor or the resulting international commerce in weapons-grade materials (Section 4.6 of the EIS). Assuming the individual countries could safely and securely store and dispose of their spent nuclear fuel (which is unlikely for many countries for both technical and economic reasons), selection of the No Action Alternative would almost certainly lead to a resumption in the use of fresh HEU (i.e., weapons-usable) in civilian programs worldwide. The nonproliferation implications of resumed civilian HEU commerce are greater than the risks associated with marine transport, ground transport in the United States, and management at a U.S. facility. Thus, the proposed action is designed to reduce risks, especially potentially catastrophic ones associated with nuclear weapons proliferation.

Response to Comment No. 143-18

See last two sentences of the first paragraph of the response to Comment 143-16 above.

COMMENTOR NO. 213: WEST COUNTY TOXICS COALITION

WEST COUNTY TOXICS COALITION
1019 MACDONALD AVE., RICHMOND, CA 94801
voice (510) 232-3427 ¤ fax (510) 232-4111

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U. S. Department of Energy
100 Independence Avenue, SW
Washinton, DC 2085

May 30, 1995

Dear Mr. Head,

I am responding to the Draft Environmental Impact Statement, On a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.

We are disturbed that Executive Order 12898, signed by President Clinton on February 11, 1994, that directs Federal agencies to develop a strategy to address environmental justice concerns in its programs, policies and regulations is not being adhered to in this case.

The Department of Enery plans to transport Nuclear Spent Fuel by ships through the San Francisco Bay , San Pablo Bay to the Concord Naval Weapons Station, Concord, CA.

The Communities near the San Francisco and San Pablo bay are multi-ethnic communities, with a large Afro-American, Latino, Southeast Asian population in the Richmond, San Pablo area, particularly adjacent to the waterways. *213-1*

These community people and ethnic populations have not been contacted to alert them of potential risk and possible impact from this proposed policy and project. There should be a series of community meetings in the San Francisco, Richmond, CA, area to make the residents aware of the proposed policy, and to comply with Executive Order 12898.

RESPONSE TO COMMENT
COMMENTOR NO. 213: WEST COUNTY TOXICS COALITION

Response to Comment No. 213-1

Appendix A of the EIS responds to Executive Order 12898 which directs federal agencies to identify and address disproportionately high and adverse environmental effects of their policies and activities on minority populations and low-income populations. Environmental effects of Management Alternatives 1 and 3 were evaluated and found to have no significant beneficial or adverse effects on the general population, including minority populations and low-income populations (Section 4.2 and 4.5 of the EIS). Section 3.2.1 of the EIS identifies low-income households and describes the racial and ethnic composition of resident minority populations surrounding each of the candidate ports. Environmental justice at candidate ports, along ground transportation routes, and at interim management sites is discussed in Sections 4.2.2.6, 4.2.3.7, and 4.2.4.5, respectively, of the EIS.

A public meeting concerning the draft EIS was held in Concord, California on May 22, 1995. Public comments given at the meeting and responses to those comments are included in this document.

COMMENTOR NO. 213: WEST COUNTY TOXICS COALITION (CONT'D.)

WEST COUNTY TOXICS COALITION
1019 MACDONALD AVE., RICHMOND, CA 94801
voice (510) 232-3427 ▫ fax (510) 232-4111

Unfortunately, we cann't confide in the Department of Energy nor the Navy in telling communities of color that there is no risk to our communities and people from the Nuclear Spent Fuel.

This doubt goes back to the disaster at the Concord Naval Weapons Station, July 17, 1944, that killed (377) mostly black sailors while unloading weapons. This national example of institutional racism have not been acknowledged by the Navy and United States government nor completely addressed to the satisfaction of the families of the sailors nor the Afro-American community locally, nationally, nor internationally. *213-1 (Cont'd.)*

The West County Toxics Coalition recommends community meetings in the Richmond, CA area and other areas so that all communities that are impacted can attend and voice their concerns. This step would be the beginning of addressing the Environmental Justice issues. *213-2*

We are oppossed to the development of nuclear weapons by any country that will kill and destroy the environment. *213-3*

We also encourage the development of safe solar and wind energy, rather than nuclear energy. Nuclear energy production have not proven to be safe nor have the issues of disposing of the spent fuel been addressed to the safety of people and the environment. *213-4*

Sincerely,

Ahmadia Thomas
Board Chairperson

Henry Clark
Executive Director

Lucille Allen
Organizer

RESPONSE TO COMMENT COMMENTOR NO. 213: WEST COUNTY TOXICS COALITION (CONT'D.)

Response to Comment No. 213-2

It would not be feasible, nor does NEPA require, that a hearing be held in every community along a potential transportation route. As such, a total of seventeen public hearings were held on the draft EIS in the locations determined most likely to be directly affected by the EIS alternatives, specifically in the ports of entry and at the potential management sites.

Response to Comment No. 213-3

Management alternatives described in Sections 2.2 through 2.4 of the EIS support efforts by the United States to prevent the spread of nuclear weaponry. As discussed in Section 1.2 of the EIS, elimination of highly enriched (weapons-grade) uranium from civil programs is an essential part of these efforts. Foreign research reactors are not used for weapons production. Research, medical, industrial, and agricultural applications for foreign research reactors are described in Section 1.1 of the EIS.

Response to Comment No. 213-4

Consideration of solar and wind power are outside the scope of this EIS. However, it should be noted that as part of its mission, DOE currently has ongoing programs that are seeking to develop and promote use of these alternative energy sources.

In regard to the commentor's concern about safe disposal of the spent nuclear fuel, DOE is confident that the foreign research reactor spent nuclear fuel could be safely stored at one or more of the candidate management sites pending ultimate disposition (Section 4 and Appendix F of the EIS). The Yucca Mountain Site in Nevada is currently being evaluated as a geologic repository.

COMMENTOR NO. 221: SIERRA CLUB SAN FRANCISCO BAY CHAPTER

SIERRA CLUB San Francisco Bay Chapter
Alameda County • Contra Costa • Marin • San Francisco
Conservation Offices 5237 College Avenue, Oakland, CA 94618 (510) 653-6127
Bookstore 6014 College Avenue, Oakland, CA 94618 (510) 658-7470

Tim Donahue, Chair, DELTA GROUP
2412 Cambridge Drive, Antioch, CA 94509

June 11, 1995

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

Gentlemen:

I am writing on behalf of the Delta Group of the Sierra Club regarding the proposal to receive and transport spent nuclear waste at the Concord Naval Weapons Station, at Concord, California. We have grave concerns about the hazards involved in handling any nuclear material at this site.

The San Francisco Bay Area is one of the largest metropolitan regions in the United States. Use of the Concord Naval Weapons Station facility would involve nuclear-laden ships traveling past six bridges and numerous refinery and chemical plant terminals, along a ship channel that is so hazardous that the channel itself is now in draft EIR study process for improvement work to reduce safety and environmental risks caused by existing ship traffic! Thus the long travel route from the Golden Gate Bridge to Concord via the San Francisco-to-Stockton Ship Channel is subject to risks along every inch of the way. *221-1*

Downloading of ships, temporary storage of materials, and loading for rail or truck transport brings additional risks. Rail transport would involve shipment through miles of industrial and urban development in any direction, and from experience, we know that derailment accidents have been all too frequent in the past. These accidents often involve toxic materials from one of our local industries, which require notifying local residents regarding the resultant environmental hazards, and halting rail traffic until the problem has been cleaned up. Transport by highway necessarily involves State Route 4, already grossly inadequate, and operating frequently at Grade Level F in traffic volume--i.e., total gridlock. *221-2* *221-3*

RESPONSE TO COMMENT COMMENTOR NO. 221: SIERRA CLUB SAN FRANCISCO BAY CHAPTER

Response to Comment No. 221-1

The port selection process that determined that Concord NWS was an acceptable port considered the population of the port and surrounding areas (Appendix D, Section D.1.9.5 of the EIS). Additionally, all population within a fifty mile radius of the Concord NWS was considered when analyzing the potential impact of a range of hypothetical port accidents. Even though all marine transport involves risk, the risks associated with these shipments were found to be low (Appendix D, Section D.5).

The passage from San Francisco Bay to Concord meets the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2 of the EIS). Land-based facilities, such as refineries, have no direct impact on the risk associated with the shipment of foreign research reactor spent nuclear fuel because the addition of some mishap at a land-based facility would not add to the severity of the worst plausible accident, which is considered to be the collision of the ship carrying the foreign research reactor spent nuclear fuel with a petroleum tanker. In this accident the transportation cask is damaged in the collision, then subjected to a fire that resulted from the collision (Appendix D, Section D.5). Section 4.2.2.3 of the EIS discusses the assumptions that went into the port accident analysis and the results of those analyses. Land-based facilities themselves are not a threat to the transportation cask due to the distance from any of the facilities to the ship and the robustness of the cask.

Response to Comment No. 221-2

Radiological health risks and environmental effects of the proposed action were evaluated during preparation of this EIS. As discussed in Section 4 and Appendices B through E of the EIS, the risks associated with the handling and transportation of spent nuclear fuel from foreign research reactors are low. Foreign research reactor spent nuclear fuel has been transported to management sites in the United States for over four decades without a radiological incident. As discussed in Sections 2.6.2, 4.2.3, and Appendix B, Section B.2.1.3 of the EIS, the likelihood that a spent nuclear fuel transportation cask would be breached during an accident is remote.

Response to Comment No. 221-3

Estimates of radiological health effects presented in Section 4.2.3 of the EIS are based on conservative assumptions using representative truck and rail transportation routes from candidate ports to interim management sites. Supporting detail for the calculations is given in Appendix E of the EIS. Radiological and nonradiological health effects were found to be low.

COMMENTOR NO. 221: SIERRA CLUB SAN FRANCISCO BAY CHAPTER (CONT'D.)

U.S. Department of Energy - 2

An additional factor affecting local environmental problems are prevailing westerly winds. The North Bay corridor forms a natural wind tunnel from the Pacific westward into the Central Valley. The result is that any toxic emissions quickly spread into nearby residential areas, requiring the responsible parties to set in motion an extensive alert system so that safety measures can be taken. Several refineries and chemical plants have had accidents recently, resulting in local residents needing medical attention. A nuclear accident at the Concord Naval Weapon Station would be devasting, affecting not only neighborhoods nearby, but thousands of residents who reside downwind from the Station as well. *221-4*

Based on the above listed hazards, we strongly recommend that the Concord Naval Weapons Station not be involved in the handling of spent nuclear rods, or any other nuclear material.

Sincerely,

Tim Donahue

Tim Donahue, Chair, Delta Group
S.F. Bay Chapter, SIERRA CLUB

Phone # (510) 754-8801

RESPONSE TO COMMENT COMMENTOR NO. 221: SIERRA CLUB SAN FRANCISCO BAY CHAPTER (CONT'D.)

Response to Comment No. 221-4

The meteorology and population distribution of the Concord area were taken into account in the calculations in Section 4.2.2.3 and Appendix D of the EIS. In all cases, the risks were found to be low.

COMMENTOR NO. 241: THE PACIFIC STOCK EXCHANGE INCORPORATED

THE PACIFIC STOCK EXCHANGE INCORPORATED

John C. Katovich
Senior Vice President and
General Counsel

June 12, 1995

Mr. Charles Head
Office of Spent Nuclear Fuel Management
U.S. Department of Energy
1000 Independence Avenue SW
Washington, D.C. 20585

Dear Mr. head:

I am writing to oppose the federal government's plan to ship nuclear waste through the San Francisco Bay Area and store this waste at the Concord Naval Weapons Station. *241-1*

Nuclear shipments to the Concord Naval Weapons Station would pass through the heavily populated and seismically active San Francisco Bay Area and be stored near active earthquake faults, six oil refineries, many chemical plants and the Concord High School. The freeways along which the nuclear waste would be carried, 680, I-80 and 5, are major commuter routes which run through the heart of the Bay's dense population. *241-2* *241-3*

I strongly oppose the Department of Energy's proposal on this matter and urge you to delete the San Francisco Bay Area from your list of proposed sites for the storage of nuclear waste. Thank you. *241-4*

Sincerely,

301 Pine Street, San Francisco, CA 94104 (415) 393-4066

RESPONSE TO COMMENT COMMENTOR NO. 241: THE PACIFIC STOCK EXCHANGE INCORPORATED

Response to Comment No. 241-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Concord NWS is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Concord NWS, or to any of the ports analyzed in the EIS, is low.

If the foreign research reactor spent nuclear fuel is accepted into the United States, there would be no storage of this material at Concord NWS, any other port, or anyplace except for management sites. Under normal circumstances, it would remain at a port for only a few hours. In the event of a major disruption of ground transportation systems due to adverse weather, seismic activity, or other situation, DOE's goal is to minimize holding times at the ports and to provide safe transport of the spent nuclear fuel to its destination as quickly as possible.

Response to Comment No. 241-2

The port selection process that determined that Concord NWS was an acceptable port considered the population of the port and surrounding areas (Appendix D, Section D.1.9.5 of the EIS). Additionally, all population within a fifty mile radius of the Concord NWS was considered when analyzing the potential impact of a range of hypothetical port accidents. The risks were found to be low (Appendix D, Section D.5).

The passage from San Francisco Bay to Concord meets the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2). The port selection criteria do not consider the existence of land-based facilities such as refineries because the addition of some mishap at a land-based facility would not add to the severity of the worst plausible accident, which is considered to be the collision of the ship carrying the foreign research reactor spent nuclear fuel with a petroleum tanker. While local hazards, such as earthquakes, may slightly increase the probability of an accident, they would not increase the consequences of the accident, which were found to be minor. Therefore, the overall low risk is essentially unchanged in seismic areas.

Response to Comment No. 241-3

Estimates of radiological health effects presented in Section 4.2.3 of the EIS are based on conservative assumptions using representative truck and rail transportation routes from candidate ports to interim storage sites. Supporting detail for the calculations is given in Appendix E of the EIS. Radiological and nonradiological health effects of the proposed action were found to be low.

Response to Comment No. 241-4

San Francisco Bay area is not included in the DOE's list of proposed management sites for the storage of foreign research reactor spent nuclear fuel which is discussed in Appendix F, Section F.1.3 of the EIS.

COMMENTOR NO. 255: UNIVERSITY OF MISSOURI-COLUMBIA

UNIVERSITY OF MISSOURI-COLUMBIA

Research Reactor Center

Research Park
Columbia, Missouri 65211
Telephone (314) 882-4211
FAX (314) 882-3443

June 15, 1995

Public Comments on the
draft FRR SNF EIS
Office of Spent Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Ave., S.W.
Washington, DC 20585-0001

ATTN: Charles R. Head

This letter presents comments of the University of Missouri Research Reactor (MURR) on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.

There are two points:

1. Receipt and storage of approximately 23,000 foreign reactor spent fuel elements must not interfere with continued annual receipt and storage of 26 to 30 MURR elements at Savannah River Site (current receiver) or Idaho National Energy Laboratory (past and possible future receiver). *255-1*

2. Plans for construction of new dry or wet storage facilities must not cause postponement of annual shipments of MURR fuel. *255-2*

Attached is a copy of our comments on an Environmental Impact Statement last year which emphasizes the importance of MURR being able to reliably make annual shipments of spent fuel.

Sincerely yours,

Roland A. Hultsch

Roland A. Hultsch
Reactor Physicist

enclosure

COLUMBIA KANSAS CITY ROLLA ST. LOUIS

RESPONSE TO COMMENT
COMMENTOR NO. 255: UNIVERSITY OF MISSOURI-COLUMBIA

Response to Comment No. 255-1

If foreign research reactor spent nuclear fuel is accepted into the United States, the receipt and storage activities associated with this decision would not interfere with the existing DOE policy of accepting spent nuclear fuel from U.S. research reactors. In estimating the receipt and storage capabilities of each candidate management site, all previous and current commitments of that site were considered.

Response to Comment No. 255-2

Construction of new wet or dry storage at the candidate management site(s) for storage of the foreign research reactor spent nuclear fuel would not impact other activities or storage requirements.

Commentor No. 263: Citizens Opposing Polluted Environments (COPE)

June 11, 1995

COPE
c/o J. Caseber
1908 Tenth St.
Berkeley, CA 94710
510-548-0861
510-845-4001 FAX

Charles Head
U. S. Dept. of Energy (DOE)
Office of Spent Nuclear Fuel Management
1000 Independence Ave. SW
Washington, DC 20585

Mr. Head,

I am offering these comments on behalf of Citizens Opposing Polluted Environment (COPE), a Bay Area grassroots environmental organization on the final draft of the EIS for transportation of spend nuclear fuel rods back into the U.S. from foreign countries.

The following are some issues we wish to see addressed in the scope of the final draft EIS:

1. What would be some worst case scenarios in which radioactive materials from spent fuel rods enroute to temporary storage facilities in the U. S. might be released due to human error, natural disasters, accidents, explosions, fires, sabotage, and/or terrorism?

Not to include an evaluation of worst case scenarios would be to ignore what we at COPE believe to be unacceptable health and safety risks to the public posed by transportation of spent fuel rods into the U. S. from foreign countries. For instance, because of heavy shipping traffic to and from the Bay Area refineries, transportation by ship through the Golden Gate across the San Francisco Bay could result in an accident involving another ship. In his book, All Things Nuclear, Mr. James Warf, a Group Leader on the Manhattan Project states: "Their (i.e. spent fuel rods') principal vulnerability is from fire. Spent fuel rods on shipboard in a harbor could spew a plume of deadly radioactivity over a city in the case of a severe fire."

If an accident such as an explosion and fire were to occur, it could spread a plume of airborne radioactive materials that could kill or injure thousands of people, not just at the timeof the accident, but continuously for as long as the unimaginable length of time, 500 centuries, that some of

263-1

Response to Comment Commentor No. 263: Citizens Opposing Polluted Environments (COPE)

Response to Comment No. 263-1

A truly worst case scenario is impossible to define because no matter what scenario someone suggests, somebody else could imagine one that is even worse. The EIS does not contain a worst-case scenario, but a broad range of accident scenarios, including severe accidents, is discussed in Section 4.2 of the EIS.

COMMENTOR NO. 263: CITIZENS OPPOSING POLLUTED ENVIRONMENTS (COPE) (CONT'D.)

the isotopes involved remain deadly radioactive. We believe that whatever is to be gained economically or for any other reason by taking back these fuel rods, it is not worth this kind of risk. 263-1 (Cont'd.)

2. **How could the DOE assure the general public that one of these scenarios could not happen?** 263-2

COPE would be surprised if the DOE could give any such assurances. Just evaluating the potential risk over the next 15 years for each type of occurrence would appear to be impossible.

3. **If such a catastrophe were to take place, who would be responsible for protecting the citizens against loss of life and health damage and by what means would this be accomplished?** 263-3

Officials from other Bay Area cities have already stated in comments that their facilities for emergency response would not only be inadequate, but, for the most part, ineffective in protecting the public from the effects of a catastrophe involving a radioactive fire aboard a ship in the Bay

4. **Who would be responsible for the possibly astronomical costs involved in payment for injuries and deaths if a terrible accident involving transporting the spent fuel rods were to happen?** 263-4

Would liability fall to DOE? the Federal Government? If so it would be the taxpayers who would be ultimately responsible. If the experience of the GI's in Vietnam with regard to their claims for injuries and deaths from Agent Orange is any lesson, how could we be assured that the U. S. Government wouldn't take the same approach to claims associated with a fuel rod explosion? How would the injured be able to prove that their cancer or other injuries were the result of inhalation of radioactive particles emitted from a spent fuel rods accident?

5. **To what extent would the risk of nuclear weapons proliferation be reduced by implementation of the preferred alternative?** 263-5

Given that spent fuel rods made from Low Enriched Uranium (LEU) contains some plutonium, the critical ingredient in the manufacture of nuclear weapons, how would taking back spent fuel rods made from Highly Enriched Uranium (HEU) and supplying foreign agencies with Low Enriched Uranium (LEU) significantly reduce the risk of nuclear weapons proliferation? Isn't it true that as long as nuclear materials are being sold to other nations, risk of proliferation increases?

COPE agrees with many others that the issue of nuclear weapons proliferation should be dealt with within the context of a comprehensive policy which addresses the root causes of proliferation. Key elements of such a policy should include continued significant nuclear arms reductions, the passage of the Comprehensive Test Ban Treaty (CTB), peace time economic conversion of military and nuclear weapons sites, elimination of the United States government's policy regarding threatened "first use" of

RESPONSE TO COMMENT COMMENTOR NO. 263: CITIZENS OPPOSING POLLUTED ENVIRONMENTS (COPE) (CONT'D.)

Response to Comment No. 263-2

The accident consequence described by the commentor (kill or injure thousands of people) is not feasible. A fire in the port could not disperse enough radioactive material from these casks to cause such an extreme consequence. Reasonable accident scenarios and their consequences are discussed in Section 4.2.2.3 of the EIS.

Appendix D, Section D.5.4.3.2 presents the risks of a very high temperature fire that engulfs a cask, which was part of a sensitivity study on release fractions. In addition, Section D.5.9 has been added to Appendix D of the EIS to address the issue of attack by disgruntled persons or terrorists.

Response to Comment No. 263-3

Several accident scenarios, including severe accidents, were analyzed during preparation of the EIS. Results of the accident analysis at the ports are given in Section 4.2.2 of the EIS with supporting detail in Appendix D, Section D.5. No catastrophic effects were found to result from severe accidents involving foreign research reactor spent nuclear fuel at any of the ports analyzed.

DOE considers that there is adequate regulatory and emergency preparedness infrastructure to ensure the safe acceptance and transport to designated management sites if the foreign research reactor spent nuclear fuel is managed in the United States. Federal funding to State, Tribal, and local governments for maintaining emergency response programs is discussed in Section 2.7.1. There are three national emergency response plans under which DOE provides radiological monitoring and assessment assistance. Under these plans, DOE provides technical advise and assistance to the State, Tribal and local agencies involved with a radiological incident. Emergency preparedness, security, and coordination of DOE with local emergency response authorities, and security are discussed in general in Sections 2.7 and 2.8 of the EIS. Details would be contained in the Transportation Plan, that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments.

Response to Comment No. 263-4

Under the Price-Anderson Act, DOE would indemnify contractors for public liability with respect to spent nuclear fuel if there were a "nuclear incident," as defined under the law. In pertinent part, a "nuclear incident" is one that causes, for example, injury or sickness or property damage, resulting from radioactive, toxic, explosive, or other hazardous properties of the material.

Response to Comment No. 263-5

No preferred alternative was selected in the draft EIS on which this comment was submitted (although a preferred alternative is specified in Section 2.9 and 4.7 of this final EIS). On the

COMMENTOR NO. 263: CITIZENS OPPOSING POLLUTED ENVIRONMENTS (COPE) (CONT'D.)

nuclear weapons, and a cessation of promoting nuclear power technologies in foreign countries. 263-5 (Cont'd.)

COPE has formed some strong recommendations concerning the proposed policy. We favor the "no action" alternative as the sanest, the safest, and the least expensive. Leaving the fuel rods right where they are, under international security, eliminates the great potential risks involved in transporting them thousands of miles utilizing several modes of transportation requiring numerous transfers from one mode to another. The costs of potential accidents in terms of human life, human health, and the environment and the expenses associated with each could be astronomical. 263-6

COPE believes that reducing the threat of proliferation of nuclear weapons is a legitimate and extremely important responsibility of DOE. However we disagree that the implementation of the proposed policy will significantly reduce the proliferation risk. We have great fears concerning what we see as terrible health and safety risks to the public associated with the transportation of spend fuel rods, especially through densely populated areas such as the Bay Area. 263-7

5. How could acts of terrorism and theft of materials with which to make nuclear weapons be prevented?

Don't security risks involving such materials increase dramatically when they are moved over very long distances? Are these shipments to be accompanied by heavily armed convoys? 263-8

COPE has a motto: "We have the right to refuse to accept the risk of being poisoned. For the love of ourselves, our families, and our cities, we must not, and will not allow it!" We believe this motto is more than applicable in this case. 263-9

Yours truly,
Jami Caseber, Director
Citizens Opposing Polluted Environment (COPE)

cc: President Bill Clinton
U. S. Senator Diane Feinstein
U. S. Senator Barbara Boxer
Vice President Albert Gore
U. S. Congressman Ron Dellums
U. S. Congressman Pete Stark
U. S. Congressman George Brown, Jr.
U. S. Congressman George Miller
U. S. Congressman Richard Gephardt
Governor Pete Wilson
State Senator Nicholas Petris
State Assemblyman Tom Bates

RESPONSE TO COMMENT COMMENTOR NO. 263: CITIZENS OPPOSING POLLUTED ENVIRONMENTS (COPE) (CONT'D.)

assumption that the commentor meant to refer to the proposed action rather than the preferred alternative, the amount of HEU addressed by the proposed action would be sufficient to produce between 80 and 100 nuclear weapons. Reducing the international availability of this material, therefore would be a major benefit to U.S. nuclear weapons nonproliferation policy.

As shown in Appendix B of the EIS, the amount of plutonium in LEU spent nuclear fuel from foreign research reactors is extremely small and is recognized by nonproliferation experts as not posing a proliferation concern.

The commentor's other comments concerning recommended elements of U.S. nuclear weapons nonproliferation policy are beyond the scope of this EIS.

Response to Comment No. 263-6

The commentor's preference for the No Action Alternative is noted. As discussed in Section 4 of the EIS, potential risks to human health or the environment posed by transportation of spent nuclear fuel from foreign research reactors are low. In the event that such spent nuclear fuel is accepted for disposition into the United States, it would typically be transferred from a container vessel at the port of entry to either rail car, barges, or truck for transport to an interim management site (Section 2.6.3 of the EIS). Numerous transfers from one transportation mode to another would be unnecessary. Furthermore, it is wrong to assume that all of the foreign research reactor spent nuclear fuel would be safe from diversion into a nuclear weapons production program if it were left where it is at this time, as explained in Section 4.4.1 of the EIS.

Response to Comment No. 263-7

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium which could be diverted for the construction of nuclear weapons. Because the amount of HEU needed to construct a nuclear bomb is relatively small, it is prudent to remove as much as possible from international commerce (Section 1.2 of the EIS and the response to Comment number 263-5). As discussed in Section 4 of the EIS, the risks associated with proposed action to human health or the environment are low.

Response to Comment No. 263-8

Section 2.8 of the EIS addresses the security measures that would be taken to ensure that there would be no unacceptable risks of terrorism or theft of materials. DOE considers that foreign research reactor spent nuclear fuel could safely be received at commercial ports, as it has in the past, without additional security such as might be present at military bases. The security provided for the spent nuclear fuel shipments is required to meet or exceed all the applicable security requirements in the Code of Federal Regulations (10 CFR Part 73). If any port did not already provide security sufficient to satisfy these requirements, it would be the responsibility of the shipper to provide the required additional security. Nevertheless, the commentor's preference for the use of military ports is noted.

Chemical separation of the weapons-grade uranium could conceivably be accomplished if the spent nuclear fuel were left in an irresponsible nation having the required technology, time, and financial resources, or if it were released to a well-funded terrorist organization. However, such actions are not possible in the relatively short time that the spent nuclear fuel would be in transit. During transit, the spent nuclear fuel would be sealed in transportation casks weighing 25 tons or more. The sheer size and weight of these casks, coupled with the radioactive nature of the spent nuclear fuel itself, make movement of spent nuclear fuel a time consuming, difficult task. Conversely, these characteristics make spent nuclear fuel an unattractive target for theft during transit, thus, a low proliferation risk during transportation. Furthermore, since spent nuclear fuel shipments are guarded and their schedules are not announced, these shipments are also resistant to terrorism. During the past 40 years, hundreds of shipments have been made in similar casks. There have been no terrorism or proliferation problems with any of these shipments. The physical security provisions used during transit have proven to be effective.

Section D.5.9 has been added to Appendix D of the EIS to address the issue of terrorism and sabotage. One of the attack scenarios postulates hijacking a transportation cask full of spent nuclear fuel.

Response to Comment No. 263-9

The analysis in the EIS indicates that the risks of health effects to workers and the general public are low. Furthermore, taking no action would increase the risk of nuclear weapons proliferation, which could have catastrophic consequences.

COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name | Address | City | Zip

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

287-1

Name | Address | City | Zip

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name | Address | City | Zip

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name | Address | City | Zip

Sponsored by the North End Neighborhood Council of Tacoma

RESPONSE TO COMMENT COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION

Response to Comment No. 287-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Port of Tacoma is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Port of Tacoma, or to any of the ports analyzed in the EIS, is low.

COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	612 S. Sheridan Tac.		98405
[illegible]	612 S. Sheridan Tac.		98405
[illegible]	[illegible]		98422
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		98032
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		98499
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	Tacoma, WA	98403
[illegible]	[illegible]	Tacoma, WA	[illegible]
[illegible]	[illegible]	Tac.	98499
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		98467
[illegible]	[illegible]	Tacoma	98403
[illegible]	[illegible]		98498
[illegible]	[illegible]		98466
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		98515
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		98466
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	Spanaway	98387

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

RESPONSE TO COMMENT COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	2510 N Union	Tacoma	98406
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	2705 N. Union	Tac.	98407
Wendy S. Hutton	"	"	
[illegible]	2501 Union	Tacoma	[illegible]
[illegible]	2501 N Union Ave	Tacoma WA	[illegible]
[illegible]	2511 No Puget Sound	Tac Wa.	[illegible]
Diane Novak	2501 N. Puget Sound	Tac. WA	98406
[illegible]	"	"	"
[illegible]	3512 North 26th	Tacoma	98406
[illegible]	3507 N 24th St	Tacoma	98406
[illegible]	3112 N 22 St	Tacoma	98406
[illegible]	"	"	"
[illegible]	2519 N Junett	Tacoma	98406
[illegible]	2519 N Junett	Tacoma WA	98406

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
Kathryn [illegible]	[illegible]	Tac.	98407
Kim [illegible]	7140 19th Apt 20	Rochester	98579
[illegible]	302 N Yakima Ct	Tacoma WA	98403-3213
[illegible]	[illegible]	Tacoma	98405
[illegible]	[illegible]	[illegible]	98409
Margaret R. [illegible]	1828 Battlefield St.	Tacoma	98406
[illegible]	4010 S. [illegible]	Tacoma	98408
[illegible]	4422 S. [illegible]	Tacoma	98444
[illegible]	5310 Cottage Dr.	Tac.	Tacoma 98422
Craig [illegible]	305 Dwight Ave	Tacoma	98422
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15507 McCordle	Rd PH	Lakeby 98349
[illegible]	2335	50th Ave E.	Tacoma 98424
[illegible]	4002 Schuster	Pkwy	Tacoma 98402
Carol [illegible]	9805	58th St NW	Tacoma 98467

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	8518 No Junett	Tacoma	98406
[illegible]	3408 N Alder	Tacoma	98407
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Tacoma	98402
Melody B. [illegible]	[illegible]	Everett	98203
[illegible]	2121 S. Alder St	Tacoma	98405
[illegible]	2121 S. Alder St	Tacoma	98405
[illegible]	1919 E 3rd	Tacoma	[illegible]
[illegible]	1919 E 3rd	Tacoma	[illegible]
[illegible]	637 N [illegible]	Tacoma	98406
[illegible]	[illegible]	Tacoma	WA 98424
[illegible]	[illegible]	Tac.	WA 98407
[illegible]	4401 N 39	Tac	WA 98407
[illegible]	8619 N Ebenly	Tac Wa.	98407

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	Tacoma	98402
BRENT [illegible]	[illegible] No. 12	Apt 3	98403
[illegible]	[illegible]	[illegible]	98406
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3506	[illegible]	Tacoma [illegible]
[illegible]	4021	I	Tacoma 98408
[illegible]	[illegible]	Tacoma	98406
[illegible]	13916	So C St	Tacoma 98444
[illegible]	1326	So. [illegible]	Tac Wa 98407
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5158 N [illegible]	Tacoma	WA 98407
[illegible]	2401 Sunset	Dr. W.	Tac WA 98466
[illegible]	2401 Sunset	Dr. W.	" " "
[illegible]	2401 Sunset	Dr. W.	" " "
[illegible]	4311 N Chayenne	Tacoma	98407

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	98424
[illegible]	[illegible]	[illegible]	98404
[illegible]	[illegible]	[illegible]	98404
[illegible]	[illegible]	[illegible]	98408
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98404
[illegible]	[illegible]	[illegible]	98402
[illegible]	[illegible]	[illegible]	98402
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	98443
[illegible]	[illegible]	[illegible]	98403
[illegible]	[illegible]	[illegible]	98403
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409
[illegible]	[illegible]	[illegible]	98409

Sponsored by the North End Neighborhood Council of Tacoma

RESPONSE TO COMMENT COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

* These are the best available copies of the petition signature sheets.

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Arthur Markstrom	2731 N. Winnifred	Tacoma	98407
[illegible]	[illegible]	[illegible]	98406
Penny Sundquist	5315 N. 35th	Tacoma	98407
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	2519 [illegible]	Tacoma	98407
William M. [illegible]	1302 N. Winnifred St.	Tac.	98407
[illegible]	972 [illegible]	[illegible]	98406
[illegible]	1206 North G St.	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	7601 A St.	Tacoma	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	234 [illegible] St	Tacoma	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
Michael [illegible]	100 N. Yakima #7K	Tacoma	98405
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Tac.	98405
Hugh Mitchell	28 Salmon Beach	Tac.	98407
Jennie [illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5139 North 30th	Tacoma	98407
[illegible]	3903 N. 27th	Tacoma	98407
Jack C. Kelly	3201 N. Stevens		
Judy Clymer	1009 Puyallup Ave		98333
[illegible]	5933 N. 37th	[illegible]	98407
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3612 N. 1st	Tacoma	98406
[illegible]	1320 N. [illegible]		98407
[illegible]	1721 N. Prospect		98406
[illegible]	1721 N. Oakes		98406
[illegible]	1721 N. Oakes		98406

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Margaret Barnes	611 So. 7th St.	Tacoma	WA 98405
[illegible]	4432 [illegible]	Tacoma	WA 98406
[illegible]	4528 36th S.	Tac.	WA 98403
[illegible]	4530 Tacoma S.	Tacoma	WA 98408
[illegible]	4514 N. 7th	Tac.	[illegible]
[illegible]	2601 S. Union	Tac.	98405
[illegible]	2602 S. Union	Tac.	98405
[illegible]	801 N. Proctor	Tacoma	98406
[illegible]	2717-14th S.E.	[illegible]	98405
[illegible]	9581 [illegible]	Tacoma	98403
[illegible]	1202 [illegible]	Tac.	WA 98406
[illegible]	1202 [illegible]	Tacoma	98406
[illegible]	1620 S. Addison, Sta 3-289	Tacoma	98405
[illegible]	1620 S. Addison, Sta 3-289	Tac.	98405
[illegible]	2611 S. Adams St.	Tac.	98405

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Annette Johnston	5316 Pond Rd	Tacoma	98443
[illegible]	1701 [illegible]	Tacoma	98405
[illegible]	4716 Old Stump	Rd. N.	Gig Harbor 98
[illegible]	3820 No. 26th	Tacoma	98406
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3305 [illegible]	[illegible]	[illegible]
[illegible]	2015 [illegible]	[illegible]	[illegible]
[illegible]	5813 [illegible]	[illegible]	[illegible]
[illegible]	3101 N. 5th	Tac.	WA 98406
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	Tacoma	98466
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	98406
[illegible]	[illegible]	Tac.	98444
[illegible]	[illegible]	Tacoma	98402
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	Tacoma	98403
[illegible]	[illegible]	Puyallup	98373
[illegible]	[illegible]	G. Harbor	98335
[illegible]	[illegible]	Tacoma	98422
[illegible]	[illegible]	Tacoma	98409
[illegible]	" " "		
[illegible]	[illegible]	[illegible]	984[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	Tacoma	98406
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	[illegible]	98405
[illegible]	[illegible]	Tacoma	98466
[illegible]	[illegible]	Tacoma	98404
[illegible]	[illegible]	Tacoma	98407
[illegible]	2606 N Narrow	Tacoma	98407
[illegible]	[illegible]	[illegible]	98[illegible]
[illegible]	[illegible]	[illegible]	98[illegible]
[illegible]	" " "		
[illegible]	7114 36th St. W.	Tac	98466
[illegible]	" " "		
[illegible]	[illegible]	Sumner	98390
Douglas R. Edwards	3421 N 30th	Tacoma, Wn	98407
[illegible]	[illegible]	[illegible]	

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	3410 40th St Ct NE	Tacoma	98422
[illegible]	3518 8th Ave N.E.	Tacoma	98422
[illegible]	4409 Harbor Ridge Ct NE	Tac	98422
[illegible]	3615 Tacoma Dr	Tacoma	98422
[illegible]	4541 N 29	Tacoma Wa	98407
[illegible]	4235 Cortell St #7	Tacoma Wa	98444
[illegible]	1201 Pelly Cir	Mtn. Ld	98384
[illegible]	2505 [illegible]	So. Tacoma, WA	98[illegible]
[illegible]	3916 N 4th St	Tacoma	98422
[illegible]	913 Tacoma Way NE	Tacoma	98422
[illegible]	6126 [illegible]	[illegible]	
[illegible]	2008 [illegible]	Federal Way, WA	98023
[illegible]	[illegible]	Tacoma, Wa	98406
[illegible]	5207 35th St NE	Tac. WA	98422
[illegible]	3624 Tacoma Dr NE	Tacoma	98422

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	38022 24th Ct S	Fed Way	98003
[illegible]	[illegible]	Tacoma, WA	98422
[illegible]	[illegible]	Tacoma, WA	98430
[illegible]	905 S. 121st	Tacoma, WA	98444
[illegible]	1738 34th St NE	Tacoma, WA	98422
[illegible]	3813 SW 340th Pl	Federal Way	98023
[illegible]	1230 [illegible] Pl	Tacoma, WA	98422
[illegible]	[illegible]	[illegible]	
[illegible]	31156 SW 32nd Ct	Federal Way	98023
[illegible]	9313 24th St NE	Tacoma	98446
[illegible]	[illegible]	Tacoma	98422
[illegible]	3822 48 Ave NE	Tacoma, WA	98422
[illegible]	[illegible]	Fed Way	98023
[illegible]	[illegible]	[illegible]	
[illegible]	3414 Saint Andrews Ct	Tac, WA	98422

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	5702 N 33rd #98	Tacoma	98407
[illegible]	1414 N Tacoma	Tacoma	98403
[illegible]	3420 N 25th	Tac	98406
[illegible]	2414 N 18	Tac	
[illegible]	821 S [illegible]	Tacoma	98405
[illegible]	3215 - 25th	Tac	98405
[illegible]	1505 N 7th	Tacoma	98406
[illegible]	1251 N Alder	Tacoma	98406
[illegible]	3412 N Cedar #4	98407
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	80 N. I St	Tacoma, WA	98403
[illegible]	1827 N [illegible]		
[illegible]	2402 N Cedar		98406
Sophia Buck	422 Tacoma Ave #408		98402

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
Mary C McKinnon	3210 N 29th	Tacoma	98407
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	3214 N 29th	Tacoma	98407
[illegible]	[illegible]	[illegible]	
Mary C [illegible]	1372 N [illegible]	Tac	WA
[illegible]	[illegible]	[illegible]	
Helen H Erickson	[illegible]	Tacoma	WA 98407
[illegible]	[illegible]	[illegible]	
[illegible]	1510 So Mildred	Tacoma	98465
[illegible]	[illegible]	[illegible]	
Harold A Pickett	2362-50 Baker	Tacoma	98405
[illegible]	803 S Alder	Tacoma	98405-3707
[illegible]	[illegible]	[illegible]	

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	2515 No 31st	Tacoma, WA	98407
[illegible]	1112 No [illegible]	Tacoma WA	98406
[illegible]	522 N. 21st	Tacoma, WA	98406
[illegible]	5021 N 28th	Tacoma WA	98406
[illegible]	3018 N 29th	Tacoma WA	98407
[illegible]	3711 N. 18th St	Tacoma WA	98406
[illegible]	1311 N [illegible]	Tacoma, WA	98406
[illegible]	2315 N. 10th	Tacoma, WA	98406
[illegible]	2903 No 29th	Tacoma	98406
[illegible]	1314 N 22nd	Tacoma	98406
Richard Palmer	5414 N 11th Dr	Tacoma	98406
[illegible]	3315 N 26th	Tacoma	98407
[illegible]	3614 N 23rd	Tacoma	98406
[illegible]	3614 N 21	Tac	WA
[illegible]	4025 N 7th St	Tacoma	WA 98406

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	2804 N Cushman	Tacoma	98406
[illegible]	3609 N 18th	Tac	98406
[illegible]	631 N [illegible]	Tac	98406
[illegible]	3705 N. 30th St	Tac	752-9216 98406
[illegible]	2215 N 30th	Tacoma	Tac [illegible]
[illegible]	3510 N [illegible]		98407
[illegible]	3504 N. Division	Ta	98407
Dorothy B Brooks	1414 N. Tacoma	Tacoma	98406
[illegible]	2314 N 4th		98406
[illegible]	3515 [illegible]		98403
[illegible]	710 N 4th Apt B	Tacoma	98403
[illegible]	710 N. 4th #B	Tac	98403
[illegible]	3101 N Madison	Tac	98406
Suzanne Gatlin	3814 N Cheyenne		98407
[illegible]	3420 N Pearson		98406

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	Tacoma	98403
[illegible]	[illegible]	Tacoma	98406
Ken Tracy	2[illegible]	Tacoma	98406
[illegible]	2216 N [illegible]	Tac WA	98406
Doris Chamber	1861 N [illegible]	Tac WA	98406
Heather Hallinan	2308 N 28th St	Tac WA	9840[illegible]
[illegible]	[illegible]	[illegible]	9840[illegible]
[illegible]	5315 N 37th	Tac WA	98407
T.G. Smith	605 Tacoma Ave	Tac	98402
Shawn Geegg	3009 N.	Tac.	98407
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	2302 N 25th	Tac	98406
[illegible]	1510 N 5th	Tac	98406
[illegible]	[illegible]	Tacoma	98406

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Barbara Williams	1219 N. Tyler	Tacoma	98406
[illegible]	817 [illegible]	Tac	98403
[illegible]	11804 [illegible] Ave NW	Gig Harbor	98332
[illegible]	3602 N. [illegible]	Tac	98407
[illegible]	420 N. Baraboo Pl		98403
[illegible]	[illegible] 2nd Ave S	Federal Way	98003
[illegible]	517 S. 152nd St	[illegible]	98146
Lori Conrad	44 Salmon Beach	Tacoma WA	98407
[illegible]	[illegible]	[illegible]	98003
[illegible]	[illegible]	[illegible]	98001
[illegible]	[illegible]	Bellevue	98007
[illegible]	[illegible]	[illegible]	98023
[illegible]	[illegible]	[illegible]	98002
[illegible]	2700 14th Ave S.	Kent WA	98032
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Dr. Athalia	5919 Scenic Drive	Tacoma	98422
Carol Markwin	1256 So Yakima Ave	Tacoma	98465
[illegible]	[illegible]	Tacoma	98407
[illegible]	[illegible]	Gig Harbor WA	98335
[illegible]	[illegible]	Tacoma	98466
[illegible]	147 [illegible]	Tacoma	98402
[illegible]	2615 N 29th	Tacoma	98407
[illegible]	2607 N. 29	Tacoma WA	98407
Harry McVeigh	" "	"	"
[illegible]	4105 N 25th	Tacoma	98407
[illegible]	[illegible]	Tacoma	98405
[illegible]	[illegible]	[illegible]	98[illegible]
Joan Gaasch	5803 So. K St	Tacoma	98408

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Robert J. [illegible]	[illegible]	Tac	98405
Connie [illegible]	7301 S. Aurora	Tac	98408
Katherine C. [illegible]	3202 N. Madison	Tac	98407
[illegible]	3709 N. [illegible]	Tac	98407
Constance A. McDonell	5202 N 32nd St	Tac	98407
[illegible]	43 West Rd. N.	Tacoma	98406
[illegible]	3401 N. 27th	Tac	98407
[illegible]	2735 S. Ave	Tac	98424
[illegible]	2815 N 30th	Tac	98403
[illegible]	9603 S. Dodge	Tacoma	98409
[illegible]	[illegible]	[illegible]	98[illegible]
[illegible]	7301 S. Aurora	Tac	98408
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1116 S. [illegible] St		98405
[illegible]	[illegible]	[illegible] St	98404

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Sharon McGovick	1212 [illegible]	Tacoma	98465
Bill Bracama	3709 No. Madison St.		
[illegible]	3207 N 30th	Tacoma	98407
[illegible]	2604 So 7th	Tac	98408
Betty J. [illegible]	4418 N. 26th	Tac	98407
Linda M. Hawley	4418 N. 46th	Tac	98407
[illegible]	4141 No. 30th	Tacoma	
[illegible]	8121 S. Pine	Tacoma	98407-5921
[illegible]	913 S. 8th	Tac	98405 572 [illegible]
Jim Rau	4027 No 7th	Tacoma	98406
[illegible]	5523 Kinney Rd SW	Olympia	WA 98512
[illegible]	4007 No. 7	Tacoma	WA 98406
Whitney DeBolton	4006 N. 7th St	Tacoma	98407

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Alan Conner	2318 N 20th St	Tacoma	98406
Darlene Roche	2416 N 20th St	Tacoma	98406
[illegible]	4006 N 13th St	Tac	98407
[illegible]	1102 N.L. St	Tacoma	98407
[illegible]	3012 N 29	Tac	Wa 98407
[illegible]	4805 N 26th	Tac	Wa 98407
[illegible]	22 [illegible]	Tac	Wash
[illegible]	2519 N. South	Tacoma	Wa 98406
[illegible]	10419 Steilacoom Blvd	Lak	98332
[illegible]	3020 N. 22nd St	Tacoma	WA 98407
[illegible]	2804 So Cedar	Tacoma	98407
[illegible]	2316 No. [illegible]	Tacoma	98407
[illegible]	2111 So [illegible]	Tacoma	WA 98 [illegible]
[illegible]	2111 No 21st St	Tacoma	98407

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	1245 [illegible]	[illegible]	98329
[illegible]	1020 [illegible]	[illegible]	98374
[illegible]	1070 [illegible]	[illegible]	98579
[illegible]	1003 [illegible]	[illegible]	98374
[illegible]	[illegible]	[illegible]	
Linda Thompson	5314 [illegible]	Tacoma	WA 98422
[illegible]	[illegible]	[illegible]	98003
[illegible]	[illegible]	[illegible]	98003
[illegible]	1013 S.W. 312	[illegible]	98023
[illegible]	2414-139	[illegible]	
Eden C. DeBolton	2414-139	[illegible]	98005

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	2406 N Warner	Tacoma	98407
[illegible]	2405 N Warner	Tacoma	98407
[illegible]	2821 N. 26th	Tacoma	98407

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment
Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Katy Lillington	1221 1/2 C St.	Tacoma	WA 98402-5117

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Thomas Chessor	3523 N. 36th	Tacoma	98407
Mari Chessor	3523 N. 36th St	Tacoma	98407
Evan W. McCord	4707 So. Bell St	Tacoma	WA 98408
Rod Duarte	4419 Elwood Dr. W	Tac	WA 98466
Jesse Duarte	4419 Elwood Dr. W	Tac	WA 98466

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Lefty May	526 117th E.	Puyallup	98372
Homer May	526 117th E.	Puyallup	98372
Vernon Lovik	3314 96 St. E.	Tacoma	WA 98445
Alan Hart	1010 N. Orchard	Tacoma	98406
Kenyn Hart	1010 N. Orchard	Tacoma, WA	98406
C. L. Hamilton	[illegible]	Tacoma	[illegible]
Luann McEby	7487 20th Ave E.	Tac.	98404
Patricia Blakney	1214 108th St E.	Puyallup	98373
[illegible]	[illegible]	[illegible]	[illegible]
Christine Sheehy	4930 N. Washington St	Tacoma, WA	98407
[illegible]	9716 Portland Ave	Tacoma, WA	98445
[illegible]	9801 91st Street St E.	Tacoma, WA	98446
[illegible]	10181 [illegible]	Tacoma, WA	98446

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Monty Kelly	21721 130th St. E.	Sumner	98390
Beverly Kelly	21721 130th St. E.	Sumner	98390
[illegible]	2108 [illegible]	Tac	WA 98406
Pauline Pogalski	9418 [illegible]	[illegible]	WA 98444
[illegible]	2101 [illegible]	Tacoma	WA
Becky Lustig	3219 N. 26th St	Tacoma	WA 98407
Shirley A. Lewis	3104 North 20th	Tac.	WA

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Janet Koch	2815 63rd St SE	Auburn	98092
Bruce Koch	2815-63rd St SE	Auburn	98092
Drew Koch	2815-63rd St SE	Auburn	98092
[illegible]	2815 63rd St SE	Auburn	98092
[illegible]	19350 200th Ave SE	Renton	98059
Barbara Times	[illegible]	Tacoma	98407
John Times	[illegible]	Tacoma	[illegible]
[illegible]	[illegible]	Tacoma	98499

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	3409 N. 25th	Tac.	98406
[illegible]	[illegible]	[illegible]	98406
[illegible]	3319 N. Adams	Tacoma	98407
[illegible]	1110 S. Lawrence	Tacoma	98405
[illegible]	[illegible]	Tacoma	98407
[illegible]	6114 N 16th St #107	Tacoma	98406
[illegible]	[illegible]	Tacoma	98405
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Tacoma	98464
[illegible]	[illegible]	Tacoma	98408
[illegible]	[illegible]	Tacoma	98406
[illegible]	318 Harvard	Forest	98465
[illegible]	[illegible]	Tacoma	98408
[illegible]	1118 N. Ainsworth	Tacoma	98406
Thomas A. Nyffen	1325 10th Ave SE	Olympia	WA 98501

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Jeanne Hagelin	1402 A St	Tacoma	98403
R.E. Romanoff	411 South St	Tacoma	98408
Dave Harris	2816-46th Ave E	Vancouver	WA 98387
[illegible]	1005 24th Ave N	Puyallup	WA 98373
Sue Linville	P.O. Box 90	Indianola	98342-0090
[illegible]	[illegible]	[illegible]	[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Marilyn Jones	1811 N. 30th St.	Tacoma	98403
[illegible]	3223 - 19th Ave SW	Seattle	98106
[illegible]	4054 - 42nd Ave SW	Seattle	98116
[illegible]	[illegible]	[illegible]	98249
Lisa L. Holden	3651 S. Alaska St	Tacoma	WA 98408
Allison A. Odenthal	2815 N. Stevens	Tacoma	98403
Eugene J. Miller	585 S. Howard St	Tacoma	98405
[illegible]	1813 N. Monroe	Tac.	98406
[illegible]	[illegible]	[illegible]	[illegible]
Rosalie Moorehead	3126 N. Mullen	Tac.	98407
Olive E. Johnson	4724 A & C St		98408
[illegible]	[illegible]	[illegible]	98498
[illegible]	6011 N. 21st		98407
[illegible]	[illegible]	[illegible]	98498
Kiersten R. Kottmann	1501 Fern St.	S.	98498

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	[illegible]	Gig Harbor	9835
[illegible]	4721 N 16th	Tac	WA 98406
[illegible]	Same As Above		
[illegible]	2609 N. [illegible]		
[illegible]	[illegible]		
Carrie Williams	4121 N 24th	Tacoma	WA 98406
Michael Williams	4121 N 24th	Tacoma	WA 98406
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	2224 P. Tyler	Tac	WA 98405

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	5834 N. 22nd St	Tacoma	98407
[illegible]	3710 N Narrows	"	98407
[illegible]	2623 - 26th Ave Ct E	Sumner	98390
[illegible]	3116 N 31st	Tacoma	WA 98407
[illegible]	3815 Tacoma	Tac	WA 98407

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	4412 [illegible]	[illegible]	98371
[illegible]	[illegible]	Port Orchard	98443
[illegible]	5823 [illegible]	Tacoma	98422
[illegible]	6824 - 21st	Tacoma	98422
[illegible]	5802 [illegible]	Tacoma	98422
[illegible]	5802 [illegible]	Tacoma	WA 98406
[illegible]	5822 N. Oakland	Tacoma	WA 98407
[illegible]	1809 [illegible]	Tacoma	98466
[illegible]	[illegible]	Tacoma	WA 98405
[illegible]	[illegible]	Tacoma	WA 98405
[illegible]	[illegible]	Tacoma	WA 98406
Sharon A. Dickland	5803 [illegible]	Tacoma	WA 98422-1527
[illegible]	[illegible]		98406
[illegible]	[illegible]	Gig Harbor	98335
[illegible]	[illegible]	Gig Harbor	98335

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Michael Matkowski	4131 N 27	Tacoma	98407
Gregory J. Gianelli	5410 Harborview Dr.	Tacoma	98422
Gary Burgoyne	4814 N Tacoma		98407
Perry Cox	1107-139th Street	E Gig Harbor	98329
Tim Camp	5802 N 6th	Tac	WA 98406
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1805 So Alder Lane	Tacoma	98405
[illegible]	1711 South 7th	Tacoma	WA 98405
[illegible]	5011 N 14th Ave	Tacoma	WA
[illegible]	2705 So Mason	Tac	WA 98405
David W. [illegible]	4/6 Wall St	Tacoma	WA 98405
[illegible]	[illegible]	Tacoma	WA 98406
[illegible]	6223 N Carr	Tacoma	WA 98407
[illegible]	2119 NO. Stevens	Tacoma	WA 98406
[illegible]	[illegible]	Tacoma	WA 98407
[illegible]	14210 97th Ave NW	G.H. Harbor	98329

Sponsored by the North End Neighborhood Council of Tacoma

RESPONSE TO COMMENT COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]			

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]			

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]			

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]			

Sponsored by the North End Neighborhood Council of Tacoma

RESPONSE TO COMMENT

COMMENTOR NO. 287: NORTH END NEIGHBORHOOD COUNCIL OF TACOMA PETITION (CONT'D.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	3611 S 57th	Tacoma	98409
[illegible]	1409 Tacoma Ave N	Wa.	98373
[illegible]	3574 [illegible] St		98408
[illegible]	3614 East "K" St	Tacoma	
[illegible] Tacoma Shop	3570 East "K"		98404
Charles Tuttle	3584 E K		98404
Marcia Tuttle	3584 E K		98404
[illegible]	3586 E "K"	Tacoma Wa	98404
[illegible]	3592 E K"	Tacoma Wa	98404
[illegible]	1504 E "K"	Tacoma Wa	98404
[illegible]	3606 E K"	Tacoma Wa	98404
[illegible]	403 J. Anthony	Tacoma Wa	98405
[illegible]	3601 East K	Tacoma Wa	98404
[illegible]	3601 E "K"	Tacoma Wa	98404
[illegible]	3614 E "K"	Tacoma, Wa	98404

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Lou Bennett	7415 13th	Puyallup	98373
Mathew Simms	1420 N Stolze St	Tacoma	98406
[illegible]	1520 So Jackson St	Tacoma	98465
[illegible]	3114 N Alder St	Tacoma	98407
Nick Hagopian	5118 Yakima Avenue	Tac.	98402
[illegible]	2809 N Ryan Island	TAC	98407
Notarized Wayne Forest	4220 No Highland	Tacoma	98407
Mary M Hammond	[illegible]	Tacoma	WA 98197
[illegible]	215 [illegible] Ave	Puyallup	WA 98466
[illegible]	[illegible]	Tacoma	WA 98406
Yoyce F. Allen	2808 N Cushfield Rd	Tacoma	WA 98403
[illegible]	6707 [illegible]	Tacoma	WA 98406
[illegible]	[illegible]	[illegible]	98405
Lyle Fenton	6707 S. Montgomery St.	Tac.	Wa 98409
Laureen Roth	2195 So 4th St	Tacoma	Wa 98409

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	5101 S 19th St	Tacoma	98408
[illegible]	3502 E Bennett	Tacoma	98404
[illegible]	3606 E Home	Tacoma	98404
[illegible]	3608 E Home	Tac.	Tacoma
[illegible]	3612 E Home	Tac	98404
[illegible]	3616 E Home	Tac	98404
[illegible]	3617 E Home	Tac Wa	98404
[illegible]	3701 E K St	Tac WA	98404
[illegible]	3701 E K St	Tac Wa	98404
[illegible]	3581 E K St	Tac. WA	98404
[illegible]	3582 E Home	Tac	Wa 98404
[illegible]	3584 E Home	Tac	Wash 98404
[illegible]	3586 E Home	Tacoma	98404
[illegible]	3602 McKinley	Tacoma	Wa 98404
[illegible]	4530 So Cushman	Tacoma	Wa 98408

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	3599 E K St	Tacoma	98404
[illegible]	3598 E. K St	Tacoma	98404
[illegible]	3595 E. K St.	Tacoma	98404
Mark [illegible]	3575 E K St	Tacoma	98404
[illegible]	3571 E K St	Tacoma	98404
[illegible]	3538 [illegible] Ave	Tac.	98118
[illegible]	4419 So [illegible] St		98409
[illegible]	3114 So Cushman		98403
[illegible]	3521 East K	Tacoma	98404
[illegible]	3113 N 40th		
[illegible]	4419	Portland	Or 97206
[illegible]	3567	East K St	Tacoma 98404
[illegible]	3561 E K St	Tac	Wa 98404
[illegible]	3521 E K St	Tacoma	Wa 98404
David P. McDonald	14809 77th Ave E	Puyallup	98373

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
1 [illegible]	4638 So 6th	Tac	98408
2 John H. Meier	9024 Lower Bay S.W.	Tac	98499
3 [illegible]	3401 N. [illegible]	Tacoma	98407
4 [illegible]	[illegible]	Tacoma	98407
5 [illegible]	[illegible] S 65th	Tacoma Wa	98408
6 Barbara Hook	723 N. J St	Tacoma	98403
7 [illegible]	12311 C St So	Tacoma	98444

Sponsored by the North End Neighborhood Council of Tacoma

Name	Address	City	Zip
1. [illegible]	7505 [illegible]	Tacoma	98404
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Kopare Stickyl	313-98th Avenue	Tacoma	98445
[illegible]	2602 Union	Tacoma	98405
[illegible]	2602 Union	Tacoma	98405
[illegible]	2602 Union C 312		98405
[illegible]	2602 So Union C 319		98405
[illegible]	" "	D409	"
[illegible]	2602 So "	C 302	98405
[illegible]	" " "	"	"
[illegible]	2602 S Union	D405	98405
[illegible]	2602 S Union		
[illegible]	2602 S Union	Tacoma	98405
[illegible]	2602 S Union	Tacoma Wa	"
[illegible]	2602 S Union	Tacoma Wa	"
Margaret M Kimball	"	"	"
[illegible]	2602 S Union	D101 Tacoma	Wa 98405
[illegible]	2602 So Union C-309	Tacoma	Wa 98405

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Catherine Carter	2602 So Union C-105	Tacoma Wa	98405
Ada M Nelson	2602 So Union C-112	Tacoma Wa	98405
[illegible]	2602 So Union C-202	Tacoma Wa	98405
[illegible]	2602 S. Union	Tacoma, Wa	98405
Mary Hayes	1805 132nd St	Tacoma, Wa	98445
[illegible]	1805-208th St E	Spanaway Wa	98387
[illegible]	1805-208th St E	Spanaway Wa	98387
[illegible]	1805 208th St E	Spanaway, Wa	98387
[illegible]	1805 208th St E	Spanaway, Wa	98387
Judith Rayes	1835 208th E	Spanaway Wa	98387
[illegible]	2602 So Union C-207	Tacoma Wa	98405
[illegible]	2602 So Union C-307	Tacoma, Wa	98405
[illegible]	2602 So Union C #A102	"	
[illegible]	2602 S Union #C112	"	
[illegible]	" C301		

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

Name	Address	City	Zip
[illegible]	1530 [illegible]	Tacoma	98405
[illegible]	3805 N. 30th	Tacoma	98407
[illegible]	4112 No. 15th St.	Tacoma	98406
[illegible]	4012 N. 17th St.	Tacoma	98406
[illegible]	3001 N. 53rd	Tacoma	98407
[illegible]	8311 7th S.	[illegible]	98335
[illegible]	8913 41st St.	Tacoma	98466
[illegible]	8913 41st St. W	Tacoma	98466
[illegible]	5204 [illegible]	[illegible]	98335
[illegible]	3615 N. 28th St.	Tacoma	98407
[illegible]	4410 N. 18th St.	Tacoma	98406
[illegible]	3427 N. 24th	Tacoma	98407
[illegible]	3000 N. 33rd	Tacoma	98407
Dave Rose	1108 S. 80th	Tacoma	98498
David R. Gilmour	4440 N. 10th	Tacoma	98406

This petition will be sent to the Department of Energy.
Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	9014 65th St (4W)	Tacoma	98467
[illegible]	4915 S. Sheridan	Tacoma	98408
[illegible]	5401 7th Ave (4W)	Tacoma	98467
[illegible]	11405 N. 14th St. (4W)	Gig Harbor (W)	98329
[illegible]	6123 67th Ave W	Tac	98466
[illegible]	3422 67th Ave W	Tac	98466
[illegible]	7010 47th St. W	Tac	98466
[illegible]	6219 45th St (4W)	[illegible]	98466
[illegible]	1615 S. Highland	98465	
Megan Hoffman	6219 45th St. (4W)	Tacoma	98466
[illegible]	5900 N 53	Tacoma	
[illegible]	4004 [illegible]	[illegible]	98466
[illegible]	10405 109 St. Ct. S.	Tacoma	98446
[illegible]	6211 72nd Ave. West	Tacoma	98466
[illegible]	1453 Rainier Ct	Fircrest	98466

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
[illegible]	4206 N 28th	Tacoma	98407
[illegible]	4206 No. 28th	Tacoma	98407
[illegible]	1383 - 11th Court	Fox Island	98333
[illegible]	6722 [illegible]	Tacoma	98422
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	1383 11th St	Fox Island Wa	98333
[illegible]	1383 11th Ct	Fox Island	98333

This petition will be sent to the Department of Energy.
Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

Name	Address	City	Zip
Sharlynn Charles	8220 Westcreek Blvd	Tacoma	98466
[illegible]	12102 - 15th Ave. E	Spanaway	98387

This petition will be sent to the Department of Energy.
Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name Address City Zip

[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name Address City Zip

[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name Address City Zip

[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name Address City Zip

[illegible]

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment
Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Larry Olive	[illegible] So Oakes	Tacoma	98409
Andrea Temple	370 So Ely	Tacoma	98407
Russell McKinney	[illegible]	Tacoma	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1001 S 10th St	Tacoma WA	98405

Sponsored by the North End Neighborhood Council of Tacoma

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Bob Cox	6149 47th St	Tacoma	98406
Debra L Lewellyn	1519 S 7th	Tac	98405
Theresa Boggs	1030 S [illegible]	Tac	98405
[illegible]	[illegible]	[illegible]	[illegible]
Lisa Flint	1516 E Alder	Tacoma	98465
Paul Petty	[illegible]		98406
[illegible]	[illegible]	Tac	98406
Jessica Robinson	1011 S Pearl St	Tac	98405
[illegible]	3[illegible]	Tac	98407
[illegible]	[illegible]	Puyallup	98372
[illegible]	1[illegible]	Tacoma	98466
[illegible]	[illegible]	Puyallup	98374
Cindy Sum	7104 40th St	Gig Harbor	98335
Carl Robinson	1001 S Pearl St	Tacoma	98465
[illegible]	[illegible]	Tacoma	[illegible]
[illegible]	[illegible]	Tacoma WA	98406

Sponsored by the North End Neighborhood Council of Tacoma

Ronda Clancy 4210 So 34th Tacoma, WA 98405

Greenwood Dean Wauna 5708 S Verde Tacoma WA 98407

Response to Comment Commentor No. 287: North End Neighborhood Council of Tacoma Petition (Cont'd.)

COMMENTOR NO. 311: RAY K. ROBINSON, INC. (RKRI)

RKRI RAY K. ROBINSON, INC.
A Management Services Company

200 Hillview Drive-Suite 100
Richland, Washington 99352

Telephone (509) 627-6135
Facsimile (509) 627-6141

June 19, 1995

Mr. Charles Head
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Reference: Draft EIS on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, March 1995, U. S. DOE

My name is Ray Robinson. I am a management consultant living in Washington State with 20+ years of nuclear fuel experience. Most of my experience involved the supply of uranium, fabricated nuclear fuel, and spent fuel storage services for commercial electric power reactor markets in the United States and abroad. I have been retained by the Port of Tacoma to assist in the assessment of the three alternatives described in the referenced Draft EIS.

The Port, by their unanimous resolution, and many others are supportive of achieving the nuclear nonproliferation objectives of the proposed policy. Specifically its easy to be for eliminating routine commerce in bomb grade uranium -- anywhere in the world, regardless of who enriched the uranium to bomb grade levels. The hard part is answering the question: "What is the best means of achieving nuclear nonproliferation in the foreign research reactor program?" Many issues need to be addressed in resolving the "What is the best means" question. Issues of risk, cost, permanence of the solution, timing of the solution, establishing some responsibility and accountability in those countries pursuing peaceful uses of the atom, the impact of the U.S. as a role model for other nuclear nations, the specific problem of uranium enriched in this country and other issues all need to be addressed.

The purpose of this verbal testimony and accompanying written comments is to clearly state for the record that Alternative 2 appears, by far, to be that "best means". Granted the Departments of Energy and State have more work to do to make any of the alternatives completely viable. The same is true of Alternative 2 -- the "all foreign alternative". 311-1

However, some of the Alternative 2 issues that you identify in your Summary as problems appear to be the result of an incomplete effort or a lack of commitment to fully and completely assess the pros and cons of Alternative 2. We ask that you completely and thoroughly engage in detailed discussions with the necessary parties to resolve any impediments, perceived or real, to the implementation of Alternative 2. As examples, I would like to address several apparent impediments that you mention on page 5 of your Summary document.

1. You state *"Currently, overseas reprocessing results in separated HEU that is placed back into commerce for use as new reactor fuel."*

Nothing is mentioned about potential changes in this current policy to one that is proliferation-proof, i.e., bi-lateral or tri-party agreements (U.S., foreign reprocessor, reactor owner) that requires the High Enriched Uranium to be diluted to Low Enriched Uranium before it is shipped back to the foreign reactor as soon as the foreign country can convert to the LEU reactor mode of operation. 311-2

2. You state *"The overseas reprocessing facilities (e.g., Dounreay in Scotland) currently do not have the capability to reprocess the high-density LEU fuels that the United States is encouraging foreign research reactors to use to replace the HEU fuels."* 311-3

RESPONSE TO COMMENT
COMMENTOR NO. 311: RAY K. ROBINSON, INC. (RKRI)

Response to Comment No. 311-1

The commentor's preference for Management Alternative 2 is noted. This alternative is discussed briefly in the Summary, and more thoroughly in Sections 2.3 and 4.4 of the EIS.

Response to Comment No. 311-2

As discussed in Section 2.3 of the EIS, certain arrangements in support of U.S. nuclear weapons nonproliferation policy would have to be established with the foreign reprocessors and research reactor operators before overseas reprocessing could be implemented with U.S. assistance. These could include steps such as blending the HEU down to LEU, developing the capability to reprocess high-density LEU spent nuclear fuel, and converting the reactors to the use of LEU. There is no guarantee that such arrangements can be worked out, but DOE and the Department of State are discussing these issues with the appropriate parties.

Response to Comment No. 311-3

DOE acknowledges that Dounreay has the capability now to reprocess the bulk of the existing inventory of foreign research reactor spent nuclear fuel. The current lack of

COMMENTOR NO. 311: RAY K. ROBINSON, INC. (RKRI) (CONT'D.)

A phone call to the Dounreay facilities in Scotland indicated that a) the Dounreay facilities can handle now the bulk of the HEU fuels and with modifications or added facilities could handle all of the HEU fuels (including the TRIGA fuel rods), and b) with modifications or added facilities could handle the high-density LEU fuels that the U.S. is encouraging foreign research reactors to use to replace the HEU fuels! In essence, Dounreay and perhaps later, facilities in France and/or Japan, could compete for the LEU business from these and additional research reactors providing a long term, stable, proliferation-proof, lower cost solution. 311-3 (Cont'd.)

3. You state *"Thus, any foreign research reactor that wishes to use reprocessing to control its inventory of spent nuclear fuel must continue to use, or convert back to, fuel containing HEU."*

I don't believe that is necessarily true. A short term storage solution needs only to be found to allow Dounreay or any other foreign reprocessor (others in the U.K., France, or Japan) time to make the necessary modifications to their reprocessing facilities. In the interim the storage solutions include, at least, the foreign countries with the research reactors, one or more of the seven countries having major commercial nuclear power programs and existing spent fuel storage areas (Canada, France, Germany, Japan, Sweden, Switzerland, U.K.), and the potential reprocessors (France, Japan, and the U.K.). 311-4

4. You state *"For most foreign research reactor operators, construction of a new storage facility would not be practical due to the very high cost of storing small amounts of spent nuclear fuel and the long time required to design, license, and construct facilities."*

The U.S. commercial reactor operators are facing the same problems. In the U.S., we are fast approaching tough decisions in our own electric power reactor program -- either shut down needed nuclear electrical power generators, construct new storage facilities, or ship each utilities' spent nuclear fuel offsite for storage and ultimate disposal. The best short term and long term solution is for the U.S. to help our foreign friends find a foreign solution while the U.S. is helping the U.S. defense and commercial sectors find a U.S. solution to its own spent fuel problems! 311-5

No response is requested at this public meeting except for two quick questions:

Who is expected to pay the one or several billions of dollars of potential costs estimated for any of the three alternatives that is finally selected? Who is expected to pay the billions of dollars in the future, i.e., beyond this 13-year period in the Draft EIS? 311-6

Thank you for allowing me to speak and submit these written comments. I hope that Alternative 2 is given full, in depth consideration, including the necessary international discussions and negotiations that must take place for it to work effectively and quickly.

Very truly yours,

Ray Robinson

Ray K. Robinson, President

cc: Port of Tacoma

RESPONSE TO COMMENT COMMENTOR NO. 311: RAY K. ROBINSON, INC. (RKRI) (CONT'D.)

capability applies to the new high-density LEU fuel made of a uranium-silicon- aluminum alloy. As stated in Section 1.1 of the EIS, it is not clear whether the modifications necessary to reprocess this new fuel will be installed at Dounreay.

Response to Comment No. 311-4

The sentence cited by the commentor has been revised in response to the comment. Also see the response to Comment 311-2 above.

Response to Comment No. 311-5

The commentor's preference for Management Alternative 2 is noted. The disadvantages of overseas storage are discussed briefly in the Summary, and more thoroughly in Sections 2.3 and 4.4.1 of the EIS.

Furthermore, as discussed in Section 1.2 of the EIS, it is in the self interest of the U.S. to implement the proposed action as a means to reduce, and eventually eliminate, the use of highly enriched (weapon-grade) uranium in civil programs worldwide. No such considerations apply to the storage of spent nuclear fuel from domestic nuclear power plants.

Response to Comment No. 311-6

As discussed in Section 2.2.1.2 and 2.2.2.3 of the EIS, several financing options have been considered, ranging from collection of fees from the research reactor operators that would pay all of the costs of the program to full subsidization of the program by DOE. One of these options would be for developed countries (which represent about 87 percent of the spent nuclear fuel total mass and about 78 percent of the spent nuclear fuel elements) to pay a competitive fee for U.S. management of their spent nuclear fuel. This fee would be based on, among other things, a comparison with the charges these countries would incur for reprocessing at Dounreay. The United States would absorb the full costs of the program for developing countries and absorb the amount above a competitive fee for developed countries.

Fees charged during the period of receipt would be designed to cover the costs for the entire program (including ultimate disposal), less any subsidy the U.S. employs to be competitive, not just the costs during the period of receipt. Charges for management of spent nuclear fuel from developing countries would be covered by Congressional appropriations, as necessary.

COMMENTOR NO. 318: CITIZENS FOR A HEALTHY BAY

Citizens for a Healthy Bay

771 Broadway
Tacoma, WA 98402
Phone (206) 383-2429
Fax (206) 383-2446

Board of Directors
Charlene Bluse
James Davis
Doug Pierce
H. Lee Roussel
Barbara Ann Smolko
Sheri Tonn
Allen Zadani

CITIZENS FOR A HEALTHY BAY
POSITION ON SPENT NUCLEAR FUEL SHIPMENTS THROUGH THE PORT OF TACOMA

Before determining which ports are most appropriate for the shipment of spent nuclear fuel, the costs and risks associated with other options should be more fully explored and the results made available for public review. Options which deserve closer scrutiny include the following:

- The storage of the spent nuclear fuel at the foreign reactor sites, combined with vigilant and comprehensive international monitoring to ensure no diversion of materials 318-1
- The reprocessing of the spent nuclear fuel to a form, low enriched uranium (LEU) that does not present a international security risk 318-2

Not enough information was provided in the draft Environmental Impact Statement (dEIS) to consider whether these options, either individually or when taken together, are feasible and could be accomplished at less cost and risk to the United States. 318-3

At the present time, subsidizing the international use of nuclear materials creates an situation in which foreign countries do not develop their own safe nuclear waste storage technology. Full or partial US taxpayer support of the foreign utilization of nuclear materials does not force other countries to internalize the environmental, health, safety, and financial costs of operating nuclear programs. 318-4

However, if spent nuclear fuel (nuclear waste) from foreign research reactors is to be returned to the United States, the waste materials should be shipped on military vessels through United States government-owned ports, such as the Naval Weapons Station in Concord, CA and the Military Ocean Terminal at Sunny Point, NC. These military facilities are more properly suited to handle the nuclear waste for the following reasons. 318-5

- They are secure port situations with personnel trained in handling nuclear materials (dEIS, D6 to D-7).
- They are typically located at much greater distances from population centers (dEIS D-17 to D-33).
- They do not face Commencement Bay's ongoing stigma of Superfund status.
- They have a reduced potential to interfere with regular commercial traffic through commercial ports.

If the nuclear waste is to be shipped through any United States commercial or military port, the United States government must at a minimum provide: 318-6

- Initial and ongoing training to port employees or military personnel and to local emergency response personnel
- Any potentially necessary response equipment to local communities
- Radiation monitoring of dockside workers and the adjacent environment
- Full funding to carry out public education, training, and response capabilities to the port or ports of entry and surrounding communities

Finally, the US Department of Energy (DOE) must make public the potential harm from a catastrophic fire which results in the full release of radioactive materials from one or more containers of the radioactive materials. 318-7

Speaking for a living bay...

Printed on unbleached and recycled paper

RESPONSE TO COMMENT
COMMENTOR NO. 318: CITIZENS FOR A HEALTHY BAY

Response to Comment No. 318-1

The option suggested by this comment is covered under Management Alternative 2, Subalternative 1a, as described in Section 2.3 of the EIS. The policy considerations and environmental impacts of this alternative are discussed in Section 4.4.1 of the EIS.

Response to Comment No. 318-2

The option suggested by this comment is covered under Management Alternative 2, Subalternative 1b, as described in Section 2.3 of the EIS. The policy considerations and environmental impacts of this alternative are discussed in Section 4.4.2 of the EIS.

Response to Comment No. 318-3

The EIS provides an evaluation of the environmental effects that would occur under implementation of all reasonable management alternatives (Sections 4.2, 4.3, 4.4 and 4.5 of the EIS). The analysis in the EIS demonstrates that implementation of any of the management alternatives would pose no significant benefits or risks to human health or the environment (other than benefits through support of United States nuclear weapons nonproliferation policy). Decisions regarding the proposed action would thus be based on non-environmental factors such as support for nuclear weapons nonproliferation policies and costs. Costs of the various alternatives are estimated in Section 4.9 of the EIS.

Response to Comment No. 318-4

The draft and final versions of the EIS provide an evaluation of the environmental effects that would occur under implementation of all reasonable management alternatives (Section 4 of the EIS). It was found that the risks associated with implementation of any of the management alternatives to human health or the environment are low.

Many foreign research reactor operators have no immediate means for disposition of their spent nuclear fuel (Section 1 of the EIS). Thus, the intent of the proposed policy is to remove as much U.S.-origin HEU as possible from civil programs worldwide and give foreign research reactor operators time to convert their reactors to the use of LEU fuels and to make arrangements for disposition of their LEU spent nuclear fuel (Section 1.2 of the EIS). Past and current nuclear weapons nonproliferation policies of the United States support peaceful applications of nuclear technology for nations who agree not to develop nuclear weaponry.

Response to Comment No. 318-5

The commentor's preference for shipment on military vessels through government-owned ports of entry for foreign research reactor spent nuclear fuel is noted. Candidate ports were chosen from among commercial and military ports along the East Coast, West Coast, and

COMMENTOR NO. 318: CITIZENS FOR A HEALTHY BAY (CONT'D.)

BASIS FOR CHB POSITION

The draft Environmental Impact Statement:

- Does not adequately address the potential for a catastrophic fire or explosion and the impacts if such an event were to occur in Puget Sound or Commencement Bay — 318-7 (Cont'd.)
- Does not address security risks or security measures for civilian ports
- States the Port of Tacoma or the shipper would be required to provide additional security measures.
- Does not address the funding for, training of, and technical assistance to port and local emergency personnel in communities receiving the spent nuclear fuel — 318-8
- Does not state the potential impacts to the marine environment, threatened or endangered salmon stocks, or the economies that rely on a safe and clean Puget Sound — 318-9

In addition:

- The past record for safe handling, operation, and storage of nuclear materials by the US DOE is less than satisfactory — 318-10
- Millions of dollars have already been spent on remediation of past spills of less hazardous materials in Commencement Bay, and Tacoma does not need the stigma associated with nuclear materials passing through its port — 318-11
- The future funding for the program and US DOE is uncertain, with the US House of Representatives budget eliminating the US DOE. — 318-12
- The US DOE has not provided adequate procedural due process. It has failed to make a record of its first formal public hearing. It scheduled no public hearing or repository within 20 miles of a proposed port of entry (Port of Tacoma), and DOE has failed to respond to questions asked at public meetings. — 318-13

FACTS ABOUT THE PROPOSED SHIPMENTS OF SPENT NUCLEAR FUEL

1. The US DOE and State Department have issued a dEIS regarding the management of spent nuclear fuel. A significant option for the management is the return of this material to the US (dEIS 1-1).
2. The Port of Tacoma is considered in the dEIS as one of ten potential ports of entry for spent nuclear fuel (nuclear waste) from 41 different countries, including such countries as Japan, Canada, England, Switzerland, and France (dEIS 1-8, 2-10).
3. Since the 1950's, the US has given nuclear materials to foreign nations for use in research reactors (dEIS, 1-1).
4. Much of these materials are highly enriched uranium, or HEU, which can be converted into nuclear weapons (dEIS, 1-6).
5. The US has used a policy of accepting the spent nuclear fuel back for disposal in the US (dEIS, 1-2, 1-3).
6. Today, the US is attempting to make foreign countries convert to LEU, a less efficient and more expensive fuel, but one that cannot be converted into nuclear weapons (dEIS, 1-2).
7. In order to do this, and to meet the US's nonproliferation goals, the US DOE is working to create an acceptable new policy to facilitate the management of spent nuclear fuel (dEIS, 1-6).
8. The current proposal is based on the assumption that shipment and temporary storage in the US presents the least risk and cost, both to the environment and to the US's national security (Public Hearing, 5/22/95)
9. The proposal is for shipping about 22,800 nuclear fuel elements in 840 shipments from foreign research reactors. Of these shipments, approximately 185 would enter a western port over the next ten years, about one every three weeks (Draft EIS, 2-7 to 2-9, Public Hearing, 5/22/95).
10. At this time, the Cities of Tacoma, Fife, Milton, Federal Way; Pierce County, the Puyallup Tribe, the Port of Tacoma and Port of Seattle, the local longshore union, and other groups and organizations have all expressed opposition to the shipment of nuclear waste through the Port of Tacoma for a variety of reasons (The News Tribune, Port of Tacoma).
11. In 1994, CHB took the position that there was significant environmental and worker safety concerns associated with the shipment of spent nuclear fuel through Puget Sound. CHB urged passage of legislation, sponsored by Rep. Mike Kreidler, which would give local authorities the right to place restrictions on the transport of nuclear materials. CHB stated, "Past shipments of lead and copper ores have lead to the cleanup of the Sitcum Waterway...We do not want to repeat such cleanups..." in Commencement Bay (Statement by Dr. Sheri Tonn, President of CHB Board, January 21, 1994).

Nuclear fuel shipments CHB position 6/15/95

RESPONSE TO COMMENT COMMENTOR NO. 318: CITIZENS FOR A HEALTHY BAY (CONT'D.)

the Gulf of Mexico. The selection process is described in Appendix D, Section D.1 of the EIS. No significant human health, safety, or environmental risks were found to exist at any of the candidate commercial or military ports selected (Section 4.2.2 of the EIS). Spent nuclear fuel from foreign research reactors would be shipped in standard containers, and does not require special handling techniques (Section 2.6.3.2.2 of the EIS) or additional security beyond that required by NRC regulation (which can readily be provided in any of the commercial or military ports). No special precautions are required by the U.S. Coast Guard (Section 2.6.3.2.2 of the EIS).

Section 2.8 of the EIS addresses the security measures that would be taken to ensure that there would be no unacceptable risks of terrorism or theft of materials. DOE considers that foreign research reactor spent nuclear fuel could safely be received at commercial ports, as it has in the past, without additional security such as might be present at military bases. The security measures employed at any port would meet or exceed all the security requirements in the Code of Federal Regulations (10 CFR Part 73). DOE supports these regulations as being adequate to protect the foreign research reactor spent nuclear fuel in any commercial port.

Appendix H has been added to the final EIS in response to public comments to better describe the security and emergency preparedness associated with transportation of the foreign research reactor spent nuclear fuel. This appendix presents the general provisions of the Transportation Plan, which is a document that provides all of the details associated with the transportation of the foreign research reactor spent nuclear fuel, including the security arrangements in port and in transit to the management site.

DOE considers that the use of any of the ports indicated by the port selection process, including Tacoma, would not impact normal commercial operations, and therefore not endanger the ports' status with respect to their clients. Historically, there were no adverse commercial impacts to the ports that received foreign research reactor spent nuclear fuel for the 30 plus years it was received.

DOE has added a sentence to Appendix D, Section D.2.1.9 of the EIS regarding Commencement Bay being a Superfund Site. The analysis of impacts for Management Alternative 1 in Section 4 of the EIS demonstrates that there would be no significant adverse impacts on the port, people, or natural environment from shipments of foreign research reactor spent nuclear fuel and the overall impacts to Commencement Bay would be unchanged by the various management alternatives.

Response to Comment No. 318-6

Although the foreign research reactor spent nuclear fuel is radioactive material, the dose rates from the transportation casks would be low. No special handling or loading/unloading procedures would be required for the foreign research reactor spent nuclear fuel when it is contained in standard shipping containers; experience with handling containers is sufficient. Therefore, no special training of longshoremen is required.

RESPONSE TO COMMENT
COMMENTOR NO. 318:
CITIZENS FOR A HEALTHY BAY (CONT'D.)

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Emergency preparedness, security, and coordination of DOE with local emergency response authorities that would be involved with the acceptance and transportation of foreign research reactor spent nuclear fuel will be discussed in detail in the Transportation Plan, to be prepared prior to the implementation of the policy, as discussed in revised Section 2.7.5 of the EIS. The general provisions of the Transportation Plan are included in Appendix H of the EIS. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected.

Port inspection activities, including radiation monitoring, are provided for in Appendix D, Section D.4.4 of the EIS. Since no radioactive material is released, monitoring would measure the radiation that comes from the spent nuclear fuel through the transportation cask.

Response to Comment No. 318-7

The transportation casks that would be used for the foreign research reactor spent nuclear fuel are certified if their design meets certain tests, including a fire test, and if the individual casks pass periodic inspections (Section 2.6.2 of the EIS). The probability of an accident at sea is discussed in Appendix C, Section C.5.5 of the EIS, while the port accident probabilities are found in Appendix D, Section D.5.3.1.3. The analysis in the EIS indicates that the risks associated with an accident are low (Section 4.2.2.3). With respect to accidents involving a fire as mentioned by the commentor, the EIS contains the results of an analysis of the effects of an accident that involve a severe fire (severity category 6), during which an airborne release of radioactive material results. Appendix D, Section D.5.4 of the EIS presents the results of the analysis.

Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 30 years of spent nuclear fuel shipments, no radioactive contents have ever been released from a spent nuclear fuel transportation cask as a result of an accident.

Commentor No. 318: Citizens for a Healthy Bay (Cont'd.)

Response to Comment Commentor No. 318: Citizens for a Healthy Bay (Cont'd.)

Response to Comment No. 318-8

Although the foreign research reactor spent nuclear fuel is radioactive material, the dose rates from the transportation casks would be low. No special handling or loading/unloading procedures would be required for the foreign research reactor spent nuclear fuel when it is contained in approved shipping containers; experience with handling containers is sufficient. Therefore, no special training of longshoremen is required. As discussed in Section 2.7 of the EIS, the primary responsibility for emergency response to an incident would reside with State, Tribal, and local authorities. DOE would provide coordination and technical assistance and training to the State, Tribal, and local emergency response personnel. In addition, DOE has Radiological Assistance Program teams that operate from eight strategically located DOE offices around the country. Upon State, Tribal, or local request, these teams can provide technical expertise and assistance to monitor and assess radiological hazards. The teams are activated on an as-needed basis and generally can be ready to deploy from their home station within four hours of notification.

DOE will continue to work with State and local officials to ensure that emergency response capabilities are adequate and that the communications channels between DOE and State and local governments remain open.

Any additional security personnel necessary to secure the port area or any temporary storage area would be paid for by the shipper. No additional responsibilities would be created for city, county, or State law enforcement agencies by DOE or other federal agencies. However, some State and local governments impose additional requirements on shipments of research reactor spent nuclear fuel. These additional requirements may impact State and local law enforcement agencies.

Response to Comment No. 318-9

The potential impacts to human health or the environment as it pertains to the proposed policy of managing foreign research reactor spent nuclear fuel, would not be adverse to any of the ports that might be used to receive the material (Section 4.2 of the EIS). In the unlikely event of a severe accident, the analysis performed for the EIS indicates that some radioactive material could be released from the cask and distributed into the environment. However, the analysis in Section 4.2.2.3 and Appendix D, Section D.5 of the EIS determined that no decontamination, interdiction, or condemnation of property would result from the worst plausible accident. Close in to the accident, near the cask, would likely require some cleanup, but the overall impact on the water and air quality in the port would be very small. Sections 4.2.2.3 and Appendix D, Section D.5 of the EIS detail the accident analysis and results.

RESPONSE TO COMMENT
COMMENTOR NO. 318:
CITIZENS FOR A HEALTHY BAY (CONT'D.)

Response to Comment No. 318-10

Spent nuclear fuel from foreign research reactors has been safely managed in the U.S. for nearly 30 years (Section 1.1 of the EIS). The EIS describes the precautions and technologies that would be used to ensure safety during handling operations and interim management of this spent nuclear fuel (Section 2 of the EIS).

Response to Comment No. 318-11

Shipment of foreign research reactor spent nuclear fuel would not jeopardize the significant cleanup effort undertaken in the area of Commencement Bay and the Port of Tacoma as noted by the commentor. Nor should it contribute to any dirty port stigma because as the analysis in the EIS indicates, there would be no significant adverse impacts to any of the ports or bays, or the quality of water or air (Section 4.2.1.1 and Appendix C, Section C.2 of the EIS). See also response to Comment 318-7, above.

Response to Comment No. 318-12

Future funding for this program cannot be determined prior to the completion of the environmental review in this EIS and the issuance a Record of Decision. Resources would be allocated to maintain U.S. national security and the nuclear weapons nonproliferation objectives of the U.S., especially since the Treaty on the Non-Proliferation of Nuclear Weapons was renewed indefinitely this year.

Resolutions concerned with reduction or elimination of DOE fall outside the scope of this EIS (Section 1.3 of the EIS). The EIS is concerned with adoption of a policy to manage spent nuclear fuel from foreign research reactors (Section 2.1 of the EIS). If one of the management alternatives is adopted and the participation of DOE in implementation of the policy is eliminated by Congressional action, the implementation would be carried out by some other appropriate department or agency.

Response to Comment No. 318-13

DOE considers that the provisions made for receipt and consideration of written comments, in addition to the records made of the major points raised during the public hearings, provide a more than satisfactory mechanism for recording the public comment. The steps taken to receive public comment on this EIS fully comply with all procedural process requirements. In particular, there is no requirement under NEPA for a verbatim transcript of a public hearing.

While DOE was in some cases not able to answer every question posed by the public during the public hearings, DOE policy is to follow up and answer such questions. In particular, DOE provided written answers to the questions raised during the public meeting

Commentor No. 318: Citizens for a Healthy Bay (Cont'd.)

Response to Comment Commentor No. 318: Citizens for a Healthy Bay (Cont'd.)

called by the Port of Tacoma, either by FAX directly to the Commissioners, or in these comment responses. DOE is unaware of any questions that arose during the public hearings that have been left unanswered.

In response to public dissatisfaction, DOE held a second public hearing in the City of Tacoma on June 19, 1995, in addition to the public hearing held near the SeaTac airport on May 27, 1995.

COMMENTOR NO. 443: WESTERN GOVERNORS ASSOCIATION

WESTERN GOVERNORS' ASSOCIATION

Michael O. Leavitt
Governor of Utah
Chairman

E. Benjamin Nelson
Governor of Nebraska
Vice Chairman

James M. Souby
Executive Director

Denver:
600 17th Street
Suite 1705 South Tower
Denver, Colorado 80202-5452
(303) 623-9378
Fax (303) 534-7309

Washington, D.C.:
400 N. Capitol Street, N.W.
Suite 370
Washington, D.C. 20001
(202) 624-5402
Fax (202) 624-7707

June 20, 1995

To: Charles Head, Program Manager
U.S. DOE - EM-37

From: Ron Ross
Jon Lawritson

RE: General Comments on the Foreign Spent Nuclear Fuel EIS

Attached are informal comments concerning the Draft EIS on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel. Due to the short notice of the comment period deadline, the following comments are general concerns/questions from WGA that may or may not have been addressed in the EIS that are significant and important from our standpoint.

Transportation:

- Regarding inspections of the cask and vehicle: Who will conduct the inspections, e.g. states? Where will the inspections take place, e.g. destination point, port of entry? What standards will be used, e.g. CVSA enhanced? How will states receive this training if they do not already have it? 443-1

- The states involved from the possible ports to the possible DOE sites have no emergency response training for either truck or rail shipments that are involved in an accident. Also, there are states between sites which have no training. There also needs to be training of the long shoreman at the docks. Training needs to be addressed further due to the new routes and transport being used for these shipments. Will this training be given to the states that do not have it? When will this training be given? 443-2

- Have the possible western ports mentioned in the EIS handled this kind of material? Have all ports been considered? 443-3

- What is the state and local gov't involvement process? Will they have a chance to comment on the project? What type of notice will they receive? 443-4

####

RESPONSE TO COMMENT
COMMENTOR NO. 443: WESTERN GOVERNORS ASSOCIATION

Response to Comment No. 443-1

Spent nuclear fuel is required to be transported in "Type B" transportation casks that are certified for transporting radioactive materials. These transportation casks are subject to stringent design, fabrication, and operating requirements imposed by the competent authority for the country of origin (NRC in the United States) to withstand very severe accidents without releasing their contents. Regardless of where a transportation cask is designed, fabricated, or certified for use, if used internationally, it must meet certain minimum performance requirements and regulations established by the International Atomic Energy Agency.

For the subject of vehicle inspections, see the response to Comment 56-3. DOE would not attempt to prevent the State from conducting additional inspections.

Response to Comment No. 443-2

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE-sponsored meetings, informal discussions, and informational materials.

Appendix H, which was added to the final EIS in response to public comments, contains the general provisions for emergency preparedness and security measures associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. These issues include capabilities and training of first emergency responders. Funding for special needs, if necessary, would be addressed during this interface.

Response to Comment No. 443-3

The experience criterion used in the port selection process evaluates the port's experience in handling containerized cargo, not necessarily for dealing with nuclear or radioactive material (Appendix D, Section D.9.1 of the EIS); experience with handling containers is sufficient. Although the foreign research reactor spent nuclear fuel is radioactive material, the dose rates from the transportation casks would be low, so no special handling is required. The ten ports selected all meet the criteria and hence are considered to be able to safely handle the foreign research reactor spent nuclear fuel.

Commentor No. 443:
Western Governors Association (Cont'd.)

Response to Comment
Commentor No. 443:
Western Governors Association (Cont'd.)

DOE initially considered 161 ports (153 commercial and eight military ports) as ports of entry for foreign research reactor spent nuclear fuel. These ports were evaluated against the selection criteria (Appendix D, Section D.1.9 of the EIS), resulting in 10 ports that met all of the criteria as being acceptable for the receipt and handling of foreign research reactor spent nuclear fuel. The results of the application of these criteria to the initial 161 ports are set forth in Appendix D, Section D.1.9 of the EIS. The eight military ports were evaluated as candidates given their experience with dry containerized cargoes, as recommended by the Military Traffic Management Command. The 153 commercial ports evaluated represent all reasonable ports in the 48 contiguous states, with the exception of inland ports and those around the Great Lakes due to the long inland transit required.

Response to Comment No. 443-4

State and local governments have the same rights to comment on the project (i.e., proposed action and alternatives) under NEPA as do other interest groups, individuals, foreign governments, etc. Ground transport of foreign research reactor spent nuclear fuel, including any involvement by State and local governments, is discussed in detail in Sections 2.2.1.7, 2.6.4, 3.3 and 4.2.3 of the EIS. Marine transport, including any involvement by local and State governments, is discussed in Sections 2.2.1.5 , 2.6.3, 4.3.6.3 and 4.2.1. As to notice of shipments of spent nuclear fuel, U.S. Department of Transportation regulations (49 CFR Part 397) govern highway routing of spent nuclear fuel and the regulations of NRC (10 CFR Parts 71 and 73) govern physical security and notification. NRC publishes a public information circular that lists routes that have been evaluated and approved for specific spent nuclear fuel shipments (Section 2.6.4 of the EIS).

COMMENTOR NO. 446:
POLLET, GERALD (HEART OF AMERICA, NW)

Charles:

Still waiting to hear from you about who ordered security for the Sea-Tac hearing and why.

Gerald Pollet

446-1

RESPONSE TO COMMENT
COMMENTOR NO. 446:
POLLET, GERALD (HEART OF AMERICA, NW)

Response to Comment No. 446-1

DOE must ensure that meetings are conducted in an orderly and safe manner and, therefore, sometimes security may be necessary due to numerous factors, such as the expected number of participants at a meeting or the controversial nature of a given proposed federal action.

COMMENTOR NO. 458: A.A.R.P.

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Minnie Gaster Phone: 510-827-0553
Title and Organization: A.A.R.P.
Address: 1321 Acacia St.
City: Pittsburg Ca. State Ca Zip 94565

*** COMMENTS ***

An earthquake could cause an accident of Nuclear waste to contaminate Contra Costa County, I am against your Proposed Nuclear Weapons Nonproliferation Policy that affects my area. I am representing the opinion of the A. A. R. P. against Nuclear Waste Rod's through Port Chrago - Concord Naval Weapon's Station, Ca. We want to live free of this pollution. 458-1

Minnie Gaster
6-15-95

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 458: A.A.R.P.

Response to Comment No. 458-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Concord NWS is noted. However, Sections 4.2.2 and 4.5 of the EIS demonstrate that the risk associated with bringing spent nuclear fuel to the Concord NWS, or to any of the ports analyzed in the EIS, is low. Earthquakes were not analyzed separately in the EIS because seismic activity would not result in greater damage to a transportation cask than that caused by a ship collision and subsequent fire. Rather, the consequences from the worst plausible accidents involving foreign research reactor spent nuclear fuel transportation casks were evaluated, regardless of what initiated them. An earthquake could be the initiator of either a ship or road accident and thus effect the probability of such accidents, however, the number of earthquake-induced ship and road accidents is small compared to other causes.

Nuremberg Actions
PO Box 13, Boulder Creek CA 95006
Phone and Fax (408) 338-0147

June 18, 1995

Mr. Charles Head
Office of Spent Fuel Management, EM-37
US Department of Energy
1000 Independence Avenue, SW
Washington DC 20585-0001

Dear Mr. Head:

I am writing to you at this time to express my concerns about what I believe is a hasty and poorly thought out plan to bring spent nuclear fuel rods into the United States through the Concord Naval Weapons Station. As the coordinator for the organization Nuremberg Actions and the editor and publisher of its newsletter, Between the Lines, I believe that I have an unusually thorough knowledge of the Concord Naval Weapons Station. Because of this, I wish to bring your attention to certain things that I think the Department of Energy may have overlooked in the inadequate time frame it has had to examine the base as a potential port. I also ask that my concerns as stated be considered in any further review process you have, and that the Department of Energy respond to me in writing on any relevant findings that you make.

SAFETY ISSUES ON THE PIERS OF CNWS

In your presentation, you stated that one reason for selecting the CNWS is that it has proper equipment, training and experience to handle the transfer of nuclear materials from ships to trucks and trains. Evidence does not support such a statement, Mr. Head.

On September 26, television station KTVU broke a three-part story on over 100 munitions-related incidents, accidents and injuries from 1987 through 1992 at the Concord Naval Weapons Station. Involving everything from dropping guided missiles from cargo cranes to possible radioactive contamination, the information was gleaned from the Navy's own records in research that dates back years.

466-1

That accidents take place used to be no secret during Nuremberg Actions' early days of 1987-89. A large movie theater-style marquee was visible at the waterfront gate of the base, listing the number of days since the last accident. As I recall, a period of several months or more was rare. This sign disappeared about the same time all the post guards started sporting Hawaiian shirts, as part of former commander Captain Owens' campaign to give the base a less threatening public image.

Although many weapons involved were blacked out in the documents, guided missiles, anti-tank mines and warheads were specifically named. The over 100 incidents listed involved:

- Derailment and collision of a dozen military trains loaded with weapons, both inside and outside the base;
- Cargoes of bombs dropped from cranes onto ships, piers, and into the Sacramento River;
- Crates or pallets of weapons punctured with forklifts, (the most common kind of accident);

Response to Comment No. 466-1

As a result of the television report the commentor cites, the Contra Costa County Board of Supervisors initiated an investigation of the allegations. Their report on the subject, Safety at the Concord NWS dated November 2, 1993, concluded in part, "There were no incidents involving explosions or radiation exposure....Many of the reported incidents were not accidents caused by Weapons Station employees but, rather, were discoveries by employees that materials being received had been damaged during loading or transit. In some cases the shipments had not been properly blocked, braced or banded."

In fact, the safety record at Concord NWS is significantly better than that of ports in the private sector for similar activities. According to the Department of Labor statistics, for the category of marine cargo handling, the number of lost workday cases per 100 full-time workers for 1993 was 7.1 nationwide (current data not available), which is typical. The number of lost workday cases per 100 workers at Concord NWS for the first three quarters of fiscal year 1995 was 5.3, which is also typical for Concord.

Overall, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Concord NWS, or to any of the ports analyzed in the EIS, is low. DOE understands that Concord's primary mission is to support the military through handling munitions and that no handling of the foreign research reactor spent nuclear fuel could occur concurrently with handling explosives. These facts have been incorporated into Appendix D, Section D.2.1.6 of the EIS.

COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

- At least 12 civilian employees treated for possible radiation exposure after weapons accidents, one for as long as four days, and worker injuries in many of the other cases;
- Around six incidents of live ordnance found in crates marked 'empty' that were ready to be either destroyed or dumped.

These are the same trains operators, piers, cranes, and crane operators that you seemed so confident of, Mr. Head. We who know many of them, and live within the circle of death, are not confident, not at all. Many of us were eyewitnesses to Navy train operators running a loaded munitions over three men deliberately and under orders less than eight years ago, at a public crossing only seconds after eleven vehicles had passed, at three times the legal speed limit. An accident involving nuclear materials would affect the lives of thousands, if not millions, of people. It would change the genetic structure of all the unborn to come. 466-1 (Cont'd.)

WHAT COULD HAPPEN?

A conventional weapons accident of major proportions at this time would affect anyone in a twenty-three mile radius, according to one engineer and former Port Chicago resident (town condemned in 1968 to make way for current nuclear weapons bunkers). Within the lethal zone, the first three miles, are numerous bridges, freeways, public schools, residential neighborhoods, chemical factories, oil refineries, and 270 nuclear warheads. The extensive use of glass in Concord's newer buildings and schools would cause enormous injury and blindness. General Chemical, adjacent to the nuclear weapons bunkers, is the same firm whose toxic leaks caused the evacuation or illness of thousands of Richmond residents just months ago. The primary water supply of over 1 million East Bay residents runs through the base in an open canal, just behind the nuclear bunkers. I'm sure others have informed you of the active earthquake fault only one and a half miles from the piers, a fault that shifted up to 18 inches in the 1970's. 466-2

U.S. Congressman George Miller, whose district includes CNWS, has called for an outside safety investigation, questioning the need for CNWS in the post Cold-War world. Concerning the KTVU report, Miller said, "If its true, it's unacceptable. There are far too many incidents to say the margin of safety the public expects is being carried out. You're really rolling the dice with public safety."

Nuremberg Actions has been saying that for a long time.

DIRECT TESTIMONY FROM CNWS EMPLOYEES

One member of Nuremberg Actions, Maylie Scott, interviewed Michael Jones, a former CNWS employee who was deeply concerned about safety at the base. Michael had been working since 1990 at the Concord Naval Weapons Station, loading weapons onto ships, trucks, trains and airplanes. He was employed first as a blocker-bracer, then as a crane operator.

When Michael was hired in October, 1990, activity at the base was peaking in anticipation of the bombing of Iraq in January, 1991. The base was chronically short staffed. Michael was hired as a blocker-bracer. His job was to build structures in transporting vehicles to make sure the weapons would not shift, and would travel safely. Besides his carpentry skills, he had 17 years experience in the use of heavy machinery-- fork-lifting, crane operator and winchman. This experience made him unique and he was rapidly promoted. 466-3

The work was dangerous because (as in 1944, when an explosion at the docks killed 344 people and blasted the town of Port Chicago), the priority was on speed rather than safety:

- Training of workers was inadequate; people were given licenses in the use of machinery too quickly by trainers who themselves were not fully qualified.
- Workers loading containers did not have full knowledge of crane hand-signals.
- There was no testing for substance abuse on the job and workers, including fork-lifters loading 1000 pound bombs, were sometimes noticeably intoxicated.

RESPONSE TO COMMENT
COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

Response to Comment No. 466-2

The worst accident analyzed in the EIS involves the foreign research reactor spent nuclear fuel transportation cask being damaged, then engulfed in a long-duration fire. A scenario that includes high explosives was not considered. Rather, administrative controls would be in place to preclude the handling of high explosives while the foreign research reactor spent nuclear fuel was on Concord NWS or in a ship near Concord NWS. Also, the ship carrying the foreign research reactor spent nuclear fuel would not be allowed to dock if there was any other ship currently docked at Concord NWS. While there would be high explosives in Concord NWS's bunkers while the foreign research reactor spent nuclear fuel was being handled, as long as the high explosives were not handled, there would be little danger of explosion. Earthquakes were not analyzed in the EIS because seismic activity would not result in greater damage to a transportation cask than that caused by a ship collision and subsequent fire. Rather, the consequences from the worst plausible accidents involving foreign research reactor spent nuclear fuel transportation casks were evaluated, regardless of what initiated them. An earthquake could be the initiator of either a ship or road accident and thus effect the probability of such accidents, however, the number of earthquake-induced ship and road accidents is small compared to other causes. The analysis in the EIS indicates that the risks associated with an accident are low (Section 4.2.3.3) and that the risks associated with incident-free handling of the foreign research reactor spent nuclear fuel casks are also low (Section 4.2.3.2).

Response to Comment No. 466-3

In regard to the quality of the workforce at Concord NWS, see the response to Comment 466-1, above.

In regard to the allegation that ordnance has been dropped into the water and not recovered, an official at Concord NWS has assured DOE that no ordnance has ever been dropped into the water. The official explained that if ordnance were to be dropped into the water, their policy is to recover it without exception. As a confirmation that no ordnance has fallen into the water and not been reported, periodic dredging of the dock area has never detected or recovered ordnance.

Concord NWS has a no-tolerance policy on alcohol and drug abuse. Individuals suspected of being under the influence of drugs or alcohol are removed from their worksite and escorted to the onsite dispensary for a competence-for-duty examination. If found to be under the influence, they are sent home and action is initiated to rehabilitate and/or discipline the individuals, depending on specific circumstances in each case. A drug testing program for Concord NWS has been approved by the Navy and is expected to begin before the end of the calendar year 1995.

COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

- Containers were not properly labeled and were dangerous to the people opening them. Sometimes Michael did not realize he was lifting a live bomb until he "could feel" the weight difference in his fork-lift. Sometimes weapons were inappropriately packed-- bombs and fuses together in the same car.
- Ships arrived at the port so poorly loaded with weapons that they listed. Not only bumping, but friction can cause bombs to detonate.
- It was not rare for bombs to be dropped into the water during the loading process. An effort would be made to retrieve them, but, given the priority on speed, a number were left. their presence is dangerous because they may contain white phosphorous which burns under water. Or they can detonate at any time, possible setting off a chain reaction in ships above them. *466-3 (Cont'd.)*

Any such accident as a bomb falling into the water is supposed to be investigated by a separate administrative body. Disciplinary actions are supposed to result. However, there were times that such investigations did not occur, or were glossed over. They were "to no one's advantage". They were a detriment to prestigious people like dock-foremen, and they slowed down operation. An attitude of informal cover-up was the order of the day.

OTHER CONCERNS OF THE COMMUNITY ABOUT THIS PLAN

We have been told by the Department of Energy, Mr. Head, and the Department of Defense, that there can be no open discussion of safety plans, evacuation plans, medical effects of various scenarios, etc. of nuclear materials in our community, because of "National Security". We have not even been able to get a straight answer about whether there *are* nuclear materials in our community. Since *you* have brought up the subject this time, Mr. Head, we fully anticipate a thorough, well-planned and well-publicized set of plans for ensuring public safety for all the possible scenarios that shipping nuclear materials through overcrowded waterways lined with decomposing bridges and listing oil tankers in one of the most populated and congested areas of the country might encounter. *466-4*

Nuremberg Actions members would like written responses indicating the DOE's position on the following questions:

- May we have additional time to consider the six inch documents outlining the DOE plan which most participants had only received one or two weeks before the hearing, and to conduct independent research and community discussions? *466-5*
- Will we have advance notice of all local routes out of CNWS intended for transportation of nuclear materials? *466-6*
- Whether closing the Port Chicago Highway through the CNWS in February 1995, new crane installation and dredging currently going on signifies a predisposition to using the CNWS port regardless of public opinion? *466-7*
- Why only the city planner of Concord was informed of the plan and not other poorer and minority neighborhoods closer to the CNWS? *466-8*
- Whether the use of a military port is to preclude citizen's groups from doing independent radiation monitoring and testing? *466-9*
- How citizens are to be expected to trust a governmental body that had been bombing its Native Nations and experimenting on its own veterans for forty five years?
- Whether separation of classes of fuel rods for different destinations as stated by you, Mr. Head, indicates plans by the DOE to restart former programs to reprocess spent fuel into weapons-grade material? *466-10*
- Why DOE statistics on health hazards differed so greatly from information independently available? *466-11*
- Why no concern about earthquake hazards in the Bay Area were included in the DOE assessment?

RESPONSE TO COMMENT
COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

Response to Comment No. 466-4

DOE considers that there is adequate regulatory and emergency preparedness infrastructure to ensure the safe acceptance and transport to designated management sites if the foreign research reactor spent nuclear fuel is managed in the United States. Federal funding to State, Tribal, and local governments for maintaining emergency response programs is discussed in Section 2.7.1. There are three national emergency response plans under which DOE provides radiological monitoring and assessment assistance. Under these plans, DOE provides technical advise and assistance to the State, Tribal and local agencies involved with a radiological incident. Emergency preparedness, security, and coordination of DOE with local emergency response authorities, and security are discussed in general in Sections 2.7 and 2.8 of the EIS. Details would be contained in the Transportation Plan, that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments.

Response to Comment No. 466-5

The deadline for submission of comments in response to the draft EIS was extended from June 20 to July 20, 1995. DOE considers the comment period (90 days total) to be sufficient for public comment.

Response to Comment No. 466-6

DOE has not yet selected ports, routes, or transport modes for the foreign research reactor spent nuclear fuel. If Concord NWS is selected, then DOE would choose the best route to I-680 in accordance with Department of Transportation regulations (49 CFR 397.101 (a)(2)). That route could use Route 4, Route 24, and/or Waterfront Road. These are the local Concord streets that the trucks would probably use. The State of California routing agency can designate a preferred route, which the shipments would be required to follow, in accordance with 49 CFR Part 397.103.

Response to Comment No. 466-7

DOE understands that the expansion of capabilities at Concord NWS will continue as scheduled regardless of the outcome of the proposed action on foreign research reactor

COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

- Why the Bay Area is being assessed, when it is one of the most highly populated areas in the U.S., has numerous bridges and seven oil refineries in the Carquinas Straits alone, with 240 shiploads of petroleum products a year in the Bay? 466-12
- Why there is a contradiction in the DOE wanting to remove the waste material from such countries as Sweden and Belgium to keep it safe from revolutionaries and terrorists, but scoffs at any concerns over safety from seizure to U.S. communities along the routes? 466-13
- Who would monitor the quality of handling of said materials (one local resident stated that CNWS had "the worst trained and worst paid drivers handling equipment at the piers" anywhere)? 466-14
- Why the DOE is apparently ignoring federal law on siting such operations in a way that jeopardizes the safety of minority and low-income neighborhoods (not even included in DOE maps or comments) more than others? 466-15
- Whether any federal assistance would be given to improve very degraded roads and railway beds under question? 466-16

Whether an evacuation plan will be funded, drafted, discussed within the affected communities, and tested prior to any waste shipments in the area? 466-17

- Whether any special training or funding would be given by the DOE to local emergency response teams to handle such accidents?

Thank you for your attention to these matters, Mr. Head. I'm sure that we can have every confidence that you will keep the safety of our children and the lands that provide us with food, water and shelter as much a concern and priority as you would your own.

For mutual joy in caring for the Creation we have been blessed with,

Jennifer Viereck

Jennifer Viereck
Coordinator of Nuremberg Actions

Enclosures:
"How Safe Is the Concord naval Weapons Station?" by Roland de Wolk, Express, Feb. 4, 1994

"Report Cites
Accidents at Concord Arms Depot", Contra Costa Times, September 27, 1993

"Miller to Probe Weapons Station Reports", by Donna Hemmila, Contra Costa Times, September 28, 1993.

RESPONSE TO COMMENT
COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

spent nuclear fuel. Likewise, the closures of Port Chicago Highway and Waterfront Road were independent of the proposed action. Selection of Concord NWS as one of the ports that might receive foreign research reactor spent nuclear fuel would be based on the selection criteria set out in Appendix D, Section D.1.9 of the EIS.

Response to Comment No. 466-8

A Notice of Availability for the draft EIS was published in the Federal Register dated April 21, 1995. Copies of the draft EIS were placed in libraries and reading rooms near each candidate port and potential interim management site. More than 2,000 copies of the draft EIS or Summary of the draft EIS were mailed to potentially interested citizens and organizations. Seventeen public hearings, announced in the local news media, were conducted at locations near each candidate port and potential management site.

Environmental justice in potentially affected areas, including those neighborhoods near the Concord NWS, is discussed in Section 4 and Appendix A of the EIS.

Response to Comment No. 466-9

Ten ports that are considered to be able to safely receive foreign research reactor spent nuclear fuel were selected using the port selection criteria discussed in Appendix D, Section D.1.9 of the EIS. Examination of the port selection criteria shows that there is no stated preference for military ports, contrary to the comment. Either military or commercial ports, if they are selected by the selection criteria, are equally acceptable. Risk associated with accidents in both military and commercial ports are discussed in Appendix D, Section D.5.5. In either case, the citizen's groups conduct of independent radiological monitoring and testing will not be a factor considered in determining any port selected.

Response to Comment No. 466-10

Whether or not separate classes of spent nuclear fuel rods would be designated for shipment to different management sites is a programmatic decision based on management site experience (Section 2.2.1.8 of the EIS). As stated in Section 2.2.2.6 of the EIS, the United States does not engage in reprocessing (chemical separation) for either nuclear power or nuclear explosives purposes, and seeks to eliminate, where possible, the accumulation of HEU or plutonium.

Response to Comment No. 466-11

General radiological human health effects are discussed in Section 4.1.3 and the specific impacts of each alternative are presented throughout Section 4 of the EIS. This comment mentions no specific examples of different statistics on radiological human health effects or impacts, so DOE cannot perform a comparison. The possibility of earthquakes in the Concord area was taken into account in the calculations in Section 4.2.2.3 and Appendix D of the EIS. See also the response to Comment 466-2, above.

Response to Comment No. 466-12

The port selection process that determined that Concord NWS was an acceptable port considered the population of the port and surrounding areas. Appendix D, Section D.1.9.5 of the EIS provides an explanation of the population criterion. The volume or size of the local marine traffic (present or future) was not considered in the calculation of risk associated with the shipment of foreign research reactor spent nuclear fuel. In general, the number of ship mishaps is not proportional to the amount of ship traffic because port ship traffic is slow, and even when heavy, is normally a small number of ships per hour. Historically, increasing the volume does not significantly increase the probability of an accident. Rather, the number of ship mishaps is associated with navigational hazards and distances from the port to the open ocean or a large bay (port selection Criterion 2; Appendix D, Section D.1.9.2 of the EIS). Appendix D, Section D.5.3.1.3 of the EIS presents a discussion of the determination of the probability of ship accidents used in the EIS.

In regard to the refineries and bridges along the route to Concord NWS, the passage from San Francisco Bay to Concord meets the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2 of the EIS). The population and favorable transit from open ocean are not the only considerations in selecting ports of entry for the foreign research reactor spent nuclear fuel, if it is accepted into the United States. Other items of importance include population along the route to the management site, port experience with handling containers, and port facilities. Appendix D, Section D.1.9 presents details of the port selection process.

Response to Comment No. 466-13

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide. If the United States does not include its stable, developed allies in this program, then many of the research reactors in these countries are likely to switch back to (or continue) the use of HEU as fuel, or will have to shut down.

As stated in the EIS, the U.S. has an obligation under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to assist nonnuclear weapons states with peaceful applications of nuclear energy. Actions which compel a country to shut down a peaceful nuclear research program, or to seek reprocessing, could cast doubt on U.S. commitment to NPT principles. Any perception that the U.S. does not support the NPT, which is the foundation of the entire international nuclear nonproliferation regime, would make it that much harder to negotiate further nuclear nonproliferation agreements.

If the research reactors are forced to shut down, the United States is likely to be accused, rightly or wrongly, of failing to live up to its obligations under the Treaty on the Non-

COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

RESPONSE TO COMMENT
COMMENTOR NO. 466: NUREMBERG ACTIONS (CONT'D.)

Proliferation of Nuclear Weapons to assist nonnuclear weapons states with peaceful applications of nuclear technology. If the reactors switch back to (or continue) the use of HEU as fuel, the move towards elimination of the civil use of HEU will be severely diminished. While it is true that these countries do not pose a threat of nuclear weapons proliferation themselves, they serve as examples for other countries. If our stable allies continue to use HEU as fuel for their research reactors, then the countries which buy reactors from them could demand reactors fueled in the same manner.

Further, the United States is currently attempting to persuade Russia and China to implement programs, similar to that of the United States, to convince their client states to switch their research reactors to LEU fuel. If, through action or inaction, the United States is unable to persuade its allies to discontinue the use of HEU as fuel, then we are unlikely to convince Russia and China that their client states should be treated differently.

Weapons grade uranium in some of the spent nuclear fuel from foreign research reactors is a nuclear weapons nonproliferation threat because that uranium could conceivably be removed from the spent nuclear fuel and used in production of one or more nuclear weapons. However, to do so would require that the spent nuclear fuel be reprocessed to chemically separate the uranium from the structure of the spent nuclear fuel elements, fission products in the uranium, and other impurities that are integral parts of the spent fuel. Chemical separation requires a sophisticated chemical processing plant as well as time and money.

Chemical separation of the weapons-grade uranium could conceivably be accomplished if the spent nuclear fuel were left in an irresponsible nation having the required technology, time, and financial resources, or if it were released to a well-funded terrorist organization. However, such actions are not possible in the relatively short time that the spent nuclear fuel would be in transit. During transit the spent nuclear fuel would be sealed in transportation casks weighing 25 tons or more. The sheer size and weight of these casks, coupled with the radioactive nature of the spent nuclear fuel itself, make movement a time consuming, difficult task. Conversely, these characteristics make spent nuclear fuel an unattractive target for theft during transit, making the spent nuclear fuel a low proliferation risk during transportation. Furthermore, since spent nuclear fuel shipments are guarded and their schedules are not announced, these shipments are also resistant to terrorism. During the past 40 years, hundreds of shipments have been made in similar spent nuclear fuel transportation casks. There have been no terrorism or proliferation problems with any of these shipments. The physical security provisions used during transit have proven to be effective.

Response to Comment No. 466-14

Concord NWS is responsible for monitoring the quality of the workforce at the site. Concord NWS's work safety record is good, indicating the quality of the workforce is

high. See response to Comment 466-1 above.

Response to Comment No. 466-15

DOE considers that it is in full compliance with all applicable laws and regulations applicable to the analysis of the proposed action. Safety and health effects were analyzed in detail during preparation of the EIS (See Appendices B through F of the EIS). The proposed action was found to pose no significant radiological health or other risks to the general population, including minority populations and low-income populations (Section 4.2 and Appendix A of the EIS). Descriptions of minority populations and low-income households in potentially affected areas are given in Sections 3.2 and 3.3 of the EIS. Appendix A of the EIS provides maps of minority populations and low-income households in potentially affected areas.

Response to Comment No. 466-16

DOE considers that the current capabilities at Concord NWS are adequate to support the safe receipt and handling of foreign research reactor spent nuclear fuel. The funding and continued maintenance of existing roads and railway beds on Concord NWS would be the responsibility of the Navy. Although facility improvements such as the addition of two container cranes may facilitate the off-loading of the foreign research reactor spent nuclear fuel, if it were to be shipped to Concord NWS, no upgraded facilities would be required.

Response to Comment No. 466-17

Foreign research reactor spent nuclear fuel shipments are subject to the same types of potential hazards as those of other ships carrying nonradiological hazardous materials.

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Spent nuclear fuel has been transported over the highways and rail systems of the United States for over 40 years. During that time, there were twenty-one incidents involving vehicles transporting irradiated spent nuclear fuel elements. None of these incidents resulted in a breach of the spent nuclear fuel transportation cask or release of its contents. In spite of this fact, several accident scenarios, including severe accidents were analyzed during the preparation of the EIS. Results of the accident analysis at the ports are given in

Commentor No. 466: Nuremberg Actions (Cont'd.)

Response to Comment
Commentor No. 466: Nuremberg Actions (Cont'd.)

Section 4.2.2 of the EIS with supporting detail in Appendix D, Section D.5. No catastrophic effects were found to result from severe accidents involving foreign research reactor spent nuclear fuel, and no events were identified that would require the evacuation of any of the ports analyzed.

Appendix H of the EIS contains the general provisions for emergency preparedness and security measures associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. These issues include capabilities and training of first emergency responders. Funding for special needs, if necessary, would be addressed during this interface.

Commentor No. 484: Sierra Club, Virginia Chapter

"When we try to pick out anything by itself, we find it hitched to everything else in the universe."
John Muir

June 18, 1995

Mr. Charles R. Head
Office of Spent Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Ave., S.W.
Washington, D.C. 20585-0001

Public Comments on the Draft Foreign Research Reactor SNF EIS

Thank you for this opportunity to comment on the Draft Environmental Impact Statement (EIS) on Department of Energy Policy concerning Foreign Research Reactor Spent Nuclear Fuel. We note that these 22,700 reactor fuel elements remain highly radioactive. These comments are submitted on behalf of the Virginia Chapter of the Sierra Club, an environmental organization of about 9000 members with 12 local groups throughout Virginia. A substantial number of our Club members would bear risk if this foreign nuclear waste were to be imported into the United States through Virginia.

The Sierra Club will continue to analyze the environmental issues raised by this Draft EIS in the months ahead. We request within 30 days a copy of all comments made to DOE on this Draft EIS. We want to consider the views of all other commentors in completing our own analysis on this matter. 484-1

The analysis of potential human health effects mainly in terms of fatalities (latent cancer fatalities plus accident fatalities) is inadequate, understating overall health impacts. Added incidence of nonfatal cancers, added incidence of noncancer diseases, and accident injuries must also be presented throughout the analysis. 484-2

The Chapter 5 list of applicable laws must show that the Resource Conservation and Recovery Act, as amended, applies to this nuclear waste. It must also show that Section 3151 of the National Defense Authorization Act for Fiscal Year 1994 applies in the event that any of this spent nuclear fuel were to be shipped into the United States. 484-3

The Draft EIS does not provide adequate detail on the monetary costs to DOE to carry out each of the management alternatives, subalternatives, hybrid alternatives, and implementation alternatives. The Draft EIS shows that the total cost of this program to DOE could exceed $2 billion in undiscounted 1996 dollars. 484-4

Response to Comment Commentor No. 484: Sierra Club, Virginia Chapter

Response to Comment No. 484-1

DOE complies with NEPA and the DOE regulations of promulgated under NEPA. Such regulations require comments submitted on the draft EIS to be considered in the final EIS. However, the law does not require, nor does time permit, copies of all comments submitted on a particular document to be made available to a particular party within 30 days. The final EIS will contain each comment submitted on the draft EIS during the comment period along with the responses to such comments.

Response to Comment No. 484-2

General radiological human health effects are discussed in Section 4.1.3 of the EIS, including the added incidence of nonfatal cancers. There are no noncancer diseases that are caused by low doses of radiation. Also see the response to Comment 1125-4. The incidence of accidental injuries would be no greater than that associated with the handling and transport of any other heavy standard ISO containers.

Response to Comment No. 484-3

DOE considers that the draft EIS contains a complete list of applicable laws and regulations with respect to the foreign research reactor spent nuclear fuel proposed action and alternatives.

Response to Comment No. 484-4

Appendix F, Section F.7 provides complete details of the monetary costs to carry out each of the management alternatives, subalternatives, hybrid alternatives, and implementation alternatives. At the level of program costs (as opposed to taxpayer costs), the key to understanding total program costs is via a building block approach where you select a transportation component, a site-receiving component, an interim management method, a long-term management method (including disposal), and various risks. The EIS does not enumerate every combination of every set of cost factors for every contingency (e.g., timing, delays, different allocation of spent nuclear fuel rods, etc.) because the policy and decision basis does not require the presentation of essentially infinite combinations. The major cost components, including risks, were clearly outlined.

The total cost of the program and the total cost to the U.S. taxpayers are not the same. Under the basic implementation of Management Alternative 1, if adopted, U.S. taxpayers are asked to bear the costs for developing countries (representing less than 20 percent of the spent nuclear fuel elements and less than 10 percent of spent nuclear fuel by mass) and the costs for developed countries above the level of a competitive fee. The primary basis for a competitive fee, the costs for reprocessing at Dounreay, were clearly laid out. The costs to U.S. taxpayers would depend on all the factors noted in the previous paragraph (especially the long-term disposal method), the precise basis for the competitive fee, the

COMMENTOR NO. 484: SIERRA CLUB, VIRGINIA CHAPTER (CONT'D.)

-2-

In the current austere funding situation for federal departments, whatever funds DOE spends on this program would likely diminish funds available for environmental cleanup of DOE facilities throughout the United States.

All of the costs of transport and disposal of this reactor nuclear waste must be paid by the reactor operators. For DOE to use U.S. taxpayer funds to pay for any of this program would encourage the continued operation of this large number of foreign reactors, as well as encourage new overseas reactors, with all their adverse environmental effects. Only by facing the full monetary and environmental costs of their own nuclear waste can foreign countries truly understand the disadvantages of operating nuclear reactors. *484-4 (Cont'd.)*

The Draft EIS analyzes waste fuel rods of U.S.-origin. However, in past years, DOE has also imported into the USA waste reactor fuel not of U.S.-origin. Since the environmental effects are cumulative, the EIS must also assess the possible need for future U.S. involvement in disposal of reactor fuel not of U.S.-origin, from all of these reactors plus any others of interest to the United States. *484-5*

Because of the adverse environmental effects at already contaminated DOE sites, we continue our long-held opposition to reprocessing these or any other waste fuel rods in the United States. *484-6*

Because of the uniquely hazardous nature of these highly radioactive waste fuel rods, and the possibility of unforeseen accident circumstances, low-population-routing of all shipments is required to the maximum extent feasible. We continue our long-held opposition to transporting these fuel rods through high population centers when reasonable alternative routes exist. *484-7*

The problem that this program seeks to address was created by unwise decisions by DOE (and its predecessor agencies) and the Department of State to export high-enriched uranium (HEU) in years past for these research reactors. The Draft EIS does not make clear whether DOE has completely stopped export of HEU from the USA for research reactors; DOE should do so and must clarify this in the EIS. *484-8*

In Appendix D of the Draft EIS, the DOE criteria and assumptions for characterizing potential ports-of-entry as experienced, low-population, acceptable, desirable, etc. are arbitrary and illogical. In the event that DOE names a preferred alternative that is related to this, we will address those issues at that time. *484-9*

In seeking to justify this program, the Draft EIS implies that the U.S. may have some treaty obligation to take this nuclear waste into the USA. In 1992, then-Secretary of Energy Watkins stated that the United States had no legal obligation to import *484-10*

RESPONSE TO COMMENT COMMENTOR NO. 484: SIERRA CLUB, VIRGINIA CHAPTER (CONT'D.)

timing of the program, the countries that choose to participate, and other factors. As with the combinations of policy options, it would not be possible to detail an essentially infinite combination of taxpayer charges. A cost to DOE (i.e., to the taxpayers) approaching $2 billion would require policy decisions in other programs (primarily high-level waste disposal) that would be highly adverse to all spent nuclear fuel or high-level waste disposal programs, not just the foreign research reactor spent nuclear fuel program. Under most scenarios, the cost of the foreign research reactor spent nuclear fuel program to U.S. taxpayers would be a small fraction (i.e., 1-2 percent) of the cost of the commercial and defense waste programs.

As discussed in Section 2.2.1 of the EIS, if the basic implementation of Management Alternative 1 (management in the United States) is implemented, developed countries would be charged a competitive fee to accept and manage their spent nuclear fuel. United States taxpayers would absorb the full costs of the program for developing countries and absorb the amount above a competitive fee for developed countries. The reasons the United States would pay some of the costs for other countries are: 1) some countries are unable to afford the costs of returning the foreign research reactor spent nuclear fuel and would have no safe alternative means of managing the spent nuclear fuel (i.e., the developing countries); and 2) some countries would continue to use and trade weapons-grade nuclear material indefinitely unless the United States charges a competitive fee and absorbs any costs above that fee (e.g., most of the Western European countries). As discussed in the EIS, the environmental burden and human health risks are low in an absolute sense and very low compared to the risks posed by continued commercial use of HEU, or insecure storage of spent nuclear fuel containing HEU uranium overseas. United States' payment of costs would not encourage new overseas reactors to operate on HEU since the conversion from HEU to LEU is required as part of the U.S. acceptance of their spent nuclear fuel or the U.S. payment for any costs.

The success of the program would, however, encourage the continued use of nuclear research reactors operating on LEU fuel. The adverse environmental effects of these research reactors would have to be weighed against their benefits in many fields, including isotopes for nuclear medicine and materials research.

Response to Comment No. 484-5

Management of spent nuclear fuel from foreign research reactors which does not contain uranium enriched in the United States is outside the scope of this EIS (Section 1.3 of the EIS). DOE is not aware of any non-U.S.-origin HEU spent nuclear fuel that it might accept. Therefore, inclusion of non-U.S.-origin HEU in the cumulative impacts is not relevant.

COMMENTOR NO. 484: SIERRA CLUB, VIRGINIA CHAPTER (CONT'D.)

-3-

this waste, even though he supported doing so. The Draft EIS should include an explicit analysis of any U.S. treaty obligation on this matter. 484-10 (Cont'd.)

The Draft EIS needs to provide much more detailed information on the alternatives for overseas management of some or all of this reactor fuel. While giving much information on the alternatives to import the nuclear waste into the USA, the Draft EIS gives meager information on the alternatives for continued overseas storage (temporary or permanent) at one or many locations. 484-11

The Draft EIS also gives insufficient information on alternatives for secure reprocessing and "blending down" of HEU in Europe, as has been proposed by BNFL for example. The major environmental damage that DOE sites have already done in the United States should propel DOE to analyze possible overseas options in great detail. The EIS must include this analysis. 484-12

The EIS needs to develop and analyze an alternative that has only HEU rods from unstable countries coming to the USA. Taking nuclear waste from close allies (including Canada, Australia, Japan, NATO allies, etc.) is unnecessary. Accepting LEU rods as a way of getting research reactor operators to do the right thing about safeguarding HEU rods is poor policy; the USA has ample access to governments to gain cooperation from recalcitrant reactor operators. To whatever extent this proposed program is valid, it must be cast in the narrowest scope necessary to acieve our aim: HEU rods only, help with disposal for only unstable countries, and minimizing any nuclear waste imports into the USA. 484-13

Yours respectfully,

Robert F. Deegan

Nuclear Waste Issues Chairman,
Sierra Club Virginia Chapter

Robert F. Deegan
Sierra Club Virginia
340 Navajo Road
Virginia Beach, VA 23457

RESPONSE TO COMMENT
COMMENTOR NO. 484: SIERRA CLUB, VIRGINIA CHAPTER (CONT'D.)

Response to Comment No. 484-6

The commentor's opposition to domestic chemical separation is noted. This is Management Alternative 1, Implementation Alternative 6, which is discussed in Sections 2.2.2.6 and 4.3.6 of the EIS. It is also part of Management Alternative 3, which is discussed in Section 2.4 and 4.5 of the EIS.

Response to Comment No. 484-7

Population density is one of the attributes that DOE considers when selecting ports. See Appendix D, Section D.1.9 and Section 2.3.6.1 of the EIS. Truck routes would be selected in accordance with U.S. Department of Transportation regulations (49 CFR Part 397.101 (a)(2)). A State routing agency can designate a preferred route, which the shipments would be required to follow, in accordance with 49 CFR Part 397.103. (Section 2.6.4.2 of the EIS.)

Response to Comment No. 484-8

As discussed in Section 1.1 of the EIS, shortly after the end of the Second World War, the United States recognized that it must take action to prevent the spread of nuclear weapons throughout the world. The United States adopted a policy to assist other nations with peaceful applications of nuclear technology if they would agree to refrain from developing nuclear weapons and place their nuclear activities under international inspection. One of the means of assisting other nations with peaceful applications of nuclear technology was to provide them with research reactors and fuel for the reactors. This approach, far from being a mistake, has worked well, as demonstrated by the small number of countries possessing nuclear weapons capability.

As further discussed in Section 1.1 of the EIS, the Energy Policy Act of 1992 included strict limitations on the further exportation of HEU by the United States. Since enactment of this legislation, no new export licences for HEU have been issued by the United States.

Response to Comment No. 484-9

DOE considers that the port selection criteria indicates ports that can safely handle foreign research reactor spent nuclear fuel. The analysis in the EIS indicates that the use of any of the ports indicated by the port selection process, if foreign research reactor spent nuclear fuel is accepted into the United States would not pose any significant risk to either the port personnel or the population near the port. The decision as to which port(s) would be used in the case that foreign research reactor spent nuclear fuel is accepted by the United States, will be made in the Record of Decision. DOE considers the port selection process and results presented in Appendix D, Sections D.1.8 and D.1.9 of the EIS, to be fair, rational and objective.

Commentor No. 484: Sierra Club, Virginia Chapter (Cont'd.)

Response to Comment
Commentor No. 484: Sierra Club, Virginia Chapter (Cont'd.)

Response to Comment No. 484-10

It is DOE's position that neither DOE nor the United States Government has any legal obligation to receive spent nuclear fuel from foreign research reactors.

Response to Comment No. 484-11

This EIS presents analysis of environmental impacts upon the global commons from the management alternatives. The kind of analyses requested by the commentor is not in accordance with Executive Order 12114, which deals with the Environmental Effects Abroad of Major Federal Actions.

Response to Comment No. 484-13

The commentor's suggestion that the DOE accept only spent nuclear fuel containing HEU, and only from unstable countries to minimize the quantity accepted in the United States, is noted.

As discussed in Section 1.1 of the EIS, the reason for including LEU in the policy is that the United States has offered LEU acceptance as an enticement for foreign research reactor operators to convert from HEU to LEU fuel use. The enticement was necessary because operation with LEU fuel is not as effective as with HEU fuel and many of the reactor operators converted to LEU fuel as a result of the U.S. offer.

The United States has played in the past, and continues to play, a leadership role within the world community in matters of nuclear weapons nonproliferation. In this role, the United States initiated programs such as the Reduced Enrichment for Research and Test Reactors (RERTR) program and encouraged other nations to support it. Some of the nations which have supported it such as Britain, France, Japan, Sweden and others may not currently present the same nuclear weapons proliferation risk as others. The reasons for considering these nations under this policy are included in the Section 1.3 of the EIS.

COMMENTOR NO. 489: GRANDMOTHERS FOR PEACE, SACRAMENTO CHAPTER

Grandmothers for Peace

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has." ... Margaret Mead

International Office • 9444 Mulwood Way, Elk Grove, CA 95758 • USA Phone / Fax (916) 684-0394

June 19, 1995

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
FAX: 202-586-5256

Re: Proposed Nuclear Weapons Nonproliferation Policy
Concerning Foreign Research Reactor Spent Nuclear Fuel

Dear Mr. Head:

My recommendation is Management Alternative 2 - Overseas Storage. I regret the choices are only France and the United Kingdom, and I hope their citizens actively oppose becoming a dumping ground for the world.

We already have the threat of radioactive waste (high and low-level) criss-crossing the United States to dumps in Nevada, South Carolina, Washington, New Mexico, Texas, California, North Carolina, Nebraska, etc. This is just the radioactive waste produced by U.S. reactors, research and weaponry. Our country will be a coast-to-coast nuclear dump. I do not want additional radioactive material brought in from other nations. Every state and every country should be responsible for its own waste. If you produce it, you store it. No one else should suffer because you choose to flirt with disaster. The financial, physical and environmental cost is too high. 489-1

Do not bring this foreign spent fuel into Concord or any other U.S. port. The countries and research facilities using it should store it permanently.

Sincerely,

Bernice Kring

Bernice Kring
Sacramento Chapter
Grandmothers for Peace

Printed on Recycled Paper

RESPONSE TO COMMENT
COMMENTOR NO. 489: GRANDMOTHERS FOR PEACE, SACRAMENTO CHAPTER

Response to Comment No. 489-1

The commentor's preference for the alternative of overseas storage is noted. This is Management Alternative 2, Subalternative 1a, which is discussed in Sections 2.3 and 4.4.1 of the EIS.

COMMENTOR NO. 493: MT. DIABLO PEACE CENTER

DIABLO VALLEY COLLEGE

321 Golf Club Road Pleasant Hill, California 94523 DVC (510) 685-1230

June 18, 1995

Mr. Charles Head, Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Ave., S W
Washington, D.C. 20585

Dear Mr. Head:

RE: DEIS on a Proposed Nuclear Non proliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Enclosed is a copy of the Comment I prepared for presentation at the DOE's May 22nd Hearing.

I did not have an opportunity to present it then. However, the organization I represent wants to bring its position to your attention.

Sincerely,

Bob Mannaberg

Robert Mannaberg
Member, Executive Board
Mt. Diablo Peace Center

RESPONSE TO COMMENT
COMMENTOR NO. 493: MT. DIABLO PEACE CENTER

COMMENTOR NO. 493: MT. DIABLO PEACE CENTER (CONT'D.)

The U.S. Department of Energy (DOE) plans to return up to 22,700 units of foreign spent nuclear research reactor fuel in 721 cask loads through up to ten U.S. ports, including the Concord Naval Weapons Station. The spent fuel will be transported from the ports to temporary storage sites to await eventual permanent disposal. The DOE states that "the purpose of the proposed policy is to promote nuclear nonproliferation by seeking to reduce the amount of high enriched uranium (HEU) used in civil programs worldwide." (Draft Environmental Impact Statement (EIS).

I have carefully read the Draft EIS and I listened to the DOE's Charles Head at the hearing on May 22nd. However, I am still perplexed by many questions. Until the DOE can provide satisfactory answers to the following questions, they have not earned our trust.

§ If DOE's policy is to remove and secure HEU, then why is the DOE also offering to accept low enriched uranium (LEU) for ten years "from reactors that have already converted. . to use LEU"? (Spent Nuclear Fuels Acceptance Policy, Proposal 3) It seems to make no sense.

§ At the DOE hearing, Charles Head admitted that LEU, when used in nuclear reactors, generates plutonium, prime bomb material. So why, if our goal is nonproliferation, do we continue to promote and sell LEU?

§ Is the purpose of this policy to enable the DOE to sell more nuclear fuel rods to those 28 countries from whom we will

493-1

RESPONSE TO COMMENT
COMMENTOR NO. 493: MT. DIABLO PEACE CENTER (CONT'D.)

Response to Comment No. 493-1

As discussed in Section 1.1 of the EIS, the reason for including LEU in the policy is that the United States has offered LEU acceptance as an enticement for foreign research reactor operators to convert from HEU to LEU fuel use. The enticement was necessary because operation with LEU fuel is not as effective as with HEU fuel. As explained in Section 1.2 of the EIS, the amount of plutonium in the LEU spent nuclear fuel is small, and the difficulty involved in extracting it and using it in a nuclear weapon is so great, that the LEU spent nuclear fuel is not considered to be a nuclear weapons proliferation risk. Also, as explained in Section 2.3 of the EIS, the opportunities for extended spent nuclear fuel storage at foreign research reactor sites would be limited or nonexistent.

COMMENTOR NO. 493: MT. DIABLO PEACE CENTER (CONT'D.)

accept spent nuclear fuel? Does the use of additional nuclear material increase or decrease the chances of nuclear weapon proliferation? 493-1 (Cont'd.)

§ If part of the benefit of this policy is what former Secretary of State Eagleburger, in his letter of 10-26-92, referred to as "nuclear commerce", (DEIS,appendix G) then how much money has been and will be received for the sale of the nuclear fuel rods by the DOE? 493-2

§ Since we here in Contra Costa County are being asked to share the risks of this commerce, is there some plan for us to share the benefits? Can we get some of this money locally? Perhaps the DOE could fund a local cancer treatment facility?

§ Since all nuclear reactors create fissile materials, wouldn't the goal of nonproliferatioin be best served by conversion to cleaner sources of energy? Can DOE do solar? 493-3

§ Why don't we focus our policy on those countries, e.g. Iran, that pose an actual risk to convert their reactor fuel into bombs? At the hearing Head responded to this question by speculating about changes in regime, political instability, etc. Why does the DOE want to bring in spent nuclear fuel from Britain, Sweden, and numerous other countries whose rate of domestic terrorism is less than our own? 493-4

§ In the Draft EIS section on Concord, reference is made to some non-existent places: Clydes, Brizzly Bay, and San Suison Bay. The City of Concord is said to be ten miles south of Port Chicago. Do these errors reflect a lack of concern toward us by the DOE? Do they indicate the DOE's level of competence? 493-5

RESPONSE TO COMMENT
COMMENTOR NO. 493: MT. DIABLO PEACE CENTER (CONT'D.)

Response to Comment No. 493-2

DOE is not in the business of selling nuclear fuel rods. In the past, enrichment services were sold at cost using stockpiles of enriched uranium. Future sales of enrichment services would likely be supplied by the United States Enrichment Corporation, a quasi-government agency. No estimate is available of the historic revenues from sales of enrichment services. In any event, sales revenue (both past and future) were relatively small compared with the costs of the proposed action.

DOE considers the risks of the program to the port localities to be low. The benefits are in the form of less risk from the proliferation of nuclear weapons. Secretary Eagleburger's letter would have been more accurate if it had referred to the United States being a reliable partner in nuclear weapons nonproliferation programs. Compensation for affected ports has been discussed but is not proposed.

Response to Comment No. 493-3

Consideration of solar and wind power are beyond the scope of this EIS. Furthermore, research reactors are not involved in power production (Section 1.1 of the EIS). However, it should be noted that as part of its mission, DOE currently has ongoing programs that are seeking to develop and promote use of these alternative energy sources.

Response to Comment No. 493-4

While it is true that some countries such as Britain and Sweden are stable countries, DOE is not in the position to judge their rate of domestic terrorism. The issue, however, is that these countries may serve, themselves, as powerful examples for other countries (including those that have less stable regimes, such as Iran). Several of these countries manufacture and sell research reactors to other countries, including third world countries. If our stable allies continue to use HEU as fuel for their research reactors, then the countries which buy reactors from them would demand reactors fueled in the same manner.

Response to Comment No. 493-5

The errors the commentor points out have been corrected in Section 3.2.1.6 and Appendix D, Section D.2.1.6 of the EIS. These errors do not represent a lack of concern, merely errors in transposing information into the EIS.

COMMENTOR NO. 493: MT. DIABLO PEACE CENTER (CONT'D.)

Or are they part of DOE's master plan for a massive transformation of our geography? 493-5 (Cont'd.)

§ In the same section, mention is made of "the unlikely event of an explosion" at Port Chicago. True, any accident is, in a way, unlikely - as the DOE's statistics assume throughout the EIS. Yet the Port Chicago catastrophic explosion, unlikely or not, did occur. What would be the consequences if such an explosion were to occur not with just HE (high explosive) but with HE plus HEU? 493-6

§ In the same section the rather truncated map of CNWS includes some of the area occupied by our very busy Buchanan Field. Even though the airfield symbol appears on the map legend, none appears on the map proper. Nor is the airfield mentioned in any of the text. Does this mean the the DOE believes that local air traffic does not increase the risk of a terrible nuclear accident? Or maybe they just failed to consider it? 493-5 (Cont'd.)

§ Likewise, no mention is made of the six oil refineries, fifteen cities, and six bridges that the nuclear casks borne on merchant vessels would encounter on their way to CNWS. Nor of the over nine million tons of petroleum and petroleum products moved through the Carquinez Straits last year. What would happen to the deadly radioactive cargo if a collision occurred with one of the hundreds of loaded gasoline tankers in the narrow channels of the Straits? Why does the Draft EIS contain no worst case scenario? Are they afraid to consider them? Or that we will? 493-7

RESPONSE TO COMMENT
COMMENTOR NO. 493: MT. DIABLO PEACE CENTER (CONT'D.)

Response to Comment No. 493-6

Section D.5.9 has been added to Appendix D of the EIS to address the issue of attack by disgruntled persons or terrorists. One of the attack scenarios postulates a large explosion near a transportation cask full of spent nuclear fuel.

Response to Comment No. 493-7

The passage from San Francisco Bay to Concord meets the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2 of the EIS). The port selection criteria do not consider the existence of land-based facilities such as refineries because the addition of some mishap at a land-based facility would not add to the severity of the worst plausible accident, which is considered to be the collision of the ship carrying the foreign research reactor spent nuclear fuel with a petroleum tanker. However, the port selection process that determined that Concord NWS was an acceptable port did consider the population of the port and surrounding areas (Appendix D, Section D.1.9.5). Additionally, all population within a fifty mile radius of the Concord NWS was considered when analyzing the potential impact of a range of hypothetical port accidents. The risks were found to be low (Appendix D, Section D.5).

The volume or size of the local marine traffic (present or future) was not considered in the calculation of risk associated with the shipment of foreign research reactor spent nuclear fuel. In general, the number of ship mishaps is not proportional to the amount of ship traffic because port ship traffic is slow, and even when heavy, is normally a small number of ships per hour. Historically, increasing the volume does not significantly increase the probability of an accident. Rather, the number of ship mishaps is associated with navigational hazards and distances from the port to the open ocean or a large bay (Appendix D, Section D.1.9.2). Appendix D, Section D.5.3.1.3 of the EIS presents a discussion of the determination of the probability of ship accidents used in the EIS.

The EIS did analyze the severe accident in which a ship carrying a spent nuclear fuel transportation cask is involved in a collision with another ship, severe enough to breach the transportation cask and then subject the cask to a fire resulting from the collision (Section 4.2.2.3). These conditions are the same as the worst conditions that might be expected to result from the collision of a ship carrying a spent nuclear fuel transportation cask with a petroleum tanker. Some radioactive material is released in this hypothetical accident, but because the amount of radioactive material is small, the amount of contamination is so small that no cleanup is required anywhere (except possibly in the immediate vicinity of the cask) to consider land or buildings fit for unconditional use.

COMMENTOR NO. 505: NATIONAL COUNCIL SENIOR CITIZENS

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Mr. Calvin Strickland Phone: 510-432-4845
Title and Organization: National Council Senior Citizen's
Address: 1381 Acacia St.
City: Pittsburg, Ca. State Ca Zip 94565

*** COMMENTS ***

We do not want the San Francisco Bay to Port Chicago water contaminated with nuclear Waste from all over the world. Keep your Nuclear Waste in the foreign countries where it was used! Keep it! 505-1
Poor condition of railroads and roads is another reason not to transport Nuclear Waste in Contra Costa County, California.
People in this area do not want to die because of the Nuclear Wate.

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 505: NATIONAL COUNCIL SENIOR CITIZENS

Response to Comment No. 505-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Concord NWS is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Concord NWS, or to any of the ports analyzed in the EIS, is low. Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. As stated in Section 2.6.2 of the EIS, after more than 40 years of spent nuclear fuel shipments, to date no spent nuclear fuel transportation cask has ever released any of its contents (radioactive material), even in actual highway accidents.

COMMENTOR NO. 534: GREEN PARTY

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: Edita Hamrett Phone: (510) 256-7016
Title and Organization: Member Coordinating Committee Green Party, Contra Costa County
Address: 1444 Creekside Dr. #3078
City: Walnut Creek State CA Zip 94596

*** COMMENTS ***

Dear Mr. Head:

As a Green Party member and as one of the 300,000 persons who live within a 10-mile radius of the Concord Naval Weapons Station, have you been to kick expendable. I am absolutely opposed to the DOE's plan to bring the highly radioactive nuclear fuel rods there. It is just too dangerous, as it is too dangerous for any of the sites in the U.S. I suggest that you keep it in the countries (to whom the U.S. gave it in the 1st place) under international supervision. Most of all I suggest that the U.S. stop manufacturing nuclear weapons and nuclear power, stop testing nuclear devices and stop giving any nuclear material to anybody. There will be no more nuclear waste then!

534-1

534-2

534-3

Yours for a nuclear-free future,

Edita Hamrett

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 534: GREEN PARTY

Response to Comment No. 534-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Concord NWS is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Concord NWS, or to any of the ports analyzed in the EIS, is low.

Response to Comment No. 534-2

The commentor's preference for the alternative of overseas storage is noted. This is Management Alternative 2, Subalternative 1a, which is discussed in Sections 2.3 and 4.4.1 of the EIS.

Response to Comment No. 534-3

Foreign research reactors are not used to manufacture or test nuclear weapons or to generate commercial power. Section 1.1 of the EIS describes the research, medical, industrial, and agricultural applications for foreign research reactors. Past and present nuclear weapons nonproliferation policies of the United States support peaceful applications of nuclear technology for nations who agree not to develop nuclear weaponry (Section 1.1 of the EIS).

COMMENTOR NO. 535:
PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC.

PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC.
Greater San Francisco Bay Area Chapter • (510) 845-8395 • FAX (510) 845-8476
2288 Fulton Street, Room 307 • Berkeley, California 94704-1449

SPONSORS

John E. Adams, M.D.
Professor Emeritus of Neurosurgery
School of Medicine
U.C. San Francisco

Harvey Brody, D.D.S.
Clinical Professor of Stomatology
Director of Dental Clinic
U.C. San Francisco

Patricia A. Buffler, Ph.D., M.P.H.
Dean, School of Public Health
U.C. Berkeley

Lawrence Feigenbaum, M.D.
Clinical Professor, School of Medicine
U.C. San Francisco

Charles A. Gooding, M.D.
Professor of Radiology and Pediatrics,
Emeritus Vice Chair of Radiology
School of Medicine,
U.C. San Francisco

Sadje Greenwood, M.D.
Author/Lecturer,
Asst. Clinical Professor
U.C. San Francisco

Melvin M. Grumbach, M.D.
Edward B. Shaw Professor of
Pediatrics, School of Medicine,
U.C. San Francisco

Stephen B. Hulley, M.D., M.P.H.
Professor of Epidemiology and
Medicine, School of Medicine,
U.C. San Francisco

Joyce Lashof, M.D.
Dean Emerita, School of Public Health,
U.C. Berkeley

Alan S. Leider, D.D.S., M.A.
Professor of Diagnostic Sciences
Oral Pathology, School of Dentistry
University of the Pacific, San Francisco

Bernard Lo, M.D.
Professor of Medicine, Director of
Program in Medical Ethics
U.C. San Francisco

Alice J. Margolis, M.D.
Professor Emeritus of Obstetrics and
Gynecology, School of Medicine,
U.C. San Francisco

Donald K. Poulton, D.D.S.
Professor and Chairman, Dept. of
Orthodontics, School of Dentistry,
University of the Pacific, San Francisco

Robert S. Wallerstein, M.D.
Professor Emeritus of Psychiatry,
School of Medicine, U.C. San Francisco

William Ware, D.D.S.
Professor Emeritus of Oral and
Maxillofacial Surgery,
School of Dentistry,
U.C. San Francisco

Raymond Weisberg, M.D.
Medical Director, Sister Mary Philippa
Memorial Clinic, St. Mary's Hospital
and Medical Center, San Francisco

Warren Winkelstein, Jr., M.D., M.P.H.
Professor Emeritus of Epidemiology,
School of Public Health, U.C. Berkeley

Affiliation for identification only

June 13, 1995

Mr. Charles Head, Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Ave., S W
Washington, D.C. 20585

Dear Mr. Head:

RE: DEIS on a Proposed Nuclear Non proliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Enclosed is a copy of the Comment I prepared for presentation at the DOE's May 22nd Hearing.

I did not have an opportunity to present it then. However, I do want to bring to your attention the position of Physicians for Social Responsibility.

Sincerely,

Kathryn Smick, M.D.

Kathryn Smick, M.D.
Vice-President, Steering Committee

PSR is an organization of over 20,000 physicians and health care professionals dedicated to public and professional education on the medical and environmental consequences of the production and use of weapons of mass destruction. PSR is committed to the reduction of violence and its causes. PSR is the U.S. affiliate of the International Physicians for the Prevention of Nuclear War, recipient of the 1985 Nobel Peace Prize.

Printed on recycled paper using soy-based ink

RESPONSE TO COMMENT
COMMENTOR NO. 535:
PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC.

COMMENTOR NO. 535:
PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC. (CONT'D.)

I am Dr. Kathryn Smick. I represent the San Francisco Bay Area Chapter of Physicians for Social Responsibility.

PSR believes that the high level nuclear waste of spent fuel rods should remain in the 28 countries where it is now stored, and that it should be under international safeguard. These countries are either industrialized western countries or stable developing countries where the risk of terrorism is probably no greater than in the United States. 535-1

We oppose bringing the spent fuel rods to the Concord Naval Weapons Station for two reasons: 1) The handling and transport of radioactive material create a hazard that, despite all precautions, cannot be reduced to insignificance. An accident with release of radioactivity could contaminate a heavily populated area, with dire consequences. But I will leave it to others to address the dangers of transport. 535-2

2) Accepting the fuel rods of reseaarch reactors cannot be justified on grounds of preventing the proliferation of nuclear weapons. Yet this is the rationale given for the Department of Energy's proposal. To be sure, nuclear bombs can be made more readily from highly enriched uranium (HEU), the fuel the DOE proposes to return, than from low enriched uranium (LEU). But the fact is that Pu can be separated from both HEU and LEU for weapons. The DOE will continue to supply LEU as a fuel and, inconsistent with its own policy, will continue to accept the spent fuel from reactors using LEU. 535-3

Inconsistencies abound in U.S. nuclear policies. Article IV of the Non-Proliferation Treaty, which the DOE touts as the

RESPONSE TO COMMENT
COMMENTOR NO. 535:
PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC. (CONT'D.)

Response to Comment No. 535-1

The commentor's preference for the alternative of overseas storage is noted. This is Management Alternative 2, Subalternative 1a, is discussed in Sections 2.3 and 4.4.1 of the EIS.

Response to Comment No. 535-2

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Concord NWS is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Concord NWS, or to any of the ports analyzed in the EIS, is low.

Response to Comment No. 535-3

Weapons-grade uranium in some of the spent nuclear fuel from foreign research reactors is a nuclear weapons proliferation threat because uranium could be removed from the spent nuclear fuel and used in the production of nuclear weapons.

Plutonium is present in foreign research reactor spent nuclear fuel containing LEU in quantities too small to pose a threat. Also, it is much easier to fashion a simple nuclear weapon from HEU than plutonium. An explanation of the relationship between HEU and plutonium in foreign research reactor spent nuclear fuel has been added to Section 1.2 of the EIS.

The commentor's questions regarding the position of the United States on nuclear fuel activities in Japan and the United Kingdom are addressed in Section 1.1 of the EIS.

Commentor No. 535: Physicians for Social Responsibility, Inc. (Cont'd.)

main stay of U.S. non-proliferation policy, mandates that the five nuclear weapons states provide technology for peaceful uses of nuclear energy to the 174 other signatories of the NPT. Thus, by mandating the dissemination of nuclear know-how, the treaty contains the seeds for conversion of the peaceful atom to the very weapons prohibited by the treaty.

If non-proliferation were an over-riding consideration, as the EIS states, why has the United States not objected to our recent enemy Japan's huge stores of Pu, and why has the DOE itself transferred to Japan technical information which can be used to separate weapons-grade Pu from its two fast breeder reactors? Why did the U.S. not object to Great Britain's accepting U.S.-supplied foreign fuel in its new reprocessing plant which, like all reprocessing, produces Pu? Clearly peaceful nuclear energy and nuclear weapons are inseparable, a fact that is selectively applied by the DOE. *535-3 (Cont'd.)*

The EIS states that the proposed policy of accepting spent fuel, if adopted, would not continue indefinitely ,only until the host countries had time to make their own arrangements to manage their waste. Why not now? This program with research reactors has been in effect since 1958. More and more waste will accumulate. No nation has a permanent repository for it, nor a prospect for one. All over the world citizens and public officials have resisted efforts to store radioactive waste near their communities. This month four Oregon congressmen urged the DOE not to bring the fuel rods from these foreign reactors to Hanford in Washington state. In 1994 S.Carolina *535-4*

Response to Comment Commentor No. 535: Physicians for Social Responsibility, Inc. (Cont'd.)

Response to Comment No. 535-4

Prior to 1989, it was a policy of the United States to accept spent nuclear fuel from foreign research reactors for disposition in the United States (Section 1.1 of the EIS). Thus, many foreign research reactor operators have no immediate means of disposing of their spent nuclear fuel (Section 1.2 of the EIS). The intent of the proposed policy is to remove as much U.S.-origin HEU as possible from civil programs worldwide and give foreign research reactor operators time to convert their reactors to the use of LEU fuels and to make arrangements for disposition of their LEU spent nuclear fuel (Section 1.2 of the EIS). Ultimate disposition is a high-priority consideration which is discussed qualitatively in Section 4.2.7 of the EIS.

COMMENTOR NO. 535: PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC. (CONT'D.)

sued to keep out further shipments of European waste. In 1991 a federal judge stopped the shipment of radioactive waste from Colorado into Idaho on environmental grounds. And in 1993 the port of Oakland successfully resisted the unloading of radioactive fuel, the same fuel the DOE now proposes to bring into the Concord Naval Weapons Station. 535-4 (Cont'd.)

In conclusion, the impact of this proposal on non-proliferation is entirely too feeble to warrant the risk of an accident (or the cost of the operation). These highly radioactive fuel rods should remain in storage where they are, under international safeguard.

RESPONSE TO COMMENT COMMENTOR NO. 535: PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC. (CONT'D.)

COMMENTOR NO. 552: NUCLEAR ENERGY INSTITUTE (NEI)

NUCLEAR ENERGY INSTITUTE

Theodore J. Garrish
VICE PRESIDENT,
NUCLEAR WASTE MANAGEMENT

June 21, 1995

Mr. Charles R. Head
Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585-0001

Re: Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel (60 FR 19899, dated April 21, 1995)

Dear Mr. Head:

This letter provides the comments of the Nuclear Energy Institute (NEI)[1] on behalf of the nuclear industry on the subject draft environmental impact statement (EIS). NEI's purpose is to foster and encourage the continued safe utilization and development of peaceful uses of nuclear energy to meet energy, environmental, and economic goals. These comments have been developed with this purpose in mind.

We are pleased that the Department of Energy (DOE) has completed its draft EIS on the management of foreign research reactor fuel after six years of study on this subject. This study is important to the non-proliferation goals of the U.S. which are wholeheartedly supported by the nuclear energy industry. In fact, NEI has formally taken the position that the:

[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, nuclear materials licensees, and other organizations and individuals involved in the nuclear energy industry.

776 I STREET, NW SUITE 400 WASHINGTON, DC 20006-3708 PHONE 202.739.8064 FAX 202.484.8106

RESPONSE TO COMMENT
COMMENTOR NO. 552: NUCLEAR ENERGY INSTITUTE

Mr. Charles R. Head
June 21, 1995
Page 2

> Treaty on the Non-Proliferation of Nuclear Weapons must be extended indefinitely and without condition....It stands as the cornerstone of the international nuclear non-proliferation regime....The NPT provides the world with a stable, predictable non-proliferation regime that is essential for preventing the spread of nuclear weapons while still allowing mankind to receive the many benefits of peaceful nuclear energy.[2]

In general, we think that DOE has done an adequate job of analyzing the environmental issues and alternatives; however, we are concerned with the length of time required to develop this EIS and the preceding environmental assessment (more than six years). Hopefully, DOE will be able to apply the knowledge gained in the development of these documents to reducing the time required to develop future EIS's in the civilian radioactive waste program.

The draft EIS appropriately does not recommend a preferred alternative. However, we strongly encourage DOE to adopt a preferred alternative consistent with the July 13, 1993, submittal by Secretary of Energy Hazel O'Leary to Secretary of State Warren Christopher which recommended the return of the foreign research reactor spent nuclear fuel (SNF) to the U.S. over a ten year period. 552-1

DOE RESPONSIBILITIES

Foreign Research Reactor SNF

DOE has a clear responsibility to accept the SNF from these foreign research reactors. The U.S. obligation to accept the SNF from these reactors began in 1955 pursuant to "Research Bilaterals," or individual bilateral agreements which were approved by the U.S. Congressional Joint Committee on Atomic Energy. Consistent with the Atomic Energy Act (AEA) Amendments of 1954, the earlier agreements provided for the lease of fuel, not for its sale. With respect to return of SNF, the early bilateral agreements provided that:

> When any fuel elements containing U-235 leased by the Commission require replacement, they shall be returned to the

[2] Statement of the Nuclear Energy Institute in support of indefinite extension of the Treaty on the Non-Proliferation of Nuclear Weapons, April 17, 1995.

Response to Comment No. 552-1

The commentor's recommendation of a preferred alternative that supports implementation of Management Alternative 1 as described in Section 2.2 of the EIS, is noted.

The preferred alternative adopted by DOE and the Department of State for the proposed action is presented in Sections 2.9 and 4.7 of the EIS.

Commentor No. 552: Nuclear Energy Institute (Cont'd.)

Mr. Charles R. Head
June 21, 1995
Page 3

> Commission[Atomic Energy Commission -- AEC].... [emphasis added][3]

Beginning as early as 1957, DOE's predecessors began what later became known as the "Off-Site Fuels Policy." Under the Policy, SNF from foreign research reactors was shipped without incident to the U.S. In 1964, Congress amended the AEA to allow private ownership of special nuclear materials. These amendments specifically provided that the AEC could repurchase that amount of special nuclear material that was originally provided by the U.S.:

> at a repurchase price not to exceed the Commission's sale price for comparable special nuclear material or uranium in effect at the time of delivery of such material to the Commission.[4]

In the late 1970's, the U.S. developed low enriched uranium (LEU) fuel to replace the high enriched uranium (HEU) fuel then being used by foreign and domestic research reactors. This was pursued in order to minimize the proliferation risks associated with the weapons grade uranium contained in the HEU fuel. Consequently, in 1978, the "Reduced Enrichment for Research and Test Reactors" (RERTR) program was born. Under the RERTR program, foreign research reactor owners were strongly encouraged to convert their facilities to accommodate LEU fuel. Despite the high costs involved, most owners converted or made plans to do so. During this period, the U.S. modified its policy to include receipt of LEU SNF as well as HEU SNF. This provided additional encouragement to reactor owners to join RERTR.

On December 30, 1987, DOE published a notice in the Federal Register, as it and its predecessors had done many times in the past, extending the Off-Site Fuels Policy for only one year.[5] In this notice DOE noted that it was reexamining its adherence to U.S. environmental laws. However, DOE inappropriately did not renew this Policy and it therefore expired on December 31, 1988, for HEU fuels and in 1992 for LEU fuels. With the exception of a limited amount for spent fuel accepted under urgent relief provisions, no foreign research reactor spent fuel has been accepted by this country since.

---

[3] Research Bilateral Form Agreement (pre-March 1956) at Article II.C; Research Bilateral Form Agreement (post-march 1956) at Article IV.3.
[4] 42 U.S. Code Section 2074.
[5] 52 Fed. Reg. 49198 (December 30, 1987).

Response to Comment

Commentor No. 552: Nuclear Energy Institute (Cont'd.)

These and many other points clearly indicate that DOE has a responsibility to these reactor owners. Assurances to this effect have been repeatedly published in the Federal Register. In fact, many of these facilities were developed with this understanding in mind. The Draft EIS's silence in this regard is disappointing. Adopting the Secretary of Energy's July 13, 1993, recommendation, as stated above, will allow DOE to live up to this obligation.

U.S. Civilian Reactor SNF

In a similar fashion, each and every nuclear utility in the United States has an agreement, under 10 CFR Part 961 pursuant to the Nuclear Waste Policy Act of 1982 as amended (NWPA), with DOE to accept their SNF by January 31, 1998. These agreements are also the end result of decades of direct and indirect assurances by the Federal Government that the government would manage and dispose of the utility industry's SNF.

These assurances also began in 1954 when the Atomic Energy Act (AEA) was modified to encourage the development of atomic energy for peaceful purposes. In these amendments, as stated above, the Federal Government agreed to lease "special nuclear materials" including nuclear fuel to licensees; however, the Federal Government retained title to the material. In 1955, the AEC began decades of research on nuclear waste disposal beginning with a National Academy of Sciences report recommending deep geologic disposal of radioactive waste. In addition, in 1974 the AEC's Annual Report to Congress stated that its:

> program for handling radioactive waste encompasses the long-term management of all radioactive waste generated by the AEC operations, commercial high-level and, prospectively, transuranium-contaminated radioactive waste.[6]

Further, the AEC intended that waste disposal facilities would be subject to exclusive Federal control. This is evidenced by the AEC's statement of its "Policy Relating to the Siting of Fuel Reprocessing Plants and Related Waste Management Facilities," adopted in 1970 which states that:

[6] U.S. Atomic Energy Commission 1974 Annual Report to Congress, pg. 155.

COMMENTOR NO. 552: NUCLEAR ENERGY INSTITUTE (CONT'D.)

Mr. Charles R. Head
June 21, 1995
Page 5

> Disposal of high-level radioactive fission product waste material will not be permitted on any land other than that owned and controlled by the Federal Government.[7]

In fact, in announcing this policy, the AEC expressly rejected a suggestion that it permit the establishment of HLW repositories on state-owned land under AEC licenses:

> The Commission has considered these suggestions but believes at this time that high-level waste repositories should be under Federal ownership and responsibility.[8]

These examples and others clearly indicate the Federal Government's definitive responsibility for the disposal of HLW and SNF. This agreement with nuclear utilities is embodied in the 1982 Nuclear Waste Policy Act, as amended -- that is, the customers of nuclear electricity pay the cost for management of the spent nuclear fuel in exchange for DOE accepting the waste beginning in 1998. Consequently, in addition to DOE fulfilling its responsibilities to the foreign research reactors, DOE must carry out its responsibilities under the NWPA of 1982, as amended.

We appreciate the opportunity to comment on this very important matter. If you have any questions, please contact Chris Henkel of our staff on (202) 739-8117.

Sincerely,

Theodore J. Garrish

[7] 10 C.F.R. Part 50, Appendix F.
[8] 35 Fed. Reg. 17530, 17532 (1970).

RESPONSE TO COMMENT
COMMENTOR NO. 552: NUCLEAR ENERGY INSTITUTE (CONT'D.)

COMMENTOR NO. 589: CLYDE CIVIC IMPROVEMENT ASSOCIATION, INC.

CLYDE CIVIC IMPROVEMENT ASSOCIATION, INC.
109 Wellington Avenue
Clyde, CA 94520

June 18, 1995

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RE: DEIS ON FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL TRANSSHIPMENTS TO NWS CONCORD

Dear Mr. Head:

The Draft Environmental Impact Statement for the proposed project is not adequate due to the following:

Climate: The DEIS fails to address the damaging rainstorms which occur approximately every three years in the San Francisco Bay region. Most notable recent high rainfall events occurred in January 1982, February 1986 and recently in the current year.

Seismicity: DEIS fails to address the issue that the entire Bay Area is located in a region of active seismicity primarily related to the San Andreas Fault system. It consists of several major faults and zones located in close proximity to the site of the proposed site to be used as a port. The main trace of the Concord Fault to located near the port and has an estimated maximum credible earthquake magnitude of 6.5, with an estimated maximum probable earthquake magnitude of 5.75 (Contra Costa County, 1991). 589-1

Tsunamis: The largest historical tsunami was a measured wave runup of 7.4 feet above the mean sea level (msl) at the Golden Gate. This should be addressed in the DEIS as a reasonable maximum for future events.

Ship Channel Conditions: There are 39 nautical miles of ship channels from the Pacific Ocean and the NWS Concord which are hazardous and encumbered with obstacles. There are a number of narrows and bridges with limited clearance. Visibility especially in the winter months is poor. The DEIS does not adequately address this issue. 589-2

San Francisco Bay-Delta Estuary: DEIR does not adequately address the fact that the port is located in Suisan Bay, a part of the largest estuarian ecosystem in California. The large variety of aquatic species are important to commercial and recreational fisheries. The area also is a major resting,

RESPONSE TO COMMENT COMMENTOR NO. 589: CLYDE CIVIC IMPROVEMENT ASSOCIATION, INC.

Response to Comment No. 589-1

The EIS evaluates the risk associated with port activities in Section 4.2.2. The risk is evaluated for both incident-free and accident conditions. The seismicity, climate and special meteorological conditions of a particular port do not affect the risk associated with incident-free operations. Earthquakes were not analyzed separately in the EIS because seismic activity would not result in greater damage to a transportation cask than that caused by a ship collision and subsequent fire. Rather, the consequences from the worst plausible accidents involving foreign research reactor spent nuclear fuel transportation casks were evaluated, regardless of what initiated them. An earthquake could be the initiator of either a ship or road accident and thus effect the probability of such accidents, however, the number of earthquake-induced ship and road accidents is small compared to other causes.

Response to Comment No. 589-2

The passage from San Francisco Bay to Concord meets the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2). The favorable transit from open ocean is only one of the considerations in selecting ports of entry for the foreign research reactor spent nuclear fuel. Other considerations such as port population, population along the route to the management site, port experience with handling containers, and port facilities have also been considered in making the final selection of ports of entry. Appendix D, Section D.1.9 of the EIS presents details of the port selection process.

The EIS analyses determined that there would be no significant adverse impacts to the ecology of any of the ports that might be used to receive the material (Section 4.2.4.2.8). Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 30 years of experience shipping spent nuclear fuel, no radioactive contents have ever been released from a spent nuclear fuel transportation cask as a result of an accident (Section 2.6.2 of the EIS). A paragraph has been added to

COMMENTOR NO. 589: CLYDE CIVIC IMPROVEMENT ASSOCIATION, INC. (CONT'D.)

feeding and wintering area for birds on the Pacific Flyway. The DEIS also fails to address the numerous wetlands and marshlands which could be impacted by this proposed project. *589-2 (Cont'd.)*

Transportation: DEIS fails to address the local transportation routes in terms of congestion, traffic patterns, overpass and bridge crossings and the risks of transporting hazardous materials. *589-3*

Emergency Response: The DEIS fails to provide information and assessment of available emergency response or adequate materials training in the handling of nuclear products in case of accident. *589-4*

Temporary Storage: DEIS fails to address or describe what storage facilities are available for hazardous materials. The DEIS needs to describe the exact location proposed for temporary storage. *589-5*

Conflicting Uses: The DEIS fails to address the numerous petroleum industries (i.e., Tosco, Shell, Exxon) and chemical plants (Monsanto) which are located in close proximity to the port being proposed. The intense use of the waterways by these potentially conflicting types of transport needs to be adequately addressed in the DEIS. *589-6*

In addition, Figure A-6 (Page A-10) and Figure A-16 (Page A-22) in Appendix A (Environmental Justice Analysis) both indicate an incorrect location for the proposed terminal. These figures along with the distribution statistics need to be corrected. *589-7*

Sincerely,

Pat Alexander

Pat Alexander
Secretary

RESPONSE TO COMMENT COMMENTOR NO. 589: CLYDE CIVIC IMPROVEMENT ASSOCIATION, INC. (CONT'D.)

Section 4.2.2.2 of the EIS to make this point and emphasize the no-impact nature of these shipments on air and water quality including on estuaries, flyways, wetlands and marshlands. No significant human health, safety, or environmental risk were found to exist at any of the candidate commercial or military ports selected (Section 4.2.2 of the EIS).

Response to Comment No. 589-3

For the local truck routes near Concord, see the response to Comment 22-11. The addition of up to 186 truck shipments to these routes spread out over a period of 13 years would have a very low impact on traffic congestion because tens of thousands of similar shipments will travel these roads during that time. The trucks would carry standard-size ISO containers, so they would have no trouble with overpasses or bridge crossings. The risks of transporting foreign research reactor spent nuclear fuel overland are presented in Section 4.2.3 and Appendix E of the EIS.

Response to Comment No. 589-4

Each port considered in the EIS has developed an Area Contingency Plan. This plan outlines response capabilities, procedures and authorities for responding to and recovering from hazardous material incidents. Additionally, DOE would provide assistance to local authorities to ensure that appropriate measures would be taken in the unlikely event of an accident. As part of this assistance, DOE's Radiological Assistance Program teams, from eight offices strategically located throughout the country, would be used to coordinate and to provide remediation assistance. This type of assistance and coordination would be specified in the Transportation Plan to be prepared prior to any spent nuclear fuel shipment. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected.

Response to Comment No. 589-5

If the foreign research reactor spent nuclear fuel is accepted into the United States (Management Alternative 1 or 3) there would be no storage of this material in the Port of Concord NWS, any other port, or anyplace except for management sites. Under normal circumstances, it would remain at a port for only a few hours. In the event of a major disruption of ground transportation systems due to adverse weather, seismic activity, or other situation, DOE's goal is to minimize holding times at the ports and to provide safe transport of the spent nuclear fuel to its destination as quickly as possible.

RESPONSE TO COMMENT
COMMENTOR NO. 589: CLYDE CIVIC IMPROVEMENT ASSOCIATION, INC. (CONT'D.)

Response to Comment No. 589-6

The port selection criteria do not consider the existence of land-based facilities such as refineries because they have no direct impact on the risk associated with the shipment of foreign research reactor spent nuclear fuel. The worst case accident is considered to be the collision of the ship carrying the foreign research reactor spent nuclear fuel with a petroleum tanker. In this accident the transportation cask is damaged in the collision, then subjected to a fire that resulted from the collision (Appendix D, Section D.5). The addition of some mishap at a land-based facility would not add to the severity of this accident, and so was not considered. Section 4.2.2.3 of the EIS discusses the assumptions that went into the port accident analysis and the results of those analyses.

Response to Comment No. 589-7

Latitude and longitude for the pier at Concord NWS were changed from 38 degrees 02' 45' N and 122 degrees 05' 42 W, respectively, to 38 degrees 03' 32 N and 122 degrees 00' 49 W, respectively. Figures A-6 and A-16 of Appendix A show the revised location. Population data changed as follows: Total population residing within 10 miles (16 km) of the port decreased by 18.2 percent. The corresponding minority population decreased by 26.0 percent. Low-income households residing within 16 km of the port decreased by 18.4 percent. Tables A-1 through A-3 of Appendix A include the revised demographic data.

Commentor No. 637: South End Neighborhood Council of Tacoma Petition

SOUTH END NEIGHBORHOOD COUNCIL
c o Sherrill Ware 3719 S M St Tacoma WA 98408

June 22, 1995

Mr. Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S Department of Energy
1000 Independence Ave
Washington, DC 20585

Dear Mr. Head:

On June 19, 1995 the South End Neighborhood Council of Tacoma voted to oppose the shipment of high-level nuclear waste through the Port of Tacoma. We urge the U.S. Department of Energy to remove Tacoma as a possible entry site. *637-1*

We join the Port of Tacoma and the City of Tacoma in supporting alternative two. *637-2*

It is important that you, as a government representative, listen to the concerns of the citizens who will have to pay for and live with the results of the decisions made regarding the disposal of this nuclear waste.

Enclosed is another page of the petition which was signed by area residents. It was not included with the pages you received Monday, June 19th.

Please consider the concerns you have heard expressed by this community, and recommend the removal of the Port of Tacoma from the list of possible entry sites.

Sincerely,

Sherrill Ware

Sherrill Ware
Chair

encl.

cc: Gongressman Norm Dicks
Senator Patti Murray
Senator Slade Gorton

Response to Comment Commentor No. 637: South End Neighborhood Council of Tacoma Petition

Response to Comment No. 637-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Port of Tacoma is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Port of Tacoma, or to any of the ports analyzed in the EIS, is low.

Response to Comment No. 637-2

The commentor's preference for the overseas management alternative is noted. This is Management Alternative 2, which is discussed in Sections 2.3 and 4.4 of the EIS.

Commentor No. 637: South End Neighborhood Council of Tacoma Petition (Cont'd.)

NO NUCLEAR WASTE IN TACOMA

We strongly oppose the shipment of high-level nuclear waste through the Port of Tacoma and urge the U.S. Department of Energy to remove Tacoma as a possible entry site.

Name	Address	City	Zip
Wayne A. Miller	506 So. 50th	Tacoma	98408
Penny J. Larkins	3711 So. M St.	Tacoma	98408
[illegible]	3719 S M St	Tacoma	98408
[illegible]	3719 S M ST	Tacoma	98408
Nancy Williams	3708 S "L" ST	Tacoma	98408
Dennis Dryden	6134 S. Yakima	Tacoma	98408
[illegible]	8421 East F St	Tac. Zip	98445
Linda Rose	921 S. 78th	Tacoma	98408
[illegible]	1117 So 64th	Tacoma	98408
Wayne Weeks	[illegible] So "M" St.	Tacoma	98408
John Holtzman	4834 So M St	Tacoma	98408
[illegible]	718 So. 57th	Tac.	98408
[illegible]	8324 E D ST	Tacoma	98404

Sponsored by the North End Neighborhood Council of Tacoma

Response to Comment Commentor No. 637: South End Neighborhood Council of Tacoma Petition (Cont'd.)

COMMENTOR NO. 778: NORTH END NEIGHBORHOOD COUNCIL

NORTH END NEIGHBORHOOD COUNCIL

Chris Thompson, Chairman
3219 North 30th St.
Tacoma, WA 98407

June 9, 1995

Tacoma City Council
747 Market Street
Tacoma, WA 98402

Honorable council members:

Our Neighborhood Council Board of Directors voted unanimously to oppose the shipment of nuclear material through the Port of Tacoma. The reasons for our adamant opposition to the plan proposed by the U.S. Department of Energy are several.

Safety is a primary concern. In spite of the 1986 court ruling barring this type of shipment until a plan can be developed for dealing with shipboard fires, no method has yet been devised for dealing with this type of disaster. Shipboard fires have occurred, we understand, aboard ships in Puget Sound in just the last few years which reached 1,600 degrees and lasted 5 to 6 hours. The casks that will transport this highly radioactive nuclear waste are only designed to withstand 1,200 degree heat for 30 minutes. The risk of fire and then release of this highly dangerous material is very real. The safety risks of transporting it off ships at the port and by rail and over the highways are also of concern. *778-1*

Our concerns include a focus on our city's image and it's prospects for future economic prosperity as well. Being chosen for this program would be the most dubious distinction we can imagine. It would directly threaten the progress of the Port of Tacoma from 22nd to 6th over the past several years. The Port and all the jobs it generates are vital to our economy. We cannot afford to undermine one of our best sources of family-wage jobs in Tacoma and Pierce County. *778-2*

Finally, we question the program's fundamental wisdom. Why should we be forced to handle the world's nuclear waste when we're not even sure what to do with our own? Why should we accept waste from countries (such as Sweden, Japan and Canada) that are no more or less stable than we are, and which are not any more and may be less likely targets of terrorists? The entire program is ill-advised. *778-3*

We insist that Tacoma not be victimized by being forced to handle, store and transport this radioactive waste. Please help ensure our community is not targeted.

Sincerely,

Christopher M Thompson
CHAIRMAN

cc: Secretary Hazel O'Leary, Sen. Slade Gorton, Sen. Patty Murray, Rep. Norm Dicks, Gov. Mike Lowry, State Sen. Lorraine Wojahn, State Rep. Ruth Fisher, State Rep. Debbie Regala, Port of Tacoma Commission

RESPONSE TO COMMENT
COMMENTOR NO. 778: NORTH END NEIGHBORHOOD COUNCIL

Response to Comment No. 778-1

The transportation casks that would be used for the foreign research reactor spent nuclear fuel are certified if their design meets certain tests, including a fire test, and if the individual casks pass periodic inspections (Section 2.6.2 of the EIS for details). These certification standards were developed for use of the casks on land, hence the 30 minute fire test, which is considered to be the extent of a high intensity fire resulting from a collision with a tanker truck. The duration of a ship fire is directly related to the amount of combustibles carried on board. The number of severe fires on ships is relatively small. Data available on the last 15 years from Lloyd's of London indicates that of 1,073 ship collisions in port worldwide, only eleven led to fires, and of those, only five caused extensive damage, with only one actually causing buckling of structures.

In respect to the impact a ship fire might have on a transportation cask, there are three facts that would mitigate the potential damage. First, ship fires tend to move to different areas of the ship as the combustible material is consumed, so the cask would not be exposed for the duration of the fire. Second, a ship's fire intensity is normally limited by the amount of oxygen that can reach the interior of a hold. Third, all ships that would be used to transport foreign research reactor spent nuclear fuel have built-in fire suppression equipment, which at a minimum would keep fires well below the extreme temperatures needed to damage the transportation cask. For these reasons, it would be almost impossible for spent nuclear fuel inside the transportation cask to reach 900 degrees Kelvin (1,160 degrees F), the melting point of research reactor spent nuclear fuel. The probability of reaching such a temperature was calculated to be less than one in a billion (Attachment D5 to Appendix D of the EIS). To put this temperature into perspective, steel used in a ship's structure buckles at around 700 degrees Kelvin (800 degrees F).

The EIS contains the results of an analysis of the effects of an accident that involves a severe fire (severity category 6), which does not reach the temperature to melt foreign research reactor spent nuclear fuel. Appendix D, Section D.5.3 of the EIS presents a detailed discussion of accident probabilities and radioactive material source terms and Section D.5.4 presents the results of the analysis.

In conclusion, although long duration ship fires are possible, and have occurred, they are uncommon events. Analysis in the EIS indicates that even in the event of a severe ship fire involving a transportation cask, neither the consequences nor risks are great (Appendix D, Section D.5.5 of the EIS).

RESPONSE TO COMMENT
COMMENTOR NO. 778:
NORTH END NEIGHBORHOOD COUNCIL (CONT'D.)

Response to Comment No. 778-2

Based on the evaluation of impacts presented in Section 4 of the EIS, the risk associated with the shipment of foreign research reactor spent nuclear fuel through any of the ports identified is not greater than the risk associated with the handling of other hazardous cargos. DOE acknowledges that, in many instances, the perception by the public of the risks associated with spent nuclear fuel may be greater than the actual risk, or the risk from other even more hazardous activities. Under NEPA regulations, the socioeconomic effects evaluated for this EIS do not include those associated with psychological fear of receiving spent nuclear fuel at the Port of Tacoma.

Response to Comment No. 778-3

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide.

Many foreign research reactor operators have no immediate means for disposition of their spent nuclear fuel (Sections 1.1 and 1.2 of the EIS). Management of the foreign research reactor spent nuclear fuel in the United States would provide the research reactor operators in all participating nations, including Sweden, Japan and Canada, with a limited period of time to arrange for disposition of their spent nuclear fuel outside of the United States with minimum disruption of reactor operations, and would encourage continued use of or conversion to LEU fuel (Section 1.2 of the EIS).

Foreign research reactor spent nuclear fuel is not a likely target for theft or destruction by terrorists because it is transported under U.S. Department of Transportation and Nuclear Regulatory Commission regulations (Section 5.4 of the EIS) in heavy, robust containers which are designed to withstand mechanical and thermal stress (Appendix B of the EIS). Spent nuclear fuel is neither flammable nor explosive. Since the spent nuclear fuel is in metallic form, an explosive device capable of destroying the transportation cask would cause damage mainly through the explosion itself with little radiological effect.

Commentor No. 1015: Savannah River Site Citizens Advisory Board

Savannah River Site

CITIZENS ADVISORY BOARD

A U. S. Department of Energy Site-Specific Advisory Board

June 20, 1995

Dr. Mario P. Fiori
U.S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, S.C. 29802

Dear Dr. Fiori:

On behalf of the Savannah River Site Citizens Advisory Board, we are pleased to forward to you the Board's sixth recommendation. The attached recommendation addresses our preferred alternatives for consideration in the evaluation of the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy concerning Foreign Research Reactor Spent Nuclear Fuel.

This recommendation was adopted by majority vote at today's special Board meeting. It reflects the application of suggested screening and performance criteria, forwarded to you in April 1995.

We would appreciate your written response before the Final EIS is issued. We hope the attached advice is of use to DOE in the decision-making process and look forward to any comments you may have.

Sincerely,

Mildred McClain Bob Slay

Mildred McClain
Co-Chairperson

Bob Slay
Co-Chairperson

cc: Thomas P. Grumbly
Ken Chacey, EM37
Charles Head, EM37
Board Members
Ex-Officio members

1 Attachment

Response to Comment Commentor No. 1015: Savannah River Site Citizens Advisory Board

COMMENTOR NO. 1015: SAVANNAH RIVER SITE CITIZENS ADVISORY BOARD (CONT'D.)

Savannah River Site Advisory Board
Recommendation on Draft EIS on
Foreign Research Reactor Spent Nuclear Fuel
May 23, 1995

The FRR DEIS presents a number of alternative present and future actions for the handling and interim management of the spent nuclear fuel from foreign research reactors. The CAB has reviewed these alternatives and has recommendations on a number of these decisions. In this review, we were guided by the CAB-recommended Screening and Performance Criteria for this EIS that were approved at the March 28, 1995 regular meeting. The CAB strongly supports the nuclear nonproliferation policy of the United States and has the following specific recommendations we believe support that objective and are consistent with the other criteria.

1. We believe that Management Alternative 1, the acceptance and management of the spent fuel in the United States, provides the most support for the nonproliferation policy. It allows: (a) the most certain control of the final disposition of weapons-potential materials, (b) the strongest leadership for bringing other nations into LEU reactor usage, and (c) the least possibility that HEU from the reactors might illicitly or legally fall into a weapons program. 1015-1

2. We support a policy duration of 10 years for LEU or indefinitely, if required, for any HEU not received within this period. As a shorter duration would limit the fraction of foreign HEU that is included, it is less desirable. 1015-2

3. We understand that, under the Programmatic SNF&INEL EIS, shipments of these spent fuels would be limited to SRS and INEL, with SRS receiving only aluminum-clad fuels. We agree with the selection of SRS for its proposed portion of the materials. For the Phase I wet storage period at SRS, our attention has focused on the L-Reactor Disassembly Basin, which would be required early in the program once RBOFF is filled. Although the scheduled upgrade of the L Basin water treatment may well eliminate serious corrosion during the necessary wet storage period, we urge intense scrutiny of corrosion activity in this upgraded basin. 1015-3

4. We consider chemical separation of these fuels at SRS, followed by blending to LEU, to be the preferred alternative during Phase 2 of this program. We recognize that this is probably the most difficult choice to be made. Chemical separation is preferred over the option of dry storage because: (a) dry storage technology for aluminum clad fuel has not yet been demonstrated in the United States; (b) in comparison with stainless steel cladding, aluminum has far greater corrosion susceptibility and therefore is a much greater challenge in achieving safe, stable, long-term dry storage; (c) the dry storage option has a much greater cost uncertainty; and (d) this processing offers much greater assurance of meeting the geologic repository acceptance criteria required for ultimate disposition. 1015-4

Our recommendation is difficult because of the uncertainties implied in the extension of the chemical separation activities in the SRS canyons. In view of the age and recent inactivity of the canyons, we recognize the potential for problems and delays that could have a major cost impact. We therefore urge that planning for and evaluation of the process activity be given highest priority. Also, as dry storage will 1015-5

RESPONSE TO COMMENT
COMMENTOR NO. 1015: SAVANNAH RIVER SITE CITIZENS ADVISORY BOARD (CONT'D.)

Response to Comment No. 1015-1

The commentor's support for accepting and managing foreign research reactor spent nuclear fuel in the United States (Management Alternative 1 or 3, Sections 2.2 and 2.4 of the EIS, respectively), is noted.

Response to Comment No. 1015-2

The commentor's support for a policy duration of 10 years for LEU fuel, or indefinite acceptance for HEU fuel, if required, is also noted. The 10-year policy duration is considered under the basic implementation of Management Alternative 1, which is discussed in Section 2.2.1 of the EIS.

Response to Comment No. 1015-3

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE will be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE will be managed at the Idaho National Engineering Laboratory. A Consent Order, embodying the litigation settlement between the State of Idaho, the Navy, and DOE was issued on October 17, 1995. The commentor's support for a management alternative that would allow the same selection in this EIS is noted.

Response to Comment No. 1015-4

The commentor's support for chemical separation at the Savannah River Site is noted. This is covered under Management Alternative 1, Implementation Alternative 6, which is discussed in Sections 2.2.2.6 and 4.3.6 of the EIS. It is also part of Management Alternative 3, which is discussed in Section 2.4 and 4.5 of the EIS.

Response to Comment No. 1015-5

The commentor's suggestion that DOE give high priority to the evaluation of reprocessing for the management of foreign research reactor spent nuclear fuel is noted. Also noted, is the suggestion to pursue without delay the development of dry storage technology for the portion that could not be reprocessed.

COMMENTOR NO. 1015: SAVANNAH RIVER SITE CITIZENS ADVISORY BOARD (CONT'D.)

eventually be required for some portion of these fuels once processing ceases, it is very important for DOE to pursue development of this technology without delay. 1015-5 (Cont'd.)

We are aware that an argument against chemical separation is that it sets a poor example to other nations whom we discourage from any activity that creates HEU. We believe the blending-down step to LEU could be verified by international observers. This course is a strong demonstration of our nation's commitment to the nonproliferation policy. 1015-4 (Cont'd.)

5. On the question of the program's financing, we recommend that subsidies be provided to nations only to the degree that they are required to assure cooperation in the program's implementation. We understand that this would probably involve underdeveloped nations. It might also lead to less than full cost recovery with a developed nation that is considering a competitive foreign proposal for fuel disposal. 1015-6

6. With the alternatives related to shipment and handling, we consider the risks to workers, the local populace and the environment to be minimal. While all established procedures for safe handling must be followed, cost differences between alternatives should be considered. We recognize that the general population and many of their civic leaders have often opposed local handling of spent fuel casks. These attitudes cannot be overlooked in the decision process. A well-conceived education program in the affected areas would be beneficial. 1015-7

The CAB is well aware that this program cannot be achieved without budgetary support for the very large expenditures involved. In the current environment of reduced spending throughout the DOE nuclear weapons complex, the need for the highest attention to cost minimization is very evident. However, should budget restrictions be seen as undermining your ability to successfully complete this program, CAB will want to participate in whatever steps are then necessary to deal with the problem.

RESPONSE TO COMMENT
COMMENTOR NO. 1015: SAVANNAH RIVER SITE CITIZENS ADVISORY BOARD (CONT'D.)

Response to Comment No. 1015-6

One alternative for implementation of the proposed action is for the United States to charge developed countries a competitive fee to accept and manage their spent nuclear fuel. U.S. taxpayers would absorb the full costs of the program for developing countries and absorb the amount above a competitive fee for developed countries. The reasons the United States is proposing to pay some of the costs for other countries are: 1) some countries are unable to pay and have no safe alternative means of managing the spent nuclear fuel (i.e., the developing countries), and 2) some countries might continue to use and trade weapons-grade nuclear material indefinitely unless the United States charges a competitive fee and absorbs any costs above that fee (e.g., most of the Western European countries). At the policy level of the EIS, it is not possible to provide a country-by-country analysis of financial feasibility, cooperation levels, non-U.S. alternatives, etc. The foreign countries should not be expected to provide any information on these negotiation-type issues nor should the United States expect to estimate the transition point for 41 countries. While some form of negotiated fees might ultimately be implemented, it is impossible to define them, by-country, in advance.

Response to Comment No. 1015-7

The commentor's position that risks to workers, the public, and the environment would be minimal is noted. As evidenced by Section 4.9 of the EIS, cost differences between each of the Management Alternatives for implementation of the proposed action have been provided and will be considered in the preparation of the Record of Decision.

COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST

Seattle Office
1305 Fourth Avenue
Cobb Building, Suite 208
Seattle, Washington 98101
(206) 382-1014
FAX (206) 382-1148

Washington, D.C. Office
Washington, D.C. Representative:
Honorable Don Bonker
c/o APCO
1155 21st Street NW, Suite 1000
Washington, D.C. 20036
(202) 778-1019
FAX (202) 466-6002

Board of Directors
Mark Blooms, Chairman
Sharon Blooms, President
Honorable Don Bonker
Member of Congress, 1974-1989
Tom Cleveland
Del Keehn
Helen Koppe
Glenn Pascall

Executive Director
Gerald M. Pollet

HeartOfAmericaNorthwest
"Advancing our region's quality of life."

June 28, 1995

Pat Wells
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Dear Mr. Wells,

We are submitting this report to be added to the official record of public comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.

Sincerely,

Loretta Ahouse

RESPONSE TO COMMENT
COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST

COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

Consequences of a Severe HEU Ship Accident
Page 1

MEMORANDUM

TO: D Moglen, C Zimmer, Greenpeace
FROM: M Resnikoff, RWMA
SUBJECT: Consequences of a Severe HEU Ship Accident
DATE: August 26, 1991

Sorry for the late arrival of our calculations of the consequences of a severe accident involving a ship containing highly enriched uranium fuel (HEU). This involved considerably more number crunching than we anticipated.

HEU contains a large inventory of hazardous radionuclides, much more so than low enriched uranium, such as Taiwan fuel. Many of the details concerning these shipments do not appear in the Environmental Assessment, but in an associated document prepared by Sandia National Laboratory ([1]CA90). In case of a severe ship accident involving a long duration high temperature fire, these radionuclides may escape the shipping cask and be lofted into the air, settling downwind. Persons in the radiation plume would inhale these radionuclides and be exposed to a gamma radiation dose from the radionuclides which settle on the ground.

Calculations by the Department of Energy using RADTRAN mask the consequences of a serious accident by assuming a miniscule percentage of radioactivity could be released and by multiplying the consequences by a small probability. As a result, the risk is vanishingly small.

In this calculation we produce an independent assessment of the consequences of a credible serious accident. This is not a worst case calculation. We use standard computational

[1]CA90 Cashwell, JW and KS Neuhauser, "The Impacts of Transportation within the United States of Spent Reactor Fuel from Domestic and Foreign Reserach Reactors," Sandia National Laboratory, SAND88-0714, 1990.

1025-1

RESPONSE TO COMMENT COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

Response to Comment No. 1025-1

Unfortunately, Table 3 of Dr. Resnikoff's report was not included in the submittal by the commentor. DOE asked the commentor verbally and in writing to provide Table 3, but was unsuccessful. Thus, the report does not provide adequate information on the cask inventories, release fractions, and meteorological assumptions that he used in his analyses, nor does he explain any changes he may have made to the code used to predict consequences. Without full disclosure, it is impossible to determine exactly why his estimates are orders of magnitude greater than DOE's well-documented and publicly available estimates. His statements that large economic impacts would be incurred and are ignored in the DOE analyses is untrue. In fact, DOE's economic analyses are presented in the EIS (Section 4.2.2.3) and show that economic impacts are small.

COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

Consequences of a Severe HEU Ship Accident
Page 2

models ([2]NRC77), and computer codes employed by Department of Energy contractors ([3]RAE85).

The results show serious contamination plumes extending over 60 miles downwind from a ship accident, encompassing an area up to 900 square miles. The contamination levels are high enough to require evacuation and decontamination. For areas up to one mile downwind from a ship accident, the gamma radiation dose would be lethal to any person who remained in the contaminated area for a year. The cost of cleanup has not been calculated here and is also not discussed in the Environmental Assessment. The results for HEU fuel are far more serious than for Taiwan fuel. This memo discusses the assumptions, calculational techniques and principal findings.

1025-1 (Cont'd.)

Computer Model and Assumptions

We employ and adapt for our purposes a computer program developed by Department of Energy contractors (PATHRAE-T). This program uses a standard Gaussian puff model dispersion model. As a contamination plume moves downwind, the plume disperses in horizontal and vertical directions. Particulates settle out of the plume as it moves downwind.

Persons living downwind can be exposed to radiation through several pathways. Inhalation of the passing radioactive cloud can cause a radiation dose to the lung and

[2]NRC77 US Nuclear Regulatory Commission, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light Water Cooled Reactors," Reg Guide 1.111, Rev 1, July 1977.

[3]RAE85 GM Sandquist, et al, "Exposures and Health Effects from Spent Fuel Transportation," Rogers & Associates Engineering Corp, Salt Lake City, Nov 1985, and
VC Roger et al, "The Pathras-T Performance Assessment Code for Analyzing Risks from Radioactive Wastes," Rogers & Associates Engineering Corp, Salt Lake City, December 198

RESPONSE TO COMMENT COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

Consequences of a Severe HEU Ship Accident
Page 3

also to the whole body and specific organs by incorporation into the bloodstream. Gamma radiation from the passing cloud can cause a whole body dose. Gamma radiation from material deposited on the ground can also cause a whole body radiation dose (groundshine). Doses can also arise from resuspension of deposited material. Drinking contaminated water and milk, eating contaminated vegetables, beef and meat can also cause a radiation dose. Though we have calculated doses due to all radiation pathways, we report our results here only for groundshine because it is by far the largest dose contributor. The other effects should not be ignored, but time constraints limit a full discussion. In particular, deposition of radioactive material into a reservoir should be investigated. An accident during a rain would cause more radioactive material to be washed out of the plume near the accident scene. This scenario should also be investigated.

A severe accident involving a long duration high temperature fire is assumed to lead to a potential release of radionuclides from one cask. This release could be due to several different causes. Because of operator error, water could remain in the cask. This cask could overpressurize in a fire, blowing the pressure relief valves or cask seals. Operator error could undertorque (loose fitting lid) or overtorque (undue stress) the lid bolts. Or a ship collision could be followed by a fire. Casks are transported in container ships which hold an assortment of flammable materials. The Department of Energy has not factored human error into their probability and consequence calculations.

The cask inventory of radionuclides is shown in Table 3, taken from the Department's supporting document (SAND90). How much of this inventory is released in an accident is a matter of engineering judgment. Casks are not physically tested to destruction under controlled conditions. The Department

1025-1 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

Consequences of a Severe HEU Ship Accident
Page 4

assumes 0.098% of the cesium inventory could be released. On the other hand, an NRC report estimates up to 2.7% of the cesium inventory could be released to the environment ([6]SAI79). The NRC study, however, pertains to PWR fuel which can better withstand high temperature conditions than HEU fuel which is fabricated with an aluminum alloy. We do not assume here that 2.7% of cesium is released. Rather, we assume 2% of cesium and tellurium isotopes, 0.2% of strontium, ruthenium and cerium isotopes, and 0.02% of remaining isotopes will be released in an accident. These values are based on the relative volatility of these isotopes.

It is important to note that iodine-131 has been omitted by Sandia. Release of iodine-131 would cause a very high thyroid dose. Sandia Labs is in error in claiming that the radionuclides in Table 1 represent 99% of the hazard. In addition, it is possible to have a greater inventory of radionuclides by loading HEU fuel before it has cooled. Operator error could cause this situation.

We further assume that these radionuclides are lofted 60 meters in the air due to the fire, the wind speed is 1 meter per second, a slight wind, and the particulate deposition velocity is 0.01 meters per second. We calculate consequences under two meteorological conditions - unstable and neutral. Stable conditions mean there is little mixing or turbulence. Neutral conditions are more nearly representative of average atmospheric conditions.

Results and Conclusions

The major contributors to gamma whole body dose are niobium, zirconium and cerium-144. The daughter product of

[6] I79 Science Applications Inc., A Scoping Study of Spent Fuel Transportation Accidents, NUREG/CR-0811, Washington, D.C., June 1

1025-1 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

Commentor No. 1025: Heart of America Northwest (Cont'd.)

Consequences of a Severe HEU Ship Accident
Page 5

Ce-144, Pr-144, is a strong gamma emitter.

As seen in Figures 1 and 2, for unstable and neutral meteorology conditions, respectively, the fallout pattern is cigar-shaped. Under ~~neutral~~ unstable conditions, the maximum dose occurs 1 kilometer (km) downwind; under neutral conditions, the maximum dose occurs 300 meters downwind from the accident scene. The figures represent half the radiation plume; the mirror image below the x-axis is missing. As is seen in Figure 1, a person residing for a year within 2 km downwind from the accident scene would receive a radiation dose of 50 rems (R). This is to be contrasted with the average annual background dose of 0.1 R. As seen in Table 1, radiation doses of 5 R/y or greater occur within an area of 1.13 square kilometers (km^2), within which 3500 people reside, using average urban population density figures. A person who resided for a year within 7 km downwind of the accident scene would receive a dose of 5 R. As seen in Table 1, this encompasses an area of 10.96 km^2, within which 34,000 persons reside.

Any area with a groundshine dose greater than 25 millirems a year should have to be decontaminated. As seen in Table 1, this extends to 104 km downwind and encompasses an area of 1968 km^2 or over 750 square miles. This area includes suburban and rural populations. The exact number of persons affected must be determined by placing the plume maps over specific greater port environs - Seattle, Oakland or Hampton Roads. We did not do the analysis in the time available.

A similar discussion would also involve a radiation release under neutral meteorological conditions. Generally, compared to unstable conditions, particulates would be dispersed over a smaller area, but the concentrations and doses would be greater.

A stated earlier, it is credible to have a radioactive

1025-1 (Cont'd.)

Response to Comment Commentor No. 1025: Heart of America Northwest (Cont'd.)

COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

Consequences of a Severe HEU Ship Accident
Page 6

release from more than one cask, to have a larger inventory of radionuclides within each cask and to have meteorological conditions, such as rain, which deposit more of the released radioactivity within the port city. Thus, the consequences could be greater than shown above.

We conclude that a severe ship accident involving a high temperature long duration fire could lead to major consequences, the full impact of which depends on a large number of port specific factors, such as the effectiveness of local emergency personnel, the specific demographics and routes, and other local conditions. But the consequences in any of the major port cities could involve the long term evacuation of tens of thousands to hundreds of thousands of people. It is not exactly clear how such a large area would be decontaminated. Clearly the economic consequences, which are ignored in the Environmental Assessment, are ignored.

1025-1 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1025: HEART OF AMERICA NORTHWEST (CONT'D.)

COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY

Citizens for a Healthy Bay

771 Broadway
Tacoma, WA 98402
Phone (206) 383-2429
Fax (206) 383-2446

Board of Directors
Charlene Blake
James Davis
Doug Pierce
H. Lee Rossnel
Barbara Ann Smolka
Sheri Tonn
Allen Zulauf

June 19, 1995

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Draft Environmental Impact Statement (dEIS) on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Dear Mr. Head:

Citizens for a Healthy Bay (CHB) is writing to express its opposition to the shipment of spent nuclear fuel from foreign research reactors through the waters of Puget Sound and Commencement Bay. The analysis on which this proposal is based is an incomplete assessment of information about the Port of Tacoma and other alternative ports of entry as well as the environmental impacts associated with the shipment of spent nuclear fuel The proposal also ignores the potential environmental and economic costs of such shipments to the Tacoma community.

Other options exists for the management of the spent nuclear fuel, including the long-term storage of the fuel at the foreign reactor sites (as is currently in practice throughout the Unites States at many nuclear reactor facilities), the reprocessing of the spent nuclear fuel into low enriched uranium (thus ensuring the reuse rather that ongoing and costly storage of the material), or the shipment of the spent fuel through U.S. government owned and operated ports. Each of these options should be analyzed in greater detail than exists in the dEIS and the results released for public review before a final decision is made regarding the management of the spent nuclear fuel.

CHB is a five year old nonprofit organization whose mission is to encourage public involvement in the hazardous waste cleanup, natural resource restoration, and ongoing stewardship of Commencement Bay in Tacoma, Washington.

You will find CHB's complete comments attached. If you have any questions, please do not hesitate to contact Michael Isensee at Citizens for a Healthy Bay, (206) 383-2429.

Sincerely,

Doug Pierce, President
Citizens for a Healthy Bay

Attachment

Citizens for a Healthy Bay is a tax-exempt, nonprofit organization with 501(c)(3) status.

Speaking for a living bay...

Printed on unbleached and recycled paper

RESPONSE TO COMMENT
COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY

COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY (CONT'D.)

Citizens for a Healthy Bay
Draft EIS on Spent Nuclear Fuel Shipments
Page 2 of 3
June 19, 1995

PREFERRED SHIPMENT ALTERNATIVE

Other options for addressing the management of spent nuclear fuel from foreign research reactors should be more fully addressed. At this time and based on the information included in the draft Environmental Impact Statement (dEIS), Citizens for a Healthy Bay (CHB) supports the shipment of the spent nuclear fuel (nuclear waste) from foreign research reactor only on military vessels through United States government-owned ports, such as the Naval Weapons Station in Concord, CA and the Military Ocean Terminal at Sunny Point, NC. *1027-1*

These military facilities are more properly suited to handle the nuclear waste for the following reasons. *1027-2*

- They are secure port situations with personnel trained in handling nuclear materials.
- They are typically located at much greater distances from population centers.
- They do not face Commencement Bay's ongoing stigma of Superfund status.
- They have a reduced potential to interfere with regular commerce through commercial ports.

OTHER MANAGEMENT OPTIONS

However, before such shipments occur, the costs and risks associated with other options should be more fully explored and the results made available for public review. These include the following options:

1. The storage of the spent nuclear fuel at the foreign reactor sites, combined with vigilant and comprehensive international monitoring to ensure no diversion of materials *1027-3*
2. The reprocessing of the spent nuclear fuel to a form, low enriched uranium (LEU) that does not present a international security risk *1027-4*

Not enough information was provided in the draft Environmental Impact Statement (dEIS) to consider whether these options, either individually or when reviewed together, are feasible and could be accomplished at less cost and risk to the United States. At the present time, subsidizing the international use of nuclear materials creates an situation in which foreign countries do not develop their own safe nuclear waste storage technology. Full or partial US taxpayer support of the foreign utilization of nuclear materials does not force other countries to internalize the environmental, health, safety, and financial costs of operating nuclear programs.

MINIMIZING IMPACTS AND INCREASING PUBLIC SAFETY

If the nuclear waste is to be shipped through any United States commercial or military port, the United States government must at a minimum provide: *1027-5*

- Initial and ongoing training to port employees or military personnel and to local emergency response personnel
- Any potentially necessary response equipment to local communities
- Radiation monitoring of dockside workers and the adjacent environment
- Full funding to carry out public education, training, and response capabilities to the port or ports of entry and surrounding communities

RELEASES OF NUCLEAR MATERIALS

Finally, the US Department of Energy (DOE) must make public the potential harm from a catastrophic fire or explosion which results in the full release of radioactive materials from one or more containers of the radioactive materials. A 1986 federal court injunction barred DOE from importing spent nuclear fuel through the Ports of Seattle or Tacoma unless all such environmental *1027-6*

RESPONSE TO COMMENT
COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY (CONT'D.)

Response to Comment No. 1027-1

The EIS considered the use of various types of ships (Section 2.6.3.2.1) any of which could be chartered. The analyses in the EIS (Sections 4.2.1 and 4.2.2) indicated that there were no significant impacts associated with the use of any of the ships evaluated. Hence, the use of chartered ships is one of the options for transporting the foreign research reactor spent nuclear fuel, if it is accepted into the United States. The use of military ships was not considered in the EIS because of the acceptability of commercial and dedicated ships and because such transport does not fall within the mission of the U.S. Navy.

Response to Comment No. 1027-2

While the proposed policy addresses a national security issue, nonproliferation of nuclear weapons, the implementation of that policy, should it be adopted, need not rely on military ports for the receipt of foreign research reactor spent nuclear fuel. In selecting the proposed ports of entry, carefully developed selection criteria were used to identify those that best fit the requirements of receipt of the foreign research reactor spent nuclear fuel. Appendix D, Section D.1 of the EIS presents a detailed description of the port selection process.

Spent nuclear fuel from foreign research reactors is shipped in standard containers, and does not require special handling techniques (Section 2.6.3.2.2 of the EIS) or additional security beyond that required by NRC regulation (which can readily be provided in any of the commercial or military ports). No special precautions are required by the U.S. Coast Guard (Section 2.6.3.2.2 of the EIS).

Sections 4.2.2 and 4.5 of the EIS demonstrate that the risk associated with bringing foreign research reactor spent nuclear fuel through the Port of Tacoma or any other port, is low. The use of a remote port might slightly reduce the already low consequences of an accident, however there are other considerations that also must be made when making port selection.

Shipment of foreign research reactor spent nuclear fuel would not jeopardize the significant cleanup effort undertaken in the area of Commencement Bay and the Port of Tacoma as noted by the commentor. Nor should it contribute to any dirty port stigma because the analysis in the EIS indicates that there would be no significant adverse impacts to any of the ports or bays, or the quality of water or air (Section 4.2.1.1 and Appendix C, Section C.2). Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. Based on over 30 years experience shipping spent nuclear fuel, DOE considers that spent nuclear fuel transportation casks passing through the Port of Tacoma, Commencement Bay, or any other port or waterway would not affect air or water quality. A paragraph has been added to Section 4.2.2.2 of the EIS to make this point and to emphasize the no-impact nature of these shipments on air and water quality.

COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY (CONT'D.)

Citizens for a Healthy Bay
Draft EIS on Spent Nuclear Fuel Shipments
Page 3 of 3
June 19, 1995

and human health impacts as well as reasonable alternatives were considered. This would include a shipboard fire which breaches the casks and releases radioactive materials. *1027-6 (Cont'd.)*

BASIS FOR CHB POSITION
The draft Environmental Impact Statement:

- Does not adequately address the potential for catastrophic fire or explosion and impacts if such an event were to occur in Puget Sound or Commencement Bay *1027-6 (Cont'd.)*
- Does not address security risks or security measures for civilian ports *1027-7*
- States the receiving port would be required to provide for additional security measures.
- Does not address the funding for, training of, and technical assistance to the ports of entry and for local emergency personnel in communities receiving the shipments of spent nuclear fuel *1027-5 (Cont'd.)*
- Does not state the potential impacts to the marine environment, threatened or endangered salmon stocks, or the economics that rely on a safe and clean Puget Sound *1027-6 (Cont'd.)*
- Does not address the costs to local, state, and federal governments of implementing any of the options considered *1027-8*

In addition:

- The past record for safe handling, operation, and storage of nuclear materials by the US DOE is less than satisfactory *1027-9*
- Millions of dollars have already been spent on remediation of past spills of less hazardous materials in Commencement Bay, and Tacoma does not need the stigma associated with nuclear materials passing through its port *1027-6 (Cont'd.)*
- The future funding for the program and US DOE is uncertain, with the US House of Representatives budget eliminating the US DOE
- The US DOE has not provided adequate procedural due process. It has failed to make a record of its first formal public hearing. It scheduled no public hearing or repository within 20 miles of a proposed port of entry (Port of Tacoma), and DOE has failed to respond to questions asked at public meetings. *1027-10*
- In 1994, CHB took the position that there was significant environmental and worker safety concerns associated with the shipment of spent nuclear fuel through Puget Sound. CHB urged passage of legislation, sponsored by Rep. Mike Kreidler, which would give local authorities the right to place restrictions on the transport of nuclear materials. CHB stated, "Past shipments of lead and copper ores have lead to the cleanup of the Sitcum Waterway....We do not want to repeat such cleanups..." in Commencement Bay (Statement by Dr. Sheri Tonn, President of CHB Board, January 21, 1994).

RESPONSE TO COMMENT
COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY (CONT'D.)

DOE considers that the use of any of the ports indicated by the port selection process, including Tacoma, would not impact normal commercial operations, and therefore not endanger the ports' status with respect to their clients. This consideration is based on the fact that the foreign research reactor spent nuclear fuel would be accepted into the United States in standard shipping containers that would require no special handling or precautions. As such, there should be no adverse commercial or economic reaction to the use of the port. Historically, there were no adverse commercial impacts to the ports that received foreign research reactor spent nuclear fuel for the 30 plus years it was received.

Response to Comment No. 1027-3

The commentor's request for more analysis on the alternative of overseas storage is noted. DOE considers, however, that the information in the EIS is sufficient to make a decision. Overseas storage is Management Alternative 2, Subalternative 1a, which is discussed in Sections 2.3 and 4.4.1 of the EIS.

Response to Comment No. 1027-4

The commentor's request for more analysis on chemical separation is noted. Overseas chemical separation is Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS. Domestic chemical separation is Management Alternative 1, Implementation Alternative 6, which is discussed in Sections 2.2.2.6 and 4.3.6 of the EIS. They are both also part of Management Alternative 3, which is discussed in Section 2.4 and 4.5 of the EIS.

Response to Comment No. 1027-5

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Appendix H, which was added to the final EIS in response to public comments, contains the general provisions for emergency preparedness and security measures associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. These issues include capabilities and training of first emergency responders. Funding for special needs, if necessary, would be addressed during this interface.

Response to Comment No. 1027-6

The analyses that were performed to evaluate the impact of various accidents divided all plausible accidents into six categories (Appendix D, Section D.5.3.1.1 of the EIS). The most severe accident category, release category 6, assumes that the ship carrying the foreign research reactor spent nuclear fuel transportation cask is in a collision with a tanker and that a fire occurs that engulfs the damaged transportation cask. The consequences of accidents, including category six accidents, are discussed in Appendix D, Section D.5.4.2.2.

Appendix D, Section D.5.3.1 of the EIS describes several accident scenarios that involve fire. The results of the analysis of these accidents can be found in Section D.5.4. The analysis shows that even in the event of a severe ship fire, neither the consequences nor risks are great (Section D.5.5).

DOE would like to point out that the foreign research reactor spent nuclear fuel is neither volatile nor unstable. The spent nuclear fuel that the proposed policy deals with is a metal which contains enriched uranium, clad with either aluminum or stainless steel. This type of fuel is very stable. Section 2.6.1 of the EIS presents a detailed description of the foreign research reactor spent nuclear fuel.

Response to Comment No. 1027-7

Section 2.8 of the EIS addresses the security measures that would be taken to ensure that there would be no unacceptable risks of terrorism or theft of materials. DOE considers that the foreign research reactor spent nuclear fuel could safely be received at commercial ports, as it has in the past, without additional security such as might be present at military bases. The security provided for the spent nuclear fuel shipments would be required to meet or exceed all the applicable security requirements in the Code of Federal Regulations (10 CFR Part 73). If any port did not already provide security sufficient to satisfy these requirements, it would be the responsibility of the shipper to provide the required additional security.

Neither acts of terrorism nor theft of materials by a determined group or individual can be completely precluded. However, proper security measures greatly reduce the risk of such actions. The security provisions are summarized in Appendix H of the EIS. This appendix presents the general provisions of the Transportation Plan, which is a document that would be prepared for each foreign research reactor spent nuclear fuel shipment to specify details of the transportation process, including security provisions in port and during transit.

Response to Comment No. 1027-8

The cost to the Federal government from the proposed action would depend on which Management Alternative is selected for implementation, the total cost of the action, the

COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY (CONT'D.)

RESPONSE TO COMMENT
COMMENTOR NO. 1027: CITIZENS FOR A HEALTHY BAY (CONT'D.)

fee charged to the developed countries, the participation of the developed and developing countries, cost overruns or underruns, risks, and numerous other factors. The EIS cannot estimate all of these factors on an integrated basis. The final EIS shows that for fees in the range that the developed countries believe reasonable, total costs to the Federal government are likely to be in the mid hundreds of millions of dollars, plus uncertainties. With higher fees, the costs to the Federal government would decline. Total costs to the Federal government would at a minimum be about one hundred million dollars under every credible scenario.

Excluding costs related to protests, costs to State and local government from implementing the proposed action would be extremely low. Using decades of historical experience in shipping spent nuclear fuel in the United States as a guide, there have been no significant costs to State or local governments. This is true both for shipments from foreign research reactors through U.S. ports and overland to management sites and from shipments from domestic reactors overland to management sites. Japanese experience in shipping spent nuclear fuel to Europe through the Panama Canal shows the same result. On a probabilistic basis, the costs of the program from accidents (i.e., accident event times probability of occurrence) would also be very low. DOE does not consider that local or State governments would incur unusual or significant costs as a result of the program.

Response to Comment No. 1027-9

Spent nuclear fuel has been transported over truck, rail, and water routes in the United States for over four decades. Several thousand of these shipments were by truck or rail. None of the shipments, including shipments involved in accidents, has ever resulted in a release of the radioactive contents of a spent nuclear fuel transportation cask (Section 4.2.3 of the EIS). No significant environmental effects would result from severe transportation accidents involving foreign research reactor spent nuclear fuel (Section 4.2.3 of the EIS).

If management of foreign research reactor spent nuclear fuel in the United States is adopted, interim storage would be provided at one or more of the five management sites described in Section 3.3 of the EIS using mature storage technologies (Section 2.6.5 of the EIS). As discussed in Section 4.2.4 of the EIS, the risks associated with management of the foreign research reactor spent nuclear fuel in the United States are low.

Response to Comment No. 1027-10

If DOE were abolished in response to action by Congress, the current DOE programs for management of spent nuclear fuel would have to be transferred to some other Federal

government agency to protect the health and safety of the public. Since the spent nuclear fuel will not simply go away, these programs cannot simply be abolished.

There is no provision in the NEPA regulations requiring that a verbatim transcript of a public hearing must be taken. DOE considers that the record of the major issues raised in the public hearings, coupled with the multiple provisions made for acceptance and resolution of written comments, provided a more than adequate record of the public's position. In any case, DOE did tape record the June 19, 1995 public hearing in Tacoma and develop a verbatim transcript from it.

When DOE first attempted to arrange for a public hearing in Tacoma, a suitable meeting facility could not be located. When a meeting facility was located at SeaTac airport, DOE erroneously concluded that this would be close enough to allow interested participants to attend the meeting. However, after being informed of the dissatisfaction of Tacoma citizens with the SeaTac meeting location, and in the interests of going the extra mile in securing good public involvement, DOE held a second public hearing in the city of Tacoma on June 19, 1995. Although the applicable regulations only require DOE to hold one public hearing on a draft EIS, the Tacoma public hearings were among 17 public hearings DOE held on the draft of this EIS.

In addition, as announced in the April 21, 1995 Federal Register notice announcing the availability of the draft EIS, a copy of the draft EIS was available in Tacoma in the Tacoma Public Library, 1102 Tacoma Avenue South, Tacoma, Washington. Additional copies were made available in other locations in the State of Washington, and were available by mail by calling a toll free telephone number specified in the April 21 Federal Register notice.

While it is true that the DOE participants were unable to answer every question asked of them during the public hearings, it is DOE's policy to follow up on any such questions in writing. In particular, the questions DOE was unable to answer during the public meeting held by the Port of Tacoma have been answered either by FAX directly to the Port Commissioners, or in this comment response document.

Commentor No. 1051: Tacoma Fire Fighters Union No. 31

TACOMA FIREFIGHTERS UNION NO. 31
1109 South 50th Street
Tacoma, Washington 98408
472-7802 FAX 473-2593

PAT McELLIGOTT, *President* — BRUCE BAURICHTER, *Vice President* — ALONZO HAMPTON, *Secretary-Treasurer*

Affiliated with
International Association of Fire Fighters - AFL-CIO
Washington State Council of Fire Fighters
Pierce County Central Labor Council
Washington State Labor Council AFL-CIO

July 6, 1995

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 10585

Dear Mr. Head,

We are writing to express our strong opposition to the U.S. Department of Energy's proposal to import spent nuclear fuel from foreign countries through the Port of Tacoma. *1051-1*

As members of the Tacoma Fire Department, we feel it is necessary to bring to your attention that we do not have the proper equipment necessary to handle a nuclear emergency. Even if the equipment were available, we have no members who are trained in the area of spent nuclear fuel. In the event of a nuclear catastrophe, we would attempt to do the best job we could, but we would most likely be ineffective. The results would be unthinkable. *1051-2*

Tacoma and the surrounding communities would be in grave danger because there would be no way that we could protect them from the radiation. Also, those workers who would be handling the asks--whether it be longshore workers or truck drivers--would be in contact with casks that can legally emit an amount of radiation equiavalent to 10 full body x-rays an hour. The effect of this exposure to the workers would be highly detrimental especially since the proposed plan for the Port of Tacoma is to take place over the next 13 years. *1051-3*

As citizens of Tacoma, we do not want spent nuclear fuel traveling through our city. There is no reason why nuclear waste from other countries should travel through our port putting American lives in potential jeopardy.

Sincerely,

Pat McElligott, President
Tacoma Fire Fighters
Local #31, IAFF

/lb

Response to Comment Commentor No. 1051: Tacoma Fire Fighters Union No. 31

Response to Comment No. 1051-1

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Port of Tacoma or Port of Portland is noted. However, analysis in Sections 4.2.2 and 4.5 of the EIS indicates that the risk associated with bringing spent nuclear fuel to the Port of Tacoma or Port of Portland, or to any of the other ports analyzed in the EIS, is low.

Response to Comment No. 1051-2

Foreign research reactor spent fuel shipments are subject to the same types of potential hazards as those of other ships carrying nonradiological hazardous materials.

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Appendix H, which was added to the final EIS in response to public comments, contains the general provisions for emergency preparedness and security measures associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. These issues include capabilities and training of first emergency responders. Funding for special needs, if necessary, would be addressed during this interface.

Several accident scenarios including a breach of the cask and fire sufficient to oxidize the contents were analyzed during preparation of the EIS. Results of the accident analysis at the ports are given in Section 4.2.2 of the EIS with supporting detail in Appendix D, Section D.5. No catastrophic effects were found to result from severe accidents involving foreign spent nuclear fuel.

Response to Comment No. 1051-3

DOE shares the commentor's concern about limiting radioactive exposures to the lowest levels achievable. Section 4.2.2 of the EIS demonstrates that the risk to Tacoma and the

RESPONSE TO COMMENT
COMMENTOR NO. 1051:
TACOMA FIRE FIGHTERS UNION NO. 31 (CONT'D.)

surrounding communities would be low.

The spent nuclear fuel transportation casks could emit radiation up to the regulatory limit of 10 mrem per hour at 2 meters from the transport vehicle. This is much lower than the equivalent of 10 full-body x-rays per hour, as suggested by the commentor. Sections 4.2.2.5 and 4.2.3.5 of the EIS discuss the mitigation measures that DOE would employ to keep each port worker's and each truck driver's dose below 100 mrem per year. If one individual worker did receive a full dose of 100 mrem every year for 13 years, their increased chance of incurring cancer sometime later in life would be less than one chance in one thousand.

COMMENTOR NO. 1083: PACIFIC NORTHWEST NEWSPAPER GUILD

Pacific Northwest Newspaper Guild
Local No. 82, The Newspaper Guild, AFL-CIO, CLC

July 5, 1995

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (FM-37)
U. S. Department of Energy
100 Independence Avenue SW
Washington, D.C. 20585

Dear Mr. Head:

I have attached a copy of the resolution passed by the Pierce County Central Labor Council opposing the transport of spent Nuclear fuel through the Port of Tacoma.

I oppose this not only in unity with the other Unions of Pierce County, but also as a member of the Tacoma Northend Neighborhood Council. Tacoma is a city that has been the place all of the "Seconds" and trash for the state has been dumped for years. If no one else wants it, give it to Tacoma - this is beginning to turn around but your department's plan will not help us at all.

I sincerely hope the decision will be to ship this material through a more logical and safe spot - not Tacoma!

Sincerely,

William F. Johnston
Administrative Officer

cc: John Thompson
Executive Secretary
Pierce Central Labor Council

2900 Eastlake Avenue East, Suite 220
Seattle, Washington 98102
(206) 328-1190 • FAX 328-1196
Voice Mail 517-7163

RESPONSE TO COMMENT
COMMENTOR NO. 1083: PACIFIC NORTHWEST NEWSPAPER GUILD

COMMENTOR NO. 1083: PACIFIC NORTHWEST NEWSPAPER GUILD (CONT'D.)

PIERCE COUNTY CENTRAL LABOR COUNCIL, AFL-CIO
RESOLUTION
TO OPPOSE THE TRANSPORT OF SPENT NUCLEAR FUEL THROUGH THE PORT OF TACOMA

WHEREAS, the U. S. Department of Energy is going to be shipping from foreign countries spent nuclear fuel to the United States for storage; and

WHEREAS, the Port of Tacoma has been listed as one of ten ports in the Department of Energy's March 1995 Draft Environmental Impact Study (DEIS) on the transport of spent nuclear fuel, and the Port of Tacoma is one of ten ports of entry under consideration for receiving these shipments; and

WHEREAS, the spent nuclear fuel is approximately 22,700 individual fuel rods of enriched uranium from 41 different countries for a total of 721 shipments over 13 years; and

WHEREAS, the Department of Energy cannot guarantee the safety of shipping the containers during transportation; and *1083-1*

WHEREAS, the local community would be responsible for first response for any accident or fire; and

WHEREAS, the shipping of this spent nuclear fuel will create no additional jobs for this community or region but will only stigmatize our community and the Port of Tacoma, which may cause the loss of additional shipping companies from coming to the Port, or the loss of existing shipping companies which could create a loss of jobs in our economic region; and *1083-2*

WHEREAS, two local unions, Longshoremen 23 and the United Transportation Union 2845 have publicly expressed concern on handling this type of hazardous waste; and

WHEREAS, June 19, 1995 is the last public hearing by the Department of Energy on this subject at the Tacoma Public Utilities Auditorium, 3628 South 35th Street at 6:00 p.m; therefore be it

RESOLVED, that the Pierce County Central Labor Council, AFL-CIO, go on record to oppose the Department of Energy's consideration of transporting spent nuclear fuel through the Port of Tacoma; and be it further

RESOLVED, that the Pierce County Central Labor Council, AFL-CIO, communicate our position to all local unions in order to solicit their support and letters in opposition to transporting spent nuclear fuel through the Port of Tacoma, and ask them to show their support at the June 19th public hearing at the Tacoma Public Utilities Auditorium and with letters of opposition to the Department of Energy by June 20th, the last date for written comments; and be it finally *1083-2 (Cont'd.)*

RESOLVED, that the Pierce County Central Labor Council, AFL-CIO, communicate its position to the Washington State Labor Council, AFL-CIO, asking for their support to our congressional delegation and with the news media.

Adopted on the 7 day of June, 1995 by the Pierce County Central Labor Council, AFL-CIO.

John W. Thompson, Secretary-Treasurer

opeiu 23:afl-cio

RESPONSE TO COMMENT
COMMENTOR NO. 1083: PACIFIC NORTHWEST NEWSPAPER GUILD (CONT'D.)

Response to Comment No. 1083-1

Based on the analysis presented in the EIS, DOE considers that foreign research reactor spent nuclear fuel can be received safely at ports identified for the receipt and handling of foreign research reactor spent nuclear fuel. Sections 4.2.2 and 4.5 of the EIS demonstrate that the risk associated with bringing foreign research reactor spent nuclear fuel to the Port of Tacoma, or to any of the ports analyzed in the EIS, is low.

Response to Comment No. 1083-2

The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Port of Tacoma is noted. DOE considers that the use of any of the ports indicated by the port selection process, including Tacoma, would not impact normal commercial operations, and therefore not endanger the ports' economic development. Nor should it contribute to any stigma because the analysis in the EIS indicates that there would be no significant adverse impacts to any of the ports or bays, or the quality of water or air (Sections 4.2.1.1 and Appendix C, Section C.2 of the EIS). This is based on the fact that the foreign research reactor spent nuclear fuel would be accepted into the United States in standard shipping containers that would require no special handling or precautions. As such, there should be no adverse cultural or economic reaction to the use of the port. Historically, there were no adverse economic or cultural impacts to the ports that received foreign research reactor spent nuclear fuel for the 30 plus years it was received.

Commentor No. 1094: Frederickson-Clover Creek Community Council

FREDERICKSON-CLOVER CREEK COMMUNITY COUNCIL
A non-profit organization
P.O. Box 715
Spanaway, Washington 98387

June 23, 1995

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue SW
Washington DC, 20585

Re: DRAFT ENVIRONMENTAL IMPACT STATEMENT - MARCH 1995
(Regarding Nuclear Fuel Shipments)

Dear Mr. Head:

The Frederickson-Clover Creek Community Council hereby wishes to inform you and the Department of Energy that we are steadfastly opposed to the continued and proposed increase of using the United States as a toxic garbage dump for storage of High-Level Nuclear Waste. Spent radioactive materials should remain in the countries in which they currently are located, and the U.S. should assist in assuring their security with trained personnel at these locations throughout the world. Therefore, we support your Policy Alternative - Management Alternative #2, to Facilitate Management of Foreign Research Reactor Spent Nuclear Fuel Overseas. *1094-1* *1094-2*

Further, let it be known that we are adamantly opposed to any of D.O.E.'s alternatives (either 1 or 3) which would allow shipping of spent nuclear fuel through the Port of Tacoma, by any means of transportation.

Sadly, it is immediately apparent that the information in the D.O.E.'s Draft Environmental Impact Statement relative to the population of Tacoma and vicinity is terribly outdated. It blatantly ignores the fact that Tacoma and Seattle are essentially a megatropolis. These two cities' centers are within 30 miles of each other. There is no definition or decrease in population/development from one hub to the other. Tacoma and Seattle are, infact, two "spots" in a dense and rapidly growing corridor of development which stretches from approximately 100 miles north of Seattle to approximately 100 miles south of Tacoma. This mass of humanity also ranges 60 or more miles in both east and west directions. *1094-3*

All of these people live within and share the same eco system. Puget Sound is the heart of this corridor and its burgeoning population. Our megatropolis corridor is growing tremendously and

Response to Comment
Commentor No. 1094: Frederickson-Clover Creek Community Council

Response to Comment No. 1094-1

The commentor's opposition to management in the United States of spent nuclear fuel from foreign research reactors is noted. As discussed in Section 1.2 of the EIS, there are several compelling reasons to manage foreign research reactor spent nuclear fuel. The key reason is to advance U.S. and worldwide interests in nuclear weapons nonproliferation. By managing the foreign research reactor spent nuclear fuel, the United States can continue and expand its widely supported policy of removing highly-enriched (weapons-grade) uranium from civilian programs worldwide. Management in the United States would be technically, politically, and economically more advantageous than management in as many as 41 separate countries.

Storage in the countries of origin would cost more than storage in the United States (and cost U.S. taxpayers more), would be technically difficult, if not impossible, in many countries, and would violate the laws of several of the countries. Finally, many countries participated in the U.S.-led research reactor programs on the belief that the United States would eventually accept the spent nuclear fuel. Failure of the United States to accept the foreign research reactor spent nuclear fuel could endanger the entire program to substantially eliminate civilian use of weapons-grade nuclear material. Health and safety risks associated with all alternatives discussed in the EIS, including shipping to, and management in, the United States, are low. These risks must be weighed against the importance of the program.

Response to Comment No. 1094-2

The commentor's preference for the overseas management alternative is noted. This is Management Alternative 2, which is discussed in Sections 2.3 and 4.4 of the EIS.

Response to Comment No. 1094-3

The population data used for all analyses in the EIS came from the 1990 census, the most up-to-date available. The port selection process considered port population, and Tacoma was found to meet Criterion 5 Human Population (Appendix D, Section D.1.9.5 of the EIS). Port population growth was also considered, and Tacoma's growth factor was one of the higher at 1.35, but not high enough to disqualify the port.

COMMENTOR NO. 1094: FREDERICKSON-CLOVER CREEK COMMUNITY COUNCIL (CONT'D.)

Head
June 23. 1995
page 2

the particular area in which we are located (approximately 20 miles south of Tacoma) is expected to increase by at least 250,000 people in the next 15 years! Therefore, it is imperative that more current information be secured and evaluated by the D.O.E. before any intelligent decisions are made, decisions which would effect and possibly endanger the health and lives of so many people. We Washingtonians have simply not been provided with enough information in regard to what the D.O.E. plans to do and what the true risks are. And, it is painfully obvious that the D.O.E. has no current information on us. Therefore, at this point, an intelligent, logical and correct decision is certainly impossible. 1094-3 (Cont'd.)

We join an influential and sizable list of people opposed to the D.O.E.'s plan to use the Port of Tacoma. A few of our cohorts are the Port of and City of Tacoma, the Port of and City of Seattle, the Cities of Sea-Tac and Renton, a multitude of politicians (including local, state, legislative, and congressional) the organizations of Citizens for a Healthy Bay, Heart of America Northwest, the local Teamster's and Longshoremen's unions, and the four to five hundred citizens who appeared at the presentation on Monday, June 19th. We'd also like to speak on behalf of the hundreds of thousands who are yet unaware of what our own government has in mind for us, and therefore are as of yet, unspoken.

In conclusion, we earnestly request that the Department of Energy leave the 19.2 short tons of fuel elements where they are, secured, but out of this country. These "user" countries made use of the fuel, they must also be responsible for its safe-keeping under our watchful eye.

The Frederickson-Clover Creek Community Council is emphatically against risking the health and safety of the citizens of the Pacific Northwest and the entire United States by transporting nuclear waste all over the face of the earth.

Sincerely,

Laura Roberts

Laura Roberts
President

cc: Hazel O'Leary, Secretary of Energy, D.O.E., Washington DC
Washington State Congressional Delegation
Governor Mike Lowry, State of Washington

RESPONSE TO COMMENT COMMENTOR NO. 1094: FREDERICKSON-CLOVER CREEK COMMUNITY COUNCIL (CONT'D.)

COMMENTOR NO. 1113: SAN FRANCISCO BAY KEEPER

San Francisco BayKeeper

July 11, 1995

Board of Directors
Stuart Rudick, Chair
Bennett Johnston, Jr., Vice Chair
Gregory Thomas, Esq., Secretary
Will Siri, Treasurer
Steven J. Castleman, Esq.
Peter Coyote
Gary Familian
James A. Kuhns
Dorothy Reed
Linda Shepherd
Hank Skade, Esq.

Advisory Board
Hal Kruth, Chair
Judith Ayres
Henry Bowles
Hope Babcock, Esq.
Bill Belcourt
Susanne Donovan
Margaret Elliott
Jerome B. Engel
Douglas P. Ferguson, Esq.
Thomas J. Graff, Esq.
Krist Jake
Dr. Susan E. Kegley
Mike Kerwin
Joe Kizard
Lauren Klein
Bernie Krause
Robert Lohn
Ron Pizzo
Alan Ramo, Esq.
Stan Slapp
Martha Walters

Staff
Mike Herz, PhD
BayKeeper
John Payne
Executive Director
Martha Mather-Thrift
Development Director
Michael Lozeau, Esq.
Program Director
Dominick Tracy
Administrative Assistant

Mr. Charles Head
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Re: Comments regarding the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Dear Mr. Head,

On behalf of San Francisco BayKeeper, I am writing to express concerns regarding the threat posed to the water quality of San Francisco Bay should the Department of Energy select the Concord Naval Weapons Station as a port of entry for spent nuclear fuel from various countries. 1113-1

Because of the inherently extreme danger posed by the transportation, handling and temporary storage of spent uranium fuel, and the sensitive health of an already impaired San Francisco Bay and the aquatic life it supports, BayKeeper believes the additional risks of shipping such materials through the Bay is not warranted. BayKeeper believes that the Draft EIS's Management Alternative No. 2 best accommodates the nuclear non-proliferation concerns of the United States and concerns for the environmental and economic health and well-being of sensitive and highly populated estuaries, such as San Francisco Bay. 1113-2

In addition, any proposal to ship spent nuclear fuel through San Francisco Bay must address at least two water quality issues that are not mentioned in the draft EIS. First, DOE must consider the need to obtain waste discharge requirements from the California Regional Water Quality Control Board, San Francisco Bay Region. WDRs are issued pursuant to the State of California Porter-Cologne Water Quality Control Act, Water Code § 13000 et seq. A WDR permit must be obtained for any activity that threatens to pollute waters of the State. A process for obtaining such a permit is initiated by the filing of a notice of discharge to the Board. In this instance, the focus of such WDRs would be on potential releases from operations at the proposed off-loading facility at the Naval Weapons Station and potential releases from any temporary storage facility sited there to place the spent fuel while awaiting shipment to any of the management sites described in the EIS. Neither of those elements of the proposed project are discussed in the draft EIS. As a result, the draft EIS does not adequately address the threats posed to San Francisco Bay and the millions of people who depend on it for their recreation and livelihood. 1113-3

Building A Fort Mason
San Francisco
CA 94123 1382

Printed on recycled paper

Telephone: 415 567 4401
Facsimile: 415 567 9715
Hotline: 1 800 KEEPBAY

RESPONSE TO COMMENT COMMENTOR NO. 1113: SAN FRANCISCO BAY KEEPER

Response to Comment No. 1113-1

On the issue of air and water quality as it pertains to the proposed policy of managing foreign research reactor spent nuclear fuel, DOE considers that there would be no significant adverse impacts to any of the ports that might be used to receive the material. Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 30 years of spent nuclear fuel shipments, no radioactive material has ever been released from a spent nuclear fuel transportation cask as a result of an accident. A paragraph has been added to Section 4.2.2.2 of the EIS to make this point and to emphasize the no-impact nature of these shipments on air and water quality. In the unlikely event of a severe accident, the analysis performed for the EIS indicates that some radioactive material could be released from the cask and distributed into the environment. However, the analysis in Section 4.2.2.3 and Appendix D, Section D.5 of the EIS determined that no decontamination, interdiction, or condemnation of property would result from the worst plausible accident. Close in to the accident, near the cask would likely require some cleanup, but the overall impact on the water and air quality in the port would be very small. Section 4.2.2.3 and Appendix D, Section D.5 of the EIS detail the accident analysis and results.

Response to Comment No. 1113-2

The commentor's preference for the overseas management alternative is noted. This is Management Alternative 2, which is discussed in Sections 2.3 and 4.4 of the EIS.

Response to Comment No. 1113-3

Any shipments of foreign research reactor spent nuclear fuel would be made in compliance with all regulations, including waste discharge requirements. However, DOE does not agree that such a waste discharge permit is required for shipments of foreign research reactor spent nuclear fuel because there would be no discharges associated with incident-free transportation of the foreign research reactor spent nuclear fuel. Foreign research reactor spent nuclear fuel is a solid metal fuel that is shipped in dry transportation casks; no liquid is involved. As such, the potential for any discharge or leak to pollute the water is zero, hence there is no need for a waste discharge permit.

Analysis in Sections 4.2.2 and 4.5 indicates that even in the event of the worst plausible accident, the risk associated with bringing spent nuclear fuel to the Concord NWS, or to any of the ports analyzed in the EIS, is low. Based on this low risk, DOE considers that no special response action plan or contingency plan is necessary.

COMMENTOR NO. 1113: SAN FRANCISCO BAY KEEPER (CONT'D.)

Mr. Charles Head
July 11, 1995
Page 2

Second, any reasonable analysis of the wisdom of shipping spent fuel through San Francisco Bay or any other port in the country should examine the response and remediation system established for risks posed by the transportation of petroleum products. Transporting spent nuclear fuel, including deadly radioactive isotopes, is by far a more risky proposition with by far potentially more devastating impacts on the Bay area than the transportation of oil, despite that daily activity's significant risks. Although the number of shipments proposed for spent fuel, although substantial, is small compared to the number of oil tankers and barges moving through San Francisco Bay, the menace posed by deadly radioactive isotopes should be subjected to higher prevention and response actions that are developed or are being developed for oil shipments. For example, in San Francisco Bay, oil tankers are required to be accompanied by a tug escort vessel in case the vessel should lose control of its steering or lose power. Likewise, the transportation of oil through the Bay is accompanied by a 3 inch thick Contingency Plan that outlines in great detail how agencies and response organizations will respond to an oil spill in the Bay. Any reasonable EIS should consider analogous prevention and response systems, as well as other components of the oil spill prevention and response system, in order to assure that DOE's risk projections will prove to have any basis in the real world. *1113-3 (Cont'd.)* *1113-4*

San Francisco BayKeeper thanks DOE for this opportunity to comment on the draft EIS. If you have any questions, feel free to call Michael R. Lozeau, San Francisco BayKeeper, at (415) 567-4401.

Sincerely,

Michael R. Lozeau
San Francisco BayKeeper

cc: Steven Ritchie, Executive Director, RWQCB
Craig Johns, Board member, RWQCB

RESPONSE TO COMMENT COMMENTOR NO. 1113: SAN FRANCISCO BAY KEEPER (CONT'D.)

Response to Comment No. 1113-4

Each port considered in the EIS has developed an Area Contingency Plan. This plan outlines response capabilities, procedures and authorities for responding to and recovering from hazardous material incidents. Additionally, DOE would provide assistance to local authorities to ensure that appropriate measures would be taken in the unlikely event of an accident. As part of this assistance, DOE's Radiological Assistance Program teams, from eight offices strategically located throughout the country, would be used to coordinate and to provide remediation assistance. This type of assistance and coordination would be specified in the Transportation Plan that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected.

Commentor No. 1121: Western Governors' Association

WESTERN GOVERNORS' ASSOCIATION

E. Benjamin Nelson
Governor of Nebraska
Chairman

Edward T. Schafer
Governor of North Dakota
Vice Chairman

James M. Souby
Executive Director

Headquarters:
600 17th Street
Suite 1705 South Tower
Denver, Colorado 80202-5452
(303) 623-9378
Fax (303) 534-7309

Washington, D.C. Office:
400 N. Capitol Street, N.W.
Suite 370
Washington, D.C. 20001
(202) 624-5402
Fax (202) 624-7707

July 18, 1995

Charles Head
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Mr. Head,

This letter serves as a supplemental letter to WGA's June 20, 1995 comments regarding the Draft EIS on Foreign Research Reactor Spent Nuclear Fuel. The Western Governors met last month for their annual meeting and passed several resolutions which pertain to this shipping campaign. The resolutions present the Governors collective policy on nuclear waste and safe transportation issues. The Governors believe the safety standards contained in these resolutions must be met for the safe and uneventful transport of nuclear waste either by land or sea. Since western ports and sites are being considered for shipping purposes, the Western Governors believe the following resolutions address this shipping campaign:

- 95-020 - Transportation of Spent Nuclear Fuel and High-Level Radioactive Waste
- 95-021 - High-Level Nuclear Waste
- 92-004 - U.S. Department of Energy Transport of Nuclear Waste
- 92-005 - Emergency Preparedness for the Shipments of Radioactive Materials by Sea
- 89-024 - Storage of Spent Nuclear Reactor Fuel

The safety and transportation standards presented in these resolutions should be addressed in the final EIS. The Western Governors' Association stands ready to work with DOE on this shipping campaign.

Response to Comment Commentor No. 1121: Western Governors' Association

Commentor No. 1121: Western Governors' Association (Cont'd.)

If you have any questions, please call Jon Lawritson or myself at (303) 623-9378.

Sincerely,

Ronald Ross
Program Manager

Enclosures

Response to Comment Commentor No. 1121: Western Governors' Association (Cont'd.)

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association
Resolution 95 -020

June 26, 1995
Park City, Utah

SPONSORS: Governors Leavitt, Nelson, and Miller
SUBJECT: Transportation of Spent Nuclear Fuel and High-Level Radioactive Waste

A. BACKGROUND

1. This nation must dispose of significant amounts of spent nuclear fuel and high-level radioactive waste.

2. The federal government is responsible for the disposal of these wastes under the Nuclear Waste Policy Act (NWPA).

3. Plans of the federal government place a disproportionate share of the national burden of nuclear waste transportation on western states.

4. The governors recognize that a transportation program developed and implemented cooperatively with western states, such as that used for recent cesium shipments and that being planned for shipments to the Waste Isolation Pilot Plant, can be developed with proper planning and commitment by the federal government. *1121-1*

5. Pending litigation and proposed federal legislation have increased pressure on the federal government to accept private reactor spent nuclear fuel under the NWPA beginning in 1998, well before the Department of Energy's (DOE) plans to accept waste in 2010.

6. The analysis by and experience of western states show that adequate preparations cannot be in place to accommodate large scale shipments beginning in 1998.

7. For many years, western governors have consistently urged the federal government to develop a comprehensive transportation plan, including the preparation of contingency plans for events such as the early shipment of waste. *1121-1 (Cont'd.)*

8. DOE has not prepared a comprehensive transportation plan and has no effective contingency plans to accommodate shipments beginning in 1998.

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Response to Comment 1121-1

Transportation aspects, including marine and ground transport modes, route selection, security, and communication, for the alternative approaches are analyzed in Sections 2 and 4 and Appendix E of the EIS. In addition, to further address this issue, individual Transportation Plans would be prepared for any shipments actually scheduled for acceptance through any port of entry. These Transportation Plans would be prepared in consultation with appropriate State, Tribal, and/or local officials to ensure that details of the transportation process are understood, that the individuals or organizations who would perform all required activities are specified, and that these individuals and parties know what is expected of them (Section 2.7.5 and Appendix H of the EIS).

Response to Comment 1121-2

A national transportation system for foreign research reactor spent nuclear fuel is not consistent with the strategy discussed in the EIS. Individual Transportation Plans will be developed for specific shipments of foreign research reactor spent nuclear fuel if the Record of Decision states that foreign research reactor spent nuclear fuel will be accepted into the United States.

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association Resolution 95 - 020
Page 2

B. GOVERNORS' POLICY STATEMENT

1. The Western Governors' Association finds that as a result of federal government inaction and delays, and inadequate strategic planning involving stakeholders, a national transportation system cannot be in place in time to begin accepting spent nuclear fuel in 1998. *1121-2*

2. The objective of the Western Governors' Association — the safe and uneventful transport of nuclear waste — must be paramount in all federal policies affecting nuclear waste transportation. *1121-3*

3. Critical steps need to be taken to prepare for shipments, including but not limited to:

   a. The preparation of a comprehensive transportation plan that includes the analysis of all needed transport safety activities in a single document; *1121-1 (Cont'd.)*
   b. The development of responsible criteria for selecting shipping routes; *1121-4*
   c. The development of a sound methodology for evaluating optional mixes of routes and transportation modes; *1121-5*
   d. The expeditious amendment of the Nuclear Waste Policy Act to provide states and tribes with technical assistance and training funds prior to any large-scale shipment of spent fuel to a repository and/or centralized storage facilities, whether such facilities are publicly or privately owned;
   e. The prohibition on any major shipping campaign to interim storage facilities until such technical assistance and training funds have been provided at least three years prior to the commencement of any such shipping campaign; *1121-6*
   f. Adoption of regulations to implement a mutually acceptable program of technical assistance and training funds, such as those recommended by the Western Governors' Association;
   g. Appropriations to fund technical assistance and training monies to states and tribes through whose jurisdiction spent fuel and high-level radioactive waste are to be transported; and
   h. The full-scale testing of casks to be used to transport spent nuclear fuel and high-level radioactive waste. *1121-7*

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Response to Comment 1121-3

Safe and uneventful transportation in accordance with international and national regulations are paramount to the successful implementation of the joint DOE and Department of State proposed action to manage foreign research reactor spent nuclear fuel.

Response to Comment 1121-4

Criteria for selection of ground transportation routes are set forth in U.S. Department of Transportation Regulations (49 CFR Part 397.101 (a) (2)). A state routing agency can designate a preferred route in compliance with 49 CFR Part 397.103.

There are no regulations or route selection criteria for transportation of radioactive materials by rail. Rail routes are fixed by the location of rail lines, and populated areas cannot be readily avoided. Rail transport impacts, including distances, populations, and accident rates, are evaluated in Appendix E of the EIS.

Response to Comment 1121-5

The methodology for evaluating and comparing transportation routes and modes is discussed in Appendix E and Section 4.2.3 of the EIS. Specific mixes of transportation routes and modes would be described in the individual Transportation Plans (Appendix H of the EIS) for each shipment of foreign research reactor spent nuclear fuel and evaluated by the reviewing government organizations, to ensure compliance with applicable regulations and criteria.

Response to Comment 1121-6

DOE considers that there is adequate regulatory and emergency preparedness infrastructure to ensure the safe acceptance and transport to designated management sites if the foreign research reactor spent nuclear fuel is managed in the United States. Federal funding to State, Tribal, and local governments for maintaining emergency response programs is discussed in Section 2.7.1. There are three national emergency response plans under which DOE provides radiological monitoring and assessment assistance. Under these plans, DOE provides technical advise and assistance to the State, Tribal and local agencies involved with a radiological incident. Emergency preparedness, security, and coordination of DOE with local emergency response authorities, and security are discussed in general in Sections 2.7 and 2.8 of the EIS. Details would be contained in the Transportation Plan, that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments.

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association Resolution 95 - 020
Page 3

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. This resolution shall be conveyed to the President, the Secretaries of Energy and Transportation, the chairman of the Nuclear Regulatory Commission, and appropriate members and committees of Congress.

2. The Western Governors' Association staff, in cooperation with the Western Interstate Energy Board, shall monitor implementation of this resolution and provide the federal government with assistance in the development and implementation of a transportation plan for spent nuclear fuel and high-level radioactive waste.

racas\resos\hires.020

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Response to Comment 1121-7

Full-scale demonstration testing of spent nuclear fuel transportation casks were conducted in the United States in the 1970s to confirm that "Type B" casks that were built to Federal standards (10 CFR Part 71) could protect and retain its contents in the most severe of accidents. Similar tests have been conducted in the United Kingdom, Germany and Japan. In each of these tests, the cask prototype was deformed as predicted by analysis, but no simulated radioactive material was released.

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association
Resolution 95 -021

June 26, 1995
Park City, Utah

SPONSOR: Governor Batt
SUBJECT: High-Level Nuclear Waste

A. BACKGROUND

1. The United States entered the nuclear age a half century ago with a woeful lack of planning for the storage and ultimate disposal of nuclear by-products.

2. In 1982, Congress attempted to come to terms with this situation by passing the Nuclear Waste Policy Act. That Act called for nuclear utility ratepayers to contribute financially to the establishment of a geologic repository. Since the passage of that legislation, nuclear utility ratepayers have contributed, with interest and other obligations, over $11 billion.

3. However, current efforts to open the high-level radioactive waste repository at Yucca Mountain now stand in great question. Originally that facility was to have been ready by 1998. Billions of dollars have already been spent. Billions more will be spent before that facility opens in 2010, if it opens at all. Others place the opening date of Yucca Mountain as late as 2030, again, if it opens at all.

4. Currently there are competing efforts in Congress to expedite the opening of Yucca Mountain. Some call for siting a Monitored Retrievable (also called an interim) Storage facility near the Yucca Mountain site. Still other members of Congress are attempting to defund the Yucca Mountain effort.

5. The President has stated that he cannot support any legislation currently before Congress regarding the Yucca Mountain facility.

6. The State of Idaho is presently in litigation with the U.S. Department of Energy to block shipments of federal and foreign spent nuclear fuel from entering its state, primarily because this Nation has not yet come to terms with what to do with its high level nuclear waste.

7. This year, the Mescalaro Apache Tribe in New Mexico voted to accept interim storage of commercial high-level spent nuclear fuel from commercial reactors. Initially tribal members voted to reject the proposal, but then reconsidered and voted to accept the proposition. That private disposal site effort is still in negotiation with the State of New Mexico.

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Commentor No. 1121: Western Governors' Association (Cont'd.)

Western Governors' Association Resolution 95 - 021
Page 2

8. The Office of the Nuclear Waste Negotiator has been closed for both budgetary concerns and for a failure to come to a resolution on finding a community willing to become a nuclear waste disposal site.

9. However, thirteen years after the passage of the Nuclear Waste Policy Act, it continues to be apparent that despite the billions of dollars that have been spent and the billions of dollars that will yet be spent on opening Yucca Mountain, the current federal program to store this Nation's high-level spent nuclear fuel is in serious jeopardy due to cost, schedule, political, environmental and management difficulties.

B. GOVERNORS' POLICY STATEMENT

1. The Western Governors, consistent with previous WGA Resolutions (89-006, 92-009 and 93-007), continue to support geologic disposal as an appropriate means of managing and finally disposing of spent nuclear fuel and high-level radioactive waste.

2. The Western Governors call upon the President and Congress to work with the states in developing a fair, honest and scientifically sound course of action for the permanent disposal of the Nation's high-level radioactive waste. *1121-8*

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Western Governors' Association staff shall notify the President and all members of Congress of the passage of this resolution.

rpcos\wsos\high.lvl.s

Response to Comment Commentor No. 1121: Western Governors' Association (Cont'd.)

Response to Comment 1121-8

The commentor's preference for geologic disposal of spent nuclear fuel is noted. The impacts of ultimate disposition of the foreign research reactor spent nuclear fuel are discussed qualitatively in Section 4.2.7 of the EIS. DOE is currently evaluating the feasibility of construction of a disposal site at Yucca Mountain, NV. In the meantime, support for U.S. nuclear weapons nonproliferation policy requires DOE and the Department of State to consider other means of dealing with the foreign research reactor spent nuclear fuel (Section 1.1. of the EIS).

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association
Resolution 92-004 (Revision 1)

Originally Adopted June 23, 1992
Jackson, Wyoming
Readopted June 26, 1995
Park City, Utah

SPONSORS: Governors Johnson and Geringer
SUBJECT: U.S. Department of Energy Transport of Nuclear Waste

A. BACKGROUND

1. This Nation must dispose of significant amounts of high-level and transuranic nuclear waste which continues to be held in temporary storage. The need for final disposal of this waste has become an issue of national concern.

2. The U.S. Department of Energy (DOE) is responsible for the management and permanent disposal of these wastes. Management and disposal will require transporting unprecedented quantities of high-level and transuranic nuclear waste.

3. Western states will bear most of the national burden of nuclear waste transport.

   a. The Waste Isolation Pilot Plant (WIPP) in New Mexico is DOE's planned disposal site for transuranic waste.

   b. The Yucca Mountain site in Nevada is being studied as the site for permanent disposal of commercial spent nuclear fuel and defense high-level waste.

   c. DOE has temporarily stored defense nuclear waste at six sites located in western states: Hanford (Washington), Rocky Flats (Colorado), Idaho National Engineering Laboratory, Nevada Test Site, Lawrence Livermore National Laboratory (California), and Los Alamos (New Mexico).

   d. DOE has proposed to bring spent fuel from foreign research reactors back to the United States for management as part of the national nuclear non-proliferation program.

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Commentor No. 1121: Western Governors' Association (Cont'd.)

Western Governors' Association
Resolution 92 - 004, Revision 1
Page 2

e. DOE ships unclassified high-level and transuranic nuclear material among its facilities and other users. High-level cesium capsules are shipped in and out of the Hanford Washington facility.

4. Establishing public confidence that nuclear waste can be transported safely will require an extraordinary safety program, information to the public about that safety program and a continuing record of safe transportation.

5. The governors recognize the success of the transportation safety program developed under cooperative agreement among western states and DOE to prepare for transuranic radioactive waste shipments to WIPP. This safety program focuses on the states' prominent role in the areas of accident prevention, emergency response preparedness, and public awareness and participation. Components of the state/DOE WIPP program include:

   a. selecting routes
   b. inspecting shipments
   c. ensuring high-quality drivers
   d. safety audits of the carrier
   e. restrictions for travel when weather and road conditions are unsafe
   f. coordinated shipment scheduling and notification
   g. computer and satellite tracking of each shipment
   h. designating safe parking areas
   i. radiation detection and safety equipment
   j. emergency response planning, training and guidance
   k. informing and involving the public

6. The WIPP Transportation Safety Program was successfully adapted for application to DOE's recently concluded Cesium-137 Capsule Return shipping campaign between a commercial facility in Colorado and the Hanford site. This shipping campaign experienced no accidents and was completed almost one year ahead of schedule and under budget.

7. The DOE has identified important actions that could be taken to improve its transport safety program. Its Transportation Assessment and Integration (TRAIN) planning process has identified areas for safety

Response to Comment Commentor No. 1121: Western Governors' Association (Cont'd.)

Western Governors' Association
Resolution 92 - 004, Revision 1
Page 3

improvements and set useful program goals. The DOE has also taken important steps to improve communication and coordination with state, tribal, local, and professional associations through the Transportation External Coordination (TEC) Working Group.

B. GOVERNORS' POLICY STATEMENT

1. The objective of the Western Governors' Association is the safe and uneventful transport of nuclear waste from current temporary storage facilities to more suitable permanent repositories. The western governors are committed to working with Congress and DOE to achieve this objective. *1121-9*

2. Early coordination and effective communications with state, tribal, and local governments is essential to the ultimate success of any nuclear waste transportation safety program. *1121-1 (Cont'd.)*

3. DOE should proceed expeditiously with the implementation of the initiatives identified in TRAIN to provide uniform safety procedures and coordination with state, tribal, and local governments for route-controlled DOE shipping campaigns and shipments to DOE facilities. *1121-10*

4. A safety and information program similar to that developed with western states for shipments of transuranic waste to WIPP should be utilized for all route-controlled DOE shipping campaigns. Safety programs should be evaluated and improved as needed. *1121-11*

5. DOE should work to identify flexible funding resources and cooperative agreements between their civilian, power and defense agencies as a means for supporting WGA and DOE application of lessons learned through the WIPP safety program to other DOE shipping campaigns. *1121-12*

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Western Governors' Association shall convey this resolution to the Secretary of Energy, appropriate congressional committees and the western delegation.

Response to Comment 1121-9

The commentor's support for safe transportation of spent nuclear fuel from foreign research reactors is noted. Spent nuclear fuel has been transported for nearly four decades along highways, rail routes, and waterways of the United States (Section 1.1 of the EIS). Several thousand of these shipments were by truck or rail. None of the shipments, including shipments involved in accidents, has ever resulted in a release of the radioactive contents of a spent nuclear fuel transportation cask (Section 4.2.3 of the EIS). No significant environmental effects would result from severe transportation accidents involving foreign research reactor spent nuclear fuel (Section 4.2.3 of the EIS).

Response to Comment 1121-10

If foreign research reactor spent nuclear fuel is managed in the United States, there is adequate regulatory and emergency preparedness infrastructure to ensure its safe acceptance and transportation to the designated management site. DOE is required to inform the Governor of each State and any Tribal chair, or their designee, along a transportation route at least seven days prior to shipment of hazardous cargos, including radioactive materials. It would be the responsibility of the Governor to provide any further notification to State and local authorities. A state routing agency can designate a preferred route, which shipments would be required to follow, in accordance with 49 CFR Part 397.103.

Emergency preparedness, security, and coordination of DOE with local emergency response authorities that would be involved with the acceptance and transportation of foreign research reactor spent nuclear fuel will be discussed in detail in the Transportation Plan, that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H of the EIS.

The security provided for the spent nuclear fuel shipments would be required to meet or exceed all the applicable security requirements in the Code of Federal Regulations (10 CFR Part 73). If any port did not already provide security sufficient to satisfy these requirements, it would be the responsibility of the shipper to provide the required additional security.

Response to Comment 1121-11

Safety has been and remains a primary objective in the transportation of spent nuclear fuel from foreign research reactors. As discussed in Section 4 of the EIS, spent nuclear fuel, both foreign and domestic, has been transported in the United States for nearly four decades without a single radiological incident. Safety and security regulations are described in Section 5 of the EIS. In view of the routine nature of shipments of spent nuclear fuel, existing regulations, and the evaluation of environmental risks reported in Section 4 of the EIS, no special safety program is planned if a policy to accept foreign research reactor spent nuclear fuel is adopted.

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association
Resolution 92 - 004, Revision 1
Page 4

2. The WGA Technical Advisory Group for WIPP Transport is directed to continue working cooperatively with DOE to establish and implement an exemplary safety program necessary to reach a high level of public confidence that nuclear waste can be transported in a safe and uneventful manner. The Advisory Group is also to continue working with DOE to adapt and apply the safety programs developed for WIPP shipments to other rout-controlled DOE shipping campaigns and shipments to DOE facilities.

rsces\sunset\nuc.004

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Response to Comment 1121-12

See response to comment 1121-11 immediately above.

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association
Resolution 92-005 (Revision 1)

Originally Adopted June 23, 1992
Jackson, Wyoming
Readopted June 26, 1995
Park City, Utah

SPONSOR: Governor Gutierrez
SUBJECT: Emergency Preparedness For The Shipment of Radioactive Materials By Sea

A. BACKGROUND

1. Foreign shipments of radioactive materials, such as the plutonium oxide powder shipped from France to Japan in 1992, are expected to increase with the continued globalization of nuclear power and the wastes it produces.

2. In March 1995, the U.S. Department of Energy published a Draft Environmental Impact Statement on a *Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.* One of the strong options is to return the 22,700 spent nuclear fuel elements to the United States beginning in 1995. The return program is planned to take ten years.

3. The foreign research reactor spent fuel would originate from 40 nations, and would be shipped by sea to one or more of nine ports. Four of these ports are in western states -- California, Texas, Oregon and Washington. In addition to the ports, those shipments which use Pacific shipping routes will pass near or through the territorial waters of the three Pacific Flag islands, and the states of Alaska and Hawaii.

4. These substances are classified as some of the most toxic and hazardous known to man, having half-lives in excess of 25,000 - 300,000 years. These same substances have been demonstrated to migrate up the food chain, of particular concern to the Pacific Flag islands which are dependant on commercial and subsistence fisheries, including many migratory species. Shipment of radioactive material by sea has unique environmental conditions and risks. *1121-13*

5. Under international law, any ship with an emergency can declare "*force majeure*, 7," which allows that vessel to enter a port or move through the

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Response to Comment 1121-13

DOE agrees with the commentor on the hazardous nature of the foreign research reactor spent nuclear fuel and, to that end, would ship and receive such fuel only in compliance with all standards for safety, security, and minimal environmental impact. The environmental impacts of marine transport are discussed in Appendix C and Section 4.2.1 of the EIS.

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

waters of a foreign state, and is excused from complying with the domestic law. The U.S. Coast Guard may block such entrance only if there is a threat to life or property, or the vessel poses an imminent threat to the safety of the port.

6. The Lead Federal Agency for an accident involving a transient shipment of nuclear material is the U.S. Environmental Protection Agency. Based on the National Contingency Plan, state, territorial and local governments have the primary responsibility for protecting the public and for emergency actions on land. The U.S. Coast Guard is responsible for radioactive releases in U.S. waters. The Department of Energy (DOE), Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Administration (FEMA) will provide assistance if requested.

   FEMA has the responsibility to assist states, territories and local jurisdictions in radiological emergency planning and preparedness. Additionally, FEMA is charged with reviewing state, territorial and local radiological emergency response plans upon request.

7. The standards for shipment of radioactive materials by sea are set by the International Atomic Energy Agency (IAEA), and national regulations of the countries of origin and destination. The Department of Transportation sets the standards for the U.S. and for coordinating with IAEA and DOE (the U.S. representative to the IAEA). Both agencies depend on a package centered philosophy for protection in the event of an accident. The second barrier to radiation exposure is operational controls for handling and securing the package (container).

   Under IAEA standards the packages are designed and tested (in most cases a computer simulation can be used to demonstrate the performance) to meet normal transport accident conditions. The conditions under which these shipment will be made are much more extreme than those used for testing, e.g. the depths of the Pacific Ocean can exceed 12,000 feet, and ship board fires have been recorded at 1675 °F.

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association
Resolution 92 - 005, Revision 1
Page 3

B. GOVERNORS' POLICY STATEMENT

1. It is the objective of the western governors to ensure the safe and proper handling, storage, transportation, emergency response and cleanup of hazardous and radioactive materials. Materials that cannot be transported safely and protected against a "credable accident" scenario should not be transported.

2. Protocols which have been prepared and used by the Western Governors' Association for land transportation for radioactive materials are to be applied to ocean transportation, with special consideration given to marine conditions and risks. *1121-14*

3. The Governors urge the Federal Emergency Management Administration, Departments of Energy and Transportation and the Environmental Protection Agency to assist the western coastal states and Pacific Flag islands to plan and prepare to respond to potential incidences involving the return of foreign spent fuel. *1121-15*

4. The transport vessels and shipment packages (containers) must meet independently verifiable standards to withstand maritime accidents including collision, fire and sinking under the maximum credible accident scenario. *1121-16*

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The WGA staff shall convey this policy resolution to the President, appropriate Congressional members and committees, the Secretaries of Energy, State and Transportation, the Chairman of the Nuclear Regulatory Commission and the Administrator of the Environmental Protection Agency.

2. In accordance with the policy established by this resolution, the WGA staff is directed to work with federal agencies, Congress, and individual states and territories to address safety and environmental issues related to the return of foreign research reactor spent nuclear fuel.

rsces\sunset\pluton.005

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Response to Comment 1121-14

DOE will work closely with the commentors in developing plans and protocols for safe transportation of foreign research reactor spent nuclear fuel for both marine and ground transport.

Response to Comment 1121-15

DOE accepts the commentors' recommendation and has established a Transportation External Coordination/Working Group, including the WGA, to address cross-cutting transportation and emergency response issues. Section 2.7.3.3 of the EIS lists the organizations that are part of this Working Group.

Response to Comment 1121-16

Ships and casks that would be used to transport the foreign research reactor spent nuclear fuel under Management Alternatives 1 and 3 of the proposed action would be required to meet all applicable regulations and standards for safety, including IAEA regulations for package integrity, and U.S. Department of Transportation Regulations (49 CFR Parts 171-178) governing packaging and shipment of radioactive materials. Appendix B, Sections B.2.1.1 - B.2.1.3 of the EIS present a discussion of cask and transportation standards.

Commentor No. 1121: Western Governors' Association (Cont'd.)

Western Governors' Association
Resolution 89-024 (Revision 2)

Originally Adopted December 1, 1989
Las Vegas, Nevada
Readopted June 26, 1995
Park City, Utah

SPONSOR: Governor Miller
SUBJECT: Storage of Spent Commercial Nuclear Reactor Fuel

A. BACKGROUND

1. Through the Nuclear Waste Policy Act of 1982 the Federal Government has the responsibility to provide for the permanent disposal of spent nuclear fuel.

2. Through the Nuclear Waste Policy Act, Congress found that the owners and operators of nuclear power reactors have primary responsibility for providing interim storage of spent nuclear fuel. The Act requires that federal officials expedite the effective use of existing reactor storage facilities and the addition of needed new storage capacity, consistent with:

   a. the protection of public health and safety, and the environment;
   b. economic considerations;
   c. continued operation of such reactor;
   d. any applicable provisions of law; and
   e. the views of the population surrounding such reactor.

3. The U.S. Department of Energy (DOE) originally projected that a geologic repository would be available for acceptance of spent nuclear fuel in 2003. Recently DOE revised their schedule to project that the repository will not be available until at least 2010.

4. Since the repository will not be available for spent fuel disposal in 2003, commercial nuclear reactors in the nation will require additional spent fuel storage capacity beyond that which is, or can be made, available in existing spent fuel storage pools at the individual reactor sites.

5. Both DOE and the Nuclear Regulatory Commission (NRC) have determined that technology for safe, cost effective, dry cask, at-reactor storage exists, and some designs are currently licensed and in use in this country and abroad.

Response to Comment Commentor No. 1121: Western Governors' Association (Cont'd.)

COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Western Governors' Association
Resolution 89 - 024, Revision 2
Page 2

6. The Monitored Retrievable Storage Review Commission has concluded that a Monitored Retrievable Storage System (Interim Storage Facility) is not justified as conceived under current law. They further concluded that spent fuel storage should be available away from the reactor site for health and safety emergencies. For circumstances which threaten the continued operation of reactors, a User-Funded Interim Storage facility (UFIS) should be built. The costs of such a facility should be incurred by the rate payers.

B. GOVERNORS' POLICY STATEMENT

1. It is the objective of the Western Governors' Association to support the national policy for permanent, safe, geologic disposal of spent nuclear reactor fuel. Congress and the Federal Government must anticipate that, if the permanent geologic repository does not open on schedule, most reactors will need interim storage. It must be assured that any interim storage is safe, cost effective and fiscally equitable to the rate payers.

2. The Western Governors' Association acknowledges the adoption by NRC of the statement of confidence for at-reactor passive storage. With the statement of confidence, and the permanent geologic repository not being available, the Western Governors' Association endorse at-reactor dry storage, where such storage is permissible under state law, as an acceptable means of interim storage until a permanent geologic repository becomes available.

3. An Interim Storage Facility shall not be located within the geographic boundaries of a state without that state's Governor's written consent.

4. The West is getting stuck with disposing of the nations nuclear and radioactive waste.

5. The West should be given assurances by DOE that disposal in the West is safe and acceptable.

6. Consequently, spent nuclear fuel waste should remain at commercial facilities until the following issues are resolved to the satisfaction of the western states:

1121-17

RESPONSE TO COMMENT COMMENTOR NO. 1121: WESTERN GOVERNORS' ASSOCIATION (CONT'D.)

Response to Comment 1121-17

The commentor's support for geologic disposal of spent nuclear fuel is noted. If a policy to accept spent nuclear fuel from foreign research reactors is adopted, the management techniques, facilities, and sites discussed in Sections 2.2.1.8, 2.6.5 and 3.3 of the EIS would be implemented. Estimated costs of the various policy alternatives evaluated in this EIS are described in Section 4.9 of the EIS.

As discussed in Section 1.2 of the EIS, many of the foreign research reactor operators have no immediate means for disposing of their spent nuclear fuel due to financial or regulatory constraints. Overseas management of foreign research reactor spent nuclear fuel is discussed in Section 2.3 of the EIS.

If a policy of acceptance were adopted for foreign research reactor spent nuclear fuel, the United States Government would cooperate to the fullest extent possible with governors representing states where interim management sites are located.

Ultimate disposition of foreign research reactor spent nuclear fuel is outside the scope of this EIS (Section 1.3 of the EIS). However, a qualitative discussion of ultimate disposition is provided in Section 4.2.7 of the EIS.

Candidate management sites for foreign research reactor spent nuclear fuel are described in Section 3.3 of the EIS. As discussed in Section 4.2.4 and Appendix F of the EIS, foreign research reactor spent nuclear fuel could be safely managed at one or more of these management sites pending final disposition.

Commentor No. 1121: Western Governors' Association (Cont'd.)

Western Governors' Association
Resolution 89 - 024, Revision 2
Page 3

a. That the DOE has an acceptable transportation plan for shipping this waste to western disposal sites.

b. That the DOE has adequate infrastructure capacity to handle and dispose of this waste.

c. That the DOE has ensured adequate responder training in case of an accident of mishap while shipping this waste to a western disposal facility.

1121-17 (Cont'd.)

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Western Governors' Association shall convey this resolution to the appropriate members and committees of Congress, the Secretary of the Department of Energy, and the Nuclear Regulatory Commission.

2. The Western Governors' Association and the Waste Task Force are to work with Congress, the Nuclear Regulatory Commission, the U.S. Department of Energy and the National Association of Utility Regulators to develop the appropriate elements of policy to anticipate the need for interim storage.

Response to Comment Commentor No. 1121: Western Governors' Association (Cont'd.)

EGAN & ASSOCIATES, P.C.
Counselors at Law

2300 N Street, N.W.
Washington, D.C. 20037
Telephone (202) 663-9200
Fax (202) 663-9066

July 18, 1995

VIA COURIER

Mr. Charles Head
Program Manager
Office of Spent Nuclear
Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

RE: COMMENTS OF THE "EDLOW GROUP" ON DOE's DRAFT ENVIRONMENTAL IMPACT STATEMENT ON A PROPOSED NONPROLIFERATION POLICY CONCERNING FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL (DOE/EIS-0218D)

Dear Mr. Head:

The Edlow Group, an association of fifteen of the world's largest and most important research reactors from twelve countries, commends DOE on its completion of the subject Draft Environmental Impact Statement. For reasons that are articulated in our detailed comments attached, the Edlow Group strongly supports the adoption by DOE of Management Alternative No. 1 in its basic implementation approach, but with no time limit on receipts other than that of the life of each respective facility which has participated in the RERTR program.

Attached to our detailed comments are copies of many individual comments prepared by several of our research reactor operators and their governments, as well as copies of comments submitted to DOE by the Euratom Supply Agency and the International Atomic Energy Agency.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

EGAN & ASSOCIATES, P. C.
Counselors at Law

We hope that DOE will move expeditiously to complete the draft EIS and will issue a ROD within 30 days thereafter.

Please call if you have any questions concerning our comments.

Sincerely,

Joseph R. Egan
Attorney for the Edlow Group

cc: Assistant Secretary Thomas P. Grumbly
Ms. Ellie Busick, Department of State
Ms. Jeanine Sweeney, Esq.
Mr. Abe Zeitung (SAIC)

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

COMMENTS OF THE "EDLOW GROUP" ON DOE's DRAFT ENVIRONMENTAL IMPACT STATEMENT (DOE/EIS-0218D) ON A PROPOSED NUCLEAR NONPROLIFERATION POLICY FOR FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL

July 1995

The Edlow Group thanks the Department of Energy ("DOE") for the opportunity to provide comments on DOE's Draft Environment Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, DOE/EIS-0218D, dated March 1995. Moreover, the Edlow Group is pleased to have participated in DOE's public meeting on May 31, 1995 in Washington D.C. to discuss issues raised in the draft EIS with members of the public, the environmental and nonproliferation communities, and other interested persons.

I. THE "EDLOW GROUP"

Edlow International Company (an international nuclear fuel shipping and traffic management company) and Egan & Associates, P.C. (a Washington D.C. law firm) currently represent fifteen of the world's largest and most important foreign research reactors from twelve countries on four continents in their collective efforts to foster a solution to the crisis in spent fuel management that arose from expiration of DOE's Off-Site Fuels Policy for the receipt of U.S.-origin foreign research reactor spent nuclear fuel. Our group of reactor facilities has been referred to collectively as the "Edlow Group" or the "Foreign Research Reactor Spent Fuel Project." The vast majority of our reactor facilities are foreign-government owned. The Edlow Group has received the strong support and active participation of senior embassy representatives and government officials from most of the foreign nations whose facilities participate in the group. Moreover, the Euratom Supply Agency and the International Atomic Energy Agency ("IAEA") have served as participating observers of the activities of the Edlow Group, and both have separately filed comments on the draft EIS.

Members of the Edlow Group currently include the following foreign participants, some of which operate more than one reactor facility:

1. Studiecentrum Voor Kernenergie SCK/SEN (BR-2/Mol, Belgium)
2. Risoe National Laboratory (DR-3/Denmark)

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

3. Austrian Research Center Seibersdorf (ASTRA)
4. Swedish Nuclear Fuel & Waste Management Company (R-2/Studsvik)
5. Paul Scherrer Institute (SAPHIR/Switzerland)
6. Hahn-Meiter-Institute (BER-II/Berlin)
7. Delft University of Technology (HOR/the Netherlands)
8. National Centre for Scientific Research "Demokritos" (GRR-1/Greece)
9. Atomic Energy of Canada Limited/McMaster University
10. Australian Nuclear Science & Technology Organization (HIFAR/ANSTO)
11. Forschungszentrum Geesthacht GmbH (FRG-1/GKSS, Germany)
12. Physikalisch-Technische Bundesanstalt (PTB/Germany)
13. Technical University of Munich (Germany)
14. Japan Atomic Energy Research Institute (JAERI)
15. L'Energia e l'Ambiente (ENEA/Italy)

Many members and participating observers of the Edlow Group have separately filed individual comments on the draft EIS with DOE. The Edlow Group urges DOE to pay particular attention to those comments, many of which contain additional details on the situation facing individual facilities. No attempt will be made here to duplicate all such comments. However, Attachment No. 1 does contain a compilation of copies of individual comments obtained by the Edlow Group. This compilation may or may not be complete.

II. OVERALL ASSESSMENT OF THE DRAFT EIS

The Edlow Group commends DOE on its completion and release of the Draft EIS. Although we remain dismayed that it took DOE more than seven years to arrive at this point in its environmental studies -- during which time our spent fuel problems were compounded to crisis proportions -- we believe, subject to certain reservations

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

expressed below, that the Draft EIS represents a comprehensive and competent analysis by DOE, for which we are grateful. Moreover, we had a representative present at most of the public meetings DOE held on the Draft EIS across the United States, and we believe the public raised very few substantive criticisms of DOE's analysis.

Given the thoroughness of the draft EIS, coupled with the paucity of substantive (as opposed to political) criticisms by the public, we see no justifiable reason why DOE should fail to meet (or indeed, better) its scheduled release date for the final EIS of September 30, 1995. We urge DOE, in the strongest possible terms, to release its Record of Decision on the final EIS no later than the required 30 days following release of the Final EIS. We would note for the record that, since 1988, DOE has missed every deadline announced or established for its environmental review process, often for gratuitous reasons. Nevertheless, we sincerely hope and expect that DOE's repeated commitments that the environmental review process will be completed prior to the end of 1995 will be honored. 1130-1

For reasons articulated below, the Edlow Group strongly supports the adoption by DOE of Management Alternative No. 1 in its basic implementation approach, but with no time limit on receipts other than the that of the life of each respective facility which has participated in the RERTR program. 1130-2

On environmental as well as policy grounds, the draft EIS clearly supports the issuance by DOE of a Record of Decision to proceed with the return of U.S.-origin foreign research reactor spent fuel to the United States. We see no evidence in the draft EIS, and have seen none offered by any other agency or member of the public, that receipt of such spent fuel would pose a significant threat to the environment, or a risk to the public health and safety of U.S. citizens. On the other hand, the draft EIS extensively documents the fact, which is supported by a plethora of other U.S. and foreign agencies and environmental/nonproliferation experts, that failure by the U.S. to proceed with receipts of U.S.-origin foreign research reactor spent fuel would unravel a heretofore successful nonproliferation program of the United States, would compromise U.S. relations with friendly foreign partners, and would harm U.S. efforts to build similar nonproliferation regimes in China and Russia. 1130-3

We believe the draft EIS, coupled with the strong endorsements of President Clinton, two Energy Secretaries, two Secretaries of State, the Deputy Secretary of Defense, the National Security Council, the Arms Control & Disarmament Agency, the Nuclear Regulatory Commission, the General Accounting Office, the International Atomic Energy Agency, the Commission of the European Communities, the Euratom Supply Agency, over a dozen Ambassadors, the Carnegie Endowment for International Peace, the Natural Resources Defense Council, and the Nuclear Control

-3-

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Response to Comment No. 1130-1

DOE is committed to completion of the final EIS and issuance of the Record of Decision as quickly as practicable.

Response to Comment No. 1130-2

The commentor's support for the basic implementation of Management Alternative 1, as described in Section 2.2.1 of the EIS is noted. Also noted is the suggestion that the policy period should have no time limit other than the life of each respective facility which has participated in the RERTR program. The basic implementation of Management Alternative 1 analyzed in the EIS is for a 10-year policy period.

DOE and the Department of State consider that the 10 year duration of the proposed action would be long enough to allow the United States to accept essentially all of the foreign research reactor spent nuclear fuel containing HEU enriched in the United States (or to arrange for the reprocessing of spent nuclear fuel and blending down of the HEU). Furthermore, by accepting spent nuclear fuel from foreign research reactors under the limitations specified in the proposed action, the reactor operators will have been given a powerful incentive to convert to operation on LEU fuels during the effective period of the policy. In parallel with these actions to drastically reduce the amount of U.S.-origin HEU in international commerce and convert research reactors to LEU fuel, the United States is separately working to eliminate other current or potential sources of HEU, such as from Russia or China, by encouraging these nations to establish foreign research reactor spent nuclear fuel management policies similar to that of the United States. Thus, by the end of any policy period that might be established, DOE and the Department of State hope to have reduced the availability of HEU for use in civil programs to the point where it is no longer a viable option for use as research reactor fuel, and to have enabled almost all of the research reactors to switch to LEU operations. In the absence of further sources of HEU, the reactors would have no option to switch back to HEU, the reactors would have no option to switch back to HEU fuel after expiration of any new policy that might be established.

A substantially longer period of acceptance might result in more material ultimately being accepted, but would also lessen the near term incentives for conversion.

Response to Comment No. 1130-3

All participating U.S. agencies and authorities are well aware of the effect of a failure of the program. The issue is one of balancing numerous competing interests, including nuclear weapons nonproliferation, taxpayer concerns, and cleanup at DOE sites. As discussed in Section 4 of the EIS, risks associated with implementation of the proposed action to human health or the environment are low.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Institute, provides DOE with overwhelming U.S. bipartisan and global support to make a decision based on sound policy rationale rather than on narrow political or economic interests or in reaction to challengers whose principal complaint, notwithstanding reaping decades of direct economic benefit from DOE's Off-Site Fuels Policy, is now one of "Not-In-My-Backyard." Likewise, we do not believe DOE should be deterred from making the right decision by threats of litigation from those whose substantive challenges -- due to DOE's sound analytical work -- are likely to be unsuccessful in court on environmental grounds.

As a result of South Carolina's litigation against DOE concerning receipts of shipments under DOE's April 1994 Environmental Assessment of Urgent Relief Shipments, DOE now has a useful and compelling precedent in the Fourth Circuit which should make it easier to defend successfully any litigation brought by South Carolina challenging DOE's final EIS.

III. IMPORTANT OMISSIONS FROM THE DRAFT EIS

A. Background Documents

Several important background documents were omitted from Appendix G of the draft EIS and are unfortunately not discussed in the text of the draft EIS. Those are:

- The October 25, 1994 letter to DOE from Jack Saunders, Deputy Director, Access Management, the National Security Council, declassifying a portion of President Clinton's Presidential Policy Directive PDD-13 as it applies to accelerating efforts to return the U.S. foreign research reactor spent nuclear fuel. (See Attachment No. 1.)

- Three sworn affidavits by Secretary of State Warren Christopher, Acting Secretary of State Strobe Talbot, and Under Secretary of State Lynn Davis, all of which were filed in 1994 and 1995 in DOE's litigation concerning its April 1994 Environmental Assessment, and all of which attest to the compelling foreign policy and nonproliferation rationale underlying the return of U.S-origin foreign research reactor spent fuel. Copies of these affidavits are attached as Attachments Nos. 2 to 4.

- The April 4, 1994 letter to Hazel O'Leary by Deputy Secretary of Defense John Deutsch, which underscores the national security importance of receipt of U.S.-origin foreign research reactor spent fuel, and which sets forth the Defense Department's position on the price to

1130-4

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Response to Comment No. 1130-4

Documents listed in this comment have been added to Appendix G of the EIS and are cited in Section 1.1 of the EIS.

be charged for such receipts (no more than $2000 per kilogram). A copy of the letter, which was also filed in the EA litigation, is attached as Attachment No. 5.

- A joint letter to Secretary of State Christopher, dated February 15, 1995, signed by seven Ambassadors, the Head of the Delegation of the European Commission, and three other senior foreign government representatives, urging the prompt completion of DOE's environmental reviews and asking DOE to renew its previous policy of receiving U.S.-origin foreign research reactor spent fuel. (Copy attached as Attachment No. 6.)

- Letters received by DOE from the U.S. Nuclear Regulatory Commission (which were attached in DOE's EA) urging that DOE reinstate its policy of receiving U.S.-origin spent research reactor fuel.

- The September 1992 letter to DOE from the Secretariat of the RERTR Annual Conference in Roskilde, Denmark (also in the EA), which notes that research reactors will no longer support the RERTR program unless DOE moves quickly to complete its environmental reviews and begin accepting returns of U.S. origin spent fuel.

1130-4 (Cont'd.)

B. Legal Considerations

The draft EIS is inexplicably silent on the legal obligations of the United States to accept the return of U.S. origin foreign research reactor spent fuel. Yet, this is obviously a relevant consideration both to DOE and to the public generally. At the public meeting on the draft EIS in North Augusta, South Carolina, questions from the public made it obvious that peoples' views on the viability of DOE's proposals are influenced in part by whether DOE has an obligation to accept return of the spent fuel. Legal considerations are relevant as well to U.S. taxpayers, who may one day be tasked with paying damages for breach of U.S. obligations. Legal obligations are also clearly relevant to U.S. diplomatic relations with any countries with which it made commitments.

In implementation of its Environmental Assessment last year, DOE executed contracts with eight foreign research reactor facilities for the return of specified elements of spent fuel, not all of which have yet been returned. DOE has a legal obligation to receive those elements which have not yet been returned.

1130-5

Response to Comment No. 1130-5

With the exception of cases in which DOE has executed contracts and all necessary supporting documents for acceptance of spent nuclear fuel from specific foreign research reactors, DOE considers that neither DOE nor the United States Government has any legal obligation to receive spent nuclear fuel from foreign research reactors.

In the specific case of the shipments covered by the Urgent-Relief Environmental Assessment (DOE/EA-0912), all spent nuclear fuel eligible for acceptance under that environmental assessment has been safely transported to the United States.

Notwithstanding the absence of any legal requirements, the proposed action would support long-standing U.S. nuclear weapons nonproliferation policy. Failure to implement the proposed policy would subject the United States and its allies to the risk that some of the HEU intended for use in research reactors might be diverted into the production of nuclear weapons, or otherwise harm U.S. nuclear weapons nonproliferation programs.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

DOE also has a signed agreement with ANSTO for the return of Australian spent research reactor fuel.

For those research reactor facilities which converted their facilities under the RERTR program, DOE's agent Argonne National Laboratory executed contracts for the return of specific RERTR fuel elements when spent.

As is abundantly clear in the attached affidavit by Under Secretary of State Lynn Davis (Attachment No. 3), the RERTR program and the Off-Site Fuels Policy were always "essential complements" of each other. Foreign reactors and their governments agreed, at substantial cost, to participate in RERTR with the understanding that the U.S. would continue to receive their spent fuel. As the arrangement is described in Ms. Davis' affidavit, it has all the elements of a contract, with a clear *quid pro quo*.

Various of the research reactor operators in the Edlow Group have other documents, including commitment letters or written assurances from DOE or the Atomic Energy Commission, that their spent fuel would be returned. The reactor operators relied, to their detriment, on these commitments and assurances. These assurances, in fact, forestalled development of a European solution for spent research reactor fuel in Europe, as might have occurred in the absence of such assurances. The legal doctrine of promissory estoppel, or justifiable reliance, is likely to apply in such circumstances. *1130-5 (Cont'd.)*

Moreover, many of the foreign research reactors were sold by the United States with the understanding that spent fuel would be returned to the U.S. This fact is evidenced in written documents in some cases, in the fact that many of the facilities were sold and constructed without spent fuel storage facilities, and by the fact that, prior to 1964, U.S. fuel could only be leased from the U.S. and could not be sold. DOE's course of conduct over three decades of receiving this fuel ratifies any such initial understandings.

Thus, the foreign community believes that DOE's legal obligations are indeed an important, if not superseding, consideration which should be explained to the public, or at least discussed. If DOE believes such an obligation does not exist, it should explain in the final EIS why it believes this is the case, providing appropriate responses to and analysis of the points raised here. In that case, however, DOE should explain that many members of the Edlow Group, and perhaps other reactors and their governments, hold a different view, and that such differences may pose certain costs or adverse impacts for the U.S., particularly in the event DOE chooses the "no action" alternative.

-6-

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Finally, in the view of the reactor operators in the Edlow Group, the *quid pro quo* established with the RERTR program requires DOE, as a matter of law, to accept return of all U.S.-origin spent foreign research reactor fuel for RERTR participants, without any time limit, and for the life of the facilities which have agreed to convert to LEU fuel. DOE's proposed limitation of such receipts to a specific time period is inconsistent with DOE's RERTR commitment, and departs from traditional contract principles, even if, as discussed below, some reactor facilities are prepared voluntarily to accept time restrictions on receipts. *1130-5 (Cont'd.)* *1130-6*

C. Presidential Policy Directive

The EIS fails to explain the obvious discrepancies between DOE's proposed policy simply to "manage" foreign research reactor spent fuel (perhaps overseas) and the declassified portion of President Clinton's nonproliferation policy directive PDD-13 as it relates to the return of foreign research reactor spent nuclear fuel. As illustrated in Attachment No. 1, the declassified portion of PDD-13 calls for the U.S. "to accelerate steps towards implementing a policy of taking back U.S-origin spent fuel from foreign research reactors." (Emphasis added.) In our view, therefore, the only alternative under exploration by DOE that is consistent with the President's nonproliferation policy is Management Alternative No. 1. DOE provides no explanation for its deviation from the President's policy in its exploration of the other alternatives analyzed. (See also, p. 1-1 of Volume I of the draft EIS.) *1130-7*

The Edlow Group is disappointed that DOE has chosen to retreat from Secretary O'Leary's proposed policy to take back U.S.-origin spent research reactor fuel as announced in her July 13, 1993 letter to Secretary of State Christopher. Secretary O'Leary's original proposal was fully consistent with President Clinton's nonproliferation policy and, indeed, formed part of the framework for that policy.

D. Price Considerations

While the draft EIS includes a discussion (addressed below) of cost issues, price issues are not addressed in any significant detail. Foreign research reactor operators agree that DOE's decisions with respect to selection of a management alternative should not be predicated on price issues. However, at the same time, they want to make certain that DOE understands that at some price level (both for shipping and for storage/disposal), any alternative can be rendered illusory. *1130-8*

Response to Comment No. 1130-6

The reason for the limitation of managing foreign research reactor spent nuclear fuel to a specific time period is explained in the response to comment 1130-2 above.

Response to Comment No. 1130-7

The commentor's opposition to managing foreign research reactor spent nuclear fuel overseas is noted. As discussed in Section 1.2 of the EIS, the proposed action is one action among many pursued by the United States to reduce the potential for the proliferation of nuclear weapons. More specifically, the intent of the proposed action is to support the U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, highly enriched (weapons-grade) uranium from civil programs worldwide. The management and implementation alternatives considered in the EIS satisfy Presidential Policy Directive 13, and U.S. environmental laws that require the evaluation of reasonable alternatives to satisfy the purpose and need for the proposed action.

Response to Comment No. 1130-8

With respect to cost and price considerations, the following points are noted:

- DOE would have to balance the interests of taxpayers, foreign research reactor operators, and U.S. nuclear weapons nonproliferation goals. Many taxpayers urge no U.S. subsidization. Representatives of the foreign research reactors urge a return to the 1988 fees. Organizations interested in nonproliferation favor a balance. In attempting to design a fee structure that is reasonable and fair, DOE must look to the cost of alternative approaches to managing the spent nuclear fuel. In the case of reprocessing, Dounreay provides the most obvious market-based comparison.
- DOE is aware of the repercussions from setting a fee far in excess of the level considered reasonable by the foreign research reactor operators. DOE is also aware of the repercussions from setting a fee far below the cost to the United States for providing the spent nuclear fuel management services.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

As underscored by the Department of Defense in April 1994:

> The return of research reactor spent fuel is an important part of the Administration's nonproliferation efforts and its goal of minimizing the civil use of highly enriched uranium. The price charged to research reactor operators is critical to the success of this endeavor. We share the Department of State's view that the price should not be so high as to discourage foreign reactor operators from returning this HEU to the United States. Too high a price would seriously damage the Administration's nonproliferation efforts.
>
> ... The Department of Defense joins the Department of State to urge strongly that the Department of Energy charge no more than $2000 per kilogram. The expenses are small compared to the national security benefits.

Letter from Deputy Secretary John Deutsch to Energy Secretary Hazel O'Leary, April 8, 1994 (Attachment No. 5).

1130-8 (Cont'd.)

The magnitude of the price selected by DOE for implementation of any alternative may well determine whether research reactors move ahead in partnership with DOE or abandon any DOE management option in pursuit of heretofore less palatable business and nonproliferation alternatives.

1130-9

We would note for the record that, prior to DOE's sudden cessation of receipt of foreign research reactor fuel in 1988, DOE had been charging what was asserted to be a "full cost recovery" rate of roughly $1000 per kilogram of heavy metal (excluding shipping). This fee included the cost of ultimate disposal in the United States of the wastes from reprocessing. Furthermore, the reactor operators were given a credit for retention by DOE of the valuable high-enriched uranium contained in the fuel. Thus, the net "full cost recovery" figure prior to 1988 was well under $1000 per kilogram.

Foreign research reactor operators understand that times have indeed changed, and that the costs of environmental management of radioactive wastes and spent fuel are now projected to be significantly higher than was previously estimated. They understand, as well, that inflation has likely produced a readily calculable, although modest, price escalation from previous times. Nevertheless, the Edlow Group believes (particularly insofar as ultimate disposal costs are discounted from a point well into the future so that they are relatively modest now on a discounted present

-8-

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

- Costs have been estimated on a stand-alone basis where they would be truly stand-alone (e.g., shipping), on a shared basis when they would be shared (e.g., waste disposal), on a marginal basis where they would be marginal (e.g., concurrent operations at the Savannah River Site), and so forth.

Response to Comment No. 1130-9

DOE is aware that at some price level, any alternative could be rendered illusory. DOE is also aware that taxpayers would be extremely sensitive to subsidizing developed countries. The idea of a competitive fee for spent nuclear fuel management (independent of transportation costs) is DOE's attempt to balance these interests.

Costs for all phases of nuclear materials and nuclear waste handling, storage, shipping, disposal, reprocessing, etc. have escalated far in excess of the general price level since DOE last charged what was then-termed a full cost recovery fee. No effort was made to baseline the current estimates to the 1988 estimates. Rather, current estimates were based on quotes or estimates from the DOE management sites, Edlow International, shipping journals, and various DOE offices.

Ultimate disposal costs make up by far the largest component of program costs on an undiscounted basis. The very high undiscounted costs and the low discount rate in the draft EIS generate a high net present value, rather than a modest one. In the final EIS, the most recent (February 1995) Office of Management and Budget discount rate is used. This newer rate is higher than the previous rate (4.9 percent vs. 2.8 percent) and thus the net present value is much lower. This also creates a risk that fees based on the lower net present value would be too low over time.

DOE considers that Dounreay provides a realistic basis for assessing the competitive market. It is an option for owners of a substantial portion of the foreign research reactor spent nuclear fuel. DOE estimates that on the basis of a country's ability to accept the reprocessing waste from Dounreay, about 25 percent of the total spent nuclear fuel (by element count) could be reprocessed at Dounreay. Thus, the price charged by Dounreay is of significance.

value basis) that any large departure from the previous price number will constitute an unaffordable and unjustified burden on the foreign reactors at a time when their operating costs have already been driven to excessive levels due to delays by DOE in completing its environmental reviews.

In short, we think "price" is a material consideration in evaluating EIS options, shipping arrangements and modes of transport, insofar as prices alone can undermine the objectives to be accomplished by the planned action. We agree with the Department of Defense that any DOE management price in excess of $2000 per kilogram would have important adverse repercussions among the reactor owners, and would seriously undermine the Administration's nonproliferation objectives. We believe the draft EIS's notion that a "competitive" price can be set simply in reference to Dounreay's current charges is groundless on any economic, business, or policy basis. *1130-9 (Cont'd.)*

In determining the appropriate prices to be charged, DOE should give recognition to the value and importance of the RERTR participants' voluntary contributions, both past and future, toward the accomplishment of U.S. nonproliferation goals. Any charges by DOE should also reflect the fact that DOE must manage a large inventory of domestic research reactor spent fuel and other similar DOE spent fuel whether foreign fuel is received or not. Thus, in many respects, costs attributable to management of foreign fuel reflect only incremental costs, and not, as the draft EIS appears to imply, stand-alone costs. While foreign research reactor operators have affirmed their commitment not to ask the U.S. taxpayer for a subsidy, neither do they wish to subsidize the U.S. taxpayer for costs DOE must incur in any event. *1130-10*

The Edlow Group agrees with the U.S. General Accounting Office, which has recommended, in GAO/RECD-94-119 (p. 4)), that DOE should assess charges that balance the need to minimize the cost burden on the U.S. with the reactor operators' need for a reasonable affordable charge. We note that the fundamental purpose of DOE's proposed policy is not simply to provide a commercial service, but to accomplish vital U.S. nonproliferation goals.

E. NRC Consultation

According to Table 5-1 of the draft EIS, DOE has apparently failed to consult with the U.S. Nuclear Regulatory Commission. Given NRC's previously expressed interest in the foreign research reactor spent fuel crisis, coupled with NRC's cognizance over various aspects of nuclear materials transportation and storage, we believe DOE should solicit the views of NRC. We think this is especially true in the *1130-11*

DOE is aware of the support for a fee of $2,000/kgTM, (excluding shipping). DOE will, nevertheless, attempt to balance numerous competing interests in establishing the fee. The draft EIS does not explicitly suggest a fee structure since this is considered out of scope. The final EIS shows the effect of various fees on the cost of the program to the U.S. taxpayer.

Response to Comment No. 1130-10

The analysis in the EIS recognizes the costs of managing DOE's existing inventory of spent nuclear fuel. Costs for the foreign research reactor program are allocated appropriately. For example, costs for chemical separation would be allocated incrementally based on an assumption that chemical separation operations for foreign research reactor spent nuclear fuel would either be carried out concurrently with other program proposals (i.e., the Interim Management of Nuclear Materials EIS) or would not be conducted at all. Costs for geologic disposal would be based on an allocation of average costs for the entire civilian radioactive waste program. Staging and storage costs would be based on facilities large enough to cover all the foreign research reactor spent nuclear fuel as well as other similar costs arriving at or being managed at a management site (e.g., domestic research reactor spent nuclear fuel at the Savannah River Site).

DOE agrees with the GAO and with Edlow on the need to balance the cost burden.

Response to Comment No. 1130-11

The commentor's suggestion that DOE consult with the NRC on the spent nuclear fuel proposed action and alternatives is noted. A copy of the draft EIS was provided to the NRC for that purpose. To the extent that NRC regulations would be germane to issues concerning the proposed action, consultation with NRC or reference to regulations has been made. Appropriate regulations are referenced in the EIS and are also summarized in Section 5.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

area of transport arrangements. Based on public discussions with NRC officials concerning the September 1994 shipment of 153 spent fuel elements to the U.S., we believe NRC would not support any policy by DOE to pre-determine either a port or a specific transport mode. *1130-11 (Cont'd.)*

F. Fresh and Non-Self-Protecting Fuel

The draft EIS does not address the return of U.S.-origin fresh HEU fuel. Since such fuel is arguably the greatest proliferation risk, the draft EIS should address it and provide a proposed means to deal with it quickly.

Similarly, the draft EIS does not address the fact that, as some U.S.-origin HEU spent fuel has aged, it has become "non-self-protecting" as defined in international security regulations, making it riskier material. This fuel, too, should be given a very high priority by DOE. *1130-12*

In both cases described, the U.S. would appear to have an extremely high obligation and duty to return or otherwise manage such fuel.

IV. TIMING AND TRANSITION CONSIDERATIONS

The draft EIS does not address in any significant detail the timing and transition considerations that may complicate DOE's adoption of any management alternative unless the ROD on the final EIS is promptly issued as early as possible in 1995 and substantial shipping can begin immediately in early 1996.

If DOE chooses adoption of a management alternative permitting shipment to the U.S., prioritization of many urgent shipments will be required. The Edlow Group has previously provided to DOE a list of foreign research reactors which must ship, collectively, over a thousand spent fuel elements commencing early in 1996. DOE has in many cases confirmed these numbers through its own surveys, as well as in on-site inspections in Europe. We understand that, in separate comments, the International Atomic Energy Agency will be submitting to DOE a proposed prioritization for receipts by DOE which is based on a nonproliferation/safety rationale. Our understanding is that the IAEA will call for receipt first of fresh HEU fuel, then non-self-protected spent HEU fuel, then HEU spent fuel from facilities where physical security is lax, followed by HEU spent fuel receipts from facilities which are in poor physical condition, followed by spent fuel from facilities which will experience the most urgent operational problems. *1130-13*

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Response to Comment No. 1130-12

Fresh HEU fuel is addressed in Section 2.1 of the EIS under "Qualifying Fuel Types and Policy Stipulations," fifth bullet. DOE considers that it is not necessary to address the order in which the spent nuclear fuel might be accepted in the EIS, and plans to address these issues separately (including the very good points raised by the commentor).

Response to Comment No. 1130-13

Section 1.2 of the EIS describes the need for immediate action to avoid disruptions in foreign research reactor operations.

If foreign research reactor spent nuclear fuel is accepted into the United States, prioritization efforts will begin. Current plans are to issue a Record of Decision regarding the proposed action no sooner than 30 days after publication of the final EIS. The commentor's position that high priority should be given to management of foreign research reactor spent nuclear fuel from reactors faced with urgent disposition requirements is noted.

Although the Edlow Group is generally supportive of the IAEA's prioritization, we wish to underscore the fact that failure to ship fuel promptly from reactors which will experience severe operational difficulties due to lack of storage space could undermine the objectives of the management alternative selected by DOE by forcing the largest participants in RERTR either to shut down their facilities or to seek alternative arrangements which depart from U.S. nonproliferation goals.

In anticipation of the fact that a substantial number of elements may have to be shipped in 1996, the Edlow Group is exploring with suppliers the joint development of one or more new high capacity shipping casks which could be used to supplement the casks now available. The Edlow Group expects that manufacture of the new cask(s) would proceed apace in the event DOE selects a management alternative which calls for return of fuel elements to the U.S., and plans are now under development for such casks.

V. TRANSPORT REQUIREMENTS

DOE does not regulate, and has no legal authority to regulate, the transportation of spent fuel or other radioactive materials. Spent fuel transportation is governed under international and domestic law by the International Atomic Energy Agency, the Department of Transportation, and the Nuclear Regulatory Commission. In some cases, U.S. Coast Guard requirements and International Maritime Organization requirements also apply. These regulations currently permit the transoceanic shipment on commercial vessels of spent nuclear fuel, the entry into a wide variety of U.S. ports of such fuel, and the transport by either train or truck of shipping casks containing the fuel to any site under consideration by DOE. These regulations have consistently been upheld in litigation. *1130-14*

The Edlow Group would be extremely concerned with any attempt by DOE to mandate transport requirements which putatively supersede or augment those requirements now applicable under the law. We would view such attempts by DOE as a very harmful precedent for the entire nuclear industry, including DOE itself, which must move vastly more nuclear materials than simply foreign research reactor spent fuel. Moreover, we would view such attempts as readily subject to legal challenge on preemption grounds.

Accordingly, the Edlow Group requests that DOE not attempt to impose costly transport requirements over and above those now documented by the cognizant regulatory agencies to be safe and adequate for nuclear materials transport, all of which were authorized by statute or regulation after massive public input. This same principle should also govern DOE's contractual arrangements with the reactor

Response to Comment No. 1130-14

If a decision is made to accept foreign research reactor spent nuclear fuel into the United States to implement the proposed action, DOE would not impose any requirements in the acceptance contract beyond those it deems necessary or appropriate under the circumstances.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

operators. Moreover, it should (but does not now) govern discussion of the analyses in the final EIS. For example, it should be clear in the final EIS that a ten-percent difference in the person-rem exposure between commercial vessels and charter vessels is no basis whatsoever for preferring one vessel over the other if both exposures are, on an absolute basis, inconsequential and within regulatory requirements. (Cf., p. 4-9 of the draft EIS). *1130-14 (Cont'd.)* *1130-15*

VI. THE NO ACTION ALTERNATIVE

The draft EIS's consideration of the "no action" alternative is starkly inadequate. Notwithstanding the paramount policy objectives sought to be achieved by the draft EIS in the first place, the document asserts that there will be no U.S. environmental impacts if the no action alternative is selected. This is incorrect.

First, selection of the no action alternative will decimate the RERTR program, undercutting 17 years of successful and costly bipartisan U.S. efforts to remove HEU from civil commerce. Clearly, the U.S. would not have undertaken the RERTR program if its objectives and benefits were only foreign. The loss of RERTR would mean an increase in civil commerce in HEU worldwide, increasing the risk of nuclear proliferation and nuclear terrorism, each of which can have a dramatic environmental impact for U.S. citizens. As the Oklahoma City and World Trade Center bombings have demonstrated, terrorism is not confined to foreign nations, and there is nothing to suggest that nuclear weapons would not be used if they could be more easily obtained.

Second, since the U.S. currently purchases virtually all radioisotopes used in medicine and hospitals in the U.S. from foreign research reactors, the no action alternative, which would precipitate a widespread shutdown of reactor facilities across the globe, should analyze the impact on the $800 billion U.S. healthcare industry of a precipitous decline in the availability of medical radioisotopes. Indeed, it is likely, if not certain, that selection of the no action alternative would demand that the U.S. build a sizable new reactor in the U.S. simply to make up the shortfall, or that it significantly augment existing reactors. *1130-16*

Third, Executive Order 12114 requires consideration of the impact of any government action on the global commons. In this case, such consideration should include an assessment of the impacts of a wide-scale shutdown of research reactor facilities worldwide, a proliferation of HEU dry storage around the world, and facilitation of global shipping and commerce in HEU and high-level wastes from British reprocessing. (Likewise, Executive Order 12114 would require assessment of

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Response to Comment No. 1130-15

Section 4.2.1.3 of the EIS analyzes the impacts of using either commercial or chartered shipping and demonstrates that, although there are differences between them, both would have low environmental effects.

Response to Comment No. 1130-16

Negative impacts on nuclear weapons nonproliferation efforts of the United States that could result if the No Action Alternative were adopted are described in Section 4.6 of the EIS. Impacts on the global commons are discussed in Section 4.2.1 of the EIS. Apart from safety and security issues relating to uncertain storage and disposal of spent nuclear fuel, the key impacts include an expansion of civilian commerce in HEU, a shutdown of reactor operations in many countries allied with the United States, reductions in the production of medical pharmaceuticals and commercial and industrial radioisotopes, and elimination of many materials testing programs.

As stated in the EIS, the U.S. has an obligation under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) to assist nonnuclear weapons states with peaceful applications of nuclear energy. Actions which compel a country to shut down a peaceful nuclear research program, or to seek reprocessing, could cast doubt on U.S. commitment to NPT principles. Any perception that the U.S. does not support the NPT, which is the foundation of the entire international nuclear nonproliferation regime, would make it that much harder to negotiate further nuclear nonproliferation agreements.

In the event that foreign research reactors that supply medical isotopes to the United States were forced to shut down, it would be necessary to find alternative foreign suppliers or augment capabilities for domestic production of medical radioisotopes. Construction of a new reactor, if these shutdowns occur and if a new reactor in the United States were required, would have to be addressed under a separate environmental document. In addition, the U.S. accrues significant benefits from the operation of foreign research reactors - including Moly-99 and other medical isotopes.

A discussion has been added to Section 1.1 of the EIS that describes potential impacts of management policies for foreign research reactor spent nuclear fuel on efforts of the United States to persuade Russia and China to adopt programs similar to the RERTR program.

the impacts on the global commons of shipping to and from Dounreay under a DOE-sponsored plan.)

1130-16 (Cont'd.)

Fourth, the No Action alternative does not evaluate what impact no action would have on current U.S. efforts to initiate RERTR-like programs in Russia and China. (Indeed, U.S. efforts in Russia and China are not mentioned in the draft EIS.)

VII. MANAGEMENT ALTERNATIVES 2 AND 3

Although many of the members of the Edlow Group continue to sustain close business relationships with AEA Technology in Dounreay, the Edlow Group generally opposes the selection by DOE of Management Alternatives 2 and 3.

Management Alternatives 2 and 3 presume that all or a substantial portion of the foreign research reactor spent fuel would be sent to Dounreay, Scotland, for reprocessing and possible blend-down to LEU fuel. For the following reasons, the reactor operators in the Edlow Group are dubious of the prospects for success with these alternatives:

1) Adoption of these alternatives would conflict with the Administration's nonproliferation policy as expressed in PDD-13. The repercussions of this conflict should not be underestimated.

2) There is no guarantee that Dounreay will continue to operate even if Management Alternative 2 or 3 is selected. Dounreay is subject to many domestic environmental and political considerations, many of which could be impacted if Alternative 2 or 3 is selected. Although selection of Management Alternative 2 or 3 could be perceived as a prerequisite for sustaining Dounreay, such selection may not be the only prerequisite. Thus, to a large degree, selection by DOE of Alternative 2 or 3 relinquishes both U.S. responsibility and U.S. control over the program to an unpredictable third party.

1130-17

3) Management Alternatives 2 and 3 effectively export U.S. environmental impacts to Britain and the North Sea area, a fact which could have unpredictable political and programmatic consequences. For example, one of the principal reasons that Greenpeace's European constituency has not opposed the return of U.S.-origin spent fuel to the U.S. is that group's perceived view (in addition to its support for nonproliferation) that environmental consequences in Britain and the North Sea area would be minimized if the fuel is returned to the U.S. instead of

Response to Comment No. 1130-17

The commentor's opposition to Management Alternatives 2 and 3, as described in Sections 2.3 and 2.4 of the EIS, is noted. The reasons for this opposition are also noted and have been considered during the process of selecting the preferred alternative as described in Sections 2.9 and 4.7 of the EIS.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

reprocessed in Britain. Greenpeace has proved to be a formidable political force in Europe.

4) Management Alternatives 2 and 3 effectively establish a U.S.-led monopoly on alternatives for those reactors who may now avail themselves of the Dounreay option without any interference by DOE. The U.S.-led alliance would essentially remove Dounreay from the marketplace, placing all pricing and programmatic decisions into DOE's hands. Thus, DOE could mandate a blend-down process, could change the price indiscriminately over time, and could manipulate the schedule of receipts and other key aspects of what is now controlled by the private sector. Rather than avail themselves of any such U.S.-led alliance, most of the reactors which can now use Dounreay would likely consolidate their resources to maintain the Dounreay option as it now exists and, thus, the selection of Alternatives 2 and 3 could prove to be ineffective or even counterproductive in accomplishing DOE's policy goals. Indeed, negotiations have been underway between Dounreay and five nations which could form the basis for sustaining Dounreay without DOE interference. Given DOE's recent history as an unreliable partner in the RERTR program, it is understandable that the reactors would desire an extraordinarily low price and extremely firm commitments before availing themselves of any DOE-Dounreay alternative. *1130-17 (Cont'd.)*

5) As far as the Edlow Group is aware, the State of South Carolina desires to receive foreign research reactor spent fuel so long as that fuel can be reprocessed at Savannah River Site. If DOE has crossed the political threshold of deciding to permit (or even mandate) reprocessing with associated blend-down of HEU, it makes no sense for DOE to compel that this be done in Europe instead of (or in addition to) in the U.S. From a political and an environmental point of view, this posture would appear to "maximize the damages" for both DOE and the global environment.

VIII. IMPLEMENTATION ALTERNATIVES

The Edlow Group strongly encourages DOE to reject any alternative implementation strategies discussed in the draft EIS that reduce the duration of the proposed policy, or that reduce the amounts of spent fuel to be received. As noted in our discussion of legal obligations, the Edlow Group believes DOE has a legal obligation receive all spent fuel generated following a reactor's commitment to *1130-18*

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Response to Comment No. 1130-18

The commentor's opposition to implementation alternatives of Management Alternative 1 that reduce the duration of the proposed policy (Section 2.2.2.2 of the EIS) or reduce the amounts of spent nuclear fuel to be received (Section 2.2.2.1 of the EIS) is noted. As discussed in Section 1.2, the intent of the proposed action is to support the U.S. nuclear weapons nonproliferation policy seeking to reduce, and ultimately eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide. DOE does not acknowledge any other legal obligations. See also responses to Comments 1130-2, 1130-5, and 1130-6.

convert its facility under the RERTR program, through the life of the facility, and without time constraint.

As reactors in the Edlow Group have noted, over the long term, it will be necessary to develop non-U.S.-based solutions to foreign research reactor spent fuel management. Recognizing this, some of the reactors in the Edlow Group are prepared voluntarily to accept reasonable restrictions on the duration of the proposed policy. In that context, however, DOE should not apply an arbitrary 10-year or 15-year criterion. In the view of the Edlow Group, DOE has a legal obligation to receive spent fuel from the participants in RERTR as long as those reactors continue to operate. Some reactors (such as PTB) have already announced that they are shutting down prior to what would be the expiration date of DOE's proposed new policy. Others know now that they will operate for another 11 years, or 16 years, or perhaps 19 years. It would be unreasonable, particularly in light of the legal situation facing DOE, for DOE to demand that a reactor close its doors prematurely to satisfy an arbitrary cut-off date, particularly if the host nation for that reactor does not have a waste disposal program at all. Thus, at a minimum, the Edlow Group encourages DOE to take a more case-by-case approach to the issue of policy duration, extending its overall policy for a duration long enough to permit it to accomplish the fundamental objectives of the RERTR program without imposing extreme penalties on the reactor operators which have voluntarily participated in that program. *1130-18 (Cont'd.)*

Likewise, the Edlow Group encourages DOE to stay the course on its nonproliferation policy and to seek return of all U.S.-origin HEU spent fuel (and associated LEU spent fuel from converted facilities) which would accomplish the removal from civil commerce of all HEU worldwide. In this regard, the Edlow Group believes that DOE should describe, in the introductory section of the EIS and in the summary, its programs with Russia and China to develop parallel RERTR programs. *1130-19*

IX. U.S. REPROCESSING ALTERNATIVE

Members of the Edlow Group and their governments believe it would not be appropriate to attempt to recommend to the United States what to do with U.S.-origin foreign research reactor spent once it has arrived safely in the United States. That is a matter of U.S. domestic policy. The Edlow Group is not ideologically opposed to reprocessing of the material in the United States. Obviously, this material was reprocessed in the U.S. for many years. *1130-20*

However, on a practical level, the Edlow Group is concerned that selection by DOE now of a U.S. reprocessing option could derail the EIS process and spawn

Response to Comment No. 1130-19

The commentor's support for Management Alternative 1 (Section 2.2 of the EIS) is noted. Statements have been added to Section 1.1 of the EIS which describe efforts of the United States to persuade Russia and China to adopt programs similar to the RERTR program.

Response to Comment No. 1130-20

The commentor's ideological neutrality on the subject of chemical separation is noted. The commentor's concern about potential litigation is also noted. NEPA, however, requires that the environmental impacts of all reasonable alternatives be evaluated. Concerns over potential litigation do not justify the omission of a reasonable alternative.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

needless litigation, thereby slowing implementation of the recommended alternative, which would only augment the crisis for reactors and governments abroad. There appears to be no legal restriction on DOE receiving the material now and slating it for dry and/or wet storage, and then deciding, based on a subsequent analysis at a later time, that it will recommence reprocessing for this and perhaps other material in inventory in the U.S. Such an approach would permit implementation of Management Alternative 1, while providing a basis for continued negotiations with South Carolina on reprocessing. *1130-20 (Cont'd.)*

The Edlow Group is also concerned that DOE's environmental analysis of reprocessing alternatives, insofar as it calls for reinstituting a previously abandoned U.S. policy, engaging in substantial new activities at Savannah River, and perhaps constructing new facilities, may be inadequate to sustain a legal challenge on NEPA grounds. Conversely, the Edlow Group is confident that, based on the analysis in the EIS, selection by DOE of Management Alternative 1 with a dry storage option (using Savannah River for interim temporary wet storage) could survive legal challenge on NEPA grounds. This is all the more likely given the highly favorable precedent obtained by DOE in the Fourth Circuit Court of Appeals in June 1995. Accordingly, although the Edlow Group has no preference for or against reprocessing in the U.S., we regard dry storage in the U.S. as the substantially less risky implementation alternative, at least until further studies of reprocessing can be completed. *1130-21*

X. PROGRAMMATIC EIS ON DOE SPENT FUEL

DOE's Final EIS on foreign research reactor fuel should take ample credit for the analyses now completed in DOE's Programmatic Environmental Impact Statement and ROD on all of DOE's spent nuclear fuel, DOE/EIS-0203-F. Analyses and decisions in the latter EIS and ROD, to the extent applicable, should be expressly incorporated by reference into the foreign research reactor EIS to aid the public in understanding the thoroughness of DOE's entire program, and to serve as a broader analytical foundation in responding to any possible litigation challenging the EIS. The PEIS is likely to be particularly important in the event of any challenge to the safety and capacity of storage at Savannah River or INEL, to domestic overland transport, and to questions concerning dry storage technology or the ultimate disposition of the fuel. Thus, the PEIS should be explicitly referenced or incorporated in sections of the foreign research reactor EIS dealing with these issues. *1130-22*

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Response to Comment No. 1130-21

The commentor's observation that the selection by DOE of Management Alternative 1 (Section 2.2 of the EIS) with dry storage option, using the Savannah River Site for interim wet storage, would more likely survive legal challenge on NEPA grounds than the chemical separation option, is noted.

Response to Comment No. 1130-22

The Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement (Programmatic SNF&INEL EIS) is cited at appropriate places throughout this document. At the time that the draft version of this document received final edit, the final Programmatic SNF&INEL EIS was not yet available. Inputs from the final Programmatic SNF&INEL EIS are reflected in the final version of this EIS.

XI. JOINT SPONSORSHIP OF EIS

Since the EIS is jointly sponsored by DOE and the State Department, we believe it would be appropriate and useful to include the State Department on the cover of the Final EIS as a co-sponsoring agency. *1130-23*

XII. COST PROJECTIONS

In large part, DOE's cost estimates are completely opaque, either because they are not supported by data and analyses made available to the public, or because DOE has claimed that cost information is proprietary. In any event, DOE's cost estimates for each of the alternatives it has considered appear to be wildly inflated in every component, particularly relative to previous cost-based (as a matter of law) charges levied by DOE and to charges recently imposed by DOE for the EA reactor fuel, as well as relative to documented experience with other countries. On a cost per kilogram basis, DOE's projected costs, if charged entirely to foreign research reactors in the developed countries, would be extraordinarily high and would altogether vitiate any option selected by DOE, undercutting the rationale of DOE's and the State Department's proposed nonproliferation policy. DOE does not explain how legally-cost-based charges of less than $1000 per kilogram in 1988 could have risen by a factor of more than 10 (with no credit for HEU) when standard escalation indices during that same period averaged well under six percent per year. Even in today's environmental context, such a result is unjustified.

As noted above in discussion of price issues, DOE must manage a very substantial inventory of U.S. research reactor fuel and other domestic aluminum-clad and TRIGA fuel already under DOE's auspices. Thus, further receipts of foreign research reactor fuel will impose only incremental costs on activities that must be undertaken by DOE in any event. This fact, although lost in DOE's cost analysis for the foreign research reactor fuel EIS, is prevalent throughout DOE's Final Programmatic EIS on the management of all of DOE's spent fuel, DOE/EIS-0203-F, and should substantially deflate DOE's cost projections. *1130-24*

Although DOE has stated that its assumptions (for example, the number of FTEs required) are "extremely conservative," such extreme conservatism may have a prejudicial impact on the public and on the actual pricing mechanisms employed by DOE policy makers and is thus inappropriate and unfortunate. Indeed, based on experience worldwide, the members of the Edlow Group believe it would be possible to contract on a fixed-price basis with the private sector to manage the spent fuel at a small fraction of the cost projections listed in the draft EIS, particularly in the case of dry storage options.

Response to Comment No. 1130-23

In compliance with the National Environmental Policy Act and Council on Environmental Quality Regulations (Section 5 of the EIS), DOE is the lead agency for the proposed action, and the Department of State is a cooperating agency. While DOE assumes primary responsibility for preparation of this EIS, the document was developed under consultation with the Department of State. It is customary to include the names of the lead agencies on the cover of the EIS and acknowledge the cooperative agencies in the text of the EIS. Omission of the cooperating agency's status on the cover is not intended to diminish the Department of State's significant contributions to this EIS.

Response to Comment No. 1130-24

With respect to cost projections, the following points are noted:

- DOE considers that it has documented the sources for the major cost components and provided these to the public. The only major cost components not documented relate to shipping costs, most of which were provided by or concurred in by the Edlow Group.
- Among the major cost components (shipping, storage/separation, and spent nuclear fuel/high-level waste disposal), DOE is not aware of items that have been artificially or arbitrarily inflated. DOE does not dispute that these costs have risen sharply in recent years. Shipping costs under the EA and geologic disposal costs are two prime examples. The final EIS shows shipping costs to and from developed countries as an element of the program that is not subject to U.S. subsidization.
- Standard escalation indices do not reflect the change in costs for nuclear materials handling and disposal over the past 6 years. The extremely high cost growth in the research reactor area mirrors that in the power reactor area (e.g., low-level waste disposal charges).
- Costs to manage the increment of foreign research reactor spent nuclear fuel at the DOE complex are charged incrementally where appropriate and on an average basis where appropriate. In particular, TRIGA storage is charged as an incremental cost at the Irradiated Fuel Storage Facility (IFSF) or the Fluorinel Dissolution and Fuel Storage facility (FAST) at Idaho National Engineering Laboratory, not a total cost for new facilities. The final EIS shows that staging and storage of aluminum-based spent nuclear fuel at the Savannah River Site is charged to a new facility (or a refurbished facility) using allocated average costs for the entirety of the aluminum-based spent nuclear fuel at the Savannah River Site.

COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

XIII. OTHER COMMENTS

- **Eligibility Criteria. The Draft EIS's statement at the bottom of p. 2-7 (Volume 1) that some "other foreign research reactor operators have notified DOE and the Department of State that they are interested in participating in the proposed spent nuclear fuel management program" is an unfortunate statement that should be removed or recharacterized. This statement makes it appear as if DOE's program is simply a gratuitous offering to reactors which may or may not want to participate. The draft should make clear that, in fact, there are strict eligibility criteria for the program and that, furthermore, the U.S. will actively seek to manage any fuel covered by the eligibility criteria. The eligibility criteria should be keyed to U.S. origin HEU and to LEU associated with conversion under the RERTR program.** *1130-25*

- **PTB Eligibility. We wish to point out that the eligibility criteria listed on page 2-5 of Volume 1 of the draft EIS should be supplemented to include spent fuel from Physikalisch-Technische-Bundesanstalt (PTB), as described in a separately-filed comment from PTB and attached hereto.**

-18-

RESPONSE TO COMMENT
COMMENTOR NO. 1130: EGAN & ASSOCIATES (CONT'D.)

Response to Comment No. 1130-25

Statements have been added to Section 2.2.1.3 of the EIS which clarify the active efforts of DOE and the Department of State to develop a policy to manage eligible spent nuclear fuel from foreign research reactors.

Eligibility criteria described in Section 2.1 of the EIS address spent nuclear fuel from reactors such as the FMRB reactor operator operated by Physikalisch-Technische Bundesanstalt (Table B-3 of Appendix B).

COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION

ERF Comments on Draft FRR EIS, July 20, 1995, page 1

Following are comments of the Energy Research Foundation on the Department of Energy's (DOE) Draft Environmental Impact Statement (EIS) on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor (FRR) Spent Nuclear Fuel (SNF). Our focus is primarily on nonproliferation aspects of the proposal and possible reprocessing activities at the Savannah River Site (SRS).

Nonproliferation Policy

Despite the integral nature of nonproliferation policy to the Draft EIS, the document does a surprisingly poor job articulating how alternatives could affect this policy. To begin, the Draft EIS focuses attention on an overly narrow component of U.S. nonproliferation policy: "The purpose of the proposed policy would be to promote nuclear weapons nonproliferation objectives of the United States, ***specifically by seeking to reduce, and ultimately to eliminate, highly-enriched uranium [HEU] from civilian commerce.***" (p. v, emphasis added)

Reprocessing

Within these narrow confines, the Draft EIS partially recognizes the complication of reprocessing. According to the draft, "The use of chemical separation by the United States as a spent nuclear fuel management technology could increase the accumulation of stockpiles of HEU." (p. 2-16) This is, of course, counter to the stated policy objective.

The Draft EIS then offers, several pages later, a proposed solution to this dilemma. If the HEU were to be blended down to low-enriched uranium (LEU) after reprocessing, the Draft EIS contends, "the nuclear weapons nonproliferation goal would be satisfied because the material would not be usable in weapons after it was blended down....If the HEU were not blended down, DOE and the Department of State might be accused of accepting the foreign research reactor spent nuclear fuel in order to stockpile HEU for future weapons use. To address this concern, DOE and the Department of State would, over time, place the separated HEU under International Atomic Energy Agency [IAEA] safeguards." (p. 2-21) 1136-1

There are at least three problems with this response. First, there are no apparent plans to allow international inspection of the reprocessing and blending operations. Consequently, there are no guarantees to the world community that DOE will in fact carry out its stated intention. This is especially ironic since European reprocessing facilities are operated under Euratom and IAEA safeguards. (p. 2-24) Moreover, the U.S. would rightly insist that operations in other countries be subject to international control sufficient to guarantee that recovered HEU is not diverted to a weapons program.

RESPONSE TO COMMENT COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION

Response to Comment No. 1136-1

DOE and the Department of State do not agree with the commentor's statement that the EIS focuses on an overly narrow component of United States nuclear weapons nonproliferation policy, as embodied in Presidential Decision Directive 13 (PDD-13). The September 27, 1993 White House press release that explains PDD-13 lists a wide range of activities that are designed to address the accumulation of fissile materials. The reduction and eventual elimination of the use of HEU in civilian programs is a separable component of United States nuclear weapons nonproliferation policy that can be analyzed, and upon which decisions can be made independently.

Reducing and eventually eliminating the use of highly enriched (weapons grade) uranium in civilian programs worldwide is an important objective because a relatively small amount of HEU could be used to construct a nuclear weapon. Furthermore, the technology required for an HEU weapon would be more easily developed than that for construction of a nuclear weapon using plutonium (Section 1.2 of the EIS).

If any separated HEU were blended down, there would be no increase in the stockpile of this material in the United States. The EIS specifically states that this would be the preferred alternative were any of the foreign research reactor spent fuel to be processed in the United States (Section 2.2.2.6 of the EIS).

Given the fact that the United States is one of the world's major nuclear weapons states, and ceased production of HEU for nuclear weapons purposes, DOE considers that lack of confidence in DOE's stated preference to blend down any HEU that might be separated should not be a significant issue. This expectation is borne out by the absence of other comments on this issue.

COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

ERF Comments on Draft FRR EIS, July 20, 1995, page 2

Second, a vague promise to place recovered HEU under IAEA safeguards "over time" is not assured either to be implemented or effective. Like the proposed blending operation, this promise can be easily undone by DOE, others in the executive branch, or Congress. In addition, the promise does not cover plutonium which could be extracted during reprocessing. The Draft EIS has a single statement that "the limited amount of plutonium in the spent fuel would not be separated. Rather it would be left in, and disposed of with, the high-level radioactive wastes produced during the chemical separation operation." (p. 4-84) The EIS does not, however, either demonstrate that reprocessing facilities can be operated to ensure that this happens or provide a mechanism that some future decision will not reverse this plan. Again, the U.S. would not accept such vague promises from other nations. *1136-1 (Cont'd.)* *1136-2*

Third, the response ignores other potential nonproliferation impacts of reprocessing. The most significant of these other impacts is touched on two chapters later, but even then the discussion is incomplete.

> Chemical separation of foreign research reactor spent nuclear fuel, with blending down of the separated uranium, would, in fact, result in a reduction in the amount of HEU - a major goal of the U.S. Nuclear Weapons Nonproliferation Policy announced in September 1993. Despite this fact, there is a concern that other states may perceive only that the U.S. has restarted reprocessing.
>
> For example, the potential exists that other states (e.g., Iran), might use the restart of reprocessing in the United States as an excuse to continue current programs or begin new ones - activities that would run counter to U.S. nuclear weapons nonproliferation interests. The implication in North Korea, where the United States has been actively working to create a nonreprocessing zone, as well as in other states, could complicate current U.S. nonproliferation activities. (p. 4-84)

1136-3

In fact, the message to the world would be that the U.S. accepts reprocessing as a waste management technology. This would put us in no position to discourage others from reprocessing and thereby accumulate stockpiles of nuclear weapons-usable fissile materials. Indeed, the impact of a U.S. decision to reprocess might well off-set any potential benefit to nonproliferation objectives gained by receiving foreign research reactor spent nuclear fuel.

Long-term Implications

The Draft EIS further fails to demonstrate that any of the policy proposals will satisfy long-term nonproliferation interests. At most, the proposed policy would involve bringing back LEU SNF generated during the next decade, accepting HEU SNF for an indefinite period, and receiving some target material containing HEU and LEU. (pp. 2-6,11,13) The Draft EIS points out that: *1136-4*

RESPONSE TO COMMENT COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

Response to Comment No. 1136-2

The amount of plutonium in the spent nuclear fuel is very small. Research reactors use a fuel and fuel cycle that does not generate much plutonium. This is even true for the LEU reactors since the LEU fuel is typically around 20 percent enriched, rather than the much lower enrichments used for plutonium generation. While it is true that plutonium could be separated from foreign research reactor spent fuel, DOE has not proposed to do so, and would instead dispose of the plutonium with the high-level waste would not create a critically or diversion issue.

Response to Comment No. 1136-3

Both France and the United Kingdom currently conduct reprocessing as part of their nuclear power fuel cycles. There have been numerous opportunities in the past for such reprocessing activities to be used as excuses for reprocessing by nonnuclear weapons states. In the opinion of the Department of State, nations intent on creating new reprocessing capabilities would do so without regard to whether the United States chemically separates spent nuclear fuel.

Response to Comment No. 1136-4

The definition of the policy duration alternative that includes indefinite acceptance of HEU spent nuclear fuel specifies that any such HEU spent nuclear fuel (except for the small amount in lifetime cores) would either have to have been discharged already, or would have to be generated (i.e. discharged) within 5 years of the date on which any new policy becomes effective. Thus, this alternative would not allow unlimited acceptance of newly discharged HEU spent nuclear fuel into the indefinite future. Rather, it covers a finite amount of HEU spent nuclear fuel that has already been discharged or might be discharged in the rivalry near future, but allows time to resolve any difficulties that might exist in securing the shipment of such spent nuclear fuel. DOE considers that this does provide an incentive for conversion to LEU fuel since the only spent nuclear fuel eligible for acceptance (if the spent nuclear fuel is discharged more than 5 years after implementation of the policy) would be LEU spent nuclear fuel (other than the limited amount in lifetime cores).

COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

ERF Comments on Draft FRR EIS, July 20, 1995, page 3

> By proposing a policy for management of certain foreign research reactor spent nuclear fuel, DOE and the Department of State have no intention of establishing a commitment to continue accepting or otherwise managing the disposition of such spent nuclear fuel indefinitely. Rather, the intent of the proposed new policy is to remove as much U.S.-origin HEU as possible from international commerce while giving the foreign research reactors and their host countries time to convert to operation with LEU fuel and make their own arrangements for disposition of their subsequent LEU spent nuclear fuel. (pp. 1-7,8)

1136-4 (Cont'd.)

The only long-term policy component considered in the EIS - ongoing acceptance of HEU SNF for an indefinite period - is counter to the above stated intention of DOE and the Department of State. Moreover, adoption of this option without significant caveats might discourage research reactor operators from using LEU fuels since the U.S. would no longer assist with their disposition.

1136-5

If the U.S. abandons its policy altogether, though, the incentives appear to be in favor of reactor operators using HEU fuels as well. According to the Draft EIS, conversions to LEU fuel "were expensive and generally resulted in reductions in the capabilities of the reactors and increased operating costs." (p. 1-2) "From the beginning of the RERTR program, foreign research reactor operators made it clear that their willingness to convert their research reactors to LEU fuel was contingent upon the continued acceptance by DOE of their spent fuel for disposition in the United States." (p. 1-3)

In addition, no "available [European reprocessing] facility is currently accepting or has the capability of reprocessing the high density LEU fuels that the United States is encouraging foreign research reactors to use to replace the HEU fuels. Hence, if the research reactors decide to use reprocessing as it has been managed up to this point to prevent backlogs of spent nuclear fuel from building up, they would have to continue to use HEU fuels....If some foreign research reactor operators were to withdraw from the RERTR program and rely instead on HEU fuels, with attendant lower costs and enhanced performance, other research reactor operators would be under pressure to convert to the use of HEU for competitive reasons." (p. 1-4) "[I]f foreign research reactor operators begin delaying or canceling plans to convert to LEU, and thereby continue to use HEU, foreign research reactor purchasers would demand HEU-fueled reactors. This could lead to renewed international commerce in weapons-usable HEU, and would be antithetical to the policy goal of seeking to minimize and eventually eliminate the civil use of HEU." (p. 1-5)

The Draft EIS does not, in fact, explain why DOE contends that foreign research reactor operators would continue their switch to LEU fuels in the absence of U.S. involvement. Based an the considerations above, it seems more likely that they will revert back to the use of HEU fuels, and international trade in HEU will develop between reactor operators, reprocessors, and HEU suppliers early in the 21st Century.

RESPONSE TO COMMENT COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

Response to Comment No. 1136-5

The DOE and the Department of State consider that the proposed 10 year duration of the proposed action would be long enough to allow the United States to accept essentially all of the foreign research reactor spent nuclear fuel containing HEU enriched in the United States (or to arrange for the reprocessing of the spent nuclear fuel and blending down of the HEU). Furthermore, by accepting spent nuclear fuel from foreign research reactors under the limitations specified in the proposed action, the reactor operators will have been given a powerful incentive to convert to operation on LEU fuels during the effective period of the policy. In parallel with these actions to drastically reduce the amount of U.S.-origin HEU in international commerce and convert research reactors to LEU fuel, the United States is separately working to eliminate other current or potential sources of HEU, such as from Russia or China by encouraging these nations to establish foreign research reactor spent nuclear fuel management policies similar to that of the United States. Thus, by the end of any policy period that might be established. DOE and the Department of State hope to have reduced the availability of HEU for use in civil programs to the point where it is no longer a viable option for use as research reactor fuel, and to have enabled almost all of the research reactors to switch to LEU operations. In the absence of further sources of HEU, the reactors would have no options to switch back to HEU fuel after expiration of any new policy that might be established.

A substantially longer period of acceptance might result in more material ultimately being accepted, but would also lessen the near term incentives for conversion.

COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

ERF Comments on Draft FRR EIS, July 20, 1995, page 4

Reprocessing at SRS

The technical discussion of reprocessing foreign research reactor spent nuclear fuel at the Savannah River Site is inadequate, especially in regard to safety and cost considerations.

The "advantages" touted for reprocessing at SRS are misleading. For example, the Draft EIS claims that:

> The conventional chemical separation facilities already exist, as well as the waste treatment facilities required to put the high-level radioactive and other wastestreams [sic] in forms suitable for disposal. In contrast, there are large technical, cost, and regulatory uncertainties associated with direct disposal of intact foreign research reactor spent nuclear fuel (much of it containing HEU). (p. 2-15)

The reprocessing facilities do indeed already exist, but they are forty years old and subject to substantial technical, cost, and regulatory uncertainties never discussed in the EIS. Indeed, in the last few years, several significant and never before reviewed safety questions have come to light. The full importance of these safety concerns cannot be thoroughly known and discussed until up-to-date Safety Analysis Reports are complete.

Reprocessing involves the highest population risk estimates of any alternative considered for SRS - 16 percent chance of a fatal cancel during incident free operations and a 30 percent chance of a fatal cancer if an accident occurs. (pp. 4-90,91) These estimates may be understated since they are not based on a completed safety review of the reprocessing facilities and because DOE uses a dose conversion factor which is only about two-thirds that currently accepted by the National Research Council. 1136-6

Regulatory compliance issues regarding the Resource Conservation and Recovery Act's (RCRA) applicability to SNF and other materials which might be reprocessed remain unresolved. It is also a significant concern that there is no current opportunity for external regulation of reprocessing other than through RCRA. There is substantial uncertainty whether DOE should begin any waste management operation as a self-regulated entity - especially an operation as potentially dangerous as reprocessing. Reprocessing is externally regulated in Europe, for example. (p. 4-99) Also, DOE would likely use licensed cask designs for dry storage of SNF. (p. F-68)

Regulatory compliance is also complicated by the fact that the reprocessing facilities at SRS are not in compliance with DOE Orders. Order compliance is not even addressed in the Draft EIS. An example of the potential significance is in the area of

RESPONSE TO COMMENT COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

Response to Comment No. 1136-6

The commentor's position on the adequacy of the EIS discussion on chemical separation facilities is noted. This EIS, however, is not the only document that would be required to support the restart of chemical separation at the Savannah River Site. The chemical separation facilities would not be restarted without approved safety documentation and a start-up evaluation, including an Order Compliance Review as required by DOE Order 5480.31.

The risk estimates for cancer under the chemical separation alternative (Section 4.3.6.6 of the EIS) are conservative. That is, the real risk probably would be lower. The dose conversion factors used in this EIS to estimate risks of cancer due to radiation exposure (Section 4.1.3 of the EIS) are endorsed and accepted by the NRC and the International Commission on Radiological Protection.

DOE is engaged in discussions with the Environmental Protection Agency and the South Carolina Department of Health & Environmental Control regarding the applicability of RCRA to spent nuclear fuel.

DOE considers that treatment facilities do exist at the Savannah River Site for all the wastes that would be generated by chemically separating the aluminum-based foreign research reactor spent nuclear fuel. The types of waste and estimates of the volumes that would be generated are presented in Section 4.3.6.6.5 of the EIS. The comment does not mention any specific untreatable waste, so DOE is unable to respond in more specific terms.

DOE's cost estimates are realistic and based on the best available information. The life-cycle costs, which include geologic disposal costs, would increase dramatically if the disposal volume for intact spent nuclear fuel increases due to criticality concerns. Chemical separation offers the only proven way to eliminate criticality concerns and thus avoid this volume increase. The projections for a delayed need for dry storage are based on expectations that the available wet storage can accommodate the spent nuclear fuel receipts over an extended period, not on the use of chemical separation.

COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

ERF Comments on Draft FRR EIS, July 20, 1995, page 5

nuclear criticality control. Discussing dry cask storage, the Draft EIS explains:

> In nuclear criticality safety, the principle of double contingency is used to protect against criticality. Double contingency requires that the design of any system containing fissile material use two of the aforementioned factors to prevent the onset of criticality. (p. F-69)

The Draft EIS does not mention, though, that the H-Canyon Safety Analysis Report does not comply with DOE Order 5480.24 which requires addressing the principle of double contingency.

While waste tanks and the Defense Waste Processing Facility exist for managing high-level waste, the tanks are also decades old, and the DWPF is more than six years behind schedule. It is not true that treatment facilities exist for preparing all other reprocessing wastes for disposal.

For another example, the Draft EIS contends that:

> If disposal of intact spent nuclear fuel is shown to be technically infeasible, or if the waste acceptance criteria for a geologic repository require significant dilution of the HEU due to criticality concerns, DOE estimates that the life-cycle costs of chemical separation may be substantially lower than the cost of storage and geologic disposal of intact spent nuclear fuel. (p. 2-15)

The cost estimates in the Draft EIS, however, are so uncertain that they cannot credibly support a decision. The Draft EIS acknowledges that the cost figures are only "rough-order-of-magnitude values." (p. 4-127) It is impossible, based on information included in the Draft EIS, to independently verify the values which add up to the totals. Several of these values appear to be estimates by SRS personnel who are strongly biased in favor of reprocessing. (see e.g., F-293) As an example of their bias, an assumption in their recently completed Fiscal Year 1997 budget request is that dry storage will not be needed before 2005.

1136-6 (Cont'd.)

Reprocessing Costs

Further, the estimates understate reprocessing costs while overstating the uncertainty associated with dry storage. In regard to reprocessing, the Draft EIS essentially ignores costs to upgrade facilities. A rare mention of these costs is a footnote alleging that $210 million could be needed to upgrade the H-Canyon at SRS but excluding those costs from consideration in the EIS "since they would, presumably, be borne by other programs requiring use of the facilities." (p. 4-130)

H-Canyon is forty years old, and this EIS is the only decision making process underway which addresses the possibility of running the facility another ten years or

1136-7

RESPONSE TO COMMENT COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

Response to Comment No. 1136-7

With respect to the comments on cost, the following points are noted:

Chemical separation of foreign research reactor spent nuclear fuel at the Savannah River Site would take place only if a Canyon (H or F) were in operation (at least during the 1997 to 2003 period) pursuant to other requirements. Restarting one or more canyons under the Interim Management of Nuclear Materials (IMNM) EIS is considered realistic. In this case, the foreign research reactor spent nuclear fuel program would bear only the marginal costs of additional chemical separation during the period of concurrent operations and the full cost excluding surveillance and maintenance associated with de-inventoried status. Using the IMNM EIS as a reference, the period of concurrent operations would be 1997 through 2002 to 2005. Chemical separation on a stand-alone basis without a period of concurrent operations would be economically infeasible. Chemical separation on a stand-alone basis after concurrent operations would be possible depending on how fixed costs for the facilities are allocated. Under no circumstance would the foreign research

Commentor No. 1136: Energy Research Foundation (Cont'd.)

ERF Comments on Draft FRR EIS, July 20, 1995, page 6

longer. Upgrade costs should be fully documented in the EIS - not just an unsubstantiated, and probably low, estimate of $210 million but the full costs of bringing the facilities into compliance with current environmental, safety, and health standards. Moreover, foreign research reactor spent fuel activities should be assumed to bear their full and fair share of these costs for purposes of analysis in the EIS. In determining the appropriate percentage of costs to charge to this program, DOE should consider that research reactor fuel is the driver for extended, and potentially ongoing, canyon operations.

The operating costs charged to reprocessing foreign research reactor spent nuclear fuel are significantly underestimated. A mere $1 million per year is charged to the program through 1999. After that, the attributed costs are only $11 million per year through 2003, then $84 million per year for ongoing operations. (p. F-285) As with upgrade costs, the EIS should better ensure that the foreign research reactor spent fuel program is charged a full and fair percentage of operating costs and overhead. It is completely inappropriate to understate these costs in order to make reprocessing appear as an attractive alternative.

Also, reprocessing costs assume operation of only one SRS wet storage basin and essentially uninterrupted reprocessing (~1,800-2,000 elements per year for 12 years). (pp. F-284,285) Both these assumptions are unrealistic, especially in light of recent operating history which shows that the SRS canyons current throughput is lower than historical rates and that work stoppage to address safety concerns is not uncommon. Other reprocessing costs which may not be fully considered are the treatment and disposal of all generated wastes, including transuranics, and the implementation of international inspection and safeguards. In addition, the costs of reprocessing are off-set by a credit for the recovered HEU of $60 million, but this assumes the produced LEU can be sold and does not appear to consider storage costs until the sale takes place. (p. F-286)

Finally, there appears to be no calculation of the costs of dry storage or other activities to manage spent nuclear fuel after reprocessing ceases. There would likely be aluminum-clad SNF - some of which would contain HEU - received at SRS after reprocessing stops. Thus, many of the costs of dry storage, as well as decisions about repository criteria, would still be faced by DOE.

One option not evaluated in the Draft EIS which could affect long-term management of research reactor spent fuel is the development of alternative fuel types, including non-aluminum clad research reactor fuels. According to the Draft EIS, President Clinton's September 27, 1993, directive included a call for the Energy Secretary to "review the need for programs to develop alternative fuels for research reactors." (p. 1-1) There is no further discussion of this review in the Draft EIS, though.

1136-7 (Cont'd.)

Response to Comment Commentor No. 1136: Energy Research Foundation (Cont'd.)

reactor spent nuclear fuel program be the cost driver for upgrades. Only in the pure stand-alone mode would foreign research reactor spent nuclear fuel be the cost driver for operations. All costs in the EIS are based on the marginal effect of the foreign research reactor spent nuclear fuel, not the average effect. Appendix F, Section F.7.1.4 of the final EIS shows a cost sequence of $1 million per year, $11 million per year, and $84 million per year. The final EIS shows a different cost sequence, including lower costs in the canyons as a result of revisions in the IMNM program. The basic concept of marginal costing is retained however.

A processing rate of 1,800 to 2,000 foreign research reactor spent nuclear fuel elements per year would be realistic. The limiting constraint would be transportation cask receiving capacity, not canyon throughput. Total processing is assumed to reach 2,880 elements per year in the IMNM EIS.

All chemical separation costs in the EIS are either marginal operations, or are stand-alone operations as noted in the EIS. Disposal costs of high-level waste and low-level waste are included. Overall costs are lower in the final EIS due to changes in the IMNM EIS.

The Savannah River Site has received expressions of interest from at least one nuclear utility about buying the recovered HEU, blended down to about 5 percent enrichment level. The value assigned to the recovered uranium and separative work is conservative. The cost to dry store aluminum-based foreign research reactor spent nuclear fuel and target material after 2002 is included where chemical separation at the Savannah River Site would take place during the period of processing under the IMNM EIS (1998 through 2002). In the cases where all the aluminum-based foreign research reactor spent nuclear fuel and target materials would be chemically separated (1998 through 2008), no foreign research reactor spent nuclear fuel would be dry-stored at the Savannah River Site and no interim dry storage facilities are charged to the foreign research reactor spent nuclear fuel program.

DOE agrees that, in any case where all of the foreign research reactor spent nuclear fuel is not processed, there would still be costs and uncertainties associated with storage and ultimate disposition of the spent nuclear fuel. Nevertheless, the amount of spent nuclear fuel which would be subject to these costs and uncertainties would be reduced. The development of alternative fuel types does not affect the costs of managing the existing spent nuclear fuels.

COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

ERF Comments on Draft FRR EIS, July 20, 1995, page 7

Dry Storage Costs and Uncertainties

Dry storage costs and uncertainties appear overestimated. The number of casks assumed to implement dry storage, for example, is "very conservative and correspond[s] to a maximum of around 40 percent of the NRC-licensed heat loads per cask." (p. F-91)

As described in the Draft EIS, the large uncertainty for dry storage costs is driven by an "as-yet-unknown criteria for acceptance into a geologic repository and the cost of processing (not chemically separating) the spent nuclear fuel for geologic disposal." (p. 4-130) The Draft EIS, though, does not make a clear case for whether processing will be required. It also fails to indicate whether DOE considered that most of the spent fuel contains LEU, rather than HEU, and therefore poses a lower criticality concern. 1136-8

In addition, the uncertainty estimate includes $500 million for "Adequacy of Limited Spent Nuclear Fuel Characterization" with no explanation of why DOE thinks the characterization will be inadequate. (p. F-293) It also includes $500 million for vault design criteria despite numerous statements in the Draft EIS that, for example, "Redesign engineering should be limited to changes in the design of the basket that encapsulates the fuel...Outside the basket, all remaining components should be identical to those already licensed for commercial nuclear fuel by the NRC." (pp. F-77,293) There is no explanation of the vault design uncertainty which could add $500 million to the total costs.

L-Reactor Disassembly Basin

The Draft EIS ignores significant safety issues associated with use of the L-Reactor Disassembly Basin at SRS. There is no analysis which directly considers facility-specific seismic, monitoring, leak detection, water quality, and other conditions. Instead, the risks are presumably addressed as part of a "bounding analysis."

"The wet pool accidents are assumed to be cutting into the fuel region or mechanical damage due to operator error, an accidental criticality, and an aircraft crash into the water pool facility." (p. 4-42) None of these accidents involve corrosion of the spent fuel - the most serious concern publicly raised in recent years about storage in the basin. There is also no analysis in the Draft EIS to demonstrate that the accidents considered do in fact "bound" facility-specific hazards. 1136-9

The Draft EIS also fails to adequately address activities necessary to prepare the basin for possible use. As the EIS acknowledges, the disassembly basin is "not currently configured for storage of MTR type foreign research reactor spent nuclear fuel,

RESPONSE TO COMMENT COMMENTOR NO. 1136: ENERGY RESEARCH FOUNDATION (CONT'D.)

Response to Comment No. 1136-8

With respect to dry storage costs and uncertainties, the following comments are noted:

- The dry storage design and costs are conservative. These cost estimates are more conservative and costly than an equivalent commercial design because of uncertain requirements for characterization and canning (due both to uncertain DOE and any NRC requirements and uncertain spent nuclear fuel conditions) and higher costs for DOE projects as compared to commercial projects. If the dry storage component of the dry storage option (e.g., shipping, receiving, storage, disposal) were reduced to a DOE-equivalent for power reactor fuel, costs for the storage component of the program might be reduced by several tens of millions of dollars. If the costs were based on commercial utility experience, costs would reduced by an additional tens of millions of dollars. There is , however, no basis for assuming that either the requirements or the implementation will follow commercial power reactor experience. Thus, the conservatism in design and costs is warranted.
- Enrichments in the spent nuclear fuel range from the low teens to around 60 to 70 percent. The LEU is fuel that was originally enriched to as much as 19.9 percent, not the 4 to 5 percent typical of power reactor fuel. The spent nuclear fuel enrichments are on the order of 1/2 to 2/3 of the original enrichments.
- DOE does not consider that the characterization would be inadequate. That is why the characterization item is discussed as an uncertainty instead of being part of the base cost estimate. It is possible that there might be unforeseen conditions discovered during acceptance of spent nuclear fuel from such a large number of sources, or at that the geologic repository acceptance requirements might require more detailed information concerning the spent nuclear fuel than DOE currently considers to be reasonable. An uncertainty figure related to the degree of characterization has been included to account for such developments.
- The vault design criterion relates to characterization facilities that could be required for the extensive testing (e.g., full calorimetry, full isotopic analysis, etc.) that is not currently costed either in the basic vault design or the uncertainty over characterization requirements and operations. It is not related to the storage function, per se, but to the facilities associated with the vault. The issue of double-counting between the facilities and the operations is under review and could result in a reduced estimate for the weighted cost of the two components.

Response to Comment No. 1136-9

Appendix F, Section F.1.3.1.1 of the EIS has been revised to address the concerns expressed in the comment related to the use of the L-reactor Disassembly basin for interim storage of foreign research reactor spent nuclear fuel.

Commentor No. 1136: Energy Research Foundation (Cont'd.)

ERF Comments on Draft FRR EIS, July 20, 1995, page 8

however, minor modifications which would provide new storage racks, new handling equipment, safety documentation, etc., along with upgrades in progress to address vulnerabilities associated with water chemistry control, would permit receipt and management of foreign research reactor spent nuclear fuel. Installation of racks equivalent to those in RBOF would provide storage for approximately 20,000 foreign research reactor spent nuclear fuel elements per reactor basin." (p. 2-60) The Draft EIS also explains that, "Ongoing facility upgrades with epoxy coatings and purification equipment are intended to correct the conditions at the L-Reactor basin." (p. F-38)

In contradiction to the above statement, DOE is not upgrading the basin with new epoxy coatings. It is, however, working to improve water chemistry, installing new racks, and modifying the transfer bay. Efforts to improve water chemistry by reducing conductivity are perhaps the most important factor in determining whether the basin can be safely used for extended storage of SNF. It will be at least October 1995, though, before DOE has actual data to demonstrate whether the deionization efforts are successful. Consequently, the EIS cannot adequately consider the environmental, safety, and health consequences of using L-Reactor basin before then. Given the recent history of the basin, DOE should not decide to put any additional SNF into the basin until these data is gathered and thoroughly evaluated to determine whether storage would be safe for at least the ten years comprising Phase I of the proposal.

The Draft EIS also fails to discuss the status of compliance with DOE Orders, the adequacy of current safety documentation, and similar factors in regard to the L-Reactor Disassembly Basin.

1136-9 (Cont'd.)

Response to Comment Commentor No. 1136: Energy Research Foundation (Cont'd.)

A Basis for Interim Operation (BIO) document for L-Reactor Disassembly basin in cold standby was prepared in accordance with DOE standards for BIO preparation. The document has been added to the reference list of Appendix F. Technical specifications were developed and approved by DOE, and safety analyses were performed to evaluate the hazards associated with storage of irradiated reactor fuel and components in the basin. These analyses determined the effects of process events on the facility worker and the effects of process and Natural Phenomena Hazards events on the public and environment. The document concluded that the L-Reactor Disassembly basin can continue to operate within the safety envelope identified in the document without undue risk to the public or the environment. The BIO addresses the status of compliance with DOE Orders, and current safety documentation.

The impacts of radiological emissions from failed fuel due to corrosion at the L-Reactor Disassembly basin have been evaluated as part of the normal operation emissions in Appendix F, Sections F.6.5 and F.6.6.3.

With respect to the accident analysis at existing facilities, the selected scenarios along with conservative accident progression assumptions (Appendix F, Section F.6.4 of the EIS) are considered to provide a bounding measure of consequences and risks associated with foreign research reactor spent nuclear fuel storage accidents. As indicated in Appendix F, Section F.6.2, the accident scenarios were selected based on the review of previously analyzed site- and/or facility-specific spent nuclear fuel storage accidents as documented in each facility's safety analysis documentation. Specifically for the L-Reactor basin the safety documentation considered is the BIO document discussed above.

The reference to epoxy coatings as an ongoing activity for the L-Reactor Disassembly basin in Section F.1.3.1.1 of the draft EIS is not entirely correct. Epoxy coatings have been applied in the past. Appendix F, Section F.1.3.1.1 has been revised accordingly.

COMMENTOR NO. 1137: GREENPEACE

GREENPEACE

July 20, 1995 34 pages

Following are comments on the DEIS on foreign research reactor fuel return.

Tom Clements
202-319-2506

1436 U Street, NW • Washington, DC 20009 • Tel (202) 462-1177 • Fax (202) 462-4507 • Tlx 89-2359

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • Czech Republic • Denmark • Finland • France • Germany • Greece • Guatemala • Ireland • Italy
Japan • Luxembourg • Mexico • The Netherlands • New Zealand • Norway • Russia • Spain • Sweden • Switzerland • Tunisia • Ukraine • United Kingdom • USA

Printed on Chlorine-free, Recycled Paper using Non-heavy Metal-based Soy Inks

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

GREENPEACE

COMMENTS OF GREENPEACE USA AND GREENPEACE INTERNATIONAL

TO THE U.S. DEPARTMENT OF ENERGY

"DRAFT ENVIRONMENTAL IMPACT STATEMENT ON A PROPOSED NUCLEAR WEAPONS NONPROLIFERATION POLICY CONCERNING FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL", MARCH 1995 (DOE/EIS-0281D)

SUBMITTED ON JULY 20, 1995

1436 U Street, NW • Washington, DC 20009 • Tel (202) 462-1177 • Fax (202) 462-4507 • Tlx 89-2369

Argentina • Australia • Austria • Belgium • Brazil • Canada • Chile • Czech Republic • Denmark • Finland • France • Germany • Greece • Guatemala • Ireland • Italy
Japan • Luxembourg • Mexico • The Netherlands • New Zealand • Norway • Russia • Spain • Sweden • Switzerland • Turkey • Ukraine • United Kingdom • USA

Printed on Chlorine-free, Recycled Paper using Non-heavy Metal-based Soy Inks

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

I. INTRODUCTION

The following comments are submitted by Greenpeace USA and Greenpeace International to the US Department of Energy (DOE) and US Department of State (DOS)(also referred to as the "Agencies") regarding their Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, DOE/EIS-0218D (the DEIS).

Greenpeace is an international environmental organization with offices in 31 countries and some 5.3 million Supporters around the world. In the United States, Greenpeace has some 1.6 million Supporters and operates 3 regional offices.
Greenpeace has international campaigns directly dealing with the issues of nuclear power, reprocessing, transports and proliferation--all issues which are involved in the DEIS.
Since the expiry of the "Off-Sites Fuels Policy" (OSF) at the end of 1988, Greenpeace has submitted hundreds of pages of comments to the DOE in the course of its meandering policy development on this issue.

Greenpeace would like to congratulate the DOE on its decision to conduct an EIS regarding the OSF. For a number of years we have argued that this decision was required by law and made this demand a central point in our comments (GP91, GP93) to the DOE's indefensible OSF EA and FONSI (EA91 and FO91 respectively) released in February 1991 and the Agency's Predecisional Draft Environmental Assessment of Urgent-Relief Acceptance of Foreign Research Reactor Spent Nuclear Fuel, DOE/EA-0912 (the PDD) of 1993 (PDD 93). It should be noted that if the DOE had chosen to conform with the law and conduct an EIS in 1987, when the Agency apparently recognized this requirement (PDD, p1-7), the process could have been completed in the late '80s. Accordingly, any nuclear proliferation threats which exist, due to the expiry of OSF returns, are the responsibility of the DOE and past US Administrations. *1137-1*

Greenpeace would also like to record its strong support for the DOE's apparent recognition that the future handling of the OSF program must be regarded as a matter of great significance in "Reducing the threat of the proliferation of nuclear weapons," and "promot[ing] U.S. nuclear weapons nonproliferation policy (p.1 and cover-sheet of DEIS Summary). *1137-2*
While these concerns may well have been recorded in the DEIS's title, certain management options under consideration would instead amount to a direct threat to the cause of nuclear nonproliferation.

We are very disturbed that the reprocessing of highly enriched uranium (HEU) spent nuclear fuel (SNF) is considered an option in all three of the Management Alternatives under consideration. The "foreign" reprocessing of HEU SNF at either Dounreay (UK) or Marcoule (France) is unacceptable on the bases of nonproliferation, health and safety concerns and amounts to a serious denial of US policy objectives in each of these areas. On the same bases, consideration of reprocessing at US DOE facilities is equally unacceptable and in conflict with national and international policy objectives. While we fully understand that a comprehensive DEIS should consider all possible alternatives, we are convinced that inclusion of *1137-3* *1137-4*

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-1

This Environmental Impact Statement, has been prepared in accordance with the requirements of NEPA to insure that reasonable alternatives were considered in the decisionmaking process.

Response to Comment No. 1137-2

The commentor's support for the objectives of nuclear weapons nonproliferation and the proposed policy is noted. The degree to which the various alternatives analyzed in the EIS do or do not support United States nuclear weapons nonproliferation policy are discussed in Sections 2 and 4 of the EIS.

Response to Comment No. 1137-3

The commentor's opposition to the overseas reprocessing alternative is noted. Specifically, this is Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS. Management Alternative 3 is a combination of Management Alternatives 1 and 2, so it also contains some overseas reprocessing, as discussed in Sections 2.4 and 4.5 of the EIS. NEPA requires that the environmental impacts of all reasonable alternatives be evaluated.

Response to Comment No. 1137-4

The commentor's opposition to consideration of domestic chemical separation is noted. The advantages and disadvantages of chemical separation are discussed in Sections 2.2.2.6 and 4.3.6.1 of the EIS.

The degree to which the various alternatives analyzed in the EIS do or do not support United States nuclear weapons nonproliferation policy are discussed in Sections 2 and 4 of the EIS.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

reprocessing options in the final EIS and resultant program would provoke significant public and political opposition which will once again delay, if not halt this important program. 1137-4 (Cont'd.)

We are also concerned that the current plans for the transport of HEU SNF have not progressed beyond those which have caused public and political censure in the past. The options for these transports appear to place environmental health and safety as well as nonproliferation concerns as a secondary matter to cost and ease of shipping. Inadequate attention to safety and security issues has made such nuclear transports into a matter of international concern and attention. Bad transport planning will guarantee that this program will sail directly into a storm of controversy and further delays. 1137-5

While these comments focus on concerns relating to the reprocessing options and transport plans, Greenpeace has considerable concerns regarding other aspects of this DEIS and the program itself. Given the short space of time provided for review, and given the fact that crucial cited documents are neither completed nor available to the public in draft form, Greenpeace wishes to reserve its right to make additional comments regarding this DEIS and the OSF--we simply have not had time to complete our review of certain new technical and legal issues. In addition, we wish to call the DOE's attention to our submitted comments (GP91, GP93) to their 1991 and 1993 OSF assessments and request that those comments be considered in addition to these provided below. 1137-6
Relevant legal and technical comments/analysis were provided in our 1991 and 1993 comments which will be referred to below but will not be recopied in their entirety given time and space constraints.

II. Overseas Reprocessing Is An Unacceptable Option

The DEIS' consideration of overseas reprocessing is unacceptable as it:

*runs counter to US nonproliferation policy
*runs counter to developed US policy regarding OSF
*is technically and legally flawed
*will engender direct public and political opposition leading to continued delays in the OSF program 1137-7

Any one of these shortcomings is adequate to disqualify the foreign reprocessing option from consideration--taken together, these problems require that this option should not only be eliminated but should be rejected as a matter of public, proactive policy setting for domestic and international purposes.

II.a. Overseas Reprocessing of HEU SNF would constitute an Unjustifiable Reversal of US Nonproliferation Policy

As is stated in the DEIS, "...the United States does not encourage the development of reprocessing capabilities overseas...." (4-99). This policy is linked to the recognition, also stated 1137-8

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-5

DOE disagrees with the commentor's allegation that, in transporting foreign research reactor spent nuclear fuel, human health, safety, environmental concerns, and nonproliferation are made secondary to cost and ease of shipment. DOE's plans would ensure that foreign research reactor spent nuclear fuel, as well as all radioactive materials, are transported in a manner that would minimize human health risks, safety risks, environmental impacts, and nonproliferation concerns. Spent nuclear fuel shipments within the United States have been conducted for over 40 years. In all that time, there has never been an incident in which the spent nuclear fuel transportation cask has released any of its radioactive contents, nor has a spent nuclear fuel transportation cask ever been punctured, even as a result of an accident.

Response to Comment No. 1137-6

The 90 day comment period for the draft EIS ended on July 20, 1995. Comments received after July 20, 1995, were incorporated in this Comment Response Document to the maximum extent practicable. No further Greenpeace comments had been received by the time this document was finalized.

The commentor references previous testimony given during the scoping process. The testimony given during scoping meetings was solicited in order to help DOE determine the scope of the EIS and was responded to in the development of the Implementation Plan on the proposed policy on spent nuclear fuel (DOE/EIS-0218, October 1994). However, to the extent that the earlier comments have been individually referred to in the current Greenpeace comments, responses are provided in the following material.

Response to Comment No. 1137-7

The commentor's opposition to the overseas reprocessing alternative is noted. DOE responds below to the commentor's assertions that 1) overseas reprocessing would run counter to U.S. nuclear weapons nonproliferation policy, 2) it would run counter to U.S. policy regarding offsite fuels, 3) it would be technically and legally flawed, and 4) it would engender opposition leading to delays.

Response to Comment No. 1137-8

The phrases and sentences cited by the commentor came from several different sections of the EIS and do not present a coherent picture of U.S. policy on overseas reprocessing. As discussed in Section 2.3 of the EIS, overseas reprocessing could support U.S. nuclear weapons nonproliferation policy if, and only if, arrangements are worked out with the foreign reprocessors and foreign research reactor operators to minimize the use of HEU. Nevertheless, the text cited by the commentor from page 1-4 of the draft EIS has been revised to clarify the need for some changes from the way overseas reprocessing was done in the past. Also see the response to Comment 311-4.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

in the DEIS, that "...HEU in civilian commerce might be diverted into a nuclear weapons program.
Removal of HEU from international civilian commerce will greatly enhance the goals of the U.S. nuclear weapons nonproliferation policy." (4-118) These recognitions lead to the clear and definitive statement: "While the U.S. Government has full confidence in the physical protection and safeguards systems in place at the British and French reprocessing facilities, reprocessing of spent nuclear fuel containing HEU would sustain international commerce in HEU, in direct contradiction to the U.S. position on nuclear weapons nonproliferation."(1-4)

Despite the apparently clear position staked out in the DEIS against foreign reprocessing, the Authors not only consider this option among those considered in Management Alternatives 2 and 3 but suggests several forms of active encouragement for and participation in overseas reprocessing:

1. The US would "Encourage and provide nontechnical (financial and/or logistical) assistance to foreign research reactors and reprocessors to facilitate reprocessing spent nuclear fuel overseas...."(2-23)

2. The US would actively seek to negotiate new "bilateral agreements" allowing overseas reprocessing (2-25)

3. In the course of facilitating these contracts, the US would in fact be encouraging countries to enter into new reprocessing contracts which had not existed before and in a number of cases, this would involve countries which had never before been interested in and/or allowed to negotiate such contracts.

4. Such contracts with Dounreay or Marcoule would have the effect of further developing/enlarging the reprocessing industry. In the case of Dounreay, the DOE would be supporting the UK in reopening a closed plant and in the case of Marcoule, the US government would be supporting France in adopting a new program of reprocessing foreign HEU SNF.

It is quite clear that these proposed actions amount to active encouragement for reprocessing. It is certainly clear that given the other options provided in the DEIS, the overseas reprocessing option can not be defended as part of current or past commitments to clients or allies and therefore required by US policy or contract. Accordingly, these offers are an unjustifiable encouragement to foreign reprocessing and should remain precluded by US nonproliferation policy as stated.

1137-8 (Cont'd.)

II.b. Overseas Reprocessing Runs Counter to Developed Policy Around the OSF.

As is noted in the DEIS "Under the "Off-Site Fuel Policy," the United States accepted, temporarily stored, and reprocessed spent nuclear fuel containing HEU enriched in the United States." (1-2) This remained US "operative policy" for over two decades until the HEU SNF

1137-9

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-9

Under the expired Off-Site Fuels Policy, overseas reprocessing was not precluded, as suggested by the commentor. Sometimes the foreign research reactor operators leased the nuclear fuel from DOE, so title never left the U.S. Sometimes the foreign research reactor operators purchased the fuel and took title to it, but in these cases the foreign research reactor operators usually chose to send it to the United States after it was irradiated (used).

Overseas reprocessing, per se, would not undercut U.S. nuclear weapons nonproliferation policy. Only overseas reprocessing as it has been done in the past without new arrangements, such as those discussed in Section 2.3 may do so.

The Off-Site Fuels Policy sought to minimize international commerce in HEU, not to preclude overseas reprocessing as suggested by the commentor. This fundamental policy has not changed over the years. In fact, minimizing and eventually eliminating HEU in civil commerce is the primary goal of the proposed action in this EIS.

Reprocessing was considered unacceptable in the context of the Urgent-Relief EA since, in the time available for that action, it was not possible to make arrangements to prevent the separated HEU from being placed back into international commerce.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

returns program under the OSF expired at the end of 1988. It should be noted that during this period, overseas reprocessing was apparently precluded for HEU of US origin.

Building on the earlier "operative policy", the DOE in 1993 and 1994 issued its Draft and Final EA of Urgent Relief Acceptance of Foreign Research Reactor Spent Nuclear Fuel, DOE/EA-0912 (hereafter the EA). In the EA, which clearly provides a basis for the current DEIS, it is categorically stated that "offsite" or overseas reprocessing would not "serve the nonproliferation interests of the United States." (EA, S-2). In numerous instances, these documents suggested that reprocessing at Dounreay "would engender a number of consequences adverse to United States nonproliferation interests."(EA, 1-3). Among the serious consequences threatened by such a development could be "renewed international commerce in weapons-usable HEU and would be directly antithetical to the policy goal of seeking to minimize and eventually eliminate the civil use of HEU."(EA, 1-4)

1137-9 (Cont'd.)

The proposed "Urgent Relief" program was therefore, at least in part, urgent due to the risk of a non-returns policy leading to a resurgence and/or increase in reprocessing. As a further indication of the risk perceived by the US government, it should be noted that it reportedly sought to pay Belgian authorities as much as half a million dollars to discourage them from proceeding with their negotiations with Dounreay.

It is quite clear that in its past incarnations the OSF program has sought to preclude overseas reprocessing as part of US nonproliferation policy. It is inexplicable that fundamental policy positions of this kind should be changed from year to year. As has been true in the past, overseas reprocessing should be precluded.

II.c. The DEIS' Consideration of Overseas Reprocessing Options is Inaccurate, Incomplete and Inconsequential

Put bluntly, the review of overseas reprocessing options in the DEIS is indefensible and pathetic. The analysis contains serious factual errors, gaping deficiencies, and significant contradictions. These discussions do not provide the basis for informed policy making and seriously undermine the legal, political and technical credibility of the DEIS and the EIS process as carried out by DOE/DOS.

II.c.1. The DEIS fails to Consider or Adequately Address the Following Points regarding potential reprocessing at Dounreay:

1137-10

II.c.1.a. The DEIS erroneously states that "The British facilities at Dounreay are currently reprocessing foreign research reactor spent nuclear fuel."(2-24) This is incorrect. The so-called Materials Testing Reactor Reprocessing Plant (MTRRP), at which reprocessing of domestic and foreign HEU fuel has occurred, was in fact mothballed in 1994. On the other hand, the Prototype Fast Reactor Reprocessing Plant (PFRRP), which has been and will be used until as late as 1999 for the reprocessing of fuel arising from the Dounreay Prototype Fast

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-10

The MTR reprocessing plant has not been mothballed as suggested by the commentor. It is not currently operating, but is quite capable of operating. Nevertheless, the text of the EIS has been revised to indicate that the facilities are currently capable of reprocessing foreign research reactor spent nuclear fuel. Also see the response to Comment 490-1.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Reactor, is still operating but not for foreign research reactor (FRR) HEU SNF. It should be noted that the PFRRP is not designed to reprocess FRR HEU SNF. *1137-10 (Cont'd.)*

II.c.1.b. The Agencies Seem Confused and Unclear about the Nature of Reprocessing Facilities at Dounreay. As the DEIS does not go into detail about the facilities at Dounreay, it is impossible to guess what the Authors know about defunct and operational facilities. But, they appear to think that the mothballed MTRRP is not only open but operating on FRR HEU SNF--all of which is wrong. It is also possible that they think that the PFRRP is working with FRR HEU SNF. This is also wrong. In any case, the Agencies have neglected to state which plant(s) they are talking about and which plant(s) they would consider using. They have neglected to assess the nature and capacities of the reprocessing facilities, etc. *1137-11*

The bottom line is that the MTRRP which is extremely old and decrepit would need to be reopened, and presumably overhauled, in order to reprocess HEU SNF considered under the OSF. Such a decision would entail considerable economic, environmental and political assessments and costs--none of which have been considered let alone assessed in the DEIS.

II.c.1.c. Dounreay Reprocessing Is Precluded by the Criteria Set Out in the DEIS. The DEIS states that the DOE and DOS "would only consider the subalternative in France or the United Kingdom where the capability already exists." (4-99) *1137-12*
As the HEU SNF would need to be handled in the MTRRP, and given the fact that this plant was mothballed in 1994, this plant does not constitute an 'already existing capability'.
In fact, causing the MTR to reopen would be to encourage new reprocessing capacity and commerce in HEU.

II.c.1.d. The DEIS Inaccurately Characterizes the Nature of Radioactive Discharges from Dounreay. Although the DEIS provides very, very little data about Dounreay and its discharges it states that it, along with the other controversial reprocessing plants in Europe: "... routinely release small quantities of radionuclides into the environment and produce radioactive wastes." (4-99) Noting that these releases "would cause a small, unmeasurable increase in world-wide natural background radiation levels" the DEIS nonchalantly sweeps the discharge issue aside by stating that such discharges would only "produce impacts on FOREIGN TERRITORY AND POSSIBLY IN INTERNATIONAL WATERS."(4-99, emphasis added)

In seeking to justify this blasé attitude, the DEIS supplies release figures from Dounreay to the North Sea in 1993. The authors neglect to mention that 1993 was a record year at Dounreay for research reactor reprocessing--the MTR reprocessing plant operated near its maximum design specifications in reprocessing some 1,000 spent fuel elements. *1137-13*
During this year, "routine" discharges of plutonium to the atmosphere increased by 600% and to the sea by 450% over the average discharges for the period 1989-92. The only reason that the discharges represented a fraction of the "applicable regulatory limits" is because these limits have been set at an unjustifiably high and dangerous level. It should be noted that this practice is now prohibited by the latest UK/EC environmental regulations. Limits are now regulated based on the necessity to discharge rather than on a high theoretical figure.

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-11

See the responses to Comments 490-1 and 1137-10, above. Any maintenance or refurbishment work necessary for the reprocessing plants at the Dounreay Site would be regulated by authorities in the United Kingdom, so they would be outside the scope of this EIS. Any economic, environmental and political assessments and costs at the Dounreay Site would also be outside the scope of this EIS.

Response to Comment No. 1137-12

The Dounreay Site has the capability necessary to reprocess foreign research reactor spent nuclear fuel. Furthermore, reprocessing does not inevitably lead to increased commerce in HEU. It could, but if Management Alternative 2 is selected then new arrangements would be put in place to minimize commerce in HEU. (Section 2.3 of the EIS.)

Response to Comment No. 1137-13

DOE cannot respond to the commentor's allegation that the United Kingdom regulatory authorities have set their regulatory limits for discharges at an unjustifiably high and dangerous level because this is a matter for the United Kingdom regulatory authorities. The kind of analyses requested by the commentor are not in accordance with Executive Order 12114, which deals with the Environmental Effects Abroad of Major Federal Actions.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Although Washington may be a distance from Dounreay, DOE and DOS officials would do well to get their facts straight nonetheless. The issue of Dounreay's discharges has been a matter of intense domestic and international concern. Most recently, in 1995, the UKAEA has requested permission to increase actual radioactive discharges to the environment by up to 1,000%. While these discharges are partially based on PFR reprocessing, it is clear that the increased discharge levels are being requested in the hope that the MTRRP will be reopened due to winning new contracts under or outside of the OSF program. This outrageous request has capped a rash of domestic and international protest (discussed below) which all the more assures that Dounreay's reprocessing future is doubtful at best. *1137-13 (Cont'd.)*

II.c.1.e. Dounreay Does Not Comply with US Criteria for HEU disposition. The DEIS sets out two criteria which would need to be met by foreign reprocessors in their handling of reprocessed HEU: 1. the capacity and commitment to downblending reprocessed HEU to LEU, and, 2. the capacity and commitment to reprocess research reactor (RR) LEU SNF as well as HEU SNF in order to encourage clients to remain within the RERTR program.(2-24) Dounreay does not have the capacity to comply with either of these criteria.

While the DEIS sets out the first criteria, i.e., downblending capacity, it does not discuss Dounreay's current or future capacity to conduct such activities. This is an inexplicable and fatal omission. We believe that Dounreay has little if any downblending experience or capacity. It is quite clear that facilities for downblending would need to be constructed in order to undertake the handling of reproHEU of the amounts under consideration. Accordingly, Dounreay does not comply with this criteria nor that of being a facility where the "capability already exists."(see II.c.3.)

While the DEIS sets out the additional criteria of RR LEU SNF reprocessing it does not discuss Dounreay's current or future capacity to conduct such activities. This is an inexplicable and fatal omission. Dounreay does not have the capacity to reprocess RR LEU SNF. New facilities would need to be constructed. Therefore, Dounreay does not comply with this criteria, nor with the criteria of choosing only facilities where the "capability already exists," and finally, the construction of a new RR LEU SNF reprocessing line at Dounreay would clearly put the US in the position of directly encouraging increased reprocessing activity and capacity. *1137-14*

Finally, both these criteria assume that uranium fuel containing contaminated uranium arising from reprocessing (reproU) will prove commercially useful. The DEIS does not provide any assessment of the issues relating to the reuse of contaminated reproU despite the fact that it is fully aware that use of this uranium has considerable economic, environmental, technical, and worker/public health implications. This omission is inexplicable as it calls into question the practicality and support for this option.

II.c.1.f. The DEIS Neglects to Address the Question of Plutonium Disposition Arising from Dounreay Reprocessing. The DEIS admirably points out the significance of plutonium content in FRR HEU SNF from a transport standpoint (5-11), but it does not address this same matter from a reprocessing and disposition standpoint with regard to the Dounreay reprocessing option. As the US government has stated that such plutonium is usable in nuclear *1137-15*

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-14

The Dounreay Site has the capability to blend down all the HEU that would be involved in this program. See the figure attached to the UKAEA comment letter included in this volume as Comment Document 442 for information on Dounreay's downblending experience and plans.

New facilities would not need to be constructed at the Dounreay Site to reprocess the new high-density LEU nuclear fuel, as stated by the commentor. Actually, only minor modifications to the existing facilities would be necessary.

The intent of the proposed action is support for U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate the use of, highly enriched weapons-grade uranium in civil programs worldwide (Section 1.2 of the EIS). The commercial usefulness of the uranium is a secondary consideration. Nevertheless, the HEU could be blended down with appropriate stocks of natural or depleted uranium to make a commercial product.

Response to Comment No. 1137-15

The plutonium content of foreign research reactor spent nuclear fuel is presented in Table B-8 in Appendix B. If the foreign research reactor spent nuclear fuel were to be reprocessed at the Dounreay Site, the trace amounts of plutonium in the fuel would not be separated from the bulk of the fission products. The plutonium would be treated along with the fission products in the high-level waste.

weapons, it is clear that the DEIS, given its concern with nonproliferation, must address the plutonium disposition question with regard to overseas reprocessing. 1137-15 (Cont'd.)

II.c.1.g. The DEIS' Assessment of Nuclear Waste Disposition from Dounreay Reprocessing is Inaccurate, Incomplete and Naive. In discussing possible FRR HEU SNF reprocessing in the US, the DEIS correctly states "Chemical separation would increase the total volume of waste (including liquid high-level waste raffinates,transuranic wastes, various solid and liquid low-level wastestreams, acidic wastes, chelating and complexing agents, and solvents)...."(2-16) Inexplicably, there is no equivalent discussion of the nature and disposition methods for the handling of Dounreay's waste streams.

In a piece of indefensible political alchemy, the DEIS neglects to discuss the nature and disposition of waste save that which is classified as "high level" (HLW) in the US. This of course means that issues relating to the handling, transport and disposition of the overwhelming volume of waste is simply neglected. This is a fatal flaw rendering the DEIS legally and technically indefensible.

In assessing the treatment of HLW at Dounreay, the DEIS documents the fact that the UK inexplicably conducts its own political alchemy in that "the wastes from reprocessing of research reactor spent nuclear fuel are classified as intermediate-level radioactive wastes," and notes "(In the United States, these same materials would be classified as high-level radioactive wastes." (4-101). A number of points must be made:

-obviously, the characterization of "the wastes from reprocessing" as all being intermediate level in the UK or high level in the US is foolish and inaccurate-as noted above there are a mixture of different wastes, the overwhelming proportion of which is not even mentioned 1137-16

-Dounreay's waste processing and storage practices do not comply with US standards. Not only does this mean that the US will not accept such wastes as part of the OSF but it should also mean that the US prohibits any support/encouragement for such inadequate and faulty waste practices.

Additionally, the DEIS states that "French and British regulatory agencies require the customer to take back the wastes as a condition of reprocessing spent nuclear fuel." (4-100) As this statement receives no further discussion nor clarification, we are left to understand that British authorities require that all wastes arising from reprocessing at Dounreay would have to be received by the RR operators and/or by the US. Yet quantities, transport measures, ultimate disposition for this tremendous quantity of waste is not discussed. In any further analysis the Agencies must make it clear that either all wastes will be returned to clients and/or the US and analyze the implications of this or they must explain and justify the retention of foreign wastes in the UK.

The DEIS states that "The government of the United Kingdom might allow an exchange of vitrified commercial waste from Sellafield for cemented waste from Dounreay...." It is quite clear that policy-making, and environmental analyses should not be based on policies which

Response to Comment No. 1137-16

The United Kingdom and the U.S. government have different definitions of high-level waste and intermediate level-waste. This is a simple difference of regulatory practice among governments.

Dounreay's waste processing and storage practices comply with United Kingdom standards, not with U.S. standards. The U.S. government does not have the authority to impose its standards on another sovereign nation.

The text of the EIS has been revised in response to this comment to indicate that all of the waste (including low-level waste) would have to be exported from the United Kingdom. This is another of the arrangements that would have to be established before the overseas reprocessing alternative could be implemented in the United Kingdom with U.S. assistance. In Dounreay's experience, however, insignificant amounts of low-level waste have been produced during reprocessing of research reactor spent nuclear fuel.

DOE considers that it is beneficial to examine a wide range of options, including some that are uncertain at this time. The exchange of vitrified waste from the Sellafield Site for cemented waste from Dounreay is one example of such an uncertain option.

The vitrified waste being produced at the Sellafield Site today is similar to the vitrified waste that is expected to be produced at the Defense Waste Processing Facility at the Savannah River Site. Therefore, the Sellafield vitrified waste form is likely to be acceptable for disposal in a geologic repository in the United States. The impacts of ultimate disposition of spent nuclear fuel are discussed qualitatively in Section 4.2.7 of the EIS. A detailed, quantitative discussion of these impacts would have to be the subject of future NEPA documentation when further information and analysis are available.

U.S. based storage of vitrified waste from the Sellafield Site would not be the same as stockpiling weapons-usable plutonium. Vitrified waste would contain only trace amounts of plutonium trapped in a chemically inert glass.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

"might" do one thing or another. It is clear that Dounreay is not an acceptable option under this program as it does not conduct waste practices in compliance with US regulations; most specifically it treats HLW in a way which could not be accepted for radiposition in the US as this program would apparently require. It is also quite clear that a waste swap would also not comply with US policy as the waste to be brought to the US or foreign customers would not in any way be connected to the reprocessing of the material brought to and reprocessed at Dounreay.

Finally, in considering the storage of vitrified HLW from Sellafield, the DEIS fails to provide data about the nature, content and quality control of this material. This omission is a fatal flaw which precludes the necessary analyses legally required in an EIS. Of even greater importance, US-based storage of waste arising from Sellafield would make a mockery of the US position that it will not encourage the separation and stockpiling of weapons-usable plutonium. Acceptance of vitrified high level "plutonium waste" arising at Sellafield would clearly make the US an accessory to activities which it has vowed not to encourage. *1137-16 (Cont'd.)*

II.c.2. The DEIS fails to Consider or Adequately Address the Following Points Regarding Potential Reprocessing at Marcoule:

II.c.2.a. The DEIS fails to describe and analyze facilities at Marcoule which are apparently under consideration under Management Alternatives 2 and 3. While the DEIS notes "French facilities at Marcoule are planning reprocessing of French research reactor spent nuclear fuel in the near future..."(2-25) no further discussion occurs on the timing, nature and content of these activities. As there is no description or analysis of the facilities or their activities it is clear that this option has not been assessed as is required. *1137-17*

II.c.2.b. Marcoule Reprocessing is Precluded by the Criteria Set Out in the DEIS. The DEIS seems to suggest that the Marcoule facilities are not now reprocessing research reactor fuel and are certainly not reprocessing foreign research reactor fuel. This would appear to place the use of Marcoule in clear conflict with the criteria that a plant must "currently" operate for the purpose of HEU reprocessing. In addition, this option would be at conflict with US commitment to not encourage further development of new reprocessing activity as it would bring Marcoule into the market of reprocessing FRR HEU SNF. *1137-18*

II.c.2.c. Reprocessing at Marcoule is in Conflict with Safeguards Requirements Laid Out by the DEIS. It is stated that the "candidate" reprocessing facilities located in Europe "are operated under EURATOM and IAEA safeguards"(2-24). Marcoule is a military production facility which is only under partial safeguards. The DEIS does not list the facilities under consideration and therefore does not show that the Marcoule facilities which might be used are only those under safeguard. For example, while head-end activities would involved the CEA/COGEMA TOR facility, additional separation activities would take place in UP1 which has been and continues to be operated for military production purposes under the control of the CEA. As the French mix their "civilian" and "military" fuel cycles, it is quite clear that the issue of facility safeguarding and materials accountancy are far from clear. For example, in their latest report on physical protection and safeguards of nuclear materials in France (covering year 1993), the *1137-19*

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-17

The discussions of the reprocessing facilities and activities in France are adequate for determining the feasibility of this alternative. The additional analyses suggested by the comment are outside the scope of this EIS since the activities involved would occur within a sovereign nation and outside the United States.

Response to Comment No. 1137-18

There is no criteria in the draft EIS that a plant must be currently operating to consider it for reprocessing the foreign research reactor spent nuclear fuel. As discussed in Section 4.4.2.1, the United States does not encourage the development of reprocessing capabilities overseas, but the capability already exists in France.

Response to Comment No. 1137-19

Before any decision to reprocess the foreign research reactor spent nuclear fuel at the Marcoule Site in France would be implemented with U.S. assistance, arrangements in support of U.S. nuclear weapons nonproliferation policy would have to be established. These arrangements could include a requirement that the separated uranium remain under safeguards. However there is no guarantee that such arrangements could be worked out.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Ministry of Industry states:

"In any case, France keeps the control of the materials which are free to use [for any purpose including military] and can transfer them at any moment, by a simple act of accountancy, from the sector under safeguards to the sector outside EURATOM safeguards and the other way round."

Given France's policy, and given the lack of information provided in the DEIS, it is not defensible to say that Marcoule activities would be conducted under safeguards. *1137-19 (Cont'd.)*

II.c.2.d. The DEIS Provides No Data to Support The Claim of Minimal Radioactive Discharges. As was noted above with regard to Dounreay, the DEIS contends that only "small quantities" of radionuclides are discharged into the environment from European reprocessing plants including Marcoule. As in the case of other reprocessing plants in Europe, considerable concern exists about discharges from such plants in France. If the DEIS is to suggest that such discharges from a controversial, militarily secret plant like Marcoule are insignificant, then it will need to provide the factual discharge data to support that claim. *1137-20*

II.c.2.e. The DEIS does not Indicate that Marcoule Complies with US Criteria for HEU disposition. While the DEIS states that downblending of reproHEU and reprocessing of RR LEU SNF are necessary criteria for the choice of a foreign reprocessing plant under this program, the Authors provide no data whatsoever about either such capacity at Marcoule. Such capacity would need to be demonstrated and its potential impacts analyzed before the Agencies could be deemed in compliance with their own criteria let alone those of NEPA. In addition, given Marcoule's military status, and the nature of France's 'mixed fuel cycle', the DEIS must demonstrate how US nonproliferation goals would be assured at Marcoule. *1137-21*

II.c.2.f. The DEIS Neglects to Address the Question of Plutonium Disposition Arising from Marcoule Reprocessing. The DEIS admirably points out the significance of plutonium content in FRR HEU SNF from a transport standpoint (5-11), but it does not address this same matter from a reprocessing and disposition standpoint with regard to the Marcoule reprocessing option. As the US government has stated that such plutonium is usable in nuclear weapons, it is clear that the DEIS, given its concern with nonproliferation, must address the plutonium disposition question with regard to overseas reprocessing at Marcoule. *1137-22*

II.c.2.g. The DEIS' Assessment of Nuclear Waste Disposition from Marcoule Reprocessing is Incomplete and Naive. In discussing possible FRR HEU SNF reprocessing in the US, the DEIS correctly states "Chemical separation would increase the total volume of waste (including liquid high-level waste raffinates,transuranic wastes, various solid and liquid low-level wastestreams, acidic wastes, chelating and complexing agents, and solvents)...."(2-16) Inexplicably, there is no equivalent discussion of the nature and disposition methods for the handling of Marcoule's waste streams. *1137-23*

At the same time, the DEIS correctly states that "...French regulatory agencies require the

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-20

As mentioned in the response to Comment 1137-13 above, the statements in the EIS are accurate on this subject. The radioactive releases from the Marcoule Site are regulated by the French government and DOE does not have the authority to impose any change in those regulations. The kind of analyses requested by the commentor are not required by Executive Order 12114, which deals with the Environmental Effects Abroad of Major Federal Actions.

Response to Comment No. 1137-21

The Marcoule Site has the capability to blend down all the HEU that would be involved in this program. Before a decision to reprocess the foreign research reactor spent nuclear fuel at the Marcoule Site could be implemented, COGEMA would make any necessary facility modifications or improvements.

New facilities would not need to be constructed at the Marcoule Site to reprocess the new high-density LEU spent nuclear fuel. Actually, only minor modifications to the existing facilities would be necessary.

For a discussion of how U.S. nonproliferation goals would be assured at the Marcoule Site, see the responses to Comments 311-2 and 1137-19.

Response to Comment No. 1137-22

The plutonium content of foreign research reactor spent nuclear fuel is presented in Table B-8 in Appendix B, not on page 5-11 as stated by the commentor. If the foreign research reactor spent nuclear fuel were to be reprocessed at the Marcoule Site, it would be DOE's preference that the plutonium not be separated from the bulk of the fission products. DOE would prefer that the plutonium be vitrified along with the fission products in the high-level waste. This is one of the arrangements in support of U.S. nuclear weapons nonproliferation policy that would have to be established before the overseas reprocessing alternative could be implemented with U.S. assistance.

Response to Comment No. 1137-23

The text of the EIS has been revised in response to this comment to indicate that all of the waste (including low-level waste) would have to be exported from France. This is another of the arrangements that would have to be established before the overseas reprocessing alternative could be implemented in France with U.S. assistance.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

customer to take back the wastes as a condition of the reprocessing of spent nuclear fuel...."(4-100) Oddly though, the DEIS suggests that only vitrified HLW is and would be involved in waste returns. In fact, according to the French Nuclear Waste Law of 30 December 1991, the storage in France of any waste arising from foreign sources is prohibited. In addition, Ministerial level officials from the last three French governments have pledged that all reprocessing wastes will be returned to the clients.
Accordingly, in considering the return of nuclear waste from Marcoule, the DEIS must address the handling, packaging, transport and eventual disposition of all wastes generated by Marcoule reprocessing. The omission of this data and analysis precludes this option and renders the DEIS fatally flawed. *1137-23 (Cont'd.)*

II.d. Reprocessing of Foreign RR HEU SNF at Dounreay or Marcoule Would Occasion Tremendous Opposition which would Delay if not Preclude this aspect of the OSF.

II.d.1. Public and Political Opposition to Dounreay Reprocessing Precludes this Option for the OSF.

It is quite clear that Dounreay reprocessing of FRR HEU SNF would fan the flames of domestic and international opposition which have all but ended such activity at the plant otherwise.

On the domestic front, it must be understood that Dounreay faces massive opposition in Scotland. As reprocessing at the plant is all but finished--the MTRRP closed as of last year and the PFRRP will be finished within the next few years--the threat of new foreign contracts has created considerable opposition and anger. The Scottish National, Labour and Liberal Democratic parties have all gone on record against such contracts and the required restart of reprocessing activities at the plant. As these parties represent the overwhelming majority of Scottish voters their will is already important in the political balance of UK politics and will be all the more important and powerful in the next national government. Should the next government be Labour or a mixed Labour/Lib Dem government, Dounreay is finished. Dounreay is simply not a reliable 'management' option for the OSF. *1137-24*

Local opposition has also grown to the point where the local Highland Regional Council has also made it clear that it does not support the signing of new foreign reprocessing contracts. This is crucially important as reopening and rehabilitation of the MTRRP, and construction of downblending and LEU reprocessing facilities will all require permission from the Highland Council. This local opposition therefore all but guarantees extended delay if not an outright block to new reprocessing operations at Dounreay.

Finally, there has been intense regional opposition to Dounreay from countries around the North Sea region. When the OSF program lapsed and Dounreay began negotiations for new contracts with foreign clients in the early 90's, countries throughout the region wrote letters of protest to the UK government. Letters came from numerous Nordic and Northwestern European nations as well as from the Nordic Council, and the European Parliament. Direct protests occurred including the decision of the Dutch government to stop a German RR HEU SNF

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-24

NEPA requires that the environmental impacts of all reasonable alternatives be evaluated. Reprocessing abroad is considered a reasonable alternative under the conditions set forth in the EIS.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

transport to be sent via the port of Rotterdam.

More recently, when notified about Dounreay's request to increase its radioactive discharges into the North Sea (see above at 2.c.1.c), assuming the signing of foreign HEU SNF reprocessing contracts and the reopening of the MTR, 8 nations represented at the Joint Meeting of the Oslo and Paris Commissions on June 26-30, 1995, concurred on a statement of concern and condemnation (see Appendix). With the opposition of these countries: Denmark, Iceland, Ireland, Netherlands, Norway, Portugal, Spain and Sweden, it is clear that fierce and powerful opposition must be expected to a resumption of FRR HEU SNF reprocessing at Dounreay. *1137-24 (Cont'd.)*

Ultimately, DOE and DOS must recognize that the Dounreay option is far from an "easy way out". It will be a political nightmare involving guaranteed delay and obstruction. After 7 years of delay and miscalculation, this is a fight the US government simply does not need.

II.d.2. The Marcoule Option will Meet with Considerable Political and Public Opposition which will Further Delay and Jeopardize the OSF.

On the domestic level, reprocessing has come under increasing attack in France itself. Of particular concern to the public is the fear that reprocessing contracts will allow massive quantities of nuclear waste to remain in France. Accordingly, plans to sign new contracts with foreign RR customers will be met with great suspicion and concern. Given the lack of commitment expressed in the DEIS to returning all nuclear wastes to either the RR clients and/or the US, French law and public opposition would clearly be mobilized to block such agreements on the French side. *1137-25*

At the same time, given recent international consternation and condemnation of France's decision to resume nuclear testing, the US should not expect public or political support for reprocessing contracts with Marcoule. Given France's dismissal for the concerns of other nations and its arrogant disregard for the disarmament process and its NPT responsibilities, it is quite unlikely that countries will be prepared to sign reprocessing contracts with a French military facility in the name of nuclear nonproliferation.

In sum, the Agencies would do well to concentrate on options which can support nuclear nonproliferation and the RERTR program in the most rapid, effective and least controversial fashion.

III. US Reprocessing of FRR HEU SNF is not an Acceptable Option

Greenpeace is extremely concerned that domestic US reprocessing is put forward as an option in Management Alternatives 1 and 3. We strongly endorse the DOE's statement as contained in the DEIS: "...chemical separation of spent nuclear fuel in existing facilities is not preferred by DOE as a technology for management of spent nuclear fuel in the *1137-26*

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-25

See response to comment 1137-24, above.

Response to Comment No. 1137-26

The commentor's opposition to domestic chemical separation is noted. The advantages and disadvantages of chemical separation are discussed in Sections 2.2.2.6 and 4.3.6.1 of the EIS. NEPA requires that the environmental impacts of all reasonable alternatives be evaluated.

DOE responded to the referenced comments (GP91 and GP93) when they were submitted. Since the commentor did not mention any specific comments from those references that apply directly to this proposed action DOE is unable to respond in specific terms.

DOE has not rejected the chemical separation option, nor has DOE suggested that special circumstances would nonetheless justify chemical separation, as suggested by the commentor. DOE is simply considering overseas reprocessing as one of the alternatives for managing the foreign research reactor spent nuclear fuel.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

United States because of the necessity of handling additional wastestreams and because it could increase the accumulation of stockpiles of HEU." We are therefore surprised and dismayed that the reprocessing option is nonetheless considered as it is clear that reprocessing should be precluded in compliance with the environmental and nonproliferation policies the Agencies are promoting through the OSF and RERTR programs. We do not accept the defacto presumption that worker and/or public safety will be served by reprocessing nor do we accept that reprocessing will assist in the safe storage and or disposition of nuclear waste.(2-16) Reprocessing unnecessarily endangers workers and the public and it exacerbates and complicates the nuclear waste problem.

Greenpeace has commented extensively on the risks, dangers and contradictions posed by reprocessing in the US as part of our comments to prior documents analyzing the OSF program (see GP91 and GP93). For the sake of space and time, we ask that our comments from these earlier papers be reconsidered at this time with reference to the DEIS.

At the same time, we wish to make brief comments amplifying on the "disadvantages" stemming from reprocessing which are contained in the DEIS as justification for rejecting the reprocessing option. We also wish to provide additional policy arguments which we feel preclude any consideration of the reprocessing of RR HEU SNF. *1137-26 (Cont'd.)*

Finally, commitment to non-reprocessing options can respond to the worker/public health and safety and disposition concerns raised in the DEIS at 2.2.2.6. and therefore any resultant documents to this DEIS can and should categorically preclude the reprocessing option. If the Agencies do not agree, they are required to definitively and clearly state the nature and rationale for reprocessing and analyze all potential impacts of such activities undertaken under the auspices of the OSF program. The EIS for this program can not at once reject the reprocessing option and suggest that special circumstances would nonetheless justify reprocessing under the program.
Contradiction of this type would fatally flaw any future EIS and would open the Agencies to legal challenges which would further delay this program.

III.a. Reprocessing Would Increase the Nuclear Waste Problem

As is stated in the DEIS: "Chemical separation would increase the total volume of the waste" generated in the course of the OSF program.(2-16). In order to press this issue home, the DOE should publicly state the colossal volumetric increase occasioned by reprocessing. In a recent study commissioned by Greenpeace of reprocessing in the UK, the volumetric increase occasioned by reprocessing at Sellafield was shown to be as much as 189 times the volume contained in the original SNF.(LA92) *1137-27*

While defenders of reprocessing suggest that "volume reduction" will bring these figures down it is widely recognized that "volume reduction" is a cynical 1984ism for discharging waste into the environment by changing its form or changing regulations in order to render once dangerous waste miraculously "below regulatory concern".

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-27

The volumes of wastes that would be generated during chemical separation and the management of those wastes are discussed in Section 4.3.6 of the EIS. The reasons why chemical separation was not dismissed from consideration on the basis of waste minimization and management are discussed in Section 2.2.2.6 of the EIS.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Given the existence of viable storage options for HEU SNF, it is clear that reprocessing should be precluded on the basis of nuclear waste minimization and management alone. 1137-27 (Cont'd.)

III.b. Reprocessing Produces a Range of Chemical, Mixed and Nuclear Wastes.

As is noted in the DEIS, beyond the increased volume of nuclear waste produced, reprocessing also produces wastes "...which are complex, involving corrosive, flammable and toxic liquids."(2-16). Spent fuel is itself a dangerous and difficult material to handle and store, but it is quite clear that reprocessing complicates and exacerbates the nature of the waste problem in a qualitative and unjustifiable manner. 1137-28

III.c. Resumption of Reprocessing under the OSF would Overturn key Domestic Policy.

The DEIS notes that reprocessing under the OSF "could increase the accumulation of HEU stockpiles" and would overturn US policy which "does not engage in reprocessing (chemical separation) for either nuclear power or nuclear explosive purposes, and seeks to eliminate, where possible, the accumulation of stockpiles of HEU or plutonium." This policy has developed over a number of years and constitutes the realization of a key step in the disarmament and nuclear nonproliferation process. Withdrawal from this policy would not only reintroduce new environmental and public health dangers but it could also endanger US national security through encouraging other nations to act without nonproliferation restraints. Given the existence of other options for the handling of HEU SNF, these key domestic policies should not be overturned. 1137-29

III.d. The Resumption of Reprocessing Could have Significant Negative Effects on the International Level

III.d.1: The Reprocessing of Foreign HEU SNF Could Discourage Countries from Participating in the OSF.

During the years when the OSF returns program was operating, considerable international concern was voiced about the US' diversion of reproHEU, arising from civilian RRs, into its nuclear weapons production program; ie, its use as driver fuel in the SRP production reactors. Such concerns are likely to resurface should reprocessing resume under the OSF as it is quite clear that resumed reprocessing of FRR HEU SNF would occur in facilities which still remain "closed" for military reasons and remain outside of international safeguards. In addition, the DEIS makes it clear that separated HEU would remain at least temporarily within the US military establishment; the DOE and DOS "would, OVER TIME, place the separated HEU under International Atomic Energy safeguards."(my emphasis added) (2-21). Countries with strongly anti-nuclear public opinion and/or aggressive nonproliferation policies are unlikely to "do business" with the US nuclear weapons production complex. 1137-30

In addition, RR HEU SNF exists in some countries which might well use the resumption of RR HEU SNF reprocessing in US DOE facilities as a justification for retaining material which they could otherwise not justify keeping under the OSF. They could of course additionally argue

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-28

The variety of wastes that would be generated during chemical separation and the management of those wastes are discussed in Section 4.3.6.6.5 of the EIS.

Response to Comment No. 1137-29

The commentor's concerns regarding chemical separation are noted. As stated in Section 2.2.2.6 of the EIS, if a policy to use chemical separation were to be adopted, it would be DOE's preference to blend down the HEU to preclude its use in nuclear weapons.

Response to Comment No. 1137-30

As discussed in response to Comment 1137-29, above, if reprocessing is implemented, DOE would prefer to blend HEU down to LEU (Section 2.2.2.6 of the EIS).

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

that they will keep their HEU SNF under international safeguard and therefore render the material more proliferation resistant than it would be in the US where the material would not be handled under safeguard.

In either case, the resumption of HEU SNF could have serious implications for the effectiveness of the OSF program at the international level. In turn, non-compliance with OSF could well lead to significant withdrawals from the RERTR program and a resultant increase in the use of and commerce in weapons-usable HEU. These concerns should preclude the resumption of HEU SNF reprocessing in the US. *1137-30 (Cont'd.)*

III.d.2. The Resumption of HEU SNF Reprocessing Will Encourages International Reprocessing and Marketing of Weapons-Usable Fissile Materials.

While current US policy may not encourage reprocessing, this position would clearly be undercut by the resumption of HEU SNF in the US. The resumption of reprocessing of "civilian" materials., ie. RR HEU SNF, would clearly provide the large commercial reprocessors with an excuse, even a justification by example for their own activities. This could have the effect of further encouraging the traditional reprocessing countries like France and Britain and undercut the trend among traditional reprocessing clients to break old contracts and terminate negotiations for new contracts. The vested economic and political supporters in reprocessing states and their client nations will clearly argue that the US policy shows that reprocessing is both good for nonproliferation and nuclear waste management.

In addition, countries considering the construction of new reprocessing plants (Russia, China and Japan) or the offering of new commercial reprocessing contracts (Russia or India) will no doubt find encouragement in the resumption of "civilian" reprocessing in the US. In addition, states which have sought but been discouraged in gaining access to foreign reprocessing (Iran, South Korea, Taiwan) will clearly be strengthened in their justification, if not resolve to gain equal access to commercial reprocessing. US pressure on these countries is crucial in stopping the dangerous separation, stockpiling and marketing of weapons-usable fissile materials yet a resumption of reprocessing in the US will clearly undermine this position. *1137-31*

Finally, it is quite obvious that states that might be deemed of particular proliferation risk may choose to use US resumption as justification for their own dangerous maneuvers to ascertain reprocessing capacity and/or nuclear weapons materials. As the DEIS states:

"... there is concern that other states may perceive only that the U.S. has restarted reprocessing. For example, the potential exists that other states (e.g., Iran), might use the restart of reprocessing in the United States as an excuse to continue current programs or begin new ones-activities that would run counter to U.S. nuclear weapons nonproliferation interests. The implications in North Korea, where the United States has been actively working to create a nonreprocessing zone, as well as in other states, could complicate current U.S. nonproliferation activities."

Given the fact that viable non-reprocessing options exist for the OSF, it is inconceivable why the US would chose to disregard and undermine its own nonproliferation goals and interests by

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-31

Chemical separation has been included as one of the alternatives considered in the EIS in response to public input during the scoping process, and it is considered a reasonable alternative under NEPA. Furthermore, both France and the United Kingdom currently reprocess spent nuclear fuel. Reprocessing by these countries has not led to a spread of reprocessing to other countries. The Department of State considers that other countries would not need the excuse of U.S. reprocessing to justify reprocessing, if they wished to undertake such an activity.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

resuming reprocessing. 1137-31 (Cont'd.)

III.d.3. US Resumption of Reprocessing Seriously Jeopardizes Future Negotiations Towards a Fissile Materials Ban

As a significant element in its nonproliferation and disarmament agenda, the Clinton Administration has committed itself to pressing for a Ban on Fissile Materials Production (FMB). It has discussed the matter in bi and multilateral negotiations and has played a lead role in having the UNGA place the issue on the UNCD negotiations agenda from 1995 onwards. It is quite clear that this historical initiative will be seriously undermined by a resumption of HEU SNF reprocessing in the US. Beyond allowing other weapons states to use this as a justification for not negotiating a FMB, non-nuclear weapons states could have their own interest in a more comprehensive FMB shattered. At a time when non-nuclear weapons state signatories to the NPT are looking to the weapons states to realize their disarmament commitments, the resumption of reprocessing in the US could prove a decisive and devastating blow to the international nonproliferation regime. This significant threat to the FMB alone should preclude OSF initiated resumption of reprocessing in the US. 1137-32

IV. The DEIS' Analysis of and Proposal for Transport Options is Flawed and Technically and Legally Indefensible

Greenpeace finds that significant elements of the current DEIS' evaluation of transport options and risks are shockingly inadequate and indefensible. We are disturbed that cavalier attitudes about transport safety and security have been all but carried over from earlier, deficient DOE assessments of the OSF (see EA91, FO91, PDD93, EA94). We believe that serious deficiencies in the scope, content and conclusions of the DEIS render it fatally flawed and technically and legally indefensible.

Greenpeace has submitted tens of pages of comments specifically on transport issues discussed in this document's predecessor analyses. As foolish inadequacies and discrepancies have been carried over from these earlier DOE documents, we formally request that transport analyses contained in our prior papers and their appendices be considered as commentary on this one. (see GP 91 and 93) 1137-33
Given requirements of space and time, we will not repeat these analyses but refer the Agencies to comments made in our earlier comments regarding: the inadequacy of RADTRAN analysis, the requirement of analyzing the nature and effects of low-probability/high consequence accidents, shipping container inadequacy, ship choice for enhanced safety, route planning, requirement for non-stop voyages, global commons issues, issues/risks relating to terrestrial transports, and security issues.

At the same time, we will also contribute below a few specific, additional comments on glaring problems in the DEIS pertaining to inadequate evaluation of the shipping containers, vessels and route planning, and accident and security analyses and recommendations.

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-32

The United States is a leading country in the effort to achieve a ban on the production of fissile materials for use in nuclear weapons. The United States does not currently engage in chemical separation for use in weapons or power production. If the United States were to choose reprocessing as a management technology, it would be conducted in a way that would be compliant with a fissile material cutoff agreement and current U.S. policies on reprocessing as identified in the EIS. As stated in Section 2.2.2.6 of the EIS, it would be DOE's preference that any separated HEU be blended down to LEU, probably for use in power reactors. At least one U.S. utility has expressed an interest in obtaining such LEU. The small amounts of plutonium in the spent nuclear fuel would be left in the waste product and disposed of geologically.

If reprocessing were to be selected as an approach, a consideration would be increased certainty associated with geologic disposal of high-level waste compared with the aluminum based spent nuclear fuel.

Response to Comment No. 1137-33

Human health and safety were the primary considerations during the evaluation of the proposed action. Great effort was expended to honestly and fairly assess the risks associated with the proposed action, all of its alternatives, and all of its ramifications. All practical options were evaluated, even those that would be more expensive, such as chartered versus regular commercial shipping.

DOE has responded, as appropriate, to Greenpeace comments submitted in other matters, either through formal responses or as part of DOE's decision making process. Thus, DOE will respond here only to specific points raised in this matter.

RADTRAN is a peer-reviewed, widely used and accepted risk evaluation code.

All reasonably foreseeable consequences associated with this proposed action have been evaluated and the results are presented in Section 4 of the EIS, as well as selected, plausible low-probability, high-consequence accidents.

In regard to shipping container inadequacy, see the response to Comment 1134-34, below. Appendix C, Section C.3.1.2 of the EIS describes all of the types of ships that might be used; Sections 4.2.1.2 and 4.2.2.2 evaluate the incident-free risk using various types of ships and the risks for all ships were found to be low. Route planning would be a function of the shipper; however, only established shipping routes would be used. Nonstop voyages were found to be unnecessary, due to the low risk associated with shipping of the foreign research reactor spent nuclear fuel. The risks associated with terrestrial transportation are evaluated in Section 4.2.3 of the EIS, and found also to be low.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Finally, for the historical record, we wish to state that the DEIS' transport analysis and recommendations appear to have been greatly and tragically affected by an understandable but dangerous desire to cut costs. In turn, diminished safety and security caused by this "cost-effective" approach have been justified by banalizing the risks and effects of nuclear transport accidents. Given the fact that this program will launch a massive number of highly dangerous transports, these deficiencies are not just inadequate from a policy standpoint, they are morally and politically reprehensible. Unless the Agencies are prepared to require safe and secure transports they can rest assured that they will be faced with considerable legal, public and political opposition. *1137-33 (Cont'd.)*

IV.a. The DEIS Fails to Address Recognized Inadequacies in the Current Generation of Nuclear Transport Containers

A crucial element in the safety system described by the DEIS is the so-called "Type B" transport container or cask.
Despite the fact that there is an increasing body of technical analysis which shows that these containers are not sufficiently designed and tested to withstand severe transport accidents which have occurred, the DEIS simply neglects these concerns by stating that "regulatory tests are structured to place an upper bound on the kinds of damage seen in actual severe transportation accidents."(5-11)

This statement simply places the DEIS out of step with regulatory reality. While the DEIS bases the adequacy of its containers on IAEA analysis, it is not noted that this analysis has fallen apart under the weight of technical criticism. For decades, the IAEA has maintained that the integrity of Type B casks was assured regardless of the mode of transport. This mode independent philosophy should have been rejected at the time of its inception as it was/is quite clear that different transport modes involve different forces and therefore should require different designs and testing.
Common sense has finally won out and the IAEA, with US participation, is in the process of developing regulations for a new air transport container (Type C) due to the recognition that air transport involves forces beyond those involved in the design and testing of Type B containers.(See IAEA40) *1137-34*

This development should amount to a sea change in the regulation of nuclear transports--a change which must be urgently applied to sea transport as well which is widely acknowledged as involving potential factors far beyond those taken into account in the design and testing of Type B containers. Despite the fact that we have brought these factors to the attention of the DOE in numerous past submissions we do so again as they have not in any way been addressed let alone mentioned in the DEIS. The following discussion outlines our concern that the current design and testing parameters for Type B containers does not provide adequate guarantee of integrity during serious accidents.

Drop Test

These tests, like the DOE's risk assessment calculations, are based on hypothetical scenarios. *1137-35*

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Appendix H has been added to the final EIS in response to public comments to better describe the security and emergency preparedness associated with transportation of the foreign research reactor spent nuclear fuel. This appendix includes the general provisions of the overall Transportation Plan, which in turn, provides for the preparation of individual transportation plans for each shipment. The individual transportation plans would cover the details associated with the transportation of the foreign research reactor spent nuclear fuel, including the security arrangements in port and in transit to the management site.

Response to Comment No. 1137-34

The spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 30 years of spent nuclear fuel shipments, no radioactive contents have ever been released from a spent nuclear fuel transportation cask, nor has a spent nuclear fuel transportation cask ever been punctured, even as a result of an accident. "Type B" casks would be used for marine and ground transport. No air transport of foreign research reactor spent nuclear fuel has been proposed as part of the implementation of the proposed action. The new air transport regulation changes do not apply to the existing "Type B" casks, and neither NRC nor the International Atomic Energy Agency has any plan to change regulations that would affect the current required test simulations for "Type B" casks.

Response to Comment No. 1137-35

The drop test required by the regulation (10 CFR Part 71.73) is part of a series of tests that are performed sequentially to determine the cumulative effect of a simulated severe accident scenario. It is important to note that these tests are designed to provide a cumulative effect, rather than the individual test results. In addition, a cask that is certified against breach if dropped from 30 feet onto an unyielding surface does not mean it would be breached if it drops from 31 feet. The unyielding surface criterion requires that the result of the impact be borne completely by the cask. For the test, the cask is oriented such that its weakest point would strike the surface. Drops from heights 2.5 to 3 times greater onto normal hard surfaces, such as dock pier or ship hull, would be comparable. That is equivalent to a drop from a height of 75 to 90 feet. Real-life crash tests of the prototype spent nuclear fuel transportation casks indicate that the casks can protect their content in crashes up to 130 kilometers per hour.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Common sense alone shows that the test parameters do not effectively address the real world possibilities. For instance, drop tests involve falls from 40 inches onto a steel bar and 30 feet onto an unyielding surface: however, cranes regularly lift cargoes into and out of ship holds to heights orders of magnitude greater than those involved in the drop tests. At the same time, truck transports travel over bridges or embankments which involve heights far greater than those the tests envision. 1137-35 (Cont'd.)

Fire Test

Despite the drop tests shortcomings, of even greater concern is the inadequacy of the fire and immersion tests for guaranteeing the integrity of casks in real accidents.
According to a report produced by the DOE contractor Battelle and published by the IAEA, the following observations are made:

1) "A cask will survive a minor fire of the order of 30 minutes, without loss of integrity."
2) "A fire lasting an hour or more would cause the pressure relief devices to vent. This intermediate fire would release the contaminated cooling water but would not fail any of the fuel elements."
3) "After approximately four hours some fuel elements will begin to fail."
4) "An extended fire of nine hours or more might be required to fail all the fuel pins." (HA76)

These results show that in a fire of as little as one hour, spent fuel casks will expel their radioactive coolant water, and that after as little as 4 hours, the fuel rods in the casks will begin to fail with the result that in as little as nine hours all the fuel pins in a cask will have melted. With the resultant failure of casks' seals or structural integrity, cask and fuel failure of this kind could therefore lead to a massive release of radioactivity carried by virtue of air currents fed by the fire and/or by the entry of water into the ship itself.[see GP91] 1137-36

Fires of the ferocity and duration sufficient to cause cask failure are a documented fact in the world of shipping.
According to records of the International Maritime Organization, the mean duration of shipping fires at sea is some 23 hours, while the mean duration of fires in port is 20 hours. (See LA90) These statistics, compiled for fires over a two decade period, include a standard deviation of 68 and 44 hours respectively. At the same time, the DOE itself confirms that shipping fires involving hydrocarbon fuels can reach temperatures in excess of 1000 C. (See US86; LA90 (example of Taiwan EA using example of fire in NYC). Fires of this intensity have now been adopted as a standard when looking at the risks of serious shipping fires. (See LO79; DA87)

An accident of this kind would be adequate (as can be seen from the plume diagram in GP91, Appendix B) to cause a massive nuclear contamination accident with devastating, long-term effects on the environment and human populations--in a port population of 1 million inhabitants, there could be thousands of latent cancer fatalities from a relatively severe but hardly worst-case accident. (See GP91, Appendix B).

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-36

The observations that the commentor is referring to are from a study of the effects of a long duration fire on an old model of spent nuclear fuel transportation cask which used water as a cooling medium and was equipped with a pressure relief valve. The current casks do not contain water as a cooling medium. If a transportation cask is heated in a high intensity fire (flame temperature in the order of 1500 to 2000 degrees F) for a long period, as suggested by the commentor, it would eventually fail. However, there would not be any contaminated water release, because the spent nuclear fuel elements are shipped in dry casks. Examinations of real-life fires on land and at sea, and fire tests, have demonstrated that high intensity fires would not likely be sustained for lengthy periods, and even then, not in a single location. Section 4.2.1.3 and Appendix D, Section D.5.4.3.2 of the EIS present an evaluation of a wide range of fire scenarios, including a high intensity prolonged fire involving spent nuclear fuel. The results indicate a very low overall risk to the public and the environment.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Serious accident scenarios have simply been defined out of possibility and removed from this EA's scope for no defensible reason.

It is quite clear that the DOE's complacent attitude about the capacity of type B casks to withstand serious maritime fires is simply not borne out by the facts. Rather than using an example of a shipping fire that lasted for one hour at a duration of one hour (US 86 referred to in US 91), DOE should use the example of the ferry Moby Prince which collided with an oil petroleum tanker, the Agip Abruzzo off the Italian port of Livorno on April 10, 1991. The fire onboard the Moby Prince raged for 45 hours at temperatures in excess of 1000 C. Clearly, such a ship fire calls into question the adequacy of the IAEA fire test of 30 minutes at a temperature of 800 C.

US policy makers indicated their own concern about the adequacy of IAEA cask test criteria. In 1987, after Congressional concerns were raised about air transports of plutonium which were slated to land for refuelling in Alaska on their way from Europe to Japan, the Congress amended the Nuclear Waste Policy Act of 1982 in order to require that casks be tested under circumstances modelling a real worst case scenario. In 1987, in a clear rejection of the IAEA's own standards adopted here by DOE, the U.S. Congress required that casks developed for these transports would: 1137-37

A) Require an actual drop test from maximum cruising altitude of a full-scale sample of such container loaded with test materials...

B) Require an actual crash test of a cargo aircraft full loaded with full-scale samples of such container loaded with test material... (CR87)

As noted above, this concern has forced the IAEA to undertake policy review and an overhaul of its air transport requirements.

Similar tests of this kind, ones which identify realistic, worst-case scenarios, should be used to guarantee cask integrity. Without reference to such tests and with reference to actual maritime fire data it is quite clear that there is an inadequate guarantee of security provided by the casks to be used in this program.

Immersion Test

Similarly, the cask tests for immersion are also inadequate.
The IAEA immersion tests involve submersion under a head of water of at least 3 feet for not less than 8 hr and all packages must also be subjected to a separate test in which an undamaged cask is submerged under a head of water of at least 50ft for not less than 8 hr. The shipments involved in this program will not only sail over waters of continental shelf depth (200m) but also across high sea areas the depth of which may be thousands rather than hundreds of meters. Clearly, accidents involving casks could occur over depths greater than 200m and involve immersion under tremendous pressure for a sustained period. Submergence at depths of less than 200m could occur for far greater periods than eight hours. 1137-38
Accordingly, immersion incidents beyond cask design parameters are a distinct possibility.

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-37

See the responses to comments 1137-36 and 1137-34, above.

Response to Comment No. 1137-38

Section 4.2.1.3 of the EIS presents an evaluation of the consequences of accident scenarios that would result in the sinking of a spent nuclear fuel transportation cask on the continental shelf (water depth of about 200 meters), and in deep ocean (water depth of more than 200 meters). Should a loaded spent nuclear fuel transportation cask sink anywhere in the U.S. coastal waters, it would be recovered, regardless of water depth. In the deep ocean, if a cask were to sink and could not be recovered, seawater would enter the cask. Since the cask internal pressure is atmospheric, the seawater would be driven into the cask due to the existence of a large pressure differential across the cask seals. Once the cask was filled with seawater and pressurized, the pressure would equalize across the seals, and the water inside the cask would then have a chance to egress. It is only after the pressure equalizes across the cask seals that the contaminants (radioactive materials) would be able to diffuse out of the sunken cask. The EIS evaluated the consequences and risks associated with a nonrecoverable transportation cask in the deep ocean (Section 4.2.1.3 and Appendix C, Section C.5 of the EIS).

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Clearly DoE cannot realistically suggest that salvage operations will occur in these depths within the time periods identified by the IAEA tests (one and eight hours respectively).

In addition, according to the DOE itself "A cask submerged in waters deeper than 200 meters is considered unrecoverable."
This effectively suggests that casks lost at depth will simply be left alone thus allowing the possibility that deep sea pressures and corrosion will finally take their toll and casks will loose their integrity and radiation will be released to the environment.

In sum, it is widely held that the current generation of Type B containers has simply been inadequately designed and tested to withstand the considerable strains of serious maritime accidents. For example, in the conclusion to an independent study, prepared by ECO Engineering of Annapolis, submitted by Greenpeace International to the International Maritime Organization it is concluded that: "there is no substantive evidence to support any claim relative to the integrity of a cask exposed to the consequences of a maximum credible marine accident. Without such supporting evidence, one cannot accept the premise that any cask or container is impervious to the kinetic energy of ship collisions, to the time-temperature domains of shipboard fires, or to the hydrostatic pressures associated with immersion in deep water." (See MSC92) 1137-38

A number of potential accident scenarios beyond cask design parameters are clearly possible. Any one of these scenarios could cause the integrity of casks to be breached and radioactive material could be released to the environment with significant impacts. [1]

An additional factor that must be taken into account is the possibility that FRR operators may not have adequate experience with nuclear casks to guarantee that correct procedures are followed for the loading and sealing of Type B containers. As the DOE will not oversee this element of the program, it is possible that contamination accidents could occur even without additional accident eventualities. 1137-39

In sum, the safety of nuclear transports at sea is not adequately guaranteed by the inadequately designed and tested casks currently in use. Rejection of these claims will not make transports safer nor will they rid the US government of the protest and opposition it will face by use of inadequate transport packages.

IV.b. The DEIS Fails to Evaluate the Safety Benefits of Different Ship Types

The DEIS takes a very strange approach to analyzing the transport ship options available for bringing HEU SNF to the US. While the ship types are presented in Appendix C, there is no analysis of the respective virtues or shortcomings of the different vessel-types. This may be the kind of window-dressing which gives the impression of the job getting done but it is clearly not the technical analysis required by good policy-making or the law. 1137-40

This superficial attitude is unfortunately carried over in the DEIS' recommendation:

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-39

Prior to use of a specific transportation cask, the shipper would have to comply with the specifications, limitations, and maintenance requirements of the cask as required by the cask's certificate of compliance. Further, a Transportation Plan detailing inspection procedures for the loading of the spent nuclear fuel at the foreign research reactor site would be provided by DOE prior to any individual spent nuclear fuel shipment. General provisions of the transportation plan are provided in Appendix H of the EIS.

Response to Comment No. 1137-40

Management Alternative 1 makes no recommendations about the mode or type of shipping and clearly states that chartered ships include purpose-built ships, as well as commercial ships, that might be used.

Section 4.2.1.3 of the EIS analyzes the impacts of using either commercial or chartered shipping and demonstrates that, although there are differences between them, both would have low risks and impacts.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

"Under the basic implementation of Management Alternative 1, the foreign research reactor spent nuclear fuel would be shipped by chartered and/or regularly scheduled commercials ships from foreign ports to the United States. Chartered shipments would be on purpose-built ships or general purpose commercial cargo ships. Regularly scheduled commercial shipments would be on general purpose commercial ships carrying other cargo at the same time."(2-9)

Why are different vessels to be used? What makes a transport 'regular' and therefore safe on a general cargo vessel loaded with mixed goods, meandering among different ports, and when is it 'irregular' and therefore requiring of the enhanced protection of a dedicated, purpose-built vessel? None of this is explained; the different options are not analyzed on the basis of safety or security. Clearly, this is neither a real recommendation nor is it a real analysis. 1137-40 (Cont'd.)

Stemming from these deficiencies, the following issues need to be addressed in preparing the final EIS:

IV.b.1. Failure to Address the Exclusive Use of Purpose-Built Ships.

The DEIS fails to consider the exclusive use of ships constructed specifically for transporting irradiated nuclear fuels, known as "purpose-built" ships. Purpose-built ships are equipped with numerous safety features not found on cargo ships: these include hull stability and strengthening additions, duplication of all major systems, 24 hour radiation monitoring of personnel and casks. (See LA90) Purpose-built ships are currently available. For example, British Nuclear Fuels, Ltd. (BNFL) owns six purpose-built ships that cross tens of thousands of miles of sea a year while carrying cargoes of up to 24 LWR casks.[2] BNFL is actively pursuing additional contracts and clients.[3] Despite the obvious benefits and readily available information, DOE did not compare the risks of shipping via standard cargo ships versus purpose-built ships. 1137-41

The use of standard general freight vessels for these shipments is a clear indication that cost of the shipments has been made a greater concern than has the safety and security provided by the vessels engaged. It is quite clear that a general cargo vessel can not be expected to have special features, and/or trained personnel who could deal with accidents involving a nuclear cargo. At the same time, the maintenance and standards on-board such freighters are notoriously poor--thus the image of rusted out tramp freighters. 1137-42

Unfortunately, the DOE has allowed such shipments to be made by this type of vessel in the past with quite frightening results.

In a DOE document outlining a small part of the Agency's past SNF returns history, we have found the names of five standard cargo vessels each of which was used at one time to carry a freight of research reactor spent fuel during the Phase I segment of the program to carry Taiwan research reactor fuel back to the U.S.[4] These shipments occurred between August of 1986 and July of 1988. During its transport of research reactor fuel, the general dry good 1137-43

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-41

Appendix C, Section C.3.1.2 of the EIS discusses types of ships that could be used, including purpose-built ships. While the specific risks of using purpose-built ships were not analyzed, Section 4.2.1.3 of the EIS analyzes and compares the impacts of using either commercial or chartered (which includes purpose-built ships) shipping. This section demonstrates that, although there are differences between them, both would have low environmental effects and low risks.

Response to Comment No. 1137-42

The safety record of commercial freighters is actually quite good. As shown in Appendix C, Section C.5.5 of the EIS, the accident rate is 0.00032 per port call and 0.000046 per deep ocean voyage. Put another way, of every commercial ship that enters a port, only one in 3,125 ships will have an accident. Likewise, only one in over 21,000 deep ocean voyages result in accidents at sea. An accident in this context covers anything that is large enough to involve insurers.

DOE considers that using a reputable shipping line is a safe way to transport foreign research reactor spent nuclear fuel. Historically, foreign research reactor spent nuclear fuel has been shipped on commercial carriers without major accidents and with no release of radioactive materials.

Response to Comment No. 1137-43

DOE agrees with the commentor that shippers with poor safety and reliability records should not be used, and if DOE does contract for foreign research reactor spent nuclear fuel shipments, it would only do so with reputable shippers. DOE invites the commentor to submit, for DOE's consideration, a list of shippers who should not be used for the proposed action. It should be noted that shipping is the responsibility of the owner of the spent nuclear fuel, so DOE expects not to be the shipper of record, except in extraordinary circumstances.

The commentor's statements about national and trade union concerns relating to the transport of irradiated fuel are noted. Please see Appendix B, Section B.1.8 of the EIS which lists the geographical distribution of foreign research reactor spent nuclear fuel, and estimated number of shipments by country.

The majority of foreign research reactor spent nuclear fuel shipments would originate from those countries mentioned by the commentor as concerned with the transport of irradiated fuel, i.e., Germany, Netherlands, France, Japan, and Belgium. Since those countries would be responsible for shipping their foreign research reactor spent nuclear

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

cargo vessel "Swallow" suffered serious mechanical problems. Whether under tow or under her own power, the Swallow came into the Mexican port of Manzanillo where the ship remained for over a month's time between May and July, to undergo repairs before sailing to Hampton Roads, VA. We have not been able to ascertain additional information about this accident, nor about the measures taken to protect and secure the shipment of spent fuel which was on board. We have also been unable to obtain additional information as to what investigations of the program were undertaken at that time to analyze changes required in the shipping program. Additionally, what safety and security provisions were exercised to protect this cargo during its unscheduled and prohibited stop?

Another one of the vessels, the "Banko Harvest", ran aground on a reef, after having made its transport of research reactor spent fuel. The ship was ripped open, sank and her entire cargo was lost during a voyage from Tampa, Fl. to Geraldton, Western Australia on Feb 18, 1991.

In total 5 ships were used: one experienced an accident in the course of transport; another carrying different cargo was completely wrecked. This is clearly an abysmal record and indicates that these ships should not be used for such dangerous transports.

More recently, a dry goods cargo vessel, the "Vishva Parijat" was used to carry a cargo of HEU research reactor fuel from India to the UK for delivery to the reprocessing plant at Dounreay. The cask was checked by authorities in India and its exterior was found to be free of contamination. The ship departed Bombay on Dec. 29, 1990. The ship then crossed the Persian Gulf area, logging in at Port Said, Egypt on Jan. 19, 1991., during the war in the Persian Gulf. The ship arrived at the port of Felixstowe, U.K. on January 30 and was delivered by truck to Dounreay some two days later. At Dounreay, during a photo opportunity for the press, the cask was found to be contaminated after cleaning water used to scrub the cask clean set off alarms in a run off area. Checks were made of the truck bed, and crane at the Port of Felixstowe--all were found to be contaminated. The British government would not release results of its contamination checks, no investigation was mounted of this maritime transport accident and the Vishva Parijat sailed to other ports without a contamination check.[5]

Concern about the use of standard freighters for the transport of irradiated fuel has led politicians and unionists to condemn this practice. In August of 1990, at its international conference in Florence, the International Transport Workers Federation (ITF) passed a resolution condemning the use of "Non purpose-built ships" (ships which have not been specifically designed and constructed for the carriage of irradiated spent fuel). The ITF, the largest international transport workers union with national affiliates in the U.S., citing the inadequacy of such vessels and the potential impact on nuclear transports accidents on the environment, called for the immediate cessation of transports on non purpose-built ships.

After the accident involving the "Vishva Parijat" (see above), the ITF alerted its national affiliates to be forewarned about attempts to make shipments on non purpose-built ships. Accordingly, dockworkers in the Netherlands and Germany have taken action to stop the loading

1137-43 (Cont'd.)

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

fuel, they would be able to specify the use of special purpose ships as recommended by the commentor. Historically, foreign research reactor spent nuclear fuel has been shipped on commercial carriers without major accidents and no release of radioactive materials.

Nevertheless, despite the precautions taken to select capable shippers, accidents could happen. That is one of the reasons that this EIS was prepared, rather than simply conducting the foreign research reactor spent nuclear fuel shipments with no environmental review. Despite the examples cited by the commentor, such accidents are unlikely to occur, or even if they did, the transportation cask is very capable of protecting the spent nuclear fuel. This is demonstrated by the fact that in over 30 years of foreign research reactor spent nuclear fuel shipments under the expired "Off-Site Fuels Policy,"there was never any instance in which radioactive materials were released from the spent nuclear fuel transportation cask. In the extreme, the worst outcome of a marine accident would be the sinking of the ship, or some other event leading to a loss of a cask of spent nuclear fuel in ocean depths too great to allow recovery. This unlikely accident is analyzed in Section 4.2.1.3 of the EIS. To summarize, this analysis demonstrates that due to the relatively benign nature of the spent nuclear fuel and the protection provided by the transportation cask, even such an accident would result in no more than a very small risk of an impact on the environment. Other accidents, up to and including extremely unlikely hypothetical accidents in which a spent nuclear fuel cask would be breached, are also discussed in Section 4.2.1 of the EIS. None of these accidents results in more than a very small risk of an impact on the environment.

The commentor also refers to the unscheduled stop of the motor vessel *Swallow* in Mexico due to mechanical difficulties. Although such a stop could be the result of a minor accident, the EIS takes such stops into account as part of the analysis of incident free operations as discussed in Appendix C, Section C. 4.1 of the EIS.

The commentor also refers to radioactive contamination having been found on the outside of a transportation cask of spent nuclear fuel that was carried on the cargo vessel *Vishva Parijat*. While DOE has no information concerning the specific instance referred to by the commentor, similar inconsequential occurrences have also taken place in the United States. These events occur due to the fact that, when the casks used to transport spent nuclear fuel are loaded or unloaded they are often lowered into water-filled pools in which the spent nuclear fuel is stored, or into transfer pools similar to storage pools. Other than the radioactivity of the spent nuclear fuel itself, the radioactivity in the spent nuclear fuel storage pools is primarily associated with small particles which are exposed to, or entrained in, the pool water. The particles may be agitated by movement of the cask and spent nuclear fuel during the cask loading or unloading operation, and can adhere to the surface of the cask.

The spent nuclear fuel transportation casks are routinely decontaminated to levels of contamination below the U.S. Department of Transportation mandated limits upon being

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

of non purpose-built vessels with research reactor spent fuel. British and French unions have also called for the immediate cessation of spent fuel transports on these ships.

At the same time, as information about these shipments has circulated, political resistance to the shipments has grown as well. On October 25, 1990, the European Parliament adopted a resolution calling for the immediate cessation of spent fuel transports on non purpose-built ships. Numerous port communities in the U.S., Europe and elsewhere have passed similar resolutions prohibiting such nuclear waste shipments.
It is quite clear that the use of these ships for the carriage of irradiated spent fuel is completely inappropriate. *1137-43 (Cont'd.)*

The DoE should realize that their plan not only endangers public health and the environment but that it will meet with great controversy and opposition in client states as well as here in the US. Mentioning the existence of purpose-built ships does not alone fulfill the requirement to fully analyze the options and implications of the management options chosen.

IV.b.2. Failure to Consider the Use of Military Vessels
The DEIS fails to consider the option and merits of using military vessels to transport the HEU SNF. Clearly the use of US military personnel trained in handling nuclear materials and operating on military vessels certified for the carriage of nuclear materials would enhance the safety of the nuclear transports. In addition, given the proliferation danger posed by the long distance, slow-speed transport involved in the maritime movement of weapons-usable HEU, it seems only reasonable to assess the option of military ship use. *1137-44*

The failure of the DEIS to adequately address this most obvious alternative would, in and of itself, if carried over into an EIS constitute a fatal flaw under the NEPA case law.

IV.b.3. Failure to Consider the Use of Escort Vessels
The DEIS unaccountably fails to consider the use of an escort vessel to increase the safety and security provided for HEU SNF transports between FRRs and the US. An escort vessel has been required by the US government in the case of other sea transports involving weapons usable nuclear materials: two examples are those of the plutonium transports conducted by Japan with US agreement on the "Seishin Maru" in 1984 and the Akatsuki Maru in 1992/93. It should be noted that according to a Pentagon review of plutonium sea transport in 1988, it was stated that the worst possible option for such fissile materials movements would be the use of a commercial cargo vessel without any escort (See PS88). Despite the Pentagon's informed recommendation, the maximum risk option is the one the DEIS inexplicably recommends for the transport of this weapons-usable material. There is no explanation of why past US policy is not appropriate for these transports nor is there any explanation of why this alternative--which would objectively increase both safety and security--was not considered or recommended. *1137-45*

The failure of the DEIS to adequately address this most obvious alternative would, in and of itself, if carried over into an EIS constitute a fatal flaw under the NEPA case law.

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

removed from the pools (i.e., they are washed to remove any radioactive particles that might adhere to their outer surfaces). However, some of the radioactive particles can be so small that they can become imbedded in microscopic pores in the surface of a transportation cask. Such minute amounts of imbedded contamination cannot be detected on a loaded cask since its presence is masked by the much larger radiation field of the spent nuclear fuel inside the cask. During transportation, minute amounts of this imbedded contamination can migrate to the surface of the cask. Receiving organizations routinely check for such contamination by wiping the surface of casks with clean cloths and measuring the cloths for contamination after they are moved away from the cask. Any transferrable surface contamination detected that is above the U.S. Department of Transportation limits is then removed from the casks. As a consequence of this phenomenon, U.S. Department of Transportation regulations specify that the contamination limits for the outer surfaces of spent nuclear fuel transportation casks are ten times lower at the point from which the shipment is initiated than the limits applicable at the destination. If radioactive particles migrate to the surface of a cask, they can contaminate other surfaces with which they come into contact. This might have been the origin of any contamination found on a truck bed or crane at Dounreay, as reported by the commentor. After detecting such contamination, both the cask and any other contaminated surfaces would be cleaned to below the applicable regulatory limits.

The amount of radioactive contamination involved in such occurrences is extremely small. The impacts from any such contamination would be bounded by the incident free transportation impact analyses included in Section 4 of the EIS. The primary concern related to this type of contamination is not due to any direct impacts that it might cause, which would be very small. Rather the concern is to keep the areas and equipment used for handling of radioactive materials as clean as possible so that this contamination could not mask other contamination that might be the early sign of some other event that could have impacts of a level to be of concern.

Response to Comment No. 1137-44

The use of U.S. military vessels to transport foreign research reactor spent nuclear fuel was not considered in the EIS because such transport does not fall within the mission of the U.S. Navy, and because such an alternative provides no additional environmental benefits than the use of chartered or commercial ships. The HEU in the spent nuclear fuel could not be used in a nuclear weapon without first being separated from the spent nuclear fuel, purified, and then fashioned into weapons components. Completion of these steps would require significant time and funding, and the use of a sophisticated chemical separations facility. While a rogue nation or a well funded terrorist organization might be able to accomplish these tasks, they could not be accomplished during simply in conjunction with the theft or diversion of the spent nuclear fuel during its transportation. These facts significantly reduce the desirability of the spent nuclear fuel as a target for

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

IV.b.4. The DEIS Fails to Provide a Coherent Analysis of the Benefits and Risks of Single v. Multiple Cask Shipments.

The DEIS only provides superficial and incoherent analysis of the risks and benefits of single v. multiple cask transports despite the fact that this is clearly a matter of concern.

For example, in the sole paragraph explaining the methodology used for assessing transport accident impacts, the DEIS states that "There is no difference between the risks associated with a single shipment with two casks in a hold, and two shipments of a single cask each."(4-17) Yet, this statement is directly followed by one which contradicts it: "The consequences of the accident with two casks in the hold may be as large as twice the consequences of an accident involving one cask." This latter sentence makes it quite clear that the consequence of a two cask shipment is greater than that of a one cask shipment and yet, by the nature of the analysis being conducted, this does not suggest a greater "risk" involved in a two cask transport.

This confusion is further magnified by the concluding statement of the paragraph: "Therefore to bound the potential risk from accidents, marine transportation of spent nuclear fuel was modeled in the port accident analysis as occuring in one cask per shipment." What this means is that the accident modeling for port and sea accidents is based on the model which the DEIS itself suggests is that of lowest potential impact. The sentence also suggests that the theoretical model only allows for one cask shipment but it does not make it clear that the program will be limited to one cask shipments. 1137-46
In fact the DEIS is silent on this matter despite the fact that it recognizes that the number of casks on the transport are imperative factors in considering the potential environmental impact of an accident.

The analysis of one v. multiple cask shipments is clearly inadequate. It is also clear that the DEIS does not make it clear how the program approaches this matter so it is in fact impossible to assess the actual risks involved. This is a fatal flaw and renders the DEIS, and a resultant EIS based on this DEIS, legally inadequate.

IV.c. The DEIS Fails to Adequately Address or Assess Issues Pertaining to Route Planning

IV.c.1. Failure to Address the Reasonable Alternative of Direct Shipments.

Despite the fact that with each port stop, there is an exponential increase in the risk of an accident or attack/attempted seizure, the DEIS fails to address the alternative of requiring these shipments to be made directly between the discharge port to the recipient port. In the past DOE required such vessels to make only one port stop. (See SC89). The current plan's acceptance of intermediate port-calls is a departure from past policy and is unjustified, inexplicable, and dangerous. 1137-47

As the DOE has itself stated, the greatest danger during maritime transports are the periods when the ship is entering or leaving port.(See CA90) Despite this fact, the current plan allows for an

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

theft or diversion during transportation, and make the added security that might be available on a military ship unnecessary.

Response to Comment No. 1137-45

The commentor is correct that the United States has recommended the use of an escort vessel for transport of weapons-usable fissile materials (e.g., separated, purified plutonium). However, such materials could be used directly in the fabrication of nuclear weapons components. As explained in the response to Comment 1137-44, the same is not true of the HEU in spent nuclear fuel. Accordingly, the use of escort vessels is not warranted.

Response to Comment No. 1137-46

Section 4.2.2.3 of the EIS states that, although the consequences of an accident with two casks in the hold may be twice as large as one cask, the probability of an accident with two casks is half the probability of two ships with one cask each. Since risk is defined as the product of the probability and the consequences, the EIS analysis is presented as the maximum risk of foreign research reactor spent nuclear fuel transport.

Response to Comment No. 1137-47

Under the basic implementation of Management Alternative 1, the foreign research reactor spent nuclear fuel could be shipped by charter or regularly scheduled commercial ships to the United States; charter ships could include purpose-built ships or general purpose ships. This alternative does not propose intermediate stops by any charter ships; the analyses of Section 4.2.1.3 are for the purpose of assessing the range of impacts possible under the alternative, and demonstrates that shipment by either charter or commercial means has very low potential environmental impacts. The need for specifying direct shipments is not warranted by the environmental impact analysis.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

indeterminate number of intermediate port stops. Not only does this increase the operational danger of these transports, but it also increases the possibilities of terrorist action against or seizure of these cargoes.

The only justification conceivable is that this is an attempt to decrease the cost of the transports themselves. Such cost cutting may amount to financial savings for the FRR operators or the US government but it clearly does so at great potential expense to the environment and public health. This element of the maritime transport strategy is unjustifiable. *1137-47 (Cont'd.)*

The failure of the FDD to adequately address this most obvious alternative would, in and of itself, if carried over into an EIS constitute a fatal flaw under the NEPA case law.

IV.c.2. The DEIS Fails to Address or Assess Alternative Shipping Routes.

While the DEIS contains analysis of such US port features as "environmental conditions", "climate conditions", and "ethnic and income characteristics", no specific discussion or analysis is provided of the transport routes which would be used to deliver HEU SNF to the US ports. Yes, a map is provided of possible routes, a map which incidentally shows these dangerous transports potentially criss-crossing the major oceans and seas of the planet, but there is no detailed analysis or comparison of details relating to specifics of environment, meteorology, political and/or cultural factors, or safety and security considerations are cited and/or analyzed.

Discussions of general "oceanography" (3.1.) are not the same as specific analysis of such areas as the Caribbean or North Seas, the English Channel, or the Suez Canal. These specific areas are examples which are likely to be crossed by these transports but which are not discussed in the DEIS. Each of these areas has particular currents, weather patterns, ecological dynamics and sensitivities, as well as social and economic importance. These specific areas should be considered and assessed before they are simply made the routes for these shipments. The DEIS must evaluate and compare these options in order to make rational decisions as to shipping routes to be used. In and of itself, this lack of specificity makes it impossible to address the question of appropriateness of any given route. In turn this makes it impossible to consider alternatives. *1137-48*

Finally, nuclear transports have occasioned considerable public and political opposition which has lead to initiatives to block such transports around the planet. We are under the impression that this is true, for example, of the Suez Canal and it is absolutely true for the Caribbean as requested in declarations of the CARICOM heads of State in 1993 and again in 1995.

Route options will need to be addressed in order to comply with US law. At the same time, US policy will need to take into account the will and laws of other countries and/or regions or it will find the OSF program delayed once again.

IV.d. The DEIS Fails to Seriously Address or Assess the Potential Impacts of Serious Nuclear

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Response to Comment No. 1137-48

The purpose of the proposed action is to adopt a policy that reduces the risks of proliferation from foreign research reactor spent nuclear fuels, including alternatives for implementation that address the major issues of safe transport and storage. The proposed action is not to adopt specific routes for such transport, and such a proposal would not be reasonable, in light of the fact that foreign research reactor spent nuclear fuel would be shipped from 41 different countries to ports in the United States, and to one of two management sites in the United States over a period of thirteen years. Therefore, the EIS analyses used representative routes for ocean transport, as depicted in Appendix C, Section C.3.2 of the EIS. Section 4.2.1 of the EIS analyzed impacts to the ocean environment from potential accidents, and discussed those effects upon marine life for both deep ocean environments and coastal water environments. The analyses demonstrated that potential risks to the global commons from transport of foreign research reactor spent nuclear fuel are low. It is unlikely, given the estimated low risk, that additional analyses of particular environments associated with all representative or potential routes, in terms of currents, weather patterns, ecological dynamics, and political and cultural factors, would provide any additional information needed to make a decision on the proposed policy.

Transport Accidents Which Could lead to Radioactive Releases

In shrugging aside the potential impacts of a radioactive release caused by a maritime nuclear transport accident, the DEIS states that "...because the oceans are a very dilute system, effects on marine biota would not be discernible." (4-102). Or, "Assuming the cask was damaged by a severe collision; and the ship remained afloat despite the severe collision; and the cask was engulfed in flames for a time sufficient to release a radioactive plume, there would likely be no human population on the ocean (excluding the crew) who could be affected."(4-11). These outrageous and superficial comments pretty much summarize the cavalier and contemptible attitude taken by the DEIS' Authors towards the risks and dangers posed by nuclear transports.

Statements like these reflect the DOE's apparent adherence to the discredited philosophy that "dilution is the solution to pollution." The statement also reflects the total failure of the DEIS to take seriously any of the risks associated with the Policy, and the failure of DOE to take the NEPA process seriously as a decision-making tool. DOE correctly asserts that there is a lot of water in the ocean. However, DOE is incorrect in assuming that this renders the oceans, and their adjacent coasts, invulnerable to serious irreversible environmental damage due to nuclear contamination. Nor does it address the extended environmental, economic and cultural problems that would be likely to follow in a country or countries potentially affected by an accident involving radioactive releases. Even if the DEIS correctly concludes that risks from ocean transport are minimal, surely these risks may vary depending upon the shipping route chosen, in addition to the other factors mentioned in these comments. 1137-49

It should also be noted that this cavalier posture with regard to the dangers of nuclear contamination of the seas is in direct contradiction to the US government's recent leadership role in supporting the London Convention's total ban on the nuclear waste dumping at sea. This ban, signed on November 12, 1993, bans the dumping of even low-level wastes at sea--material which would be of minor contaminative affect in comparison to HEU SNF.

In order to comply with their NEPA responsibilities, the DOE must undertake serious assessment of the nature and effects of serious accidents leading to serious contamination of the kind described in GP91. Until such time as the DOE takes this responsibility seriously, they can rest assured of public and political opposition to transport activities undertaken under the OSF.

IV.c. The DEIS Fails to Assess the Security Risks Involved in the Nuclear Transports

While the DEIS begins by asserting the extreme importance of this policy to the cause of nuclear nonproliferation--given that "much of this fuel contains highly-enriched uranium (HEU), which can be directly used in simple nuclear weapons"(1-1) -- the Authors have totally failed to address issues relating to securing the transports against seizure and/or attack. 1137-50

Issues like the type of ship to be used, the necessity of non- stop voyages, the vetting of the crew,

Response to Comment No. 1137-49

Appendix C, Section C.5 of the EIS discusses the assumptions, calculations, and results for marine transport accidents, impacts, and risks. The analysis for Section 4.2.1.2 of the EIS utilized the data and experience from the marine radiological assessments of Nuclear Energy Agency of the OECD, with modifications for the nature and content of foreign research reactor spent nuclear fuel, as discussed in Appendix C, Sections C.5.2 and C.5.3. These studies represent the best available data on the risks and effects of radioactive material in the oceans, and DOE considers the assessment to be conservative.

Response to Comment No. 1137-50

While it is true that the HEU in much of the foreign research reactor spent nuclear fuel could be used in the production of nuclear weapons, before this would be possible the HEU would have to be separated from the structure of waste products in the spent nuclear fuel elements, and then converted to a physical form suitable for use in a weapon. An irresponsible nation, or well funded terrorist group, could possibly have the resources to carry out these steps. However, they would need considerable time and the use of a sophisticated chemical processing facility and other major equipment to do so. Simply having possession of spent nuclear fuel containing HEU would not provide a terrorist, or anyone else, with a nuclear weapon. These facts, plus the inherent radioactivity of the spent nuclear fuel and the size and weight of the transportation casks make it a poor target for theft or diversion during shipment.

Nevertheless, security would be provided for all shipments of foreign research reactor spent nuclear fuel, as required by the Code of Federal Regulations (10 CFR Part 73). The general security provisions are discussed in the new Appendix H that has been added to the final EIS in response to public comments. This Appendix describes the general provisions of the Transportation Plans that would be prepared for each shipment of foreign research reactor spent nuclear fuel, including security provisions in port and during transit. DOE does not agree that such security arrangements should be discussed in detail in the EIS, or in any other publicly available document, since such a discussion could give a potential thief or terrorist information with which to attempt to circumvent portions of the security measures.

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

and routing issues, all have security implications. In fact, certain recommendations made in the DEIS would prove singularly ineffective at limiting the risks of fuel seizure and/or terrorism. Use of standard freighters which will stop at numerous ports is obviously maximizing the threat of seizure. Similarly, extending the oceanic and or terrestrial routes also increases those threats.

Despite these obvious and crucial problems, the DEIS provides no discussion let alone analysis of this issue. Once again, it must be said that just because the Agencies find issues difficult, they can not pretend that they do not exist.
The exclusion of the security issue from all aspects of transport planning is a fatal flaw in this document.
Exclusion of this factor from the EIS would render it actionable under NEPA law.

—End—

1137-50 (Cont'd.)

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

Footnotes

1. Although the DEIS struggles not to come out and say that severe accident can occur and could in turn release contamination to the environment, preceeding EA's conducted on such maritime shipments have said just that. The following categorical statements come from the EA on Taiwanese reactor shipments, Phase II (DOE/EA-0321):

"1. While in the area of a port, shipments might also be involved in accidents which could result in waterborne contamination."
2. Cask breaches with or without radionuclide release into the atmosphere may result from a severe accident. If nuclides are released they may be ingested by persons or by a direct radiation source that leads to a radiation in man." DOE/EA -0321

2. Policy regarding Marine Transport of Irradiated Nuclear Fuel, Report submitted to Commander Ronald W. Turner, Chief, Hazardous Materials Branch, U.S. Coast Guard, October 12, 1989 at 19. Memorandum from J. Christian Kessler, "Information Regarding Spent Fuel Ships," U.S. Department of State, August 1988.

3. See "Nuclear Waste Piling Up in Eastern Europe," Washington Post, July 17, 1990.

4. See Defendant's Response to Plaintiffs' First Set of Interrogatories and Request for Production of Documents at 9, 10 (executed April 7, 1989), Sierra Club v. Watkins, Civ. No.88-3519, D.D.C. pending).

5. See Caithness Courier, Feb. 6, 1991; John-O'-Groat's Journal, Feb. 2, 1991; Press & Journal, Feb. 12, 1991; Caithness Courier, Feb. 13, 1991.

—End—

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

REFERENCES CITED

Ca90 Cashwell, J.W. and K.S. Neuhauser, "The Impacts of Transportation within the United States of Spent Reactor Fuel from Domestic and Foreign Research Reactors," Sandia National Laboratories, SAND88-0714, 1990

CR87 H.R. Conference Report, No. 495, 100th Congress, 1st Session. 261 (1987)

DA87 Davis, J., "Transportation of Radioactive Spent Nuclear Fuel: Quantatative Site-Specific Accident Analysis for the Port of Anzio, Italy" Stevenson Nuclear Policy Program, Univ. of California at Santa Cruz, 1987

EA91 "Environmental Assessment of the Proposed Adoption and Implementation of a United States Policy on Receipt and Reprocessing of Spent Research Reactor Fuel (Off-Site Fuels Policy)," U.S. Department of Energy, DOE/EA-0443

EA94 "Environmental Assessment of Urgent-Relief Acceptance of Foreign Research Reactor Spent Nuclear Fuel," U.S. Department of Energy, April 1994, DOE/EA-0912

GP91 "Comments of Greenpeace USA to the United States Department of Energy's Environmental Assessment for the Proposed Adoption and Implementation of a United States Policy on Receipt and Reprocessing of Spent Research Reactor Fuel and Proposed Finding of No Significant Impact for the Proposed Adoption and Implementation of a United States Policy on Receipt of Reprocessing of Spent Research Reactor Fuel," Greenpeace USA (with the assistance of the Center for International Environmental Law--USA), Washington, DC, August 1, 1991

GP93 "Comments of Greenpeace USA and Greenpeace International to the United States Department of Energy's Predecisional Draft Environmental Assessment of Urgent-Relief Acceptance of Foreign Research Reactor Spent Nuclear Fuel," U.S. Department of Energy, Washington, DC, October 1993."

HA76 Hasberlin, S.W., et al, Evaluation of the Consequences of LWR Spent Fuel and Plutonium Shipping Package Loss at Sea, Richland, WA, Battelle Pacific North West Laboratories, 1976.
Also published as IAEA-SR-10/14 by the IAEA, Vienna, 1976.

IAEA40 "The Air Transport of Radioactive Material in Large Quantities or with High Activity," IAEA TECDOC XXXX, International Atomic Energy Agency, Vienna, 1992

LA90 Large, J. and Associates, "Import/Export of Irradiated and Radioactive Waste to and from the United Kingdom, London, 1990 (Commissioned Report for Greenpeace International--Please see Appendix C)

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

LA92 Large, J. and Associates, "Comparison of the Radioactive Waste Arisings Generated by Reprocessing, Encapsulation and Storage of LWR and AGR Irradiated Nuclear Fuels", London, 14 December 1992

LO79 Locke, J., Marine Casualty Statistics, US Coast Guard, Washington, 1979.

MSC92 "A Review of the Proposed Marine Transportation of Reprocessed Plutonium from Europe to Japan," ECO Engineering, Inc, Annapolis, Maryland, March 30, 1992 (Submitted by Greenpeace International to the International Maritime Organization's Maritime Safety Committee and circulated as MSC 61/INF.11)

PDD93 "Predecisional Draft Environmental Assessment of Urgent-Relief Acceptance of Foreign Research Reactor Spent Nuclear Fuel," U.S. Department of Energy, Washington, DC, October 1993.

PS88 "Transportation Alternatives for the Secure Transfer of Plutonium from Europe to Japan," U.S. Pentagon, Washington, DC, 1988

SC89 "Defendent's Response To Plaintiff's First Set of Interrogatories and Request For Production of Documents At 9,10, (Executed April 7, 1989), Sierra Club v. Watkins, civ. no. 88-3519 (D.D.C. pending).

US86 "Environmental Assessment on Shipment of Taiwanese Research Reactor Spent Nuclear Fuel, Phase I," U.S. Department of Energy, DOE/EA-0321, December 1986.

US88 "Environmental Assessment on Shipment of Taiwanese Research Reactor Spent Nuclear Fuel, Phase II," U.S.Department of Energy, DOE/EA-0363, July 1988.

US91 "Environmental Assessment of The Proposed Adoption and Implementation of a United States Policy on Receipt and Reprocessing of Spent Research Reactor Fuel (Off-Site Fuels Policy), U.S. Department of Energy, DOE/EA-0443, February, 1991.

—End—

Commentor No. 1137: Greenpeace (Cont'd.)

Appendix

SUMMARY RECORD OF THE JOINT MEETING OF THE OSLA AND PARIS COMMISSIONS (OSPAR 95)
BRUSSELS,
JUNE 26-30, 1995

Response to Comment
Commentor No. 1137: Greenpeace (Cont'd.)

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

APPENDIX

Working Group on Radioactive Discharges (RAD)

OSPAR 95/4/NGO.2

4.62 The observer from Greenpeace International introduced OSPAR 95/4/NGO.2, with data regarding a very significant planned increase of authorised radioactive discharges from the Dounreay (Scotland) reprocessing facility. In the opinion of Greenpeace, such increases would represent a clear breach of several OSPAR and NSC agreements, and urged the UK Government to reject the application from the operators of the Dounreay Facility.

4.63 The Irish delegation expressed surprise at the proposals to increase significantly radioactive discharges from Dounreay to the environment, which was contrary to the objectives of the Convention. The Irish Government was taking a very pro-active approach to the question of radioactive discharges, particularly those from Sellafield into the Irish Sea, and to nuclear matters generally. A task force of ministers had been set up to develop and co-ordinate a strategy for progressing Irish Government policy on these issues. It illustrated the Irish Government's serious interest to pursue all realistic courses of action to safeguard the Irish people against the risks of Sellafield and its discharges. The Irish delegation urged the UK Government not to permit increased discharges from Dounreay and to ensure that adequate waste treatment plant was installed at Dounreay to prevent discharges.

4.64 The delegations of Denmark, Iceland, Sweden, the Netherlands, Norway, Portugal and Spain associated themselves with the statement of the Irish delegation and expressed their concern about the development regarding planned increases in radioactive discharges from Dounreay.

4.65 The UK delegation said that an application had been received from the operators of the Dounreay research installation for a revised discharge authorisation. This application was being considered by the competent authority, HM Inspectorate of Industrial Pollution for Scotland. Details of the application had been made public: information was available from HM Inspectorate (Mr Ebbing, Her Majesty's Inspectorate of Industrial Pollution for Scotland, 27 Perth Street, Edinburgh, (Fax: +44 131 244 2903). It was not possible to comment on such a pending application, since to do so might appear to pre-judge the outcome of the consideration. However, if anyone had points which they thought ought to be taken into account, they should draw them to the attention of HM Inspectorate as soon as possible.

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

4.66 After further discussion, OSPAR agreed that RAD 1996, as part of its ongoing work on BAT for nuclear reprocessing plants, should compare existing reprocessing facilities in the Maritime Area with the German Wackersdorf design.

4.67 OSPAR noted that PRAM 1995 had adopted:

a. Guidelines for the Submission of Information about, and the Assessment of, the Application of BAT in Nuclear Facilities on a trial basis for the current round of reporting on the implementation of PARCOM Recommendation 91/4 (PRAM 95/13/1, Annex 12); and

b. the revised Reporting Format for the collection of data on liquid discharges from nuclear installations (PRAM 95/13/1, Annex 13).

4.68 The observer from Greenpeace International recalled that OSPAR 1994 had agreed to request RAD 1995:

a. to finalise its work on the development of criteria for BAT in order for the results to be reported to PRAM 1995; and

b. to undertake, as a matter of urgency, a detailed examination of options for measures, within the framework of a BAT approach, that could be adopted to reduce or eliminate discharges and/or emissions of radioactive substances, including wastes, from nuclear installations to the maritime area, in pursuance of objective 4.2 of the Action Plan agreed by Ministers in September 1992.

4.69 The Chairman of RAD, Mr O Fraser, explained that due to time constraints, RAD 1995 had not been able to follow up the request from OSPAR 1994. After further discussion, OSPAR agreed to reiterate its request to RAD 1996 (cf. §4.68).

*** TOTAL PAGE.34 ***

RESPONSE TO COMMENT
COMMENTOR NO. 1137: GREENPEACE (CONT'D.)

COMMENTOR NO. 1208: NATIONAL ORGANIZATION OF TEST, RESEARCH, AND TRAINING REACTORS

TRTR NATIONAL ORGANIZATION OF TEST, RESEARCH, AND TRAINING REACTORS

Mark L. Moore
Reactor Facility Director
Armed Forces Radiobiology Research Institute
8901 Wisconsin Avenue
Bethesda, MD 20889-5603
(301) 295-1290 FAX: (301) 295-0735

1994-95 EXECUTIVE COMMITTEE
John A. Bernard, Massachusetts Institute of Technology
Leo Bobek, Worcester Polytechnic Institute
Brian Dodd, Oregon State University
Richard L. Holm, University of Illinois, TRIGA Chairman
J. Charles McKibben, University of Missouri-Columbia
Tawfik M. Raby, National Institute of Standards and Technology/Chairman-elect
Junaid Razvi, General Atomics
Wade J. Richards, McClellan Air Force Base
Marcus H. Voth, The Pennsylvania State University
William G. Vernetson, University of Florida

UNIVERSITY REACTOR SUPPORT COMMITTEE
Marcus H. Voth, Committee Chairman
Breazeale Nuclear Reactor Building
The Pennsylvania State University
University Park, PA 16802
(814) 865-6351 FAX (814) 863-4840

URS COMMITTEE MEMBERS
Brian Dodd, Oregon State University
John A. Mayer, Worcester Polytechnic Institute
Robert U. Mulder, University of Virginia
J. Charles McKibben, University of Missouri

July 15, 1995

Public Comments on the Draft FRR SNF EIS
Attention: Charles R. Head
Office of Spent Fuel Management (EM-37)
United States Department of Energy
1000 Independence Avenue SW
Washington, DC 20585-0001

Dear Mr. Head:

The National Organization of Test, Research, and Test Reactors represents the reactors at universities, national laboratories, and private corporations throughout the United States. The impact of federal actions such as spent fuel disposition probably has the greatest impact on university reactors. Even though the subject EIS concerns foreign fuel, decisions on such matters frequently have adverse impacts on other sectors of related technologies. We therefore share a vested interest in this issue. We wish to submit three comments on the matter at hand.

First, the problem of spent fuel disposal from research reactors is imminent and real, particularly at foreign facilities. Research reactors are generally small and do not have the capacity for storage of spent fuel for extended periods of time. Continued operation is contingent on a viable program for the discharge of spent fuel. From a global perspective it is wiser to remove the fuel from reactor sites frequently and provide the appropriate surveillance at a central collection point such as a reprocessing facility rather than at dozens of small sites. *1208-1*

Second, the requirements places on spent reactor fuel should be based on sound scientific principals and evaluated against commonly accepted criteria for other technologies. Frequently regulations are based on arbitrary criteria such as the ability to achieve a limit, public acceptance or perception of a limit, or a cost-benefit criteria that is out of line with that used in other fields. We believe that each decision should have a scientific basis which is comparable with that used in other commonly accepted practices. *1208-2*

Third, the important contributions of the research reactors should be considered. Research reactors have made major contributions to an improved life for mankind and continue to make them. They support scientific research in areas of major national interest and priority such as medicine, environmental studies, materials research, and pollution abatement. They are used in the study of biology, physics, chemistry, archeology, and art history to list but a few applications. It is important that no precipitous action occurs which will not have an unwarranted adverse impact on such applications.Thank you for considering our input. *1208-3*

Sincerely yours,

M H Voth

Marcus H. Voth

1201 ltl
Rev 9:04

RESPONSE TO COMMENT
COMMENTOR NO. 1208: NATIONAL ORGANIZATION OF TEST, RESEARCH, AND TRAINING REACTORS

Response to Comment No. 1208-1

The commentor's concern for immediate action regarding disposition of spent nuclear fuel from foreign research reactors is noted. Sections 2.2 through 2.5 of the EIS describe policy alternatives under consideration for management of foreign research reactor spent nuclear fuel.

The commentor's opposition to onsite storage of foreign research reactor spent nuclear fuel is noted. Section 2.3 (Management Alternative 2) discusses the advantages and disadvantages of overseas storage and reprocessing.

Response to Comment No. 1208-2

The commentor's preference for the use of scientific principals in the regulation of spent nuclear fuel from foreign research reactors is noted. Estimates of radiological risk presented in Section 4 of the EIS are based on internationally accepted standards and calculational procedures.

Response to Comment No. 1208-3

The commentor's support for medical, environmental, materials research, and other applications of foreign research reactors in a variety of disciplines is noted. Such applications are summarized in Section 1.1 of the EIS.

COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA

Clean Water Fund of North Carolina

Asheville Office: 29 1/2 Page Ave. • Asheville, NC 28801 • 704-251-0518
Raleigh Office: P.O.Box 1008 • Raleigh, NC 27602 • 919-832-7491

18 July 1995

Mr. Charles Head
Office of Spent Fuel Management (EM-37)
United States Department of Energy
1000 Independence Avenue SW
Washington DC 20585

The Clean Water Fund of North Carolina understands that the comment period on the "DEIS Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Fuel" has been extended until 20 July 1995. The Fund appreciates the extension and offers the following comments.

Rod Inventory. The Fund is concerned that the fuel rod inventory may ignore isotopes of some biologically elements (such as C-14, P-32, S-35, Cl-36, K-40, I-131, and Th-228), which could significantly contribute to exposures associated with accidental releases. Such isotopes should be included in the estimates, since (for example) inhaled or ingested I-131 poses a thyroid hazard, while Th-228 similarly poses a bone hazard. The Fund crudely estimated the I-131 inventories for each fuel assembly type (BR-2, RHF, NRU, or TRIGA) by scaling the sum of the U-234, U-235, and U-238 curies of each fuel assembly by the annual (I-131 curies):(U curies) ratio for U.S. domestic commercial LWR spent fuel, as calculated from the data in table B-4 at 280ff in the Department's 1992 integrated data base (DOE/RW--0006-Rev.8). Since the wattage of the neglected I-131 for the TRIGA rods calculated in this fashion exceeds 0.1% of the wattage of the listed isotopes, it is natural to conclude that the thyroid hazard posed by 1210-1

RESPONSE TO COMMENT
COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA

Response to Comment No. 1210-1

DOE has not ignored any isotopes in this EIS. As discussed in Appendix B, Section B.1.4 of the EIS, all isotopes that could have a potential to contribute 1 mrem from inhalation and ingestion were considered. Then those that contribute 99.9 percent of total health hazard were included in the bounding radionuclide inventory and listed in Table B-6. The isotopes listed by the commentor do not meet these criteria.

For example, I-131 does not meet the criteria because it has a half-life of only eight days and there is a required cooling period of at least one year prior to shipment. After a year of cooling time, virtually all of the I-131 will have decayed away. The commentor apparently used data from Table C.4 (not Table B-4, as stated in the comment) on page 280 of DOE/RW-0006, Rev.8 in his calculation. The data in this table are not applicable because the table includes isotopes from spent nuclear fuel irrespective of its cooling time.

COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

the unreported I-131 inventories could be significant in the case of humnan exposure subsequent to accidental release. The Fund considers that the final EIS should include bounding inventory estimates for every isotope listed in table B-4 of [DOE/RW--0006-Rev.8].

1210-1 (Cont'd.)

Long-Term Storage. The Fund is concerned that the fuel rods may ultimately remain permanently emplaced at the first "temporary storage" site. Should an era of fiscal conservatism and political resistance to social or ecological responsibilities follow the initial unloading of the rods at an existing Department site, the foreign research reactor fuel rods might remain (without adequate maintenance and monitoring) at the initial Department site, which could result in long-term releases. The Fund considers that it is prudent to model such scenarios.

1210-2

Total Population Dose. The Fund is concerned that the draft EIS appears to understate total population dose. Since no evidence is provided to show that the regulatory limits are generally enforced, nor any evidence that the so-called "historic" cask data are representative, estimates based on those figures must be viewed with some skepticism. Moreover, the Fund was unable to find in the draft any discussion of the costs associated with various transport modes and the associated conclusions about reasonably-anticipated modes.

Draft Table C-5 and associated discussion at C-15 indicate that the commercial ship scenario will result in a population dose of approximately (84.9)/7 = 9.43 person-rem per two cask ocean voyage. Total shipments are estimated at B-2ff as 675 + 162 = 837. Thus, the total population dose from ocean transport alone might be estimated at 7885 person-rem. The Department's assumption of some 2000 person-rem per lethal cancer fatality would therefore suggest three cancer deaths from ocean transport alone. Risk figures from BEIR V or Dr. John Coffman would suggest six or twenty cancer deaths from ocean transport alone (see risk assessment comments *infra*). The Department's discussion of these topics is

1210-3

RESPONSE TO COMMENT COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

Response to Comment No. 1210-2

The commentor's concern that interim management sites for spent nuclear fuel from foreign research reactors could, by inaction or default, be used for ultimate disposition is noted. As discussed in Section 4.2.7 of the EIS, ultimate disposition of foreign research reactor spent nuclear fuel is a priority concern of DOE. Safety is a primary consideration during storage of any radioactive material. If a policy to accept foreign research reactor spent nuclear fuel into the United States is adopted, the interim storage technologies which would be used are described in Section 2.6.5 of the EIS.

Response to Comment No. 1210-3

The EIS actually overstates the total population dose. In fact, the regulatory limits are strictly enforced by the NRC and by State agencies. Historically, however, dose rates near the spent nuclear fuel transportation cask have typically been about a factor of ten below the regulatory limit. The evidence requested by the commentor is presented in Appendix F, Section F.5 of the EIS. Table F-101 lists the actual measurements of dose rates taken near casks loaded with foreign research reactor spent nuclear fuel. Costs of various transport modes are discussed in Section 4.9 and Appendix F, Section F.7.1.1 of the EIS.

The commentor has misinterpreted the last line of Table C-5 in Appendix C of the EIS. The number 84.9 person-rem is the Program Dose Total for All Ships' Crews. This number is rounded off to 85 person-rem in Table 4-2 in Volume 1 of the EIS, and the associated discussion clearly states that this would be the total estimated dose due to ocean transport of all the foreign research reactor spent nuclear fuel.

As discussed in Section 4.1.3 of the EIS, the radiological risk factors for latent cancer fatalities and other human health effects used in this EIS are endorsed and accepted by the NRC and the International Commission on Radiation Protection. Also see the response to Comment 1125-4.

The commentor adjusted Table 6 from the cited EPA report by moving the factor of 500 for skin cancers from a footnote up into the main part of the table. EPA put the factor of 500 in a footnote because the great majority of radiation induced skin cancers should be easily curable and result in little trauma for the patient. EPA excluded nonfatal radiogenic skin cancers from the estimates of risk (from page 23 of the cited EPA report). DOE concurs with EPA on this issue.

The possible existence of noncarcinogenic health effects from low doses of radiation is not supported by NRC or the International Commission on Radiation Protection.

Everyone receives some radiation from natural sources. As discussed in Section 4.10.2 of the EIS, measured variations in this background radiation dose would be larger than the increase that would occur under the proposed action.

COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

confused and self-contradictory, insofar as the numbers computed in one section do not match those used in another section. The Department needs to justify its calculations better in the area of bounding dose and associated health effects.

Risk Assessment. The Fund is concerned that the risk assessment methodology used in the draft EIS does not adequately represent the human effects associated with radiological exposures.

The Fund considers that the assumed risk associated with population dose (which appears in the EIS to be based upon an postulated population dose around 2E3 person-rem per cancer fatality) underestimates the cancer risk per unit dose: according to table 4-3 at 175 in BEIR V, more than 500 excess lifetime cancer mortalities are expected in association with a 1E6 person-rem low-dose exposure for any cohort of a million humans below age 55. More youthful groups are especially at risk: a 1E6 person-rem dose to a million 5-year olds is expected to cause 1276-1532 eventual cancer mortalities, corresponding to about 712 person-rem per cancer death. For a stationary population average, these BEIR V data indicate 770-810 excess lifetime cancer mortalities in consequence of a 1E6 person-rem low-dose exposure, corresponding to 1234 - 1298 person-rem per excess lethal cancer. Thus, the BEIR V midrange average of 1266 person-rem per excess cancer fatality indicates a U.S. population risk more than 50% greater than that assumed by the draft EIS. In fact, the data cited from BEIR V suggest that the Department's risk figures may not be conservative unless the majority of the exposed female population is of age 55 or older and the majority of the exposed male population is of age 60 or older.

Other data also suggests an actual excess fatal cancer risk greater than 2E3 person-rem per cancer. John Goffman's 1990 reexamination of the Japanese A-bomb population fatalities 1950-1982 produced estimates (in his Table 16-C) around 26 excess cancers per 1E4 person-rem of low-dose exposure, corresponding to 385 person-rem per cancer

1210-3 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

fatality, indicating a U.S. population risk more than five times as large as that assumed by the draft EIS. Goffman's method may underestimate the effectiveness of the cancer-induction by radiation, since it is likely that not all bomb-associated cancers had appeared in the exposed population by 1982.

In addition, the draft EIS ignores health effects other than cancer fatality. Although the E.P.A. currently uses a excess cancer mortality estimate close to the estimate used by the Department and criticized above, the E.P.A. has also produced estimates of the morbidity response to radiation. Data from Table 6 (and footnotes) at 29 in the Agency's June 1994 "Estimating Radiogenic Cancer Risks" for assumed low-dose cancer risks per 1E4 person-gray follow:

Site	Mortality	Morbidity
Esophagus	9.0	9.5
Stomach	44.4	49.3
Colon	98.2	178.5
Liver	15.0	15.8
Lung	71.6	75.4
Bone	0.9	1.3
Skin	1.0	500.0*
Breast	46.2	92.5
Ovary	16.6	23.7
Bladder	24.9	49.7
Kidney	5.5	8.4
Thyroid	3.2	32.1
Leukemia	49.6	50.1
Remainder	123.1	173.4
TOTAL	509.1	1260.6*

* incorporates all skin morbidity as indicated in EPA table footnote

The E.P.A. thus currently assumes about 2.5 times as much cancer morbidity as cancer mortality. The draft EIS should include this morbidity.

1210-3 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

The draft EIS should include some appropriate estimates of noncarcinogenic health effects associated with the action. Since cancer is a disease of complex etiology, the development of cancer may sometimes signal the existence of some other moribund conditions; immune dysfunction (for example) has been suggested as a condition which may lead to the development of otherwise undetected neoplasms, and the possible contributory role of the proposed action in the development of such conditions ought to be considered. *1210-3 (Cont'd.)*

Accidents and Probabilistic Risk Assessment. The Department's desire to modify the effects of potential accidents, by multiplying the effect with an assumed small probability is understandable, given the unpleasant effects associated with potential accidents. However, the assumed probabilities are largely unjustified. Alleged fault-tree analyses for cask recovery in marine accident conditions should be complemented by available historical data on similar recovery operations, for example. The assumed 1E-6 fractional release of spent fuel may be unrealistic, for example; higher releases would certainly be expected in the context (say) of a collision with a gasoline tanker; and the relatively low population doses reported for the supposedly worst accident scenarios in the draft Table E-52 at E-122 are therefore difficult to take seriously. Failure to consider ingested dose, as discussed in Table E-40 at E-108 is simply inappropriate. *1210-4*

Cost-Benefit Analysis. The Fund strongly supports the concept of nuclear nonproliferation as an essential ingredient of global environmental protection. However, it is not clear to the Fund that the proposed action is the most cost-effective way to meet the nuclear nonproliferation goals established as the objectives of the foreign research reactor fuel acceptance. Among the current credible proliferation threats, which may pose a greater danger, the Fund notes especially the continuing possible availability of former Soviet Union weapons grade fissile materials on the international black market. The monies now contemplated for acceptance of spent *1210-5*

RESPONSE TO COMMENT COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

Response to Comment No. 1210-4

Calculation of risk estimates is the best way to compare the impact of an action or event. Consequences of a terrible event, such as a meteor striking Earth, must be considered in conjunction with the probability of their occurrence. Developing the probabilities used in the EIS was one of the major efforts involved in developing a measure of the impacts. Ship and truck accident probabilities are based on statistics of such events. Some of the less frequently occurring events, such as the recovery of transportation casks from the ocean were based on estimates from other documents and expert opinion. Therefore, the probability values used are subject to question. For this reason conservative values were used wherever possible.

Radioisotope release fractions from foreign research reactor spent nuclear fuel involved in an accident depend on the severity of the accident. Each different radioisotope would have a different release fraction. As the commentor states, the release fractions associated with a severe accident involving a tanker collision and fire would be higher than the same collision without the fire. The release fractions used in the EIS are all based on generally accepted industry practice. Appendix D, Section D.5.3.1.1 of the EIS presents further discussion. In regard to the low population doses being difficult to take seriously, the commentor must remember that the amount of radioactive material involved is relatively small, which results in relatively small doses and contamination levels, even from severe accidents.

Referring to Appendix E, Table E-40 of the EIS, it must be noticed that not considering the ingested dose only applies to the maximum exposed individual. This is appropriate because it is unrealistic to assume that the very same person that receives the maximum dose from the plume is also the individual that eats and drinks all of the contaminated local food to receive the dose from that source.

Response to Comment No. 1210-5

The question of cost-benefit analysis in the EIS addresses the costs and benefits of the foreign research reactor spent nuclear fuel program, not the costs and benefits of federal spending on the foreign research reactor spent nuclear fuel program as compared to other, potentially related programs, such as the acquisition of Russian HEU for conversion to LEU.

COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

foreign research reactor fuel might more effectively combat the proliferation threat if devoted to international cooperation involving agencies such as Interpol to frustrate arms smuggling. Moreover, the Fund is not convinced that activities which encourage further reactor use (as opposed, for example, to encouraging the elimination of existing research reactors in favor of accelerators) can effectively prevent the gradual spread of nuclear-capability. Such issues should be addressed by a cost-benefit analysis.

The Fund considers that an appropriate cost benefit analysis must include the costs associated with worker and civilian health effects from the action, as well as the costs of long-term storage. In addition, contingency funds need to be modelled to gauge the cost of an accident; the Price-Anderson liability limits cannot appropriately serve as surrogates for the social costs.

1210-5 (Cont'd.)

Carl Rupert
Raleigh Research Director
The Clean Water Fund of North Carolina
PO Box 1008
Raleigh NC 27602

RESPONSE TO COMMENT
COMMENTOR NO. 1210: CLEAN WATER FUND OF NORTH CAROLINA (CONT'D.)

The usage of LEU in civilian commerce achieves the same nuclear weapons nonproliferation objectives as the use of accelerators instead of research reactors. There would be no need to phase-out research reactors to achieve this objective.

The cost-benefit analysis of worker and civilian health effects is based on a detailed quantitative comparison of latent cancer fatalities and other deaths from accidents to the unquantifiable risk from nuclear weapons proliferation. Although these costs and benefits cannot be strictly compared, the strong national and international interest in successful completion of the program suggests that at the national level (as opposed to that of an individual port, for example), there would no question but that the benefits outweigh the costs.

No attempt was made to estimate the probabilistic cost of an accident. A rough review of the costs and probabilities shows that the accidents with severe cost consequences (e.g., in the hundreds of millions or billions) would have probabilities on the order of 1 in 100,000 or lower. This implies risk-adjusted costs on the order of thousands of dollars, or a tiny percentage of the direct costs of the program.

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE

NUCLEAR CONTROL
INSTITUTE

1000 CONNECTICUT AVE NW SUITE 804 WASHINGTON DC 20036 202-822-8444 FAX 202-452-0892

July 12, 1995

Charles Head
Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

Dear Mr. Head,

Attached please find the comments of the Nuclear Control Institute on the Department's Draft Environmental Impact Statement (EIS) on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, DOE/EIS-0218D.

As detailed in the comments, we believe it essential for the final EIS and Record of Decision to provide for indefinite U.S. acceptance of all U.S.-origin highly enriched uranium (HEU) – whether fresh fuel, spent fuel, or target material – and acceptance of LEU spent fuel for the proposed 13-year period. Only such a policy, including conditions on take-back as outlined in our comments, can achieve the dual U.S. nonproliferation goal of retrieving the maximum amount of U.S.-origin spent HEU fuel and reducing, and ultimately eliminating, international commerce in fresh HEU fuel.

Please call if you have any questions or would like further information.

Sincerely,

Paul Leventhal
President

Alan Kuperman
Senior Policy Analyst

Enclosure
cc: U.S. Department of State

Strategies for stopping the spread and reversing the growth of nuclear arms.

Paul L. Leventhal, President, Peter A. Bradford, David Cohen, Victor Gilinsky, Denis A. Hayes, Julian Koenig, Sharon Tanzer, Roger Richter, Dr. Theodore B. Taylor
BOARD OF DIRECTORS

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE

NUCLEAR CONTROL
INSTITUTE

1000 CONNECTICUT AVE NW SUITE 804 WASHINGTON DC 20036 202-822-8444 FAX 202-452-0892

**COMMENTS OF THE NUCLEAR CONTROL INSTITUTE
ON
DRAFT ENVIRONMENTAL IMPACT STATEMENT
ON A
PROPOSED NUCLEAR WEAPONS NONPROLIFERATION POLICY
CONCERNING FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL
(DOE/EIS-0218D)**

July 12, 1995

Introduction

The Nuclear Control Institute is a non-profit, public-interest research center concerned with the safety, security and proliferation risks associated with nuclear commerce. One of NCI's primary goals since its founding in 1981 has been to work for elimination of international commerce in weapons-usable nuclear materials -- plutonium and bomb-grade, highly enriched uranium (HEU) -- in order to reduce risks of nuclear proliferation and nuclear terrorism.

NCI has long supported the stated goal of the policy analyzed in the draft Environmental Impact Statement (the "draft"): "To remove as much U.S.-origin HEU as possible from international commerce,"[1] with the "objective of reducing, and ultimately eliminating, civilian commerce in HEU."[2] In reality, this entails two separate, but related, goals: 1213-1

- Goal 1 -- Facilitating continued international cooperation with the Reduced Enrichment for Research and Test Reactors (RERTR) program, to eliminate commerce in *fresh* HEU fuel; and
- Goal 2 -- Retrieving U.S.-origin *spent* HEU fuel, which is still usable in nuclear weapons if stolen or diverted and, therefore, poses risks of nuclear proliferation and nuclear terrorism until returned to the United States.[3]

[1] *Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel (DOE/EIS-0218D)*, March 1995, Summary, p. 6. Hereafter referred to as *Summary* or *Volume I*.

[2] *Summary*, p. 32.

[3] *Volume I*, p. 1-3, warns that unless retrieved "some of the spent nuclear fuel might be stolen and its uranium

Strategies for stopping the spread and reversing the growth of nuclear arms.

Paul L. Leventhal, *President*, Peter A. Bradford, David Cohen, Victor Gilinsky, Denis A. Hayes, Julian Koenig, Sherwin Tanzer, Roger Richter, Dr. Theodore B. Taylor
BOARD OF DIRECTORS

Response to Comment No. 1213-1

The commentor's support of Management Alternative 1 and opposition to Management Alternatives 2 and 3, (because they are considered to undermine United States nonproliferation and security objectives) are noted.

Response to Comment
Commentor No. 1213: Nuclear Control Institute (Cont'd.)

Commentor No. 1213: Nuclear Control Institute (Cont'd.)

Summary of Nuclear Control Institute Comments on Draft EIS on Foreign Research Reactor Spent Nuclear Fuel

Option	Description	Preserves RERTR?	Secures Spent HEU?	Recommendation	Comments
MANAGEMENT ALTERNATIVE 1	ALL FUEL TO U.S. FOR STORAGE	Yes	Yes	APPROVE	
Implementation Alternative 1	Alternative Amounts of Fuel				
Subalternative 1a	*Only from developing countries*	No	No	Reject	
Subalternative 1b	*Only HEU*	No	Yes	Reject	
Subalternative 1c	*Also target materials*	Yes	Yes	APPROVE	Conditional on commitment to convert
Implementation Alternative 2	Alternative Durations				
Subalternative 2a	*Only five years*	No	No	Reject	
Subalternative 2b	*Indefinite HEU take-back*	Yes	Yes	APPROVE	Amend policy on non-convertible reactors
Implementation Alternative 3	Alternative Financing				
Subalternative 3a	*Subsidize all countries*	Yes	Yes	Reject	Unnecessarily costly
Subalternative 3b	*Charge all full-cost recovery*	No	No	Reject	
Subalternative 3c	*Charge some full-cost recovery*	No	No	Reject	
Implementation Alternative 4	Alternative Title Location	n.a.	n.a.	No Comment	
Implementation Alternative 5	Wet Storage	n.a.	n.a.	No Comment	
Implementation Alternative 6	U.S. Reprocessing				
Subalternative 6a	*Foreign fuel and other fuel*	Yes	Yes	Reject	Encourages foreign reprocessing
Subalternative 6b	*Blend down HEU to LEU*	Yes	Yes	APPROVE	Only if U.S. reprocessing is approved
Implementation Alternative 7	Processing Technologies R&D	n.a.	n.a.	APPROVE	Reject those approximating reprocessing
MANAGEMENT ALTERNATIVE 2	MANAGE FUEL OVERSEAS				
Subalternative 1a	*Foreign storage*	No	No	Reject	Facilitate only LEU spent fuel storage
Subalternative 1b	*Foreign reprocessing*	No	Yes	Reject	Reprocessor commitments not obtained
MANAGEMENT ALTERNATIVE 3	HYBRID ALTERNATIVES	No	No	Reject	Reject any hybrid with rejected component
NO ACTION ALTERNATIVE	TAKE NO ACTION	No	No	Reject	Worst Alternative

n.a. = alternative has no impact on this question
No Comment = alternative has no impact on nonproliferation objectives

NCI believes the attainment of these goals should be the paramount consideration as decisions are made to issue a final Environmental Impact Statement (EIS) and Record of Decision (ROD). We believe that only one of the draft's proposed management alternatives, and several of its implementation subalternatives, would foster attainment of these goals. The other proposed management and implementation alternatives and subalternatives would do the opposite, undermining U.S. nonproliferation and security objectives, and should be rejected. A summary of NCI's comments on the draft's various proposals is contained in the chart on the following page. 1213-1 (Cont'd.)

Management Alternative 1

NCI strongly supports Management Alternative 1, in conjunction with several of its implementation subalternatives discussed below, to bring U.S.-origin foreign research reactor spent fuel back into the United States. We support the proposal to charge developed nations a "competitive" fee,[4] since any higher charge could impel operators instead to reprocess their spent fuel overseas, undermining the above-stated goals. 1213-2 1213-3

Implementation Alternative 1

NCI supports implementation subalternative 1c under Management Alternative 1, to bring back target materials in addition to spent fuel. This subalternative is necessary to fulfill the stated goal of removing as much U.S.-origin HEU as possible from international commerce. As the draft states, this option "would remove the most HEU from civil commerce and provides the most support to U.S. nuclear weapons nonproliferation policy."[5]

Retrieval of target material under this subalternative can help achieve U.S. nonproliferation goals regarding both fresh and spent HEU. *Spent* target material is especially important to retrieve due to the high enrichment of its HEU. According to a reactor operator from Canada, where the bulk of the target material resides, the uranium remains 91%-enriched after removal from the reactor.[6] That is a higher enrichment than the HEU used in the Hiroshima bomb. More than a half-ton of such U.S.-origin target materials remain outside the United States, containing 216 kilograms of HEU, sufficient for many nuclear weapons.[7] 1213-4

diverted into a nuclear weapons program."

[4] *Summary*, p. 12.

[5] *Summary*, p. 40.

[6] Comment at DOE Public Hearing, Washington, DC, May 31, 1995.

[7] *Volume 1*, p. 4-63.

Response to Comment No. 1213-2

The commentor's support for Management Alternative 1 as described in Section 2.2 of the EIS is noted.

Response to Comment No. 1213-3

The commentor's support for the financing arrangement associated with management of the foreign research reactor spent nuclear fuel as discussed in Section 2.2.1.2 of the EIS is noted. It is conceivable that the higher the fee charged by the United States, the more likely foreign research reactor operators would choose overseas reprocessing (in those instances where reprocessing abroad is an option).

Response to Comment No. 1213-4

The commentor's support for accepting target materials in addition to foreign research reactor spent nuclear fuel is noted. Acceptance of target materials is discussed in Section 2.2.2.1 of the EIS.

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

To help attain the longer-term goal of replacing use of *fresh* HEU in such targets with LEU, NCI supports the subalternative's proposal to apply the same type of conditionality to the take-back of target material as applied to HEU spent fuel.[8] Once LEU targets are successfully developed and qualified, the U.S. should accept U.S.-origin foreign HEU target material only from those operators who agree to convert to the LEU targets. Otherwise, the take-back of target material could help to perpetuate HEU commerce. *1213-4 (Cont'd.)*

Consideration also should be given to applying such conditionality *before* LEU targets are developed. Under such a regime, the U.S. would accept HEU target material only from those operators who commit *in advance* to convert to LEU targets as soon as they are successfully qualified. There is statutory precedent for such conditionality. The Energy Policy Act of 1992 placed a similar condition on exports of fresh HEU, limiting them *inter alia* to reactor operators that have "provided assurances that, whenever an alternative [LEU] nuclear reactor fuel or target can be used in that reactor, it will use that alternative in lieu of highly enriched uranium."[9] Operators unwilling to make this commitment would be indicating an intention to use HEU in perpetuity, significantly reducing the nonproliferation benefit of U.S. acceptance of their spent fuel. U.S. take-back under these conditions would undermine nonproliferation objectives by facilitiating these reactors' continued use of HEU fuel. *1213-5*

NCI opposes implementation subalternatives 1a and 1b because they would undermine the RERTR program. Accepting spent fuel only from developing countries or refusing to accept LEU spent fuel would break U.S. commitments to foreign research reactor operators and force many of them to shut down their reactors or reprocess their spent fuel overseas at higher cost. This could cause many of them to abandon the RERTR program. As NCI explained in its previous comments on the Environmental Assessment of Urgent Relief Acceptance of Foreign Research Reactor Spent Fuel (DOE/EA-0912), such an outcome would trigger a domino effect that would undermine nearly two decades of progress by the RERTR program and revive world commerce in HEU, thereby increasing risks of nuclear proliferation and nuclear terrorism.[10] The draft correctly concludes that excluding LEU fuel "almost certainly would result in the end of the RERTR program."[11] The underlying reason, as the draft notes, is that other countries -- including developed nations that are our allies -- "do not necessarily share our belief in the *1213-6*

[8] *Volume 1*, pp. 2-12 and 4-63.

[9] Section 903 of the Energy Policy Act of 1992 established Section 134 of the Atomic Energy Act of 1954, as amended, also known as the "Schumer Amendment."

[10] *Comments of the Nuclear Control Institute on the February 1994 Revision of Predecisional Draft Environmental Assessment of Urgent-Relief Acceptance of Foreign Research Reactor Spent Fuel (DOE/EA-0912)*, March 7, 1994, pp. 5-7. Many aspects of the scenario outlined in NCI's comments were incorporated into the final EA and are incorporated into the draft EIS. See, for example, *Volume 1*, pp. 1-6, 1-7, 4-56, and 4-117. (Also see NCI's comments on an earlier draft of the EA, November 18, 1993.)

[11] *Volume 1*, p. 4-62.

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment No. 1213-5

DOE and the Department of State agree with the commentor's position that acceptance of target materials should be conditioned by agreement by the reactor operators that they will convert to LEU targets, wherever such targets are available.

Response to Comment No. 1213-6

The commentor's opposition to subalternatives 1a and 1b of Implementation Alternative 1, is noted. Implementation Alternative 1 involves alternative amounts of foreign research reactor spent nuclear fuel to be managed in the United States. Implementation Alternative 1 is discussed in Section 2.2.2.1 of the EIS. Although the United States has made no legally binding commitments to accept spent nuclear fuel from all foreign research reactors, it acknowledges that foreign research reactor operators have considered acceptance of their spent nuclear fuel as a quid pro quo for converting to LEU fuel.

necessity for removing HEU from use in civil programs."[12] Thus, the U.S. must use competitively-priced take-back as a key incentive to foreign operators to achieve U.S. nonproliferation aims. (Further explanation of the negative aspects of overseas reprocessing is provided in our analysis of Management Alternative 2). 1213-6 (Cont'd.)

Implementation Alternative 2

NCI generally supports implementation subalternative 2b under Management Alternative 1, to permit the return of U.S.-origin HEU spent fuel even after expiration of the proposed 13-year period. The 13-year period is intended to permit return of all spent fuel produced within 10 years after adoption of the policy, allowing time for cooling of the fuel prior to shipment. Every effort should be made to retrieve such spent fuel during this period. However, should it prove impossible to bring all of it back within 13 years, the United States must have the flexibility to bring back the rest subsequently, to achieve the stated goal of removing as much U.S.-origin HEU as possible from international commerce. Extending the take-back period would *not* increase environmental risks. As the draft states, this option "would promote U.S. nuclear weapons nonproliferation goals" and "the potential environmental impacts would be the same as or slightly less than those of the basic implementation."[13] 1213-7

However, NCI opposes one provision of subalternative 2b, applying to foreign research reactors without lifetime cores that cannot yet convert to LEU fuel. In practice, this includes just three reactors: France's ILL-Grenoble and Orphee, and Belgium's BR-2. This provision would restrict take-back from such reactors to HEU spent fuel generated within *five* years of the effective date of the policy, rather than *10* years under the basic implementation.[14] The provision appears to dismiss such reactors as perpetually non-convertible and, therefore, apparently seeks to limit the amount of spent fuel the U.S. would accept from them. 1213-8

This policy has two flaws. First, it reduces the amount of U.S.-origin HEU that could be removed from international commerce, contrary to U.S. nonproliferation goals. Second, it overlooks the potential progress of the RERTR advanced fuel development program, which the Clinton Administration is pledged to restart and which could develop and qualify suitable LEU fuels to enable conversion of these remaining reactors within five to ten years. Prematurely terminating take-back of spent fuel from these reactors after five years could remove an important incentive for them to convert, thereby undermining U.S. nonproliferation objectives.

---

[12] *Volume 1*, p. 4-55.

[13] *Summary*, p. 41.

[14] Under basic implementation, "Spent nuclear fuel (HEU) would be accepted . . . from research reactors for which a suitable LEU fuel is not available" with "a policy duration of 10 years," *Volume 1*, p. 2-3 and p. 2-5. Under Subalternative 2b, this is inexplicably restricted to spent fuel "generated within 5 years" of "the date the policy becomes effective," *Volume 1*, p. 2-13.

Response to Comment No. 1213-7

The commentor's support for subalternative 2b of Implementation Alternative 2, is noted. Implementation Alternative 2 (Section 2.2.2.2 of the EIS) involves alternative policy durations.

Subalternative 2b involves an indefinite time limit of accepting HEU, and finite (10-year) limit for LEU.

Response to Comment No. 1213-8

DOE and the Department of State agree with the commentor's position. The provisions of Implementation Subalternative 2b have been revised to specify acceptance of spent nuclear fuel already at the reactor, or generated within 10 years of the date the policy becomes effective, for HEU fueled reactors that cannot convert to LEU fuel and do not have lifetime cores. A substantially longer period of acceptance might result in more material ultimately being accepted, but would also lessen the incentives for conversion.

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Subalternative 2b should be amended so that the take-back period for HEU spent fuel from such reactors is extended indefinitely, to maximize the amount of U.S.-origin HEU that can be removed from international commerce. In the event that any of these reactors is able to convert during the 10-year period of the basic implementation, the U.S. also should accept resulting LEU spent fuel produced during that period, as an incentive to conversion. Finally, to further foster the aims of the RERTR program, consideration should be given to conditioning take-back of HEU spent fuel from such reactors on a pledge similar to that proposed above for take-back of target material. Under such a regime, the U.S. would accept spent fuel from such reactors only if their operators pledge *in advance* to convert to LEU fuel as soon as suitable such fuel is developed and qualified. As stated above, there is statutory precedent for such conditionality in the Energy Policy Act of 1992. *1213-7 (Cont'd.)*

NCI opposes implementation subalternative 2a -- to reduce the take-back period to five years -- because it would increase the amount of U.S.-origin HEU remaining in international commerce. In addition, as the draft notes, those foreign operators unable to develop LEU spent fuel management capabilities during the truncated five-year period could be forced "to switch their reactors back to HEU fuel" to permit spent fuel disposition, further undermining the RERTR program.[15] *1213-9*

Implementation Alternative 3

NCI opposes all subalternatives under implementation alternative 3 of Management Alternative 1. We oppose subalternative 3a because there is no reason to subsidize developed nations beyond making the U.S. charge competitive; this would be an unnecessary burden on U.S. taxpayers. We oppose subalternatives 3b and 3c because attempting to charge customers more than a competitive price will drive them to reprocess their spent fuel overseas and undermine the above-stated goals. It could also, as the draft states, "lead to HEU spent nuclear fuel stockpiled around the world, much of it remaining in the countries least able to protect it."[16] (Further explanation of the negative aspects of overseas reprocessing is provided in our analysis of Management Alternative 2). *1213-10* *1213-11*

Implementation Alternative 6

NCI opposes implementation alternative 6 under Management Alternative 1 because reprocessing the spent fuel after its return to the United States is unnecessary on safety grounds and would undermine U.S. efforts to discourage reprocessing in other countries, a key element of U.S. non-proliferation policy.[17] However, if a decision were *1213-12*

[15] *Volume 1*, p. 4-69.

[16] *Volume 1*, p. 2-14.

[17] *Volume 1*, p. 4-84, states: "For example, the potential exists that other states (e.g. Iran) might use the restart of reprocessing in the United States as an excuse to continue current programs or begin new ones -- activities that would run counter to U.S. nuclear weapons nonproliferation activities."

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment No. 1213-9

The commentor's opposition to subalternative 2a (five year policy period) of Implementation Alternative 2 is noted. Implementation Alternative 2 (Section 2.2.2.2 of the EIS) describes alternative policy durations for generation of spent nuclear fuel that would be managed in the United States, under Management Alternative 1, if implemented by the Record of Decision.

Response to Comment No. 1213-10

The issue of subsidizing developed countries beyond the level of a competitive fee may arise in the context of developed countries for whom neither reprocessing nor domestic disposal of spent nuclear fuel or high-level waste is feasible. At the policy level of the EIS, it is not possible to provide a country-by-country analysis of financial feasibility, cooperation levels, non-U.S. alternatives, etc. The foreign countries should not be expected to provide any information on these negotiation-type issues nor should the United States expect to estimate the transition point for 41 countries. While some form of negotiated fees might ultimately be implemented, it is impossible to define them, by-country, in advance.

Response to Comment No. 1213-11

Charging countries with the option to reprocess overseas a fee exceeding the cost of reprocessing overseas could motivate some of them to reprocess, request the return of fresh HEU, and undermine the goals of the RERTR program.

Response to Comment No. 1213-12

The commentor's opposition to domestic chemical separation is noted. The advantages and disadvantages of chemical separation are discussed in Sections 2.2.2.6 and 4.3.6 of the EIS.

DOE agrees that any recovered HEU should be blended down to LEU. DOE's position on this is stated in Section 2.2.2.6 and again in Section 4.3.6.2 of the EIS.

made to reprocess any of the HEU spent fuel in the U.S., in conjunction with a limited program to stabilize a pre-determined amount of U.S. military nuclear residues and wastes, it is imperative that the recovered HEU be blended down to non-weapons-usable LEU -- thereby eliminating the HEU from commerce and serving as a model for any other country that might contemplate such reprocessing.

NCI is greatly concerned by the draft's suggestion that HEU separated from foreign spent fuel in the United States might not be blended down to LEU. The draft states: "If DOE decides not to blend down the HEU that is within the scope of the Interim Management of Nuclear Weapons EIS, then the HEU that would be recovered in this implementation alternative would also not be blended down."[18] The draft proposes instead to place such recovered HEU under IAEA safeguards. While this might allay foreign concerns about possible diversion of such recovered HEU to the U.S. weapons program, it would still set a terrible precedent and undermine U.S. efforts to prevent such reprocessing -- for recovery of HEU without subsequent blend-down -- in other countries. Moreover, failure to blend down recovered HEU would violate the President's policy of seeking "to eliminate where possible the accumulation of stockpiles of HEU or plutonium."[19] *1213-12 (Cont'd.)*

Implementation Alternative 7

If foreign research reactor spent fuel ultimately must be processed to satisfy criteria for final disposal in a geologic repository, NCI generally favors implementation alternative 7 -- new developmental processing technologies such as vitrification -- over implementation alternative 6, traditional reprocessing. Most of these new technologies would avoid the negative impact on U.S. nonproliferation objectives associated with reprocessing, as discussed above. However, NCI opposes developmental technologies that would recover HEU or a combination of plutonium and other actinides, such as the electrorefining technology being developed by Argonne National Laboratory, because they would have the same negative impact on U.S. nonproliferation efforts as traditional reprocessing.[20] *1213-13* *1213-14*

Management Alternative 2

NCI strongly opposes Management Alternative 2 because both of its implementation subalternatives would undermine at least one of the goals of the take-back program. *1213-15*

[18] *Volume I*, pp. 2-20 and 2-21.

[19] *Nonproliferation and Export Control Policy*, White House Fact Sheet, September 27, 1993, p. 1.

[20] *Volume I*, p. 2-22.

Response to Comment No. 1213-13

The commentor's preference for Implementation Alternative 7 over Implementation Alternative 6 is noted. These are discussed in Sections 2.2.2.6, 2.2.2.7, 4.3.6, and 4.3.7 of the EIS.

Response to Comment No. 1213-14

The commentor's opposition to any processing technology that separates the actinides from the fission products is noted. These are discussed in Section 2.2.2.7 of the EIS. Please note, however, that more of these technologies would preclude the decision to blend down HEU after it is recovered. Furthermore, as discussed in Section 4.3.7 of the EIS, technologies that do not remove the uranium from the high-level waste could generate a much higher volume of high-level waste and make disposal in a geologic repository much more technically complex.

Response to Comment No. 1213-15

The commentor's opposition to Management Alternative 2, specifically to Subalternative 1a (storage overseas), for HEU spent nuclear fuel, and commentor's support for Management Alternative 1, are noted. These Management Alternatives are discussed in Sections 2.2., 2.3, 4.2, and 4.4 of the EIS. The commentor's concern that overseas storage and/or overseas reprocessing would undermine U.S. nuclear weapons nonproliferation policies is noted. The EIS discusses the proposed action as a means of supporting U.S. nuclear weapons nonproliferation policy in Section 1.2.

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Implementation Subalternative 1a

NCI generally opposes implementation subalternative 1a of Management Alternative 2 -- to facilitate the storage of spent fuel overseas -- because it would increase the vulnerability of *spent* HEU fuel to diversion or theft for weapons purposes. Under the basic implementation of Management Alternative 1, this vulnerability is minimized because all of the HEU spent fuel would be returned to the United States and stored at no more than two, well-guarded sites. By contrast, under this implementation subalternative, "spent nuclear fuel containing HEU would be stored in up to 41 countries around the world."[21] Security is inherently less assured at multiple sites, and several of the countries involved have especially lax physical security measures, as documented in a recent DOE analysis.[22] These concerns would grow with time, as the spent fuel became less radioactive and non-self-protecting against those with malign intentions, and "thus a more attractive target for illicit diversion."[23] Further, "a change in government" in any of the countries where the spent fuel would be stored "could reverse any commitment to withhold the material from production of nuclear weapons." As the draft concludes, "although U.S. assistance in maintaining adequate physical security for foreign research reactor spent nuclear fuel repositories may lessen the potential for diversion, the proliferation risks would still be greater than under the basic implementation of Management Alternative 1."[24]

1213-15 (Cont'd.)

In addition, in most cases, storage would be only an interim measure. In the long run, pressure would grow in many states for one of two more permanent solutions -- reprocessing, most likely in the UK or France, or storage in a state such as Belarus or China, both of which have previously offered such services -- which would undermine U.S. non-proliferation goals.[25]

However, NCI does support U.S. facilitation of overseas storage capability for *LEU* spent fuel. Overseas storage of such fuel does not present as great a proliferation risk as HEU spent fuel. Moreover, after expiration of the proposed 13-year U.S. take-back period under the basic implementation, foreign operators would have no choice but to manage their spent LEU fuel outside of the United States. No foreign reprocessor is currently able to accept such LEU fuel. If this remains the case after expiration of the initial U.S. take-back period, and if foreign operators are unable to store their own spent LEU fuel, they could be compelled to reconvert to HEU fuel in order to facilitate spent fuel management, undermining previous progress of the RERTR program. Thus, U.S. facilitation of foreign storage of LEU spent fuel could play an important role in preserving

1213-16

[21] *Volume 1*, p. 2-23.

[22] *Risks to US-Origin Uranium in Foreign Research Reactor Spent Fuel*, John Rooney, DOE Office of Arms Control and Nonproliferation, May 1995.

[23] *Summary*, p. 44.

[24] *Volume 1*, p. 4-98.

[25] *Volume 1*, p. 4-99.

RESPONSE TO COMMENT

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

past gains of the RERTR program and, thereby, helping to achieve the U.S. objective of reducing, and ultimately eliminating, civilian commerce in HEU. 1213-16 (Cont'd.)

Implementation Subalternative 1b

NCI opposes implementation subalternative 1b of Management Alternative 2 -- to facilitate overseas reprocessing of the spent fuel -- because we do not believe such reprocessing can be carried out in a manner that preserves international cooperation with the RERTR program. As a result, this subalternative would increase international commerce in HEU, counter to the draft's stated goals.

Foreign reprocessing would undermine the RERTR program and U.S. nonproliferation goals unless the U.S. could obtain three *ironclad* guarantees from any potential reprocessor:

(1) to blend down all recovered HEU to LEU;

(2) to accept spent fuel only from those reactors fully participating with the RERTR program -- that is, *not* from reactors able to convert to qualified LEU fuel but which have refused to do so, *nor* from high-power reactors unable to convert to existing fuels and unwilling to commit to convert to suitable LEU fuels as soon as they are developed and qualified; and

(3) to establish an LEU spent fuel reprocessing capability.

Despite repeated attempts, the United States has been unable to obtain *any* of these three commitments -- let alone all of them -- from the only foreign reprocessor currently accepting such spent fuel from abroad, the UK's AEA Dounreay facility. AEA representatives have stated repeatedly that they will not make such commitments due to political and commercial considerations. The foreign reprocessors are awaiting the ROD before engaging in serious negotiations with the United States. If the ROD states that some of the spent fuel must be reprocessed overseas, the foreign reprocessors will be able to accept spent fuel without making any commitments to the United States. The best way to obtain leverage to extract firm commitments from foreign reprocessors would be for the ROD to approve the acceptance in the United States of all the U.S.-origin spent fuel at a competitive or subsidized price, as outlined in Management Alternative 1. Only then could the U.S. extract firm commitments from the foreign reprocessors, in exchange for permitting some of the spent fuel to be reprocessed there. 1213-17

Further decreasing the likelihood of obtaining ironclad commitments from foreign reprocessors is the draft's failure to state the three conditions categorically or to make them explicit pre-conditions for U.S. approval of this subalternative. Instead, the draft lays out less stringent criteria that only "would have to be considered" by U.S. policy-

8

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment No. 1213-16

The commentor's support for overseas storage of LEU spent nuclear fuel and opposition to overseas storage of HEU spent nuclear fuel is noted. Overseas storage in general is under Management Alternative 2, Subalternative 1a, which is discussed in Sections 2.3 and 4.4.1 of the EIS.

Response to Comment No. 1213-17

The commentor's opinion that overseas reprocessing cannot be conducted in a manner that preserves cooperation with the RERTR program is noted. As discussed in Section 2.3 of the EIS, certain arrangements in support of U.S. nuclear weapons nonproliferation policy would have to be established with the foreign reprocessors and research reactor operators before overseas reprocessing would be consistent with United States nuclear weapons nonproliferation policy. These could include steps such as blending the HEU down to LEU, developing the capability to reprocess high-density LEU spent nuclear fuel, and converting the research reactors to the use of LEU. There is no guarantee that such arrangements can be worked out, but DOE and the Department of State are discussing these issues with the appropriate parties.

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

makers. These include "an *expectation* that HEU separated during reprocessing would be blended down." Rather than requiring cooperation with the RERTR program, the draft states merely that "research reactors *would be encouraged* to convert to LEU if an LEU fuel exists or is developed that will allow such operation."[26] For the draft to so signal that less-than-ironclad commitments might suffice betrays weakness in the U.S. position and makes a successful negotiation on firm guarantees all the more unlikely. *1213-17 (Cont'd.)*

Foreign reprocessing in the absence of ironclad guarantees on any of the three above-listed conditions would do grave damage to the RERTR program:

Blend-down -- Without a guarantee of blend-down, a number of research reactor operators that now can convert, or are in the process of converting, or have already converted to LEU are likely to insist on future use of the HEU fuel recovered during reprocessing of their spent fuel. They are likely to do so because overseas reprocessing entails two penalties for operators, in comparison with U.S. take-back: higher cost and a requirement to accept the return of high-level radioactive waste. In light of these penalties associated with overseas reprocessing, operators will be far less willing to accept the additional penalties of conversion to LEU fuel under the RERTR program: higher fuel-cycle cost and decreased reactor performance. Moreover, the U.S. will be perceived as having broken its longstanding commitment to take back spent fuel it originally exported. From the foreign operators' perspective, if the U.S. can break its commitment on take-back, they can break their commitment on conversion. *1213-18*

Cooperation with RERTR (Conversion to LEU) -- The United States established an important precedent in the Environmental Assessment of Urgent Relief Acceptance of Foreign Research Reactor Spent Fuel (DOE/EA-0912) by making take-back of spent fuel conditional on a reactor operator's cooperation with the RERTR program. That is, the U.S. would not accept spent fuel from a reactor which could convert to qualified LEU fuel but had refused to do so. Management Alternative 1 reiterates this sensible policy of using the back end of the fuel cycle as appropriate leverage to ensure widespread cooperation with the RERTR program, stating: "Spent nuclear fuel would not be accepted from research reactors that could convert to LEU fuel but refuse to do so."[27] Such conditionality has a statutory precedent, in the Energy Policy Act of 1992, which denies fuel exports to any reactor that continues to use HEU fuel when an "alternate [LEU] nuclear reactor fuel . . . can be used in that reactor."[28] The statute goes further, as cited above, by barring HEU exports even to reactors unable to convert, unless their operators have made a commitment to convert as soon as suitable LEU fuel is available. Failure to make such cooperation with the RERTR program an explicit precondition for foreign reprocessing would sacrifice valuable leverage required both to lock-in previous gains of the RERTR program and to persuade operators of remaining HEU-fueled reactors to *1213-19*

[26] *Volume 1*, p. 2-24, emphasis added.

[27] *Volume 1*, p. 2-5.

[28] See Schumer Amendment, cited above.

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment No. 1213-18

U.S. assistance for overseas reprocessing under the EIS would be conditional on blending down the reprocessed HEU into LEU. Overseas reprocessing may also be conditional on the ability of the reactor operator to accept the reprocessing waste, although this is uncertain

Response to Comment No. 1213-19

The commentors preference for refusing to accept spent nuclear fuel from foreign research reactors that could convert to LEU but decline to do so is noted. DOE and the Department of State are continuing to discuss with representatives from the United Kingdom conditions that would allow United States nuclear weapons nonproliferation policy objectives to be met.

convert to LEU fuel. This failure would obstruct achievement of the U.S. nonproliferation goal of reducing and, ultimately, eliminating civilian commerce in HEU.

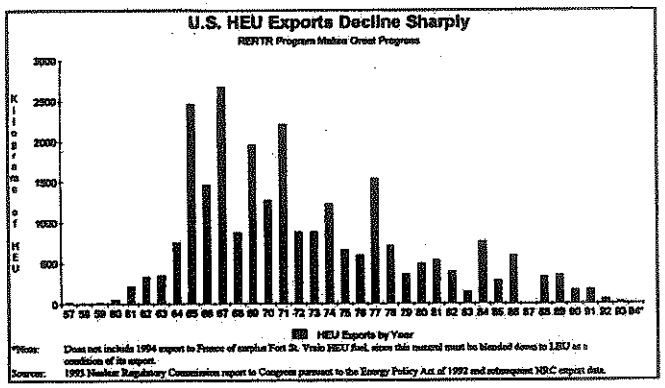
1213-19 (Cont'd.)

LEU Reprocessing Line -- Under all of the proposed management alternatives and subalternatives, the U.S. would accept U.S.-origin, spent *LEU* research reactor fuel for no more than 13 years. However, there is no reprocessing line in Europe currently able to accept such LEU fuel. If this were still the case after expiration of the initial 13-year period, operators would be presented with the choice of disposing of their own spent LEU fuel or *converting back to HEU fuel* to permit the reprocessing option. Therefore, if the U.S. were to facilitate foreign reprocessing without assuring the establishment of an LEU reprocessing line, it would create a perverse incentive for some operators to abandon the RERTR program. As the draft succinctly states: "Reprocessing under these circumstances leads to perpetuation of the HEU fuel cycle."[29]

1213-20

Foreign reprocessing in the absence of all three guarantees would result in an increase in HEU commerce and an undermining of the RERTR program, just at the time when the program is on the verge of eliminating civilian HEU commerce. Because the United States has been the major exporter of HEU for civilian use, and in recent years the sole exporter, U.S. exports approximate world commerce in bomb-grade uranium. As indicated in the following chart, such commerce has dropped to minimal levels as a result of the RERTR program. Building on this progress, as the draft acknowledges, "RERTR program activities can virtually eliminate the need for civilian commerce in HEU."[30]

1213-21



[29] *Volume 1*, p. 1-7.

[30] *Volume 1*, p. 1-3.

Response to Comment No. 1213-20

The proposed action is designed to provide foreign research reactor operators with incentives to use LEU fuel and concurrently help them manage all their spent nuclear fuel for a finite period. After this period, foreign research reactor operators will be responsible for their own spent nuclear fuel management. DOE and the Department of State are continuing to discuss with representatives of the United Kingdom conditions that would allow United States nuclear weapons policy objectives to be met.

Response to Comment No. 1213-21

The broader objective of the proposed action is the advancement of the RERTR program. It is DOE's preference that any U.S. actions regarding reprocessing, whether at a U.S. facility or a foreign facility, would require blending down the separated HEU to LEU.

With respect to the sale and export of HEU, the Energy Policy Act of 1992, prohibits the United States from exporting HEU for civilian use, other than under very specific exceptions.

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

However, foreign reprocessing in the absence of firm guarantees could dangerously reverse this trend. While only a few reactor operators might defect from the RERTR program initially, this could trigger a domino effect that would soon undermine the entire regime. The draft's analysis of this dynamic is correct: "As some foreign research reactors abandon plans for conversion to LEU or reconvert from LEU to HEU fuels, the credibility of the RERTR program would be seriously, and perhaps irreparably, compromised."[31] *1213-21 (Cont'd.)*

This subalternative raises another troubling policy concern in its proposal to facilitate foreign reprocessing by providing "*financial* and/or logistical assistance."[32] In other words, the U.S. would subsidize the operation of a foreign reprocessing plant, rather than store or reprocess the spent fuel in the United States. Without such U.S. assistance, the draft acknowledges, Dounreay might well shut down due to lack of business.[33] In fact, the Dounreay facility that previously reprocessed spent research reactor fuel (the MTR reprocessing plant) is already mothballed,[34] and only the Prototype Fast Reactor reprocessing plant is operating. Thus, this subalternative would use U.S. taxpayer dollars to reopen, subsidize, and keep in business a foreign reprocessing plant, despite the stated U.S. policy of not encouraging foreign reprocessing. It would subsidize a foreign industry rather than spending those dollars to employ Americans to handle the waste at DOE facilities. It would do this in order to export, from the U.S. to Europe, a radioactive waste problem associated with U.S.-origin fuel the U.S. has previously committed to manage. *1213-22*

The draft's proposal, that "the United States would commit to accept the high-level waste" resulting from foreign reprocessing of spent fuel from countries lacking their own nuclear waste programs, is unrealistic.[35] It is only made more preposterous by the proposal to swap cemented research-reactor waste for glassified power-reactor waste produced at Sellafield, UK, for disposal in the United States.[36] Likely American public opposition to such a proposal is suggested by the degree of controversy surrounding the recent urgent-relief acceptance of a single combined shipment of U.S.-origin HEU spent fuel from a few foreign research reactors. In the instance of spent fuel take-back, the U.S. at least is acting to remove weapons-usable nuclear material from international commerce. *1213-23*

---

[31] *Volume 1*, p. 4-117.

[32] *Summary*, p. 18, emphasis added.

[33] *Volume 1*, p. 1-4.

[34] Mike Townsley, personal communication, June 1995.

[35] *Volume 1*, p. 4-100.

[36] The American public is not likely to accept the disposal in the United States of concentrated radioactive waste produced in, for example, Japan's nuclear-power program, despite the draft's repeated suggestions. For example, "The government of the United Kingdom might allow an exchange of vitrified commercial waste from Sellafield for cemented waste from Dounreay, which might allow the United States to accept vitrified high-level waste from the United Kingdom," *Volume 1*, p. 4-101. Or, "The United Kingdom Atomic Energy Authority is considering a proposal from British Nuclear Fuels Limited to substitute vitrified waste from its Thermal Oxide Reprocessing Plant at Sellafield for nonvitrified research reactor wastes from Dounreay. According to the UKAEA, acceptance of such a policy could form the basis for waste substitution of research reactor spent nuclear fuels," Volume 1, p. 4-129.

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment No. 1213-22

As discussed in Section 4.4.2.1 of the EIS, the U.S. does not encourage the development of reprocessing capabilities overseas, but the capability already exists in the United Kingdom (The MTR reprocessing plant at the Dounreay Site has not been mothballed as suggested by the commentor, but is actually capable of operating). Therefore, contracting with Dounreay for reprocessing services would not be a violation of U.S. policy.

Contracting with Dounreay for reprocessing services would not be "subsidizing a foreign industry" as suggested by the commentor. U.S. taxpayer dollars would be spent only for services rendered.

Response to Comment No. 1213-23

The exchange of vitrified waste from the Sellafield Site for cemented waste from the Dounreay Site and its acceptance in the United States was included for consideration because of the likely technical or regulatory difficulties of accepting cemented waste from Dounreay into the United States. DOE acknowledges that acceptance of high-level waste from abroad may be opposed by certain members of the public, but under certain circumstances it would be a reasonable alternative, and therefore subject to consideration. Public opposition does not justify the omission of a reasonable alternative.

As discussed in Section 2.3 of the EIS, certain arrangements in support of U.S. nuclear weapons nonproliferation policy would have to be established with the foreign reprocessors and foreign research reactor operators before overseas reprocessing could be implemented with U.S. assistance. These could include the three steps of: 1) blending the HEU down to LEU, 2) developing the capability to reprocess high-density LEU spent nuclear fuel, and 3) converting the research reactors to the use of LEU. There is no guarantee that such arrangements can be worked out, but DOE and the Department of State are discussing these issues with the appropriate parties.

By contrast, accepting pure high-level waste makes the United States appear to be volunteering to be the world's radioactive garbage can.

Thus, foreign reprocessing would be a realistic option only for those countries that could accept return of their own high-level waste. Coincidentally, most of these countries are within Euratom, where the U.S. has no consent rights over spent fuel that remains within the Community. This underscores the need to obtain the three ironclad guarantees discussed above, because the U.S. is unable to use consent rights to encourage compliance with the RERTR program. The countries which realistically could have their fuel reprocessed overseas -- because they could accept return of recovered waste -- are precisely those over which the U.S. has no consent rights to insist on the blend-down of recovered HEU to LEU. *1213-23 (Cont'd.)*

The draft also wrongly implies that this subalternative would be more environmentally benign than Management Alternative 1.[37] While it is true that the United States would receive fewer shipments if the radioactive waste in the spent fuel were reprocessed, concentrated and glassified before being sent to the U.S., this would be *in addition to* all the shipments of spent fuel to European reprocessors. Overall, there would be *more* shipments of radioactive material, not less, under this subalternative. The draft should acknowledge and make clear that this option would not reduce the environmental risk associated with the management of U.S.-origin fuel, but merely export most of the risk. Currently, the draft relegates to a footnote the fact that it ignores environmental impacts outside the U.S.[38] *1213-24*

Management Alternative 3

NCI opposes Management Alternative 3 -- the hybrid alternative under which only some of the spent fuel would be stored in the United States, and the rest reprocessed in the U.S., stored overseas, or reprocessed overseas -- because any hybrid would include a subalternative that we oppose on nonproliferation grounds. However, were a hybrid to be selected involving some storage and some reprocessing of spent fuel in the U.S., in conjunction with a limited program to stabilize a pre-determined amount of U.S. military nuclear residues and wastes, NCI reiterates the need to ensure that the recovered HEU be blended down to non-weapons-usable LEU -- thereby eliminating the HEU from commerce and serving as a model for any other country that might contemplate such reprocessing. *1213-25*

The draft states that estimated costs are one factor in DOE's decision-making,[39] and claims that a hybrid alternative involving reprocessing at Dounreay and reprocessing *1213-26*

[37] *Volume 1*, p. 4-101.

[38] *Volume 1*, Figure 4-22, p. 4-121.

[39] *Volume 1*, p. 2-1.

Response to Comment No. 1213-24

The commentor's concern with the global environmental effects of overseas reprocessing is noted. Overseas reprocessing is Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS. The EIS includes analysis of impacts on the global commons in accordance with Executive Order 12114, but not analysis of impacts in foreign countries. The subject of environmental impacts in foreign countries is outside the scope of this EIS. Furthermore, while the total number of radioactive material shipments would increase, as suggested by the commentor, the length of a large number of the spent nuclear fuel shipments (i.e., those from Europe to European reprocessors) would be significantly shortened. Furthermore, due to the robust nature of the vitrified waste form, the added shipments would have minimal risks associated with them. Due to the shortening of the spent nuclear fuel shipments, DOE does not expect that the overall transportation risk would be reduced.

Response to Comment No. 1213-25

The commentor's opposition to a hybrid alternative that would include management of foreign research reactor spent nuclear fuel overseas is noted. Also noted is the commentor's support of a hybrid alternative that would involve some storage and some chemical separation in the United States. Hybrid alternatives are discussed in Sections 2.4 and 2.5 of the EIS.

Response to Comment No. 1213-26

While it is true that the uncertainty in cost estimates exceeds the estimated costs of the various alternatives, the greatest technical risks (as opposed to discount rate risks) would be associated with geologic disposal of spent nuclear fuel (as opposed to geologic disposal of high-level waste). The certainty of costs for Dounreay is very high. The certainty of costs for geologic disposal of Dounreay wastes is low but not a risk factor to the U.S. The certainty of costs for separation at the Savannah River Site is also high, provided that chemical separation activities under this EIS would be carried out with those of other programs in existing facilities. By combining the Dounreay costs and the Savannah River Site costs (during the period of concurrent activities) not only would the costs be at least

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

and storage in the U.S. would "cost less than any U.S.-only approach."[40] Reserving judgment on the accuracy of this claim, NCI reiterates that nonproliferation concerns, rather than cost, should be paramount in DOE's decision-making. NCI also wishes to underscore that there is considerable uncertainty associated with the cost estimates of the various management alternatives in the draft. Indeed, the uncertainty in cost estimates is greater than the difference in cost between the alternatives.[41] It would be doubly foolish to sacrifice nonproliferation goals in a search for economies that could well prove illusory. *1213-26 (Cont'd.)*

No Action Alternative

NCI strongly opposes the No Action Alternative because it would combine the worst nonproliferation consequences of the other flawed options. Since the Off-Site Fuels policy would remain lapsed, foreign research reactor operators would be unable to return their U.S.-origin spent fuel to the United States. Some operators would send their spent fuel to foreign reprocessors, and the recovered HEU would likely re-enter international commerce. Other operators would retain their HEU spent fuel on-site, where inadequate physical security could leave it vulnerable to diversion or theft for weapons. Many foreign reactor operators, in light of the United States breaking its long-time commitments to them and with few other options, would abandon the RERTR program and revert to HEU fuel. Russia and/or China could well begin exporting HEU fuel to meet the renewed demand. In short, nearly two decades of progress in reducing HEU commerce would be lost, and the risks of nuclear proliferation and nuclear terrorism would increase markedly. *1213-27*

Other Comments

o *Prioritization of Take-Back* -- Certain overseas U.S.-origin HEU fuel poses a greater proliferation and/or safety risk than other such fuel. To address these concerns, NCI supports a prioritization of take-back similar to that proposed by the IAEA:[42] *1213-28*

1. Fresh, unirradiated HEU;
2. Spent HEU that has cooled sufficiently that its radioactivity no longer provides the fuel "self-protection" against diversion;
3. Spent HEU at sites with poor physical security;
4. Badly corroded spent HEU;
5. Other HEU spent fuel;
6. LEU spent fuel.

o *Environmental Impact of Proliferation* -- The draft concludes that none of the proposed management alternatives would have a significant environmental impact. At the same *1213-29*

[40] *Summary*, p. 47.

[41] *Volume 1*, p. 4-127.

[42] Statement of Ian Ritchie, International Atomic Energy Agency, at DOE Public Hearing, Washington, DC, May 31, 1995.

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

as low as any U.S.-only option, but the certainty of costs would be higher. If an acceptable agreement could be worked out that would allow the exchange of vitrified wastes for concreted wastes (if the U.S. agrees to accept the waste), the hybrid reprocessing/chemical separation option would generate a waste form that would cost less to dispose of (mostly because of volume) and has less cost uncertainty (mostly because of fissile material loadings) than any alternative based on disposal of spent nuclear fuel without reprocessing or chemical separation. Appendix F, Section F.7.6 of the EIS addresses the issue of cost versus nonproliferation goals as it relates to DOE's decisionmaking.

Response to Comment No. 1213-27

The commentor's opposition to the No Action Alternative is noted. The proposed action, if implemented, would negate many of the commentor's concerns.

Response to Comment No. 1213-28

If the Record of Decision results in U.S. management of the foreign research reactor spent nuclear fuel, DOE will establish a prioritization schedule that takes into account the IAEA recommendations. However, while DOE and the Department of State agree in general with the prioritization criteria proposed by the IAEA, due to considerations such as the availability of transportation casks or other details of the shipping arrangements, DOE prefers not to address the prioritization in the EIS, and would reserve the right to exercise judgement in the application of any prioritization criteria that would be established. DOE would address this issue as a part of the process of contracting for any spent nuclear fuel management services that might be provided.

Response to Comment No. 1213-29

Successful diversion of weapons-grade material and the consequent detonation of a nuclear device is hypothetical, but would be catastrophic. The proposed action would be beneficial in terms of substantially reducing the diversion and proliferation risk, and as such, detailed qualitative or quantitative analysis of diversion and proliferation risks would be unnecessary. Nevertheless, Chapter 4 of the EIS does discuss the different impacts that could result from implementation of the various alternatives, including increased risks of the proliferation of nuclear weapons, where that is applicable.

time, the draft acknowledges that certain options would hinder achievement of U.S. nonproliferation goals -- that is, they could increase the likelihood of additional nations or terrorists acquiring nuclear weapons. Such an eventuality, including possible detonation of a nuclear weapon, would indeed have a significant environmental impact. The draft should be revised to take into account the environmental impacts of policies that increase the risk of proliferation. 1213-29 (Cont'd.)

o *Logistical Feasibility of Accepting Return of All Fuel* -- Based on the experience of the recent urgent-relief shipment, some skeptics have claimed it is not logistically feasible to accept return of all the fuel under Management Alternative 1 during the 13-year period provided for in the basic implementation, due to a shortage of transportation casks, skilled staff, and/or infrastructure at the potential storage sites. NCI believes it is inappropriate to extrapolate from the logistical experience of the recent urgent-relief shipment, which occurred after a six-year hiatus in U.S. acceptance of such fuel. If the ROD authorizes U.S. acceptance of foreign research reactor spent fuel, market forces will encourage the availability of sufficient casks. DOE can and should upgrade staff and infrastructure sufficiently to permit acceptance of all the fuel in the 13-year period. As a precaution, however, extending the take-back period for spent HEU fuel -- under subalternative 2b of Management Alternative 1 -- would assure that any delays due to inadequate staffing or physical infrastructure do not undermine U.S. nonproliferation goals. It should be stressed that all of the foreign research reactor spent fuel analyzed in the draft represents less than one percent of the total mass of heavy metal that DOE currently manages as spent nuclear fuel and is, thus, seemingly well within DOE's management capabilities.[43] In addition, there is sufficient space in existing DOE facilities -- for example, a combination of Savannah River's RBOF facility and L-Reactor disassembly basin, after minor modifications -- to store all the foreign spent fuel during Phase 1 implementation.[44] 1213-30

o *HEU Removal Overestimated* -- The draft overestimates the amount of HEU that would be removed from international commerce under Management Alternatives 2 and 3, stating that "overseas reprocessing would remove the same amount of HEU from international commerce as would the basic implementation of Management Alternative 1 . . ."[45] As discussed above, this would be true only if all recovered HEU were blended down to LEU rather than being returned to international commerce. However, there is no assurance of this outcome based on the policy outlined in the draft, nor on actual U.S. negotiations with potential foreign reprocessors. The draft should acknowledge that foreign reprocessing will limit the amount of U.S.-origin HEU that can with assurance be removed from international commerce, and thereby undermine U.S. nonproliferation goals. To its credit, the draft acknowledges the adverse proliferation consequences that would arise from the 1213-31

[43] *Volume 1*, p. 6.

[44] *Volume 1*, p. 2-60.

[45] *Volume 1*, p. 4-120 and Figure 4-21, p. 4-119.

Response to Comment No. 1213-30

The commentor's assessment that it is not logistically feasible to accept all foreign research reactor spent nuclear fuel considered under Management Alternative 1 during the proposed 13-year acceptance period provided for in the basic implementation, is noted. Also noted is the commentor's suggestion to adopt the indefinite take-back period for HEU (Subalternative 2b, Implementation Alternative 2, Management Alternative 1), which is discussed in Section 2.2.2.2.

Response to Comment No. 1213-31

The commentor's opinion that the analysis in the EIS overestimates the amount of HEU that would be removed from commerce under Management Alternatives 2 and 3 versus Management Alternative 1 is noted. As discussed in Section 2.3 of the EIS, certain arrangements in support of U.S. nuclear weapons nonproliferation policy would have to be established with the foreign reprocessors and research reactor operators before overseas reprocessing could be implemented with U.S. assistance. These could include steps such as blending the HEU down to LEU, developing the capability to reprocess high-density LEU spent nuclear fuel, and converting the research reactors to the use of LEU. There is no guarantee that such arrangements can be worked out, but DOE and the Department of State are discussing these issues with the appropriate parties. In the interim, NEPA requires consideration of all reasonable alternatives and overseas reprocessing is considered reasonable

COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

other option under Management Alternative 2, facilitating foreign storage of U.S.-origin HEU spent fuel.[46] 1213-31

o *Cost of Domestic Reprocessing Underestimated* -- The draft underestimates the cost of domestic reprocessing by not taking into account any of the costs of upgrades in existing U.S. reprocessing facilities that would be necessary before reprocessing could take place. The draft states that these costs, totaling hundreds of millions of dollars, "are not included in the known costs or the uncertainties since they would, presumably, be borne by other programs requiring use of the facilities, e.g. programs to stabilize the existing Savannah River Site materials under a separate EIS."[47] However, during Congressional consideration of such upgrades, the need to manage foreign spent fuel has been cited as a leading justification. Thus, a significant portion of the cost of such upgrades should be attributed to the reprocessing of foreign spent fuel, and included in the draft's estimated cost for implementation alternative 6 under Management Alternative 1, as well as any hybrid under Management Alternative 3 that includes domestic reprocessing. 1213-32

o *Outdated NPT References* -- The draft's references to the Nuclear Non-Proliferation Treaty should be revised to reflect the treaty's indefinite extension. 1213-33

Conclusion

Reducing, and ultimately eliminating, international commerce in bomb-grade uranium is a key component of U.S. nuclear nonproliferation policy. Foreign reprocessing of U.S.-origin HEU spent fuel, without ironclad guarantees that would ensure blend-down of recovered HEU and continued cooperation with the RERTR program, would do grave damage to this important U.S. national security objective. Only by issuing an ROD that provides for U.S. take-back of all U.S.-origin foreign research reactor spent fuel, as outlined in Management Alternative 1, can the U.S. ensure that the maximum amount of HEU is removed from international commerce and that international cooperation with the RERTR program continues. After issuance of such an ROD, the U.S. would be in a much stronger position to extract the cited ironclad guarantees from foreign reprocessors, if the U.S. wants foreign reprocessors to be a component of the management solution for U.S.-origin foreign research reactor spent fuel. 1213-34

Finally, it should be underscored that the U.S. take-back program is not an isolated domestic policy, but part of a larger international effort to eliminate HEU from international commerce that the U.S. has led for two decades. In addition to promoting longstanding cooperation with Western nations, the U.S. RERTR program is now actively working with China and Russia to eliminate their use of HEU in research reactors and to prevent their exporting HEU. Were the U.S. to signal a diminished commitment to the RERTR program by failing to renew the take-back program, Russia and China could well 1213-35

[46] *Volume 1*, p. 4-120.

[47] *Volume 1*, p. 4-130.

RESPONSE TO COMMENT
COMMENTOR NO. 1213: NUCLEAR CONTROL INSTITUTE (CONT'D.)

Response to Comment No. 1213-32

The cost of upgrades to existing U.S. chemical separation facilities would not be charged to the foreign research reactor spent nuclear fuel program because none would be made during the period in which foreign research reactor spent nuclear fuel would be processed. The $210 million figure in the draft EIS referred to upgrades for 40 years of operations. It has been eliminated from the final EIS. If one or more Canyons were restarted under another program, the initial increments of foreign research reactor spent nuclear fuel could be processed at the same time using spare dissolver capacity. Then the remaining foreign research reactor spent nuclear fuel could be separated chemically on a stand-alone basis after this period, depending on costs and schedules that are being developed under the IMNM EIS.

If costs for operations are allocated to the foreign research reactor spent nuclear fuel program on the basis of average variable costs (including a penalty for deferring phasedown of the Canyon) for all activities after the 1998 to 2002 period of processing incremental to the IMNM EIS. Costs are shown for the proportion of variable costs at F-Canyon over the entire period, taking into account the share of non-foreign research reactor spent nuclear fuel that is also processed. A hybrid involving chemical separation at the Savannah River Site during the period of concurrent operations and then dry storage afterwards would also be possible but more costly than chemical separation only due to diseconomies of scale in staging the receipts for storage and due to the high cost of spent nuclear fuel disposal compared to the high-level waste disposal.

Response to Comment No. 1213-33

The information about the Treaty on the Non-Proliferation of Nuclear Weapon has been updated to indicate its indefinite extension.

Response to Comment No. 1213-34

The commentor's suggestion that only Management Alternative 1, management of all foreign research reactor spent nuclear fuel in the United States (Section 2.2 of the EIS), would ensure the maximum removal of HEU from international commerce, is noted.

Response to Comment No. 1213-35

The leadership that the United States has undertaken in the nuclear weapons nonproliferation arena is demonstrated in the establishment and subsequent success of the Reduced Enrichment for Research and Test Reactors (RERTR) program. The failure to successfully implement a policy to manage foreign research reactor spent nuclear fuel would eventually jeopardize the current negotiations with China and Russia to follow the U.S. lead and start their own RERTR-type programs.

back away from such cooperative efforts. On the other hand, if the U.S. renews the take-back program, prospects are excellent for continued progress towards attainment of U.S. nonproliferation objectives. As Hans Blix, Secretary General of the IAEA, recently wrote to Victor Michailov, Russia's Minister for Atomic Energy:

> If the RERTR programme goals could be achieved and both major supplier countries, the U.S. and Russia, take back spent research reactor fuel, international trade in HEU for research reactors will almost completely disappear and spent HEU fuel will be safely stored in only a few locations.[48]

1213-35 (Cont'd.)

NCI

[48] Hans Blix, letter to Victor Michailov, February 2, 1995.

Commentor No. 1214: Western States Legal Foundation

WESTERN STATES LEGAL FOUNDATION
1440 Broadway, Suite 500
Oakland, California 94612

Jacqueline Cabasso
Executive Director

Telephone: (510) 839 5077
Telefax: (510) 839 9753

Michael Vallera
Counsel to the Foundation
Telephone: (510) 939 9880
Telefax: (510) 939 9916

July 20, 1995

VIA FACSIMILE AND REGULAR MAIL
(202) 586-5256

TO: Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (SM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Re: Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Dear Mr. Head:

Please find enclosed the comment of the Western States Legal Foundation to the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.

Very truly yours,

WESTERN STATES LEGAL FOUNDATION

MICHAEL J. VALLERA
Foundation Counsel

MJV: hs
Enclosure

Response to Comment Commentor No. 1214: Western States Legal Foundation

COMMENT OF THE WESTERN STATES LEGAL FOUNDATION

DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
PROPOSED NUCLEAR WEAPONS NONPROLIFERATION POLICY
CONCERNING FOREIGN RESEARCH REACTOR
SPENT NUCLEAR FUEL

Address: Western States Legal Foundation
1440 Broadway, Suite 500
Oakland CA 94612

Comment Submitted By:

Michael Veiluva Phone: (510) 939-9880
Fax: (510) 939-9916

Jacqueline Cabasso

Comment Date: July 20, 1995

INTRODUCTION

Western States Legal Foundation (WSLF) is a non-profit environmental and peace organization which, since 1982, has participated in administrative proceedings, litigation, and grass-roots activities to further the end of the nuclear arms race, conversion of military activities, and the cleanup of federal facilities engaged in nuclear weapons production. WSLF is a member of the Military Production Network (MPN), and a founding member of the Global Anti-Nuclear Alliance (GANA).

Western States Legal Foundation has participated as an observer in its capacity as a registered non-governmental organization (NGO) in international negotiations in Geneva, Switzerland regarding the Comprehensive Test Ban Treaty (CTB), and the Nuclear Non-Proliferation Treaty (NPT). Most recently, WSLF attended the April- May 1995 New York conference on review and extension of the NPT.

The principal author of this comment is currently serving as a member

Commentor No. 1214: Western States Legal Foundation (Cont'd.)

of the NACEPT subcommittee assisting the EPA in rulemaking to establish radioactive site cleanup standards.

WSLF testified at the November 1993 scoping hearing on the proposed policy to return spent nuclear fuel in Oakland and submitted written comments at that time, which are incorporated herein by reference. The authors of this comment testified at the May 22 public hearing in Concord, California.

REQUEST FOR A SECOND HEARING

As of the date of this comment, the cities of Martinez and Concord, and Contra Costa County (where the Concord Naval Weapons Station is situated) have passed resolutions opposing the return of spent nuclear fuel through the Concord Naval Weapons Station (Concord NWS). All three entities requested an extension of sixty to ninety days in which to comment on the DEIS.

Prior to April 1995, local communities in the vicinity of Concord NWS were unaware that the military port was being actively considered as an entry port for spent nuclear fuel. The first notice to the public of the shift from Oakland to Concord NWS was the appearance of the DEIS in the offices of local city planners. Fortunately, one of these planners notified a local newspaper of the proposal to use Concord NWS as an entry port; otherwise, valuable weeks between the Easter weekend and the May 22 hearing would have been lost until DOE settled on a date and hearing site.

As a practical matter, members of the public and local governments had less than two months to read and assimilate the DEIS before the original June 20 deadline, and only a week or two prior to the May 22 hearing. This problem was compounded by delays in mailing backlogged orders for the complete document. This is contrary to the experience of local planners in considering proposals for significant changes in land use, in which six months to a year is often the norm. DOE's allowance of a bare two months to consider this document is inadequate and procedurally deficient; at least 120 days' notice should have been provided in advance of the close of the comment period, and 45 days before

Consequently, we respectfully request that DOE conduct a second hearing to permit interested community representatives, citizens, and local government officials an opportunity to more fully comment on the proposal.. *1214-1*

WESTERN STATES COMMENT - 3

Response to Comment Commentor No. 1214: Western States Legal Foundation (Cont'd.)

Response to Comment No. 1214-1

The deadline for submission of comments in response to the draft EIS was extended from June 20 to July 20, 1995 (90 days total). Seventeen public hearings were held on the draft EIS in the locations determined most likely to be directly affected by the EIS alternatives, specifically in the ports of entry and at the potential management sites. In addition to accepting comments from the public during these hearings, written comments were also welcomed, and encouraged. DOE considers that these actions have provided ample opportunity for the public to comment on the draft EIS.

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

OVERVIEW

The DEIS purports to be programmatic in scope, by attempting to evaluate the nationwide impacts of the proposed return of foreign spent nuclear fuel under Alternatives One and Three. The document appears to recognize that potential impacts may be particularly acute at the ten potential entry ports and at the proposed reprocessing/storage facilities. The DEIS touches on local impacts at these sites but nonetheless relies upon generic risk analysis based upon hypothetical activities divorced from the particular characteristics and surrounding land uses at a given site.

The DEIS accomplishes neither the task of a programmatic document nor a document which competently addresses site-specific environmental impacts. While it is true that a programmatic EIS need not always contain the same level of detail regarding local impacts as one which is site-specific, any significant local action or land use change anticipated by such a programmatic document must depend upon tiered site-specific impact statements. See 40 CFR 1502.20; see, e.g. *Oregon National Council v. Kunzman*, 714 F.2d 901 (9th Cir. 1983); *Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission*, 606 F.2d 1261 (D.C.Cir. 1979). Moreover, programmatic statements are to be prepared before the program reaches a stage of commitment likely to determine subsequent development or restrict later alternatives. 40 CFR 1502.4(b)(3). 1214-2

The DEIS does not adequately address local impacts at the proposed entry ports, instead applying a single, generic all purpose risk analysis without regards to local land uses, geography, or other conditions. In the specific instance of the Concord NWS, the DEIS overlooks significant land uses and conditions which materially affect the potential risks of the proposed action (see below). The abstract nature of the analysis (mostly relying upon computer modeling) fails to substitute for a planning document which relates to and considers other hazardous activities (such as chemical plants and petrochemical ship traffic) as well as the cumulative impacts of these activities on the environment. 1214-3

At the May 22 public hearing in Concord, the DOE made clear that it plans to commence spent fuel shipments within months of a record of decision following the final EIS. This is unacceptable in view of the CEQ guideline cited above which requires such statements to be prepared well in advance of any significant commitment of resources to the project. Such timing also unlawfully precludes preparation of site-specific impact statements to address fully the local impacts and risks at affected ports and storage sites. 1214-4

WESTERN STATES COMMENT - 4

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

Response to Comment No. 1214-2

The draft EIS does not purport to be, and is not, a programmatic document (Section 1.3 of the EIS). Programmatic aspects of spent nuclear fuel management, both domestic and foreign, are addressed in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement (Section 1.5 of the EIS).

The analysis in the EIS determined that potential environmental benefits and risks were evaluated at candidate ports, along representative transportation routes, and at interim management sites and were found to be low (Sections 4.2.2, 1.2.3, and 4.2.4, of the EIS). Results of the evaluation are summarized in Section 4 with supporting details provided in Appendices A through F of the EIS. Population and meteorological data used in the analyses were specific to each potentially affected location (Appendices A through F). Activities and accident scenarios used in the analyses are conservative (Section 4.2 of the EIS), and the actual risks are expected to be lower than those calculated in the EIS. No substantive, quantifiable exceptions to the risk analyses provided in the EIS were received during the comment period for the draft EIS.

If a policy of management in the United States were adopted, the site specific analyses provided in the EIS indicate that there would be no significant benefits (other than nuclear weapons nonproliferation benefits) or risks to the environment, including effects on local land use.

Response to Comment No. 1214-3

While computer modeling was used to calculate the impacts associated with the proposed action, the calculation for each site was tailored for local conditions. Local meteorology was used, as was local population distribution. To determine the impacts of contamination on the area, the model was run twice, once assuming the entire area was urban and a second time assuming the entire area was agricultural. The results of all of the calculations for Concord NWS indicated that very little land would be contaminated with essentially no property damage, and that the risk to the population was low.

In regard to the air and water quality as it pertains to the proposed policy of managing foreign research reactor spent nuclear fuel, DOE considers that there would be no significant adverse impacts to any of the ports that might be used to receive the material. Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 30 years of spent nuclear fuel shipments, no radioactive material has ever been released from a spent nuclear fuel transportation cask as a result of an accident. A paragraph has been added to Section 4.2.2.2 of the EIS to make this point and to emphasize the no-impact nature of these shipments on air and water quality.

Because of the low risk due to accidents and the no-impact nature of the shipments on the air or water, no planning document other than a Transportation Plan would be needed.

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

THE NATIONAL AND FOREIGN POLICY DRIVERS

WSLF welcomes the opportunity to address nonproliferation policy in the context of a NEPA document, in light of DOE's usual practice of segmenting national policy initiatives into local NEPA reviews without the benefit of discussion of broader policy. However, in engaging in this discussion, DOE (and the Department of State) must take care not to mislead local governments and the public into eschewing local safety and health concerns in light of a purported "national security" interest, in this case, non-proliferation. Certainly, the decision to expose a multitude of local communities along sea and ground routes to the colorable risk of an accident involving spent nuclear fuel shipments requires the that DOE demonstrate by a preponderance of evidence an overriding national interest.

In both the DEIS and the DOE public presentations, the major emphasis of the policy embodied by Management Alternatives One and Three is to prevent the diversion of HEU by terrorists and would-be proliferant nations. Putting aside the issue of the propriety of historical aggressive United States programs to widely distribute HEU to dozens of foreign nations, the DEIS' assumption of the danger of leaving the fuel in place under international supervision must be called into question:

- According to the DEIS, fully 78% of the spent HEU fuel by weight is located in so-called developed nations who are, for the most part, advanced trading partners with the United States.

- The bulk of the remaining 22% of the spent HEU in "developing" nations is with nations who are highly ranked by World Bank standards, that are fully prepared to accept international supervision and are otherwise "stable." At most, the only urgency for return of spent HEU from a "developing" nation would be in instances where international supervision was inadequate or refused.

- The most dangerous and risky circumstance of spent HEU is in transit, during which time the risk of hijacking, tampering, or accident is greatest.

We further challenge the proposal to "exchange" LEU for HEU fuel under the non-proliferation rationale, since the continuing nuclear power programs encouraged by this action pose the greatest continuing environmental and proliferation threat in the host countries. Moreover, a case has been made that the plutonium by-products from spent LEU may pose a serious proliferation threat in their own right.

1214-5

WESTERN STATES COMMENT - 5

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

Response to Comment No. 1214-4

DOE is conducting the NEPA review process in full compliance with NEPA and the applicable regulations. The Record of Decision will determine whether any foreign research reactor spent nuclear fuel will be accepted into the United States. No decision has been made on the acceptance of foreign research reactor spent nuclear fuel into the United States at this time. Thus DOE has not failed to prepare the EIS in advance of any significant commitment of resources and, therefore, is not acting in contravention of 40 CFR Part 1502.4(b)(3).

Response to Comment No. 1214-5

In reference to the commentor's National and Foreign Policy drivers, the following points are material:

While there is some risk associated with marine and ground transport of spent nuclear fuel, Section 4 of the EIS and Appendices C, D, and E, show that the likelihood of an accident involving a release of radioactivity would be low. Over the 30 plus years in which spent nuclear fuel has been shipped overseas to the U.S. and overland within the U.S., there has never been an accident with spent nuclear fuel which resulted in a release of radioactivity. Transportation casks are designed to withstand extreme temperatures, pressures, impacts, etc. As described in Section 4 and the associated Appendices, the risks (consequence times probability) associated with shipments of spent nuclear fuel in the program are low.

Some reasons why the U.S. is considering acceptance of spent nuclear fuel for management in the United States (as opposed to the country in which the spent nuclear fuel was generated) are: 1) to support the RERTR (Reduced Enrichment of Research and Test Reactors) program, 2) to alleviate critical storage and disposal problems in numerous countries, many of which have no capability to safely and securely store spent nuclear fuel, and 3) to minimize costs to the United States. Failure of the United States to accept the spent nuclear fuel for management in the United States could cause premature shutdowns at some reactors, result in unsafe or insecure storage of weapons-grade material at other reactors, and result in a resumption of HEU usage at other reactors. Section 1.2 of the EIS discusses these outcomes.

Stability according to the World Bank would not be a sufficient basis for storing spent nuclear fuel in a country. Many stable countries lack sufficient technical infrastructure for the task. Many stable and developed countries cannot, by law, accept storage. Most entered into the research reactor program on the assumption that the U.S. would retrieve the material. Moreover, the cost of decentralized storage and disposal would be higher than the cost of any centralized storage/reprocessing and disposal option. This is because

COMMENTOR NO. 1214:
WESTERN STATES LEGAL FOUNDATION (CONT'D.)

The ink is barely dry on the recent indefinite extension of the Non-Proliferation Treaty signed in New York, which was secured by the United States over the objections of a number of non-aligned nations who sought periodic extension involving review of the nuclear weapons states' progress toward nuclear disarmament as required under Article VI. While the DEIS is premised upon a concern for nuclear proliferation arising from HEU stockpiles in other nations, it overlooks the fact that DOE is today pursuing a number of policies which encourage the very nuclear proliferation sought to be avoided by Management Alternative One. The first of these policies is none other than the plan to continue exporting and encouraging the use of American-produced (for profit) nuclear fuel in foreign reactors. A second distinct DOE program fostering proliferation is the investment of billions of dollars into an aggressive "stockpile stewardship" program which has as its objective the development of advanced nuclear weapons testing and design facilities. Until these programs are brought to heel, the United States lacks the moral suasion to convince non-aligned nations of its sincerity to meet its obligations under the NPT, and may actually endanger the prospects of a meaningful CTBT. 1214-5 (Cont'd.)

Any DOE program that is premised upon nuclear non-proliferation objectives must address the potential impacts of the program in relation to and in the context of broader US. non-proliferation objectives and policy. As an extension of the 1980s RERTR program, the DEIS addresses the non-proliferation benefits of returning HEU to the United States, but avoids serious discussion of continued exports of LEU to these same countries. The large scale export of LEU fuel as replacement for HEU is a silent but important component of the long term export relationship between DOE/USEC and its customer-nations. The DEIS presents only half the picture, since it is devoid of discussion of the impacts of shipments from the United States to users overseas. Moreover, spent LEU fuel presents its own set of proliferation issues due to its high plutonium content. The final EIS must embrace and develop a thorough analysis of the complete program cycle, not simply the one-way transport of HEU back to the United States for storage and/or reprocessing..

The DEIS states that the program to return foreign spent nuclear fuel could run as high as US $1.5 billion, which is taken up in constructing or upgrading storage/reprocessing facilities at the five proposed sites. The DEIS briefly discusses cost recovery in the form of "competitive fees", but leaves to the imagination the actual percentage of program costs that will be recovered at most from the developed host nations. 1214-6

The DEIS does not adequately address the cumulative impact of this waste stream with that of domestic spent fuel or weapons-grade plutonium or uranium from dismantled weapons (each the subject of separate NEPA proceedings), which is a fatal flaw. DOE continues to pursue disposition and 1214-7

WESTERN STATES COMMENT - 6

RESPONSE TO COMMENT
COMMENTOR NO. 1214:
WESTERN STATES LEGAL FOUNDATION (CONT'D.)

the economies of scale in handling, storing, and disposing spent nuclear fuel would be significant. For these reasons, notably technical, political, and economic impracticality, decentralized storage was not explored in detail.

The greatest risk of hijacking, tampering, or accident occurs during transit. In the history of spent nuclear fuel shipments to the U.S., none have ever been hijacked or tampered with and no spent nuclear fuel transportation cask has ever had a release of radioactivity following an accident. As discussed in Section 4, the risk of accidents are low. The risk of tampering or hijacking for the purpose of acquiring spent HEU is dwarfed by the risk of diverting fresh HEU. Failure to properly manage the spent nuclear fuel (including LEU) guarantees the continued use of fresh HEU.

The EIS covers research reactors only, not power reactors. The LEU in research reactor fuels cannot be converted into nuclear weapons. The plutonium production from research reactor LEU is insignificant. Substituting LEU for HEU in research reactors (the subject of the EIS) poses no environmental or proliferation threats in the host countries.

Proliferation of plutonium from diversion and separation of LEU spent nuclear fuel from research reactors is technically possible but improbable. Partly because of: 1) the relatively high enrichment of the research reactor LEU (near 20 percent) and the consequent low production of plutonium, 2) the relatively low mass of fissile material in research reactor elements (as opposed to power reactor elements), and 3) the much greater difficulty of working with both spent nuclear fuel and plutonium (compared to fresh fuel and uranium) the diversion of research reactor LEU for the purpose of plutonium extraction is unrealistic.

The Energy Policy Act of 1992, as amended, does not allow exports of HEU, except in a few narrowly defined cases.

The claim that the U.S. has no credibility in the area of reducing civilian use of HEU because of continuing military HEU activities is unsupportable especially considering the reductions in HEU resulting from the U.S. RERTR program.

The EIS does not address proliferation issues associated with LEU in research reactors since there are none. As discussed earlier, diversion of foreign research reactor LEU spent nuclear fuel for the purpose of plutonium separation is futile.

In terms of the impacts of continuing (in fact, encouraging) usage and shipments of LEU, the EIS presents a limited, but balanced picture. A fuller picture would detail the extremely adverse impact of a U.S. shutdown of LEU export operations. These impacts include an expansion of civilian commerce in HEU, a shutdown of research reactor operations in many countries allied with the U.S., reductions in the production of medical pharmaceuticals and commercial and industrial radioisotopes, and elimination of many materials testing programs.

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

storage options for these various materials independently of one another, a process which defies intelligent and cohesive policymaking and frustrates environmental review of cumulative impacts.

In our December 1993 scoping comment, we stated that without an analysis of impacts and risks to host nations, there is little basis for comparison of risks under the alternative management proposals. DOE has apparently chosen to disregard this suggestion, since the DEIS avoids any attempt to analyse or compare the environmental consequences of shipping or storage of spent HEU abroad. 1214-7

LOCAL IMPACTS

The proposal to ship spent nuclear fuel through the Concord NWS presents a significant change in use for that facility, which until now has acted solely as a depot and shipping port for nuclear and conventional weapons. DOE conducts no activities at the Concord NWS at present, and no significant shipments of spent fuel are known to travel in the vicinity of the port. No site plans for the Concord NWS have mentioned its possibility as a spent nuclear fuel depot or shipment site, and no such use was mentioned in the state EIR prepared in conjunction with the closure and absorption of Waterfront Road into the Concord NWS.

The shortcomings of the DEIS as it relates to the local conditions and potential impacts at Concord NWS and local communities are legion. Had the drafters of the DEIS engaged in even a cursory examination of local land use documents such as the *Contra Costa General Plan* (see attached charts), they would have ascertained some of the unique conditions concerning the local environment that are completely overlooked in the document. Among these are: 1214-8

- The proximity (within 5 miles) of the Concord NWS to one of the largest refinery and petrochemical regions in the United States, incorporating the ports of Richmond, Benicia and Martinez;

- The proposed passage of ships carrying spent nuclear fuel through narrow channels in which millions of tons of petroleum and chemicals pass each year, under six bridges;

- The extremely close proximity of Concord NWS to the highly active Concord fault, as well as its location in one of the areas most prone to liquifaction in the entire Bay area;

- The proximity of hazardous land uses including petroleum and gas

WESTERN STATES COMMENT - 7

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

Response to Comment No. 1214-6

In general, the competitive fee would be based on the alternatives available to the various countries should they decline to participate in the U.S. program. The level of the fee and the actual percentage of program costs that would be recovered from the developing countries is speculative. This value cannot be estimated in this EIS. Appendix F, Section F.7.5 in the final EIS shows the costs to the U.S. for various fees.

Response to Comment No. 1214-7

Section 4.2 of the EIS presents the cumulative impacts at ports of entry, interim management sites, and along ground transport routes taking into consideration the current proposed action and future anticipated impacts. Impacts overseas from decentralized storage would be less than those in the United States for shipping and more than those in the United States for storage and disposal. The impacts from storage and disposal operations would be higher because more separate facilities (up to 41), individuals, activities, etc. would be required to manage the same amount of material as in a smaller number of centralized facilities.

Response to Comment No. 1214-8

The port selection process that determined that Concord NWS was an acceptable port considered the population of the port and surrounding areas. Appendix D, Section D.1.9.5 of the EIS provides an explanation of the population criterion. In regard to the amount of marine traffic and the number of refineries and bridges along the route to Concord NWS, the passage from San Francisco Bay to Concord meets the requirements of Criterion 2 (Favorable Transit From Open Ocean) for port selection (Appendix D, Section D.1.9.2 of the EIS). The population and favorable transit from open ocean are not the only considerations in selecting ports of entry for the foreign research reactor spent nuclear fuel, if it is accepted by the United States. Other items of importance include population along the route to the management site, port experience with handling containers, and port facilities. Appendix D, Section D.1.9 of the EIS presents details of the port selection process.

The port selection process does not specifically consider the amount of marine traffic as a criterion. In general, the number of ship mishaps is not proportional to the amount or size of ship traffic because port ship traffic is slow and even when heavy, is normally a small number of ships per hour. Historically, increasing the volume does not significantly increase the probability of an accident. Rather, the number of ship mishaps is associated with navigational hazards and distances from the port to the open ocean or a large bay Therefore, the port selection process focused on favorable transit from the open water. (Appendix D, Section D.1.9.2 of the EIS.) Also, the port selection criteria do not consider the existence of land-based facilities such as refineries because they have no direct impact on the risk associated with the shipment of foreign research reactor spent nuclear fuel. The worst case

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

pipelines within several miles of the port as well as along necessary highway routes.

- The region surrounding the Concord NWS has one of the highest inventories of conventional hazardous materials in the state of California.

The apparent ignorance by the DIES authors of these local circumstances reflects the generalized, theoretical nature of the DEIS' risk and impact analysis. The failure to consider even the most rudimentary variations of land use on a site-by-site basis legally preclude under NEPA any action based on a record of decision in the absence of further site-specific analysis. *1214-8 (Cont'd.)*

The description of emergency services required in the event of an accident are hopelessly inadequate, and the DEIS assumes (without elaboration) that local governments will assume the burden of providing emergency response services outside the confines of the entry ports or terminal storage facilities. The uniform opposition to these sets of assumptions voiced by Concord, Martinez, Bay Point and Contra Costa County suggest that DOE has a long way to go to satisfy local officials that it has seriously addressed this question. *1214-9*

Two major sets of potential impacts escape discussion in the DEIS relating to the proposed project. First, the DEIS utterly fails to address the social and economic impacts of an accident (or deliberate action) that results in the release of radioactive material in the environment. In 1980, Sandia Laboratories estimated that a major release (1 %) of spent fuel in an urban area could result in $700 million in property damages; a release of plutonium could result in economic losses exceeding $2 billion. Even if the health impacts of a major accident and release were mitigated through prompt warning and evacuation, it is unclear whether DOE has even considered the severe dislocation such an accident would have on local communities. In a 1991 analysis using computer modeling, M. Resnikoff estimated that a radiation fallout pattern of 500 mRem/year from a serious shipborne accident could extend over 100 square kilometers, which, at this level of dose, would require at least temporary evacuation. The complete absence of discussion of economic impacts can only be based on the assumption of an entirely-risk free project, which is unsupported by the risk analysis contained in the document (see below). *1214-10*

Second, the DEIS avoids discussion of the impacts of deliberate action such as terrorist activity involving spent fuel. This omission is somewhat remarkable since the prevention of such activity abroad is a significant policy driver to Management Alternative One in the DEIS. Nothing in the nation's recent history suggests that the United States is immune from such efforts. *1214-11*

WESTERN STATES COMMENT - 8

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

accident is considered to be the collision of the ship carrying the foreign research reactor spent nuclear fuel with a petroleum tanker. In this accident the transportation cask is damaged in the collision, then subjected to a fire that resulted from the collision (Appendix D, Section D.5 of the EIS). The addition of some mishap at a land-based facility would not add to the severity of this accident, and so was not considered. Section 4.2.2.3 of the EIS discusses the assumptions that went into the port accident analysis and the results of those analyses.

The risk of releasing radioactive material from a foreign research reactor spent nuclear fuel transportation cask as the result of a seismic event is low. Transportation casks are designed and built to withstand significant punishment without releasing their contents (Section 2.6.2 of the EIS). Therefore, a seismic event, even if it caused structures at Concord NWS to fail, is not expected to compromise the spent nuclear fuel transportation cask.

Response to Comment No. 1214-9

Each port considered in the EIS has developed an Area Contingency Plan. This plan outlines response capabilities, procedures and authorities for responding to and recovering from hazardous material incidents. Additionally, DOE would provide assistance to local authorities to ensure that appropriate measures are taken in any unlikely event of an accident. As part of this assistance, DOE's Radiological Assistance Program teams, from eight offices strategically located throughout the country, would be used to coordinate and to provide remediation assistance. This type of assistance and coordination would be specified in the Transportation Plan that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H, which was added to final EIS in response to public comments. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. The issues would include capabilities and training of first emergency responders.

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Response to Comment No. 1214-10

The analysis of the consequences and risks associated with an accident in port involving foreign research reactor spent nuclear fuel determined that no decontamination, interdiction,

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

The DEIS altogether fails to address cumulative impacts from this project as well as ongoing shipments of hazardous materials near the port and over rail and highways in the immediate vicinity. Indeed, the existence of such related activities were not even taken into considerations in the DEIS. The DIEs' omission of such a discussion is legally fatal. See 40 CFR 1508.27(b)(7). *1214-12*

DOE's proposed use of the Concord NWS as a shipment port for spent fuel represents a new land use by a new agency, since all activities at that site have been heretofore conducted by the Navy. The DEIS fails to address what facilities will be required or local services demanded by DOE and its contractors to perform the project. DOE also does not mention in the document the possibility of future expansion of its presence at Concord NWS for further shipments and/or storage of nuclear materials outside of the immediate project. *1214-13*

RISK ASSESSMENT

The DEIS concludes with comparing the risks of the proposed action to commonly encountered risks such as a 1000 mile airline flight, or eating two jars of peanut butter a year (approximately one in one million each year). (The latter statistic is entirely unsubstantiated based upon recent studies involving aflatoxin). The deliberate thrust of the document is to leave the reader with the impression that the contemplated action is entirely risk free for all statistical purposes. In doing so, the DEIS relies entirely on banks of computer generated statistics without reference to real historical data on maritime accidents, or other incidents involving transportation of radioactive materials. *1214-14*

To local government representatives and planners, this conclusion appears at odds with the explanation given by DOE officials of the decision to replace Oakland with Concord NWS as one of the three prospective West Coast entry ports, namely, that less people reside within a ten-mile radius of Concord NWS than Oakland. If population density is indeed such a concern, such decisions suggest that DOE planners lack absolute faith in their statistics of a risk-free project. *1214-15*

DOE's calculations regarding the risk of transporting large quantities of spent nuclear fuel through densely populated urban areas have been controversial since the 1970s, yet the agency's public posture toward such shipments has changed little. What is disturbing about the DEIS's approach to risk assessment is its unyielding generic approach without regard to local conditions or accident patterns. In fact, shortly after the May 22, 1995 public hearing in Concord, there was yet another major petrochemical fire within 10 miles of the Concord NWS that sent of plume of hazardous material over residential communities. It has been further documented that the northern Contra Costa county has a higher than average rate of cancer than the *1214-14 (Cont'd.)*

WESTERN STATES COMMENT - 9

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

or condemnation of property would result from the worst plausible accident (Section 4.2.2.3 and Appendix D, Section D.5 of the EIS) and that the risk associated with accidents in port for the entire proposed acceptance period, would be low. The impacts from a severe accident differ widely from the cited studies because the radionuclide inventory in a transportation cask carrying foreign research reactor spent nuclear fuel is a great deal less than that of a transportation cask carrying spent power reactor fuel. Foreign research reactor spent nuclear fuel contains only trace amounts of plutonium.

DOE has not been provided with adequate information on the cask inventories, release fractions, and meteorological assumptions that Dr. Resnikoff (Greenpeace) used in his analyses. DOE does not know if any changes may have been made to the code used to predict consequences. Without a complete copy of the analyses, it is impossible to determine exactly why his estimates are orders of magnitude greater than DOE's well-documented and publicly available estimates. His statements that large economic impacts would be incurred and are ignored in the analyses is untrue. In fact, the analyses are presented in Section 4.2.2.3 of the EIS and shows that economic impacts are low.

Response to Comment No. 1214-11

Section D.5.9 has been added to Appendix D of the EIS to address the issue of attack by disgruntled persons or terrorists.

Response to Comment No. 1214-12

The EIS does address cumulative impacts due to the proposed action and other ongoing similar actions. Sections 4.2.2.4, 4.2.3.4, and 4.2.4.3 of the EIS address these impacts as they pertain to port activities, ground transport, and management site activities, respectively.

Response to Comment No. 1214-13

DOE does not anticipate the need for any additional facilities or local services beyond those currently existing or planned for future expansion of the Concord NWS for handling containers.

DOE understands that the expansion of capabilities at Concord NWS will continue as scheduled regardless of the outcome of the proposed policy on foreign research reactor spent nuclear fuel. The principal upgrade to occur at Concord NWS is the addition of two container cranes. Although these cranes would facilitate the off-loading of the foreign research reactor spent nuclear fuel, if it were to be shipped to Concord NWS, the current container handling equipment is adequate. Therefore, no new facilities would be required in order to use Concord NWS. The facility upgrade that is to occur at Concord NWS has

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

statewide population.

1214-14 (Cont'd.)

Risk of Intentional Conduct Causing Breach or Release. The DEIS' risk assessment presumes that no intentional breach of a cask will ever occur, and that any accident will only nominally exceed the test limits of the particular transportation casks. Numerous studies, reports, and comments regarding past environmental assessments and statements have challenged these assumptions. The DEIS' omission of risk assessments based on intentional human conduct is somewhat puzzling given its inclusion in other impact statements such as that prepared for the Waste Isolation Pilot Project (WIPP). Moreover, since one of the policy rationales for Management Alternative One is the threat of such conduct abroad, the absence of any consideration of the possibility once DOE takes title appears as an obvious oversight.

1214-16

In the 1978 Generic Environmental Impact Statement prepared by Sandia Laboratories for the transportation of radioactive materials through densely populated urban areas (Sandia GEIS), the authors noted that the shipments of spent fuel rods would constitute "the single largest source of radioactivity routinely shipped" and that such materials would constitute "an attractive target for sabotage or theft." Unlike the present DEIS, the Sandia GEIS considered (albeit conservatively) that thousands of residents could potentially contract radiation sickness as a result of an intentional cask breach. Indeed, the first draft NRC regulations addressing spent fuel shipments in 1979 discouraged transportation through cities in excess of 100,000, before they were superseded in the 1980s.

The standard RADTRAN modeling by DOE upon which its zero-risk conclusions are based also draw upon DOE's historical claim that no one has ever been injured or killed by a release of radioactivity from a cask. This is not to say accidents have not occurred involving radioactivity; however, the DEIS makes no mention of them. DOE's history of shipments, however, must be viewed critically since the several hundred shipments (at most) per year constitute a small sample upon which to base its statistics.

1214-17

Maritime Accident Risks. The DEIS does not contain detailed information as to what would happen to a spent fuel cask under conditions approaching a representative maritime fire. Cask safety continues to be based upon criteria such as surviving a 30 minute fire at 800 degrees centigrade, a 40 inch drop onto a steel spike, and immersion under water at 15 meters for eight hours. The application of these criteria to DOE's risk analysis further presumes casks that are without flaws, and that have been correctly loaded and properly sealed.

According to a study contracted some years ago by the International

WESTERN STATES COMMENT - 10

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

no connection with the proposed policy to manage foreign research reactor spent nuclear fuel. The need for construction of new facilities or modification of existing facilities discussed in Section 1.4 of the EIS is referring to construction or modification of DOE management sites, not ports or bases that might receive the foreign research reactor spent nuclear fuel for transshipment to the management sites.

Response to Comment No. 1214-14

Risk analysis and risk communication require different approaches, thus, DOE attempted to provide some risk comparisons that were meaningful and understandable to the average person. Commentor is not correct about the data sources used for the risk analyses. For marine accidents, historical shipping accident data from Lloyd's of London were used (Section 4.2.2.3 of the EIS). Ground transport risks were assessed using accepted models, as discussed in Appendix E of the EIS, because such models represent a greater spectrum of potential accidents and effects from transporting radioactive materials than any historical data, and because the number of potential ground transportation routes and transport modes from ports of entry to management sites was very high. In terms of actual data, DOE would like to note that spent nuclear fuel has been transported in the United States for over 40 years without any release of radioactive material.

Response to Comment No. 1214-15

Concord NWS was one of ten ports that was indicated to be acceptable to receive the foreign research reactor spent nuclear fuel, if accepted into the United States. Population of the port and surrounding areas is one of the considerations of the port selection criteria, and one of the reasons the port of Oakland was not included in the final list of ports. Section 3151 of Public Law 103-160 (the National Defense Authorization Act for the Fiscal Year 1994), requires that the Secretary of Energy shall, "if economically feasible and to the maximum extent practicable, provide for the receipt of spent nuclear fuel... at a port of entry in the United States which...had the lowest human population in the area surrounding the port of entry..." Public Law 103-160 was signed on November 30, 1993, which is after completion of the scoping process for this EIS, including the scoping meeting in Oakland, California. While the National Defense Authorization Act was written specifically to regulate the receipt and storage of foreign research reactor spent nuclear fuel at DOE's Savannah River Site, DOE elected to apply this criterion, among others, in identifying ports of entry, to the maximum extent practicable.

DOE included consideration of Section 3151 of Public Law 103-160 by including Criterion 5 in the port selection criteria for this EIS (Appendix D, Section D.1.9.5). Application of this criterion resulted in Oakland being dropped from the list of proposed ports of entry, while Concord stayed on the list.

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

Atomic Energy Agency (IAEA), the pressure valves of a cask will begin to vent after a high intensity fire of one hour. At four hours, some fuel elements will begin to fail, and at nine hours, all of the fuel pins may fail. International Maritime Organization reports reflect that the mean duration of maritime ship fires may be between 20 and 23 hours; some have exceeded 60 hours. In an accident involving collision with a petrochemical transport (in the densely travelled channels between Richmond and Martinez), a shipborne fire could exceed 1000 degrees Centigrade. No illustrative historical accident data is provided which is either national in scope or local to the San Francisco Bay Area. 1214-17 (Cont'd.)

The immersion tests also underestimate actual conditions encountered in or near the San Francisco Bay, since the ocean depth drops off rapidly within a few miles of the Golden Gate. Moreover, inside the Bay and channel leading to the Concord NWS, fast currents could potentially render a dropped cask nonrecoverable, and further cause the cask to collide with submerged objects.

Health Effects. It is entirely possible to read the entire DEIS and not understand why spent nuclear fuel is so dangerous. The health risks posed by unshielded or partially shielded fuel rods is not mentioned. Instead of analyzing the carcinogenic, mutagenic and toxic risks posed by particular components of the shipments (such as plutonium or cesium), the DEIS speaks only of latent cancer fatalities from generic routine actions or accidents. While the authors of the DOEs presume a risk-free project, the DEIS provides little if any information to allow local government officials and the public to independently assess the packaging and other precautions taken, or the public health risks in the event of an actual incident not bounded by the hypothetical scenarios in the document. 1214-18

ENVIRONMENTAL JUSTICE

The arbitrary ten-mile radius used by DOE for its impact analysis skews the impact analysis of the DEIS as it applies to affected minority communities near the Concord NWS. While the ten-mile circle takes in some of the middle class bedroom communities that dominate central Contra Costa County, the proportion of minority residents increases in those communities closest to the port (within five miles), such as Clyde, north Concord, and Bay Point. Once again, this information could have been readily obtained by brief consultation with local planners or by referring to the county's *General Plan*. We suspect that this demographic condition is not unique to Concord but may be quite typical of urban ports. 1214-19

Obviously, those communities closest to the port bear the greatest potential economic and health risk from an accident. The "environmental

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

Response to Comment No. 1214-16

DOE considers that the approach taken in the EIS to risk assessment adequately considers local conditions or accident patterns.

The frequency of accidents on highways has been taken into account in all the ground transport risk estimates in the EIS. As discussed in Section 4.2.3 and Appendix E of the EIS, spent nuclear fuel has been transported along highways, railways, and waterways for over four decades without release of the radioactive contents from the spent nuclear fuel transportation cask.

The population along all truck transport routes was taken into account in the calculations of ground transport risks. In all cases the risk was found to be low. This subject is discussed in detail in Section 4.2.3 and Appendix E of the EIS.

Estimates of radiological health effects presented in Section 4.2.3 of the EIS are based on conservative assumptions using representative truck and rail transportation routes from candidate ports to interim management sites, including consideration of traffic volumes and surrounding populations. Supporting detail for the calculations is given in Appendix E of the EIS. Radiological and nonradiological human health effects of the proposed action and management alternatives were found to be low.

It is important to note that unlike petrochemical products, foreign research reactor spent nuclear fuel is neither volatile nor unstable. The spent nuclear fuel described in the EIS is a metal which contains enriched uranium matrixed in, all clad in either aluminum or stainless steel. Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 40 years of spent nuclear fuel ground transports in the United States, no radioactive contents have ever been released from a transportation cask, nor has a spent nuclear fuel transportation cask ever been punctured, even as the result of an accident. The commentor is referred to Section 2.6.1 of the EIS for a detailed description of the fuel and its characteristics.

The commentor's reference to a 1978 Generic EIS is not found in the EIS for foreign research reactor spent nuclear fuel. It may have been concerned with the transportation of commercial nuclear spent nuclear fuel rod casks which is beyond the scope of this EIS.

Response to Comment No. 1214-17

The transportation casks that would be used for the foreign research reactor spent nuclear fuel are certified if their design meets certain tests, including a fire test, and if the individual casks pass periodic inspections (Section 2.6.2 of the EIS). These certification standards were developed for transportation casks on land, hence the 30 minute fire test, which is considered to be the extent of a high intensity fire resulting from a collision with a tanker truck. The duration of a ship fire is directly related to the amount of combustibles carried

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

justice" analysis therefore lacks an approach consist with the physical nature of the risk presented. 1214-19 (Cont'd.)

CONCLUSION

The DEIS fails to provide sufficient information on the impacts of spent fuel shipments through specific ports to satisfy requirements imposed under NEPA. Unless DOE is prepared to develop a site-specific EIS for all of the proposed ports, and to develop a further analysis of impacts along known transportation routes at least on a scale similar to that performed for WIPP, the document cannot support the proposed action. 1214-20

On a broader policy analysis, the DEIS provides insufficient support for Management Alternatives One and Three. Absent a permanent storage option for spent fuel (along with other high level wastes), the inchoate fear that advanced nations are less capable of submitting to international supervision and custodianship is an insufficient basis to expose communities and the environment to the risks of transportation. 1214-21

###

spentfl.com

WESTERN STATES COMMENT - 12

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

on board. The number of severe fires on ships is relatively small. Data available on the last 15 years from Lloyd's of London indicate that of 1,073 ship collisions in port worldwide, only eleven led to fires, and of those, only five caused extensive damage, with only one actually causing buckling of structures. Hence, contrary to the commentor's assertion, long duration fires are not usual.

In respect to the impact a ship fire might have on a transportation cask, there are three facts that would mitigate the potential damage. First, ship fires tend to move to different areas of the ship as the combustible material is consumed, so the cask would not be exposed for the entire duration of the fire. Second, a ship's fire intensity is normally limited by the amount of oxygen that can reach the interior of a hold. Third, all ships that would be used to transport foreign research reactor spent nuclear fuel have built-in fire suppression equipment, which at a minimum, would keep fires well below the extreme temperatures needed to damage the spent nuclear fuel transportation cask. For these reasons, it would be almost impossible for spent nuclear fuel inside the transportation cask to reach 900 degrees Kelvin (1,160 degrees F), the melting point of foreign research reactor spent nuclear fuel. The probability of reaching such a temperature was calculated to be less than one in a billion (see Attachment D5 to Appendix D of the EIS). To put this temperature into perspective, steel used in a ship's structure buckles at around 700 degrees Kelvin (800 degrees F). The EIS contains the results of an analysis of the effects of an accident that involves a severe fire (severity category 6), which does not reach the temperature to melt foreign research reactor spent nuclear fuel. Appendix D, Section D.5.3 of the EIS presents a detailed discussion of accident probabilities and radioactive material source terms and Appendix D, Section D.5.4 presents the results of the analyses.

In conclusion, although long duration ship fires are possible and have occurred, they are uncommon events. Analyses in the EIS indicate that even in the event of a severe ship fire involving a transportation cask, neither the consequences nor risks are great (Appendix D, Section D.5.5).

Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. After construction, every cask is radiographed to ensure that no significant flaws exist. Transportation casks used for spent nuclear fuel transportation within the United States are designed, fabricated, and maintained under Nuclear Regulatory Commission requirements found in 10 CFR Part 71 (Appendix B, Section B.2.1.3 of the EIS).

COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

RESPONSE TO COMMENT COMMENTOR NO. 1214: WESTERN STATES LEGAL FOUNDATION (CONT'D.)

In the unlikely event that a transportation cask loaded with foreign research reactor spent nuclear fuel were to sink in any U.S. coastal waters, it would be recovered, even from the area on the seaward side of the Golden Gate Bridge. Appendix C, Section C.5.5 of the EIS provides information on the probability of a cask sinking in coastal and deep ocean waters. The probability of a foreign research reactor spent nuclear fuel transportation cask sinking in coastal and deep waters are estimated in the EIS (Appendix C, Section C.5).

Response to Comment No. 1214-18

Spent nuclear fuel is dangerous because it is radioactive, and radiation is one cause of cancer. Heavy shielding is required to transport it safely. Nevertheless, Section D.5.9 has been added to Appendix D of the EIS to address the issue of unshielded or partially shielded fuel elements. The human health risks of all components of the foreign research reactor spent nuclear fuel are discussed in the EIS (Section 4.1.3 and Appendix B, Section B.1.4 of the EIS). DOE did not presume a risk-free project, as the commentor suggested, but rather calculated the real risks based on conservative assumptions. Information on the transportation casks and other precautions is presented in a straightforward manner in the EIS for local government officials and the public (Section 2.6.2 and Appendix B, Section B.2). The hypothetical scenarios in the EIS are more severe than any actual incident that is likely to occur, so the actual health risks to the public would probably be much lower than those presented in the EIS.

Response to Comment No. 1214-19

As discussed in Appendix D, Section D.1.9.5 of the EIS, a circle with a ten mile (16 kilometer) radius centered at each candidate port was selected for the analysis because it is the area most likely affected in the event of an accident involving spent nuclear fuel from foreign research reactors. Table A-1 of Appendix A shows an enumeration of minority populations residing within ten miles of candidate ports and in counties having boundaries within ten miles of the candidate ports. For eight of the twelve terminals listed in Table A-1, Appendix A, the percentage of minority population residing within ten miles of the candidate port exceeded the percentage of minority population residing in surrounding counties. The opposite was found for four of the twelve terminals, including Concord NWS. For most of the terminals the two percentages were reasonably close, but it is difficult to identify a typical demographic

condition. The analysis in the EIS provides an equal treatment for all the candidate ports consistent with the physical nature of radiological risks in the event of an accident. As discussed in Section 4.2.2 of the EIS, implementation of the proposed action would result in no significant benefits or risks to workers or the general population, including minority and low-income populations.

Response to Comment No. 1214-20

DOE is conducting the NEPA review process in full compliance with NEPA and the applicable regulations. The information contained in the draft EIS on impacts upon ports and transportation routes is sufficient under NEPA.

Response to Comment No. 1214-21

The EIS contains sufficient analysis to support a decision among all the alternatives. The impacts of ultimate disposition of foreign research reactor spent nuclear fuel are discussed qualitatively in Section 4.2.7 of the EIS. A detailed, quantitative discussion of these impacts would have to be the subject of future NEPA documentation. In the meantime, support of U.S. nuclear weapons nonproliferation policy requires DOE and the Department of State to consider other means of dealing with the spent nuclear fuel (Section 1.1 of the EIS).

COMMENTOR NO. 1217:
NATURAL RESOURCES DEFENSE COUNCIL

Natural Resources Defense Council

1350 New York Ave., N.W.
Washington, DC 20005
202 783-7800
Fax 202 783-5917

July 20, 1995

BY MAIL AND FACSIMILE: (202) 586-5256

Charles Head
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Head:

The Natural Resources Defense Council hereby comments on the Energy Department's draft environmental impact statement on a proposed nuclear weapons nonproliferation policy concerning foreign research reactor spent nuclear fuel. We adopt and incorporate the detailed comments filed by the Energy Research Foundation, and we add the additional comments below.

We have long supported the off-site fuels policy and the Reduced Enrichment for Test Reactors ("RERTR") program of which that policy is a part. We believe that the goal of reducing and ultimately ending civil commerce in highly enriched uranium ("HEU") is of great importance to international security, and we think that implementing the RERTR program fully will serve nuclear nonproliferation interests in important ways. 1217-1 For these reasons, we fully support the version of Management Alternative 1 in which the spent nuclear fuel is accepted and managed in the United States without incorporation of chemical separation activities. We believe that the relatively modest environmental impacts of this alternative are fully justified in light of the important advance in nonproliferation policy the action would accomplish. 1217-2

Our support for this alternative comes with a critical caveat. If chemical separation or reprocessing activities anywhere in the world are included in the alternative selected by the Department, then our support for the agency action vanishes and is transformed into active opposition. We believe strongly that undertaking chemical separation activities would eviscerate all of the nonproliferation advantages of the proposed action, by causing the separation and isolation of fissile material suitable for use in nuclear weapons. Rather than setting a positive example for the world by facilitating conversion of reactors from weapon-useable to non-weapon-useable fuel, we would send the dangerous signal to the entire globe that it is appropriate to 1217-3

100% Post Consumer Recycled

40 West 20th Street
New York, New York 10011
212 727-2700
Fax 212 727-1773

71 Stevenson Street
San Francisco, CA 94105
415 777-0220
Fax 415 895-5996

6310 San Vicente Blvd., Suite 250
Los Angeles, CA 90048
213 934-6900
Fax 213 934-1210

RESPONSE TO COMMENT
COMMENTOR NO. 1217:
NATURAL RESOURCES DEFENSE COUNCIL

Response to Comment No. 1217-1

The commentor's support for the Reduced Enrichment for Research and Test Reactors (RERTR) program and goals is noted. The RERTR program and history are described in Section 1.1 of the EIS.

Response to Comment No. 1217-2

The commentor's support for Management Alternative 1 implemented without chemical separation in the United States, is noted. Management Alternative 1 is discussed in Section 2.2 of the EIS. Chemical separation in the United States is Implementation Alternative 6, which is discussed in Section 2.2.2.6. The commentor's assessment that the relatively modest environmental impacts of the alternative are fully justified in light of the nuclear weapons nonproliferation policy goals is likewise noted.

Response to Comment No. 1217-3

The commentor's opposition to domestic chemical separation and overseas reprocessing is noted. Chemical separation in the United States is discussed in Section 2.2.2.6 of the EIS. Overseas reprocessing is described in Section 2.3 of the EIS.

The fourth criterion mentioned on page 17 of the draft revision of the Summary of the EIS, which is extracted from Section 2.2.2.6, of the EIS, addresses possible circumstances which would justify reprocessing in the event that this method of management is selected. If the circumstances do not occur, then reprocessing would not be used. As stated in Section 2.2.2.6, reprocessing is not a preferred management technology, because it leads to additional waste streams and a potential increase in the stockpile of HEU, but it must be addressed in the EIS as a reasonable alternative.

COMMENTOR NO. 1217: NATURAL RESOURCES DEFENSE COUNCIL (CONT'D.)

Charles Head
July 20, 1995
Page 2

reprocess spent nuclear fuel for waste management purposes. We would thus encourage the separation of weapon-useable material in nations of varying political orientations and stability, a turn of events with dangerous implications for U.S. and world security. If the United States were to incorporate chemical separation activities in a policy ostensibly designed to advance nonproliferation interests, we would be taking one step forward while we took a full three steps backward.

We specifically object to the fourth criterion on page 17 of the EIS summary, which asserts that it is appropriate to pursue reprocessing activities based on "the unavailability of suitable storage facilities or the likelihood of substantial life-cycle cost savings ..." We cannot think of a situation in which unavailability of storage facilities would justify a decision to reprocess, given the relative quickness and ease in which storage facilities can be constructed. We also believe that allegations of a cost advantage for reprocessing over storage are almost certainly based on faulty or biased cost assumptions, in light of the demonstrably high costs of canyon operations and the oft-hidden incremental costs of treating and disposing of the new liquid high-level radioactive waste created through chemical separation activities. Indeed, the U.S. commercial nuclear industry has long eschewed reprocessing as a waste management strategy due to its higher cost than direct storage or disposal. If reprocessing is too costly for the nuclear industry, we cannot believe it would be cheaper for the less-efficient Department of Energy.

It is not an adequate answer to our concerns about reprocessing to assert that the Department would blend down the HEU product into low-enriched uranium ("LEU"). The world community properly draws a distinction between controls based on what a nation says it will do and controls based on what a nation is capable of doing. Any system in which the Department would have the capability to forego the last stage of a process in which HEU was blended down into LEU, leaving it with an HEU product, is unacceptable and counterproductive in its proliferation implications. If a nation such as Iran were to acquire and operate reprocessing facilities while assuring the world that it would blend down an HEU product into LEU, the United States would quite properly be far from satisfied. The same is true in how the rest of the world views us, and our nation's actions set an example for the rest of the world. Moreover, isotopic dilution does not render separated plutonium unsuitable for weapons, and it is doubtful that the worldwide implications of the U.S. resorting to reprocessing for waste management purposes would be limited to the case of HEU fuels.

1217-3 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1217: NATURAL RESOURCES DEFENSE COUNCIL (CONT'D.)

COMMENTOR NO. 1217: NATURAL RESOURCES DEFENSE COUNCIL (CONT'D.)

Charles Head
July 20, 1995
Page 3

Finally, we observe that the EIS shows the environmental impacts of reprocessing options to be substantially greater than the option of storage and disposal without reprocessing. See, e.g., EIS at S-29 to S-32. On top of the important proliferation implications, this disparity in environmental impacts should be more than enough to persuade the Department not to choose reprocessing in its record of decision. 1217-4

Sincerely,

Andrew Caputo

Andrew P. Caputo
Attorney

cc: Secretary O'Leary
Under Secretary Curtis
Assistant Secretary Grumbly
Assistant Secretary O'Toole

RESPONSE TO COMMENT COMMENTOR NO. 1217: NATURAL RESOURCES DEFENSE COUNCIL (CONT'D.)

Response to Comment No. 1217-4

The commentor's opposition to chemical separation is noted. The advantages and disadvantages of chemical separation are discussed in Section 2.2.2.6 and the environmental impacts are presented in Section 4.3.6 of the EIS.

COMMENTOR NO. 1221: ASSOCIATION OF BAY AREA GOVERNMENTS

ASSOCIATION OF BAY AREA GOVERNMENTS

Representing City and County Governments of the San Francisco Bay Area

ABAG

July 20, 1995

Secretary Hazel R. O'Leary
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

SUBJECT: Opposition to the use of Concord Naval Weapon Station as Transshipment Port-of-Entry for Foreign Research Reactor Spent Nuclear Fuel

Madam Secretary,

On behalf of the Association of Bay Area Governments (ABAG), I am writing to oppose using Concord Naval Weapons Station as a port-of-entry for spent foreign nuclear fuel. At the July 20, 1995 meeting of ABAG's Executive Board, representing 95 of 100 cities and all nine counties of the San Francisco Bay region, the Board agreed that the **Department of Energy's Draft Environmental Impact Statement on a Proposed Nuclear Weapon's Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel (DOE EIS)** is inadequate in evaluating the risks specific to our area, and that the Departments of Energy and State have failed to account for the seismic vulnerability of the Bay Area and the elevated risks which are therefore posed.

The proposed route for the return, storage, and disposal of the spent nuclear fuel, would involve transportation routes within the Bay Area. Many of these routes criss-cross earthquake fault zones which have been, and are, subject to seismic events. This enhances the possibility of accidents. We have concluded that the worst-case-scenario for the Bay Area is, in fact, more catastrophic than the worse-case-scenario for other proposed points of entry - as well as more likely. 1221-1

ABAG has directed many of its resources toward researching and documenting the seismic hazards in the jurisdictions which we represent. Not only is seismic activity frequent in the Bay Area, but shaking intensity is adversely affected by Bay mud and filled areas.

Mailing Address: P.O. Box [illegible] Oakland, California 94604-2050 (510) 464-7900 Fax (510) 464-7970 info@abag.ca.gov
Location: Joseph P. Bort MetroCenter 101 Eighth Street Oakland, California 94607-4756

RESPONSE TO COMMENT COMMENTOR NO. 1221: ASSOCIATION OF BAY AREA GOVERNMENTS

Response to Comment No. 1221-1

The risk of releasing radioactive material from a foreign research reactor spent nuclear fuel transportation cask as the result of a seismic event is low. Transportation casks are designed and built to withstand significant punishment without releasing their contents (Section 2.6.2 of the EIS). Therefore, a seismic event, even if it caused structures at Concord NWS to fail, is not expected to compromise the transportation cask. Further, the analyses of impacts associated with accidents involving foreign research reactor spent nuclear fuel presented in Section 4.2.2.3 demonstrates that the use of any of the selected ports would not pose any significant risk to the port personnel or the population near the ports. Earthquakes were not analyzed separately in the EIS because seismic activity would not result in greater damage to a transportation cask than that caused by a ship collision and subsequent fire. Rather, the consequences from the worst plausible accidents involving foreign research reactor spent nuclear fuel transportation casks were evaluated, regardless of what initiated them. An earthquake could be the initiator of either a ship or road accident and thus effect the probability of such accidents, however, the number of earthquake-induced ship and road accidents is small compared to other causes. Concord NWS has considerable relevant experience in handling containers, and has the capability to safely handle containerized foreign research reactor spent nuclear fuel (Appendix D, Section D.1.9.1 of the EIS).

COMMENTOR NO. 1221: ASSOCIATION OF BAY AREA GOVERNMENTS (CONT'D.)

"The fact that a devastating earthquake occurred in 1906 -- the San Francisco earthquake -- is common knowledge...the San Francisco earthquake caused extensive damage in Oakland, San Jose and Santa Rosa. More recently, the 1989 Loma Prieta earthquake caused extensive damage in the Santa Cruz mountains, as well as in Oakland and San Francisco tens of miles away. But many moderate to great earthquakes (over magnitude 6.0) have affected the Bay Area: 22 such events have occurred in the last 160 years -- for an average of one every seven years." (On Shaky Ground, ABAG 1995)

In addition, according to the County Health Officer for Contra Costa County "The citizens of Contra Costa Count already face a much higher potential risk of exposure to acutely hazardous materials -- because citizens already live among five refineries and numerous chemical plants." And although the DOE EIS assumes the "unlikely event of an explosion" at Port Chicago, an explosion did in fact occur in the 1940s. What would be the consequences of such an explosion when coupled with spent nuclear waste? 1221-2

The fact that Concord and other Bay Area ports are ill suited to serve as nuclear holding facilities is based, therefore, on the seismic hazards of the Bay Area and on the cumulative risks which make such a decision unwarranted. Considering the susceptibility to accident of spent fuel while in transport, we encourage you to consider sequestration and on-site reprocessing in user nations, as well as less risky ports-of-entry, preferably outside of California. 1221-1 (Cont'd.) 1221-3

We believe that the attached map will evidence our arguments and dissuade the decision to place Concord Naval Weapons Station, or any Bay Area port, as a possible point of entry on the Final DOE EIS. We urge you to reconsider the Draft proposal, and look forward to your response.

Sincerely,

Tom Torlakson

Tom Torlakson, President
Supervisor, Contra Costa County

Attachment

cc: Department of State
Dennis Karaim
Senator Diane Feinstein

TT:mls

RESPONSE TO COMMENT COMMENTOR NO. 1221: ASSOCIATION OF BAY AREA GOVERNMENTS (CONT'D.)

Response to Comment No. 1221-2

Section D.5.9 has been added to Appendix D of the EIS to address the issue of attack by disgruntled persons or terrorists. One of the attack scenarios postulates a large explosion near a transportation cask full of spent nuclear fuel.

Response to Comment No. 1221-3

The risks of transporting the foreign research reactor spent nuclear fuel are presented in Section 4.2.3 of the EIS.

The commentor's preference for the overseas management alternative is noted. This is Management Alternative 2, which is discussed in Sections 2.3 and 4.4 of the EIS. The commentor's preference for other ports of entry is also noted.

COMMENTOR NO. 1253: SOUTHERN STATES ENERGY BOARD

AlabamaArkansasFloridaGeorgiaKentuckyLouisianaMarylandMississippiMissouriNorthCarolinaOklahomaPuertoRicoSouthCarolinaTennesseeTexasVirginIslandsVirginiaWestVirginia

Southern States Energy Board

July 20, 1995

Mr. Charles Head, Program Manager
U.S. Department of Energy
Office of Spent Nuclear Fuel Management, EM-37
1000 Independence Avenue, SW
Washington, DC 20585

Dear Mr. Head:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (EIS) on a Proposed Nuclear Nonproliferation Policy Concerning Foreign Research Reactor (FRR) Spent Nuclear Fuel (SNF), DOE/EIS-0218D. The Southern States Energy Board (SSEB) has been actively involved in issues regarding the transportation of spent nuclear fuel since the formation of the Advisory Committee on Radioactive Materials Transportation in 1986. The committee is comprised of representatives from sixteen (16) states (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia) and the Eastern Band of Cherokee Indians. Two (2) of the five (5) potential storage sites identified in this draft EIS, and six (6) of the ten (10) potential ports of entry, are located in states represented on this committee.

Section 2.7.2 contains a commitment, on behalf of DOE, to "provide support and assistance to State, Tribal and local government agencies responsible for responding to a foreign research reactor spent nuclear fuel incident." We fully expect DOE to honor this commitment, as will be discussed later in these comments. 1253-1

Section 2.7.3.1 of the draft EIS discusses Department of Energy (DOE) financial and technical assistance to state and tribal governments, and mistakenly implies that DOE provides funds directly to state and tribal governments to fund operations related to transportation emergency preparedness by stating that these funds "enhance a jurisdiction's emergency management and response capabilities." While DOE indeed may provide direct funding to certain states, DOE funding to southeastern states is in the form of Cooperative Agreements with SSEB. Under these agreements, SSEB performs several critical regional coordination activities, including funding two (2) meetings of the SSEB Advisory Committee on Radioactive Waste Transportation per year, providing travel funds for committee members and staff to attend national meetings related to the transportation of spent nuclear fuel, and publication of the SSEB Spent Fuel and High-Level Radioactive Waste Transportation Handbook. Funds provided by DOE to SSEB, however, do not provide 1253-2

3091
Governors
Lake
Drive

Suite 400

Norcross
Georgia
30071

(404) 242-7712
Fax (404) 242-0421

RESPONSE TO COMMENT
COMMENTOR NO. 1253: SOUTHERN STATES ENERGY BOARD

Response to Comment No. 1253-1

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Emergency preparedness, security, and coordination of DOE with local emergency response authorities that would be involved with the acceptance and transportation of foreign research reactor spent nuclear fuel will be discussed in detail in the DOE Transportation Plan, that would be prepared prior to any individual spent nuclear fuel shipment, as discussed in revised Section 2.7.5 of the EIS. The general provisions of the Transportation Plan are included in Appendix H, which was added to the final EIS in response to public comments. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected.

Response to Comment No. 1253-2

See the 1st paragraph of the response to Comment 1253-1, above. The assistance described above is in addition to, and outside of, assistance provided through the SSEB.

The operational items detailed in paragraph 3 and the transportation emergency response capabilities mentioned in paragraph 4 of this letter are normal and routine functions any jurisdiction would be expected to maintain.

As discussed in response to comment 1253-1, above, Appendix H of the EIS contains the general provisions for emergency preparedness associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. Funding for special needs, if necessary, would be addressed during this interface.

Commentor No. 1253: Southern States Energy Board (Cont'd.)

Page 2
Mr. Charles Head
July 20, 1995

support for crucial needs in our member states, such as salaries for state management, planning, training, inspection, public information, communications and emergency response personnel, equipment and supplies, equipment repair and maintenance, office space, utilities, telecommunications charges or other regular operating expenses.

Several of our member states do receive direct funding from DOE in the form of an Agreement in Principle (AIP) for environmental monitoring and emergency preparedness activities related to specific DOE facilities. Conditions included in these agreements, however, prohibit the use of AIP funds for transportation activities. In short, while DOE may indeed be providing substantial sums of money to "states and tribes" for transportation related activities, as is indicated by Table 2-16, little if any of this funding may be used directly by states, tribes or local government agencies to insure the safe, routine transportation of spent nuclear fuel, or to insure that adequate emergency response capabilities exist along transportation routes through their jurisdictions. In order to fulfill the commitment found in Section 2.7.2 and discussed above, DOE must provide direct funding to states, tribes and local governments for these purposes, or require the foreign research reactor operators, particularly those in developed countries, as a condition of DOE management of their fuel, to provide funds specifically for these purposes. Such funding requirements are consistent with the discussion regarding financial arrangements for "basic implementation" contained in Section 2.2.1.2 and the discussion of alternative financial arrangements in Section 2.2.2.3. *1253-2 (Cont'd.)*

Section 2.7.3.2 of the draft EIS describes several DOE radiological training courses which have been made available to states, tribes and local governments, including the Radiological Emergency Response Operations (RERO) course, the Radiological Emergency Training for Local Responders (RETLR), and the Transportation Emergency Training for Response Assistance (TETRA) series of courses. These courses have been provided through the Office of Environmental Management (EM) as part of the Transportation Emergency Preparedness Program (TEPP), which is discussed in Section 2.7.3.4. TEPP also provides support for both the TRANSAX and WIPPTREX series of exercises, as shown in Table 2-18. At a DOE Transportation External Coordination Working Group (TEC/WG) meeting in Kansas City, Missouri on July 18, 1995, the Director of the Office of Transportation, Emergency Management and Analytical Services (EM-26) advised DOE stakeholders that the House markup of the 1996 Federal budget eliminates funding for the Emergency Management activity. The anticipated impacts of this action include deferral of planned 1996 WIPPTREX and TRANSAX exercises, and the inability to provide the training courses mentioned above and outlined in Section 2.7.3.2 of the draft EIS. These impacts, and the effects of upcoming organizational changes at DOE regarding emergency management, should be addressed in the final environmental impact statement as they relate to the ability of states, tribes, and local *1253-3*

Response to Comment Commentor No. 1253: Southern States Energy Board (Cont'd.)

Response to Comment No. 1253-3

DOE, like all other Federal agencies, is currently undergoing a comprehensive Congressional, as well as an internal budgetary and operational review and realignment to ensure that all of its resources are used in the most effective manner possible. The end results of this will not be fully known until a final budget is passed by the Congress and signed by the President.

DOE will continue to fulfill its taskings to the best of its ability within the fiscal constraints and realities imposed by the budget.

COMMENTOR NO. 1253: SOUTHERN STATES ENERGY BOARD (CONT'D.)

Page 3
Mr. Charles Head
July 20, 1995

governments to insure that adequate emergency response capabilities exist along transportation routes through their jurisdictions. *1253-3 (Cont'd.)*

The impacts of eliminating EM-26 emergency management funding would appear to be inconsistent with the commitment contained in Section 2.7.2 to provide support and assistance to state, tribal and local governments. We urge DOE to take actions necessary to prevent the erosion of assets required to deliver these training courses and to conduct the exercises detailed above. One option may be to consolidate emergency management resources from various DOE offices into a single, department-wide emergency management program. Given the number of spent nuclear fuel shipments proposed in this action, coupled with DOE's own internal spent nuclear fuel shipments and shipments anticipated by the Office of Civilian Radioactive Waste Management (OCRWM), we believe that the time has come for DOE to establish a National Transportation Emergency Response Training Center, and we believe that the resources at the Nevada Test Site (NTS) provide a solid base upon which to develop this center. *1253-4*

Section 2.7.5 of the draft EIS states that states and tribes would be responsible for augmenting their existing emergency management plans and response procedures to accommodate requirements specific to the shipments of foreign research reactor spent nuclear fuel, and for providing personnel and equipment to manage an incident should one occur. Absent provision of funds by DOE or the foreign research reactor operators themselves directly to states, tribes and local governments to facilitate these activities, and absent the radiological training assistance provided in the past by DOE and outlined in this draft EIS, many jurisdictions may find it difficult, if not impossible, to meet the requirements imposed on them by the activity proposed in this draft EIS. *1253-5*

Again, thank you for the opportunity to comment on this draft EIS. I look forward to continuing dialogue in this matter.

Sincerely,

Elizabeth Fulmer
for
James C. Hardeman, Chair
Advisory Committee on
Radioactive Materials Transportation

RESPONSE TO COMMENT COMMENTOR NO. 1253: SOUTHERN STATES ENERGY BOARD (CONT'D.)

Response to Comment No. 1253-4

The commentor's suggestions that relate to a DOE-energy management program are noted. DOE will continue to fulfill its task to the best of it's ability within the fiscal constraints and realities imposed by the budget. Funding for emergency preparedness associated with the foreign research spent nuclear fuel acceptance and transportation in the United States, which is the subject of this EIS, is addressed in the response to Comment 1253-1, above.

Response to Comment No. 1253-5

DOE would provide assistance to local authorities to ensure that appropriate measures were taken in the unlikely event of an accident. As part of this assistance, DOE's Radiological Assistance Program teams from the eight offices strategically located throughout the country would be used to coordinate and to provide remediation assistance. This type of assistance and coordination would be specified in the Transportation Plan prepared for any foreign research reactor spent nuclear fuel shipment to be carried out.

As discussed in response to Comment 1253-1, above, Appendix H to the EIS contains the general provisions for emergency preparedness associated with the transportation of foreign research reactor spent nuclear fuel in the United States. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. Special training for radiological emergencies, if necessary, would be addressed during this interface.

COMMENTOR NO. 1256: ASSOCIATION OF WASHINGTON CITIES

AWC
ASSOCIATION OF WASHINGTON CITIES

1076 Franklin St. SE
Olympia, WA 98501-1346
(360) 753-4137, FAX 753-4896

July 14, 1995

Mr. Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, D.C. 20585

RE: **Draft Environmental Impact Statement (EIS) on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.**

Dear Mr. Head:

The Association of Washington Cities (AWC) recently adopted a resolution opposing the introduction, storage, or trans-shipment of high level nuclear waste introduced from other nations in, through, or over the state of Washington. A copy of the resolution is attached. *1256-1*

Given our position, we appreciate the opportunity to review and comment on the U.S. Department of Energy's (DOE) Draft EIS on management of spent nuclear fuel from foreign research reactors. We recognize that the goal of the nonproliferation policy is important to the well-being of the nation. We also recognize that a long-term solution for the management of this high-level radioactive waste is in the best interest of the citizens of the state of Washington and the Nation. *1256-2*

However, we question the wisdom of DOE in naming the Port of Tacoma or Hanford as possible sites to handle and temporarily store additional wastes with the potential to do further harm to the health and fragile environment at these two sites. Both the Port of Tacoma, located in Commencement Bay on Puget Sound, and Hanford, located in Eastern Washington, are on the Environmental Protection Agency's Federal Superfund Site list. Both are also in the process of cleanup activities costing hundreds of millions of dollars. *1256-3*

This significant economic effort by public and private entities could be viewed by Washington citizens as a lost cause if DOE chooses either site. Our citizens have concerns that government has not been mindful of public health and the environment when managing existing radioactive and hazardous waste issues in our state. A decision to use either site appears short-sighted and would aggravate the problem. *1256-4*

Cooperation for Better Communities

RESPONSE TO COMMENT
COMMENTOR NO. 1256: ASSOCIATION OF WASHINGTON CITIES

Response to Comment No. 1256-1

The Association of Washington Cities' opposition to the introduction, management, or transshipment of high level nuclear waste from other nations in, through, or over the State of Washington, is noted. The port selection criteria discussed in Appendix D, Section D.1.9 of the EIS identifies those ports that can safely handle foreign research reactor spent nuclear fuel. The analyses provided in the EIS indicate that the use of any of the ports indicated by the port selection process, including Tacoma, would not pose any significant risk to either the port personnel, local environment, or the population near the port. The analysis in the EIS indicates that the risks associated with an accident are low (Sections 4.2.2.3 and 4.5) and that the risks associated with incident-free handling of the foreign research reactor spent nuclear fuel are also low (Sections 4.2.2.2 and 4.5).

As explained in Section 1.5 of the EIS, the selection of the site or sites at which the foreign research reactor spent nuclear fuel would be managed is based on the analysis in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement. The Record of Decision for this EIS was released on May 30, 1995. In accordance with this Record of Decision, all of the aluminum-based foreign research reactor spent nuclear fuel managed by DOE will be managed at the Savannah River Site in South Carolina. Any other foreign research reactor spent nuclear fuel to be managed by DOE will be managed at the Idaho National Engineering Laboratory. Accordingly, no foreign research reactor spent nuclear fuel would be shipped to the Hanford Site.

Response to Comment No. 1256-2

The commentor's support for the U.S. nuclear weapons nonproliferation policy and long-term solutions for storage of radioactive wastes are noted. Nuclear weapons nonproliferation is discussed in Sections 1.1 and 1.2 of the EIS, and ultimate disposition of spent nuclear fuel from foreign research reactors is discussed qualitatively in Section 4.2.7 of the EIS.

Response to Comment No. 1256-3

On the issue of air and water quality as it pertains to the proposed policy of managing foreign research reactor spent nuclear fuel, DOE considers that there would be no significant adverse impacts to any of the ports that might be used to receive the material. Spent nuclear fuel transportation casks are designed and built to preclude release of radioactive material. To date, after more than 30 years of spent nuclear fuel shipments, no radioactive material has ever been released from a spent nuclear fuel transportation

COMMENTOR NO. 1256: ASSOCIATION OF WASHINGTON CITIES (CONT'D.)

The Association also is very concerned over the burden of first response by local government to any incident that might occur during the handling and storage of this spent nuclear fuel. We consider this to be tantamount to yet another unfunded federal mandate that rests on the shoulders of local government. *1256-5*

Properly managed and reprocessed spent nuclear fuel is a valuable commodity. A number of foreign countries need this reprocessed fuel to operate their commercial power plants. The draft EIS considers three management alternatives, which are: 1. Bring the spent nuclear fuel all back to the U.S., 2. Mange it overseas, 3. A hybrid of the first two alternatives. Alternative 2 meets the DOE's nonproliferation policy guidelines, is the least expensive, and is a sound overall long-term solution. We encourage DOE to look more closely at this alternative. *1256-6*

Bringing this high level nuclear waste through the Port of Tacoma and transporting it across Washington state by rail or truck for possible storage at Hanford poses a health risk, an environmental risk, a security risk and a financial risk for our state and its local government. As stated in our resolution, the Association opposes any such transport of nuclear waste in Washington. *1256-1 (Cont'd.)*

Sincerely,

Jane Noland

Jane Noland, Councilmember
City of Seattle
AWC President

JN/JL/FT:mll

Enclosure

[PT95:nuclear.ltr]

RESPONSE TO COMMENT COMMENTOR NO. 1256: ASSOCIATION OF WASHINGTON CITIES (CONT'D.)

cask as a result of an accident. A paragraph has been added to (Section 4.2.2.2 of the EIS) to make this point and to emphasize the no-impact nature of these shipments on air and water quality. With respect to management of the foreign research reactor spent nuclear fuel at the Hanford Site, see the 2nd paragraph of the response to Comment 1256-1, above.

Response to Comment No. 1256-4

See response to comment 1256-1, above.

Response to Comment No. 1256-5

Each port considered in the EIS has developed an Area Contingency Plan. This plan outlines response capabilities, procedures and authorities for responding to and recovering from hazardous material incidents. Additionally, DOE would provide assistance to local authorities to ensure that appropriate measures are taken in any unlikely event of an accident. As part of this assistance, DOE's Radiological Assistance Program teams, from eight offices strategically located throughout the country, would be used to coordinate and to provide remediation assistance. This type of assistance and coordination would be specified in the Transportation Plan that would be prepared prior to any individual spent nuclear fuel shipment and coordinated with State and local officials. The general provisions of the Transportation Plan are included in Appendix H of the EIS. The provisions include an interface between DOE and State, Tribal, and local authorities, prior to the implementation of the policy, for the identification and resolution of emergency management and security issues specific to the communities that would be affected. These issues would include capabilities and training of first emergency responders.

As discussed in Section 2.7.3.2 of the EIS, DOE provides funding to States and Tribes through the Office of Environmental Management and the Office of Civilian Radioactive Waste Management to assist with transportation related issues. This funding has been used in the past to enhance a jurisdiction's emergency management and response capabilities. Besides funding, much of DOE's assistance is provided in the form of technical assistance, for which DOE bears the cost. Assistance may be provided through DOE's Radiological Assistance Program and under the National Contingency Plan, as well as through training, DOE sponsored meetings, informal discussions, and informational materials.

Response to Comment No. 1256-6

The commentor's preference for overseas reprocessing is noted. This is Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS.

Commentor No. 1256: Association of Washington Cities (Cont'd.)

Resolution #25: Transport and Storage of Nuclear Waste

BACKGROUND
The Federal Department of Energy is studying the Port of Tacoma as one of ten potential ports for receipt of spent nuclear fuel from other nations. The City of Tacoma passed a resolution opposing the use of the Port of Tacoma for these waste shipments.

ISSUE
The Tacoma resolution cites problems with the Environmental Impact Statement and concerns regarding the potential impacts on Tacoma, Pierce County, and Puget Sound. The resolution also notes that the burden of response to any incident rests with local government and would constitute an unfunded mandate. The Tacoma resolution also expresses concern that many of the city's questions have not been answered and that the fate of the Department of Energy is in doubt, creating operational uncertainties. *1256-1 (Cont'd.)*

AWC POSITION
The Association of Washington Cities supports the position of the City of Tacoma and opposes the introduction, storage, or trans-shipment of high level nuclear waste introduced from other nations in, through, or over the state of Washington.

Adopted at the AWC annual business meeting on June 30, 1995.

Response to Comment Commentor No. 1256: Association of Washington Cities (Cont'd.)

COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY

July 19, 1995

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue,SW
Washington, D.C. 20585

Dear Mr. Head,

Here are my comments, and those gathered from People For A New Nuclear Policy, in response to the draft E.I.S. on a "Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel". At the public hearing in Concord, California on May 22, 1995, you stated that of comments solicited, only those relevant to the actual specifics of operational strategy would have bearing on the final E.I.S. I emphatically urge you, instead, to hear these and other comments which reflect on the larger issues of national nuclear policy. These concerns convey a general critique of some aspects of U.S. nuclear policy, including the overall process itself, underlined, especially, by ethical considerations germane to such an important historical decision. 1268-1

The process by which the public is to be informed and involved in the draft E.I.S. is fundamentally flawed. Not only was there entirely inadequate time by which the general public was given notice, we were completely left out of the original scoping meetings that were held in October of 1993. Even though there was ultimately an extension granted to the deadline for public comment, this does not overcome the disadvantage of not being involved at the initial stages of the scoping process. The meeting in Oakland in 1993 did not give prior notice to interested parties in this area nor was the Concord Naval Weapons Stations even mentioned as a possible port of entry at that meeting. Consequently, local residents were outraged that the D.O.E. could "drop this bomb" without at least the decency of foreknowledge that other communities were given. There was no opportunity for citizens who live closest to the Concord Naval Weapons Station to "help identify significant issues to be addressed in the draft E.I.S." until it was too late by reasonable standards. Yet statements like "Yes, your input most definitely does matter!" reveals an attitude by the U.S. government which can only be understood as hypocrisy, if not contempt for local public interest, rather than the authentic respect we are due. 1268-2

Moreover, the slick advertising style of propaganda distributed in the informational packets at the D.O.E. public hearings further demonstrates 1268-3

(1)

RESPONSE TO COMMENT
COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY

Response to Comment No. 1268-1

Under NEPA and DOE's environmental regulations, public comments are an essential part of the environmental process (Section 5 of the EIS). Responses are provided in this document to written and oral comments received on the draft EIS during the comment period. Comments on matters outside of the scope of the EIS were noted (Section 1.3 of the EIS), however, the purpose of the comment period is to obtain comments of individuals and organizations concerning the draft EIS.

Response to Comment No. 1268-2

DOE's advertising of the public hearings on the spent nuclear fuel proposed policy has been in full compliance with NEPA and the applicable regulations. Advertising included timely public service announcements sent to local radio stations and placement in major newspapers in each of the meeting locations. Also, in accordance with NEPA, announcements of the hearings were published in the Federal Register. The fact that a scoping meeting was not held in the commentor's area is due to the fact that one of the purposes of the scoping meeting, in accordance with NEPA and applicable regulations, is to identify the scope of the EIS through public input. Therefore, based on information and comments provided by participants at the scoping meeting, and based on other considerations, DOE acted within its rights to expand the scope of the EIS to include additional ports as possible candidates for receipt of foreign research reactor spent nuclear fuel. Once such additional port is Concord NWS. The public and other interested parties (government officials, industry, etc.) were afforded an opportunity to comment on the draft EIS for 90 days, both at the public hearing and in writing after the public hearings, up until the time of the closing of the comment period (July 20, 1995).

Response to Comment No. 1268-3

Information packets and materials distributed at public meetings summarize the findings of the environmental evaluation and provide background information for the general public. The question: Should the United States take no action and risk weapons-grade material falling into the wrong hands? was included in the information packets because adoption of the No Action Alternative would have an adverse effect on nuclear weapons nonproliferation objectives of the United States. The discussion in the information packet summarizes information provided in Section 4.6 of the EIS.

The proposed action is intended to support nuclear weapons nonproliferation objectives of the United States. It supports peaceful applications of nuclear technology for nations who agree not to develop or proliferate nuclear weapons. Research, medical, industrial, and agricultural applications of foreign research reactors are described in Section 1.1 of the EIS.

COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY (CONT'D.)

the thinly veiled attempt by the federal government to "sell" this program on nuclear policy to the people of the United States. For instance, the particularly disturbing sheet entitled, "Be Part of the Decision Making Process-How You Can make a Difference" reveals the obvious leanings of governmental policy-makers and their determination to hoist their clearly biased opinions on the American public. Under the guise of "scientific objectivity", such rhetorical questions like "Should the United States take no action and risk weapons-grade material falling into the wrong hands?" is indicative of the predetermined objective to persuade the public, rather than present plain facts and a variety of viewpoints in order to truly consider all options-especially ones which reflect the perceptions and concerns of those most directly affected, including ordinary citizens. Were the approach sincerely open, we could afford to risk self-critical questions which would examine the matter of whose hands could be considered "right" for managing fissionable materials and what policy trustworthy enough to guarantee nuclear non-proliferation.

1268-3 (Cont'd.)

The single-minded and narrow stance of the federal government regarding so many nuclear policies like the one presently discussed is obvious to even the least informed persons. "We, the people" are not fooled by the underlying intention of the government to jam this proposal down our throats under the appearance of an inclusive, broad-minded approach which, conversely, excludes and mitigates against public involvement and partnership in decision making. Given the absence of enough time to evaluate and study the draft E.I.S., the overwhelming judgment of this local community, evidenced in elected officials' comments, is that the plan should be cancelled. A more thorough study relevant to and inclusive of public concerns is necessary and mandates a complete re-thinking and revision of national nuclear policy in order for it to reflect the will of the people.

The draft E.I.S. is inherently error-ridden, beginning with its negligence in assessing the "atoms for peace" program as a blatant failure. The most apparent observation currently missing in the draft E.I.S. is that the exporting of nuclear technology has, in fact, not reduced but rather increased the risks of nuclear weapons proliferation. Ironically, while it states the dilemma: "vast quantities of spent nuclear fuel continue to accumulate in foreign countries", the report should, but fails to admit those very contradictions intrinsic to national nuclear policy. Such denial can only lead to increased public mistrust for federal policy-makers who refuse to address the truth about U.S. objectives and intentions both historically and with regard to current political nuclear/military motivations. Without governmental acknowledgment of dissident positions, (views often reflecting the majority of U.S. citizens' values and determinations), the D.O.E. can expect a growing public response that varies from polite to angry disagreement and finally to massive organized resistance. The blatant disregard for public input and shared consent for these policies, despite the elaborate display to feign precisely the democratic principles it pretends,

1268-4

(2)

RESPONSE TO COMMENT COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY (CONT'D.)

All public comments on the draft EIS received during the comment period are included in this document. The EIS is primarily an evaluation of environmental effects which would occur if the proposed action were implemented. As demonstrated by the analysis in Section 4 of the EIS, the risks associated with implementation of the proposed action to human health or the environment are low. Thus, there is no environmentally preferred alternative, and decisions regarding management of spent nuclear fuel from foreign research reactors must be made on the basis of non-environmental concerns.

Response to Comment No. 1268-4

As evidenced by the fact that few nations have thus far produced nuclear weapons, the Atoms for Peace Program (described in Section 1.1 of the EIS) has been a success . By supporting peaceful applications of nuclear technology, while discouraging development of nuclear weaponry, nuclear weapons nonproliferation policies of the United States have served as a foundation for worldwide efforts to prevent the spread of nuclear weapons.

Foreign research reactors are not used to construct nuclear weapons. Research, medical, industrial, and agricultural applications for foreign research reactors are described in Section 1.1 of the EIS.

Potential environmental benefits and risks resulting from implementation of the proposed action were evaluated in detail during preparation of this EIS. As demonstrated by the analysis in Section 4 of the EIS, the risks associated with implementation of the proposed action to health or the environment are low. No quantifiable exceptions to the environmental evaluation were received during the comment period. Thus, there is no environmentally preferred alternative, and decisions regarding the proposed action must necessarily be based on non-environmental considerations.

COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY (CONT'D.)

prompts suspicion of the callous and devious character of the D.O.E., a suspicion that has haunted governmental policy surrounding the nuclear issue since its inception. From the beginning with the Manhattan Project, through the early years of the Atomic Energy Commission, during the cold war build-up, and up to the present day proposal of managing spent nuclear fuel from foreign countries, the U.S. government has not been up front with its own people. This policy and other potential schemes which perpetuate any rationale for extended uses of fissionable material must be scrapped, and the final E.I.S. should reflect the truth of public outcry against the ongoing profiteering of the nuclear industry with the complicity of the D.O.E. to move forward with this latest proposal. This not only poses unacceptable risks to permanent environmental contamination, but jeopardizes the very goals of nonproliferation it seeks to accomplish. It is clear that if the D.O.E. ignores the strong dissatisfaction from the local community to the plan to utilize the Concord Naval Weapons Station as one of the ports of entry for foreign spent nuclear fuel organized opposition and dramatic resistance will follow. Consequently, a final E.I.S. should anticipate the cost of sustained demonstrations, including non-violent civil-disobedience, and calculate any expenses which the federal government must be prepared to reimburse local law enforcement and other affected agencies. *1268-4 (Cont'd.)*

A far more reasonable and safe strategy to deal with the deadly radioactive substances outlined in the draft E.I.S., as well as a bold policy dedicated to genuine peace and true security is needed before the political, social, and economic realities get completely out of hand. A modest beginning point for such a policy would be to abolish any further expansion and exportation or importation of nuclear related technology and material, in all its forms, and to immediately halt the so-called "atoms for peace" programs from which the present danger can trace the roots of its causality. Anything less than a total turn-around of such a notorious legacy and its potentially catastrophic results, already evidenced by the present international predicament, would be remiss and continue to undermine U.S. integrity and authority with regard to a sane and compelling leadership world-wide. *1268-5*

Not unrelated, and indeed central to the objectives set forth in the background section of the draft E.I.S. is the obligation of the U.S. government to honor the spirit of the law contained in the Nuclear Nonproliferation Treaty which, at its core, commits our nation to the elimination of all nuclear weapons. As the record shows, the government has absolutely defaulted on this pledge. Since it should act in good faith to advance each and every policy toward this end, our conclusion regarding the spent fuel plan is that it obfuscates the perplexity of the problem when it addresses one aspect of the intent of the N.P.T., yet sidesteps the more pertinent, crucial issue of nuclear disarmament. This is the only logical and morally tenable position we can take if we truly care about disarming the planet. Of course, this can never be achieved if we cannot *1268-6*

(3)

RESPONSE TO COMMENT COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY (CONT'D.)

Response to Comment No. 1268-5

See response to comment 1268-4 immediately above.

Response to Comment No. 1268-6

The proposed action complies with the letter and spirit of the Treaty on the Non-Proliferation of Nuclear Weapons which was indefinitely extended under the auspices of the United Nations in May 1995 (Section 1.1 of the EIS). Foreign research reactors are not used for development or construction of nuclear weapons. Section 1.1 of the EIS describes the research, medical, industrial, and agricultural applications for foreign research reactors. The use of LEU fuel in foreign research reactors is encouraged because LEU cannot be used to make nuclear weapons. In addition, the U.S. accrues significant benefits from the operation of foreign research reactors - including Moly-99 and other medical isotopes.

COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY (CONT'D.)

first admit the inextricable link between the supposed "peaceful" uses of nuclear energy and corresponding research, and the potential for continued weapons development of heinous and far-reaching proportions. Every form of proliferation of nuclear power with it subsequent waste, for whatever uses, including the marketing of low-enriched uranium, necessarily prolongs the problems of nuclear weapons proliferation and the monumental threat they present to the future of humankind. *1268-6 (Cont'd.)*

Regardless of the assurances the U.S. government continues to reiterate about the safety of nuclear energy and research and its ability to contain the spread of nuclear weapons from which they are derived, the majority of U.S. and global citizens do not take such assurances for granted. Hence, the people of the world do not trust their governments to act in good faith to adhere to the purposes and goals of such treaties as the N.P.T.. The historical secrecy and deceptions of governmental negotiating and political maneuvering has distanced vast numbers of citizenry all over the world who have been left out of decision-making and policy formation. No wonder governments, large and small, have lost credibility, and thus stability, and will continue to have a difficult time selling these nuclear policies like the one this current proposal promotes to the people they purport to represent. *1268-7*

The nuclear industry, concomitant with the military-industrial-complex, has profited immensely from these corrupt and death-dealing arrangements, both those enunciated as "lawful" and espoused as progressive for modern civilization, as well as the more hidden, "behind-the-scenes" deals which make a fraction of the people wealthy at the expense of millions of others, economically, politically, socially, and ecologically speaking. Therefore, we urge you to withdraw the "Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel" in favor of an entirely new approach to overall national nuclear policy with sincere regard for and intelligent focus on the N.P.T and in light of the fundamental values of justice, peace and freedom this nation claims to advocate as its own. *1268-8*

Sincerely,
Bob Russell

People for A New Nuclear Policy
1626 Barnett Circle
Pleasant Hill, California 94523

(4)

RESPONSE TO COMMENT COMMENTOR NO. 1268: PEOPLE FOR A NEW NUCLEAR POLICY (CONT'D.)

Response to Comment No. 1268-7

The commentor's position on losses of credibility of large and small governments worldwide is noted. Under NEPA and DOE's environmental regulations (Section 5 of the EIS), public comments are an integral part of the environmental process. Prior to preparation of a Record of Decision regarding management of spent nuclear fuel from foreign research reactors, comments received on the draft EIS, and presented in this document, were reviewed and answered.

Response to Comment No. 1268-8

As demonstrated by the analysis in Section 4 of the EIS, the risks of implementation of the proposed action to human health or the environment, including economic benefits would be low. Similarly, implementation of the proposed action would have no significant effect on the distribution of wealth. The intent of the proposed policy is to remove as much U.S.-origin HEU as possible from civil programs worldwide and give foreign research reactor operators time to convert their reactors to the use of LEU fuels and to make arrangements for disposition of their LEU spent nuclear fuel (Section 1.2 of the EIS). The proposed action supports the Treaty on the Non-Proliferation of Nuclear Weapons. Withdrawal of the proposed action would increase the risks that weapons-grade materials could fall into the hands of nations seeking to develop a nuclear weapons capability.

Section 2.6
Foreign Entities

COMMENTOR NO. 57: EMBASSY OF GREECE

Written Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

If you would like to give us written comments, please feel free to use this page and drop it off at the registration table when you leave. Alternatively, you may mail your comments to the Department of Energy at the address listed below. Also, please provide us with your name, address, and telephone number for any follow-up information or any questions concerning the intent of your comments. This will also allow us to properly indicate the source of the comments in the comment response document. Thank you.

Name: DIMITRIS CHRONOPOULOS Phone: (202) 9395804
Title and Organization: First Secretary / Political Affairs / Embassy of Greece
Address: 2221 MASSACHUSETTS AVE. N.W.
City: WASHINGTON D.C. State ____ Zip 20008

*** COMMENTS ***

As representative of "DEMOKRITOS" NRR I express my support to positions and comments presented by the representatives (Jos Egan, Jack Edlow) of the 14 European reactor members of the "EDLOW GROUP"
Comments presented by the representatives of EURATOM and IAEA are also cosponsored by the Embassy of Greece.
Finally, I would like to point out the lack of alternative options for "DEMOKRITOS", that of Dounreay included, due to the lack of spent fuel storage sites in Greece.

To Mail in Comments, Address Correspondence to:

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

RESPONSE TO COMMENT
COMMENTOR NO. 57: EMBASSY OF GREECE

57-1

Response to Comment No. 57-1

The commentor's position concerning statements of the Edlow Group, EURATOM, and the IAEA is noted.

57-2

Response to Comment No. 57-2

The commentor's expression of limited or nonexistent disposition alternatives available to Greece due to lack of spent nuclear fuel storage sites in Greece, is noted.

COMMENTOR NO. 58: ATOMIC ENERGY OF CANADA

Atomic Energy of Canada's Comments on the Draft Environmental Impact Statement (EIS) on a proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

* It is gratifying to see in Section 4.3.1.3 an implementation subalternative 1c, "Accept Target Material in addition to Foreign Research Reactor Spent Fuel."

* Canada has the largest accumulation of Aluminum based spent nuclear fuel materials, currently 4.478 MTHM of which 0.525 MTHM are as spent target materials. Note that the world total estimated holding's of spent target wastes is 0.5554 MTHM. 58-1

* Canada embraced the aims of RERTR from its inception and after many years of fuel development finally completed the conversion of the NRU reactor from HEU driver fuel to LEU. In that period use of US origin HEU has dropped from approximately 96Kg/a, to approximately 25 Kg/a. The 25 Kg/a HEU now required, is largely for target use for medical isotope production. Most of the diagnoses and treatments using these isotopes, are carried out in the US. 58-2

* Return of the residual spent target material, which contains weapons usable material, is a strong nuclear weapons non proliferation rationale for ensuring it is included in the scope of this management policy.

* Return of spent target wastes will be in the spirit of RERTR in which, the development and use of LEU targets is the ultimate goal of this program. 58-3

* ~~In addition~~ to a long term need to return spent target wastes, ~~Canada~~ will have a ~~spent fuel storage~~ problem at its ~~McMaster University~~ reactor. The seven year ~~interruption in the~~ spent fuel return program, has left its ~~storage bays~~ at near saturation and a ~~fuel shipment~~ will have ~~to be made~~ in early 1996, if the reactor is to continue in operation.

* Canada's development of its RERTR program, was predicated on several objectives such as, return of spent fuels, use of cheaper LEU alternatives as well as, support of the non proliferation initiative. It should be noted, that "cheaper" finished LEU driver fuels have been somewhat illusive, in Canada at least. 58-4

DOE has a responsibility, under these RERTR and Non proliferation umbrella's, to reopen the spent fuel return agreements and take back the fuel, at a price consistent with its prices at the "expiry" of the agreements in 1988. 58-5

RESPONSE TO COMMENT
COMMENTOR NO. 58: ATOMIC ENERGY OF CANADA

Response to Comment No. 58-1

Acceptance of target material containing HEU is an implementation alternative which is currently under consideration as part of Management Alternative 1 (Section 2.2.2.1 of the EIS). The inclusion of this alternative is in accord with the U.S. nuclear weapons nuclear weapon nonproliferation objectives.

Response to Comment No. 58-2

DOE agrees with the commentor's assertion that development of LEU targets is a key objective of the proposed policy.

Response to Comment No. 58-3

Acceptance and management of target material is in accord with the U.S. nuclear weapons nonproliferation policy.

Response to Comment No. 58-4

Atomic Energy of Canada's support for the RERTR Program, the use of LEU fuel, and the nonproliferation initiative are noted.

Response to Comment No. 58-5

DOE understands the position of the foreign research reactor operators regarding their desire for DOE to restart acceptance of spent nuclear fuel, and regarding the desired acceptance fee. As discussed in Section 2.2.1.2 and 2.2.2.3 of the EIS, several financing options have been considered, ranging from collection of fees from the research reactor operators that would pay all of the costs of the program to full subsidization of the program by DOE. A compromise between these extremes would be for developed countries to be charged a competitive fee, while U.S. taxpayers would absorb the full costs of the program for developing countries and absorb the amount above a competitive fee for developed countries to accept and manage their spent nuclear fuel. Charging a competitive fee is a market-based approach to the problem. Alternative financing arrangements discussed in Section 2.2.2.3 of the EIS include full subsidization for all countries, charging all countries the full costs of management, and subsidizing developing countries, but charging developed countries a full-cost recovery fee.

COMMENTOR NO. 58: ATOMIC ENERGY OF CANADA (CONT'D.)

* The alternative of spent fuel reprocessing, should of course be kept open. Reprocessing reduces the total volume of spent fuel wastes and maximises fuel utilization. However, it should not be included in this EIS as an option. This option itself could involve significant delays through further EIS's and lawsuits. The one and only option, at this point in time, is return of the spent fuel. 58-6

* The term, "Competitive price" for return of the spent fuel, should be rewritten to read "reasonable" or "consistent with that being charged at the time of expiry of the previous agreement." With only one other "player" in the market ie Dounreay, who do not offer the storage option, using their reprocessing price, does not appear to be a relevant comparison. 58-7

* In closing DOE should be congratulated on bringing the issue to this point, with the prospect of a reopening of the spent fuel return agreement at last within reach. However, with the S.C. litigation still in progress, one shouldn't be too complacent. There are still many side issues which can prolong or divert the process if vigilance is allowed to waiver. 58-8

Frank Kelly

May 31 1995

RESPONSE TO COMMENT COMMENTOR NO. 58: ATOMIC ENERGY OF CANADA (CONT'D.)

Response to Comment No. 58-6

The commentor's support for accepting the foreign research reactor spent nuclear fuel into the United States and for chemically separating it is noted. NEPA requires that the environmental impacts of all reasonable alternatives be evaluated, regardless of political opposition or potential litigation.

Response to Comment No. 58-7

DOE considers that reprocessing at Dounreay provides a reasonable basis for establishing a competitive price since it would be the alternative to the U.S. program that several countries are considering. DOE also considers that the price, however determined, should be based on current conditions rather than those prevailing at the expiration of previous agreements.

Response to Comment No. 58-8

The commentor's position on this matter is noted.

COMMENTOR NO. 62: ICI TRACERCO

Tracerco

Mr C Head
Office of Spent Fuel Management (EM-37)
US Department of Energy
1000 Independence Avenue SW
Washington DC 20585
U.S.A.

ICI Tracerco
ICI Chemicals & Polymers Limited
PO Box 1 R2 Building
Billingham
Cleveland TS23 1LB
Telephone (01642) 522350
Fax (01642) 522991

Our Ref	Direct Line	Ext	Date
DG LF 763W	01642 523302	3302	28 April 1995

Dear Mr Head

ENVIRONMENTAL IMPACT STATEMENT - REPATRIATION OF HEU AND LEU FUEL

I would wish to offer the following comment on the above document which is being circulated within the USA for public consultation. I manage a Triga reactor facility in the UK which has LEU fuel purchased from General Atomics over the past 25 years.

The original decision to purchase the Triga Reactor rather than opt for a UK facility was strongly influenced by the safety features of the fuel design and the reassurance that the spent fuel would be eventually returned to the USA. The change in policy on repatriation has, in common with other Triga operators, created major problems in defining decommissioning strategies. We are currently wishing to decommission our Triga Reactor at the earliest opportunity and are extremely interested in the current debate on repatriation. 62-2

We fervently hope that an early decision will be made which will alleviate the difficult situation in which most Triga Operators now find themselves.

Yours sincerely

DR D GREEN
Environmental & Reactor Services Manager

RESPONSE TO COMMENT
COMMENTOR NO. 62: ICI TRACERCO

Response to Comment No. 62-1

The commentor's position on acceptance of TRIGA spent nuclear fuel under Management Alternative 1 is noted. Section 1.2 of the EIS describes the purpose and need for the proposed action and United States obligations under the Treaty on the Non-Proliferation of Nuclear Weapons.

COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM

GKSS FORSCHUNGSZENTRUM

GKSS - Postfach 1160 - D-21494 Geesthacht

Mr. Charles Head, Program Manager
U.S. Department of Energy
Office of Spent Nuclear Fuel Management
(EM-37)
1000 Independence Avenue, SW

Washington, DC 20585

Max-Planck-Straße
D-21502 Geesthacht
Tel.-Zentrale: 04152/87-0
[illegible]

Ihr Zeichen/Ihre Nachricht	Unser Zeichen	Durchwahl Telefon	Durchwahl Telefax	Datum
	RZL-Dr.Kr/ri	04152/87- 1200	04152/87- 1338	June 7, 1995

Ref.: DOE/EIS-0218D, March 1995: Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Dear Sir,

on behalf of the GKSS-Forschungszentrum Geesthacht GmbH we would like to thank you for the opportunity to comment the draft EIS. GKSS has already commented the draft EA as well as participated in a hearing at Washington, DC, on that draft on February 10, 1994 and expressed its position and concerns in papers presented at the last two RERTR meetings and in a publication in the journal "Nuclear Engineering International":

1. Letter to Mr. John J. Jicha, (DOE, Office EM-37), dated February 18, 1994
2. Paper: GKSS position on the back end of the fuel cycle of its research reactor FRG-1, presented at the hearing on the EA on February 10, 1994 in Washington, DC
3. W. Krull: Comments on the future activities of the RERTR program, paper presented at the 16. RERTR meeting, Oarai, October 3-7, 1993, Japan
4. W. Krull: Comments on the future activities of the RERTR program - part II, presented at the 17. RERTR meeting, Williamsburg, September 19-22, 1994, USA
5. W. Krull: Operators beware, Nuclear Engineering International, page 33-36, December 1994

Background informations for the following comments can be found especially in no. 2 to 5 of the above mentioned documents and papers. GKSS has some general comments on the necessity for

GKSS-Forschungszentrum Geesthacht GmbH · Max-Planck-Straße · D-21502 Geesthacht
Rechtsform: Gesellschaft mit beschränkter Haftung · Sitz in Geesthacht · Amtsgericht Geesthacht · HRB 285 · USt-IdNr.: DE 135131 088
Vorsitzender des Aufsichtsrates: Ministerialdirektor Dr. rer. pol. Reinhold Leitenberg · Geschäftsführer: Stefan Hamm, Dr. Günter von Sengbusch
Die Zentralabteilungen und Institute besitzen keine eigene Rechtspersönlichkeit. Sie sind Organisationseinheiten der GKSS-Forschungszentrum Geesthacht GmbH
Bankkonten: Commerzbank 8479 008 (BLZ 200 400 00) · Deutsche Bank 98 00 404 (BLZ 200 700 00) · Dresdner Bank 172 96 19 (BLZ 200 800 00)

RESPONSE TO COMMENT
COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM

COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM (CONT'D.)

- 2 -

implementing the proposed policy, some special comments on the draft EIS and remarks on the situation of its FRG-1 research reactor.

I General comments

I-1 With the publication of the Draft EIS the DOE has reached after years of preparation an important milestone the second after the announcement of the Secretary of DOE in her letter from July 13, 1993 in reentering the Policy on the Receipt of Spent Nuclear Fuel from Foreign Research Reactors. This is gratefully appreciated.

I-2 But these milestones are only the beginning and other more important ones must follow, especially the effective implementation of that proposed policy. Only then the international research reactor community can believe that DOE is again a reliable partner.

I-3 DOE must stay on that way with extreme efforts as at the moment some operators and countries are looking or implementing already independent national solutions. Such solutions will cause the worldwide spread of not sufficiently physical protected HEU forever with all consequences on nonproliferation. 104-1

I-4 DOE must consider for the existing spent fuel at reactor facilities that a large quantity has never been self protecting, another part is no longer self protecting and more fuel will loose its self protection soon. Physical protection does not follow in many cases the necessary requirements. 104-2

I-5 Due to the effect of the Policy for the Receipt of Spent Fuel from Foreign Research Reactors since the last decade the stockpile of fresh fuel (including spent fuel loosing its self protection) increases worldwide with all negative consequences in proliferation risk. It is on DOE to take over this responsibility and burden for some time.
The increase of the stockpile of HEU at the back end of the fuel cycle is directly opposite to the INFCE conclusion and it undermines the efforts of the RERTR program to reduce the stockpile of HEU on the front end of the fuel cycle. 104-3

I-6 The research reactor operators worldwide have to be convinced upon the necessity of reducing the proliferation risk and to continue with the RERTR program. The US should lead the way now by positive examples. Hesitating and not converting own reactors soon is no method convincing others. The offset of developing higher density fuel is in the same way a step in the wrong direction. 104-4

I-7 DOE must consider what actions should be taken if in spite all positive intentions the number of barriers are so high that first shipments will be significantly delayed. 104-5

I-8 To reduce the proliferation risk coming up from the operation of research reactors with HEU for a long period of time the only effective possibility is the return of this material to 104-6

RESPONSE TO COMMENT
COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM (CONT'D.)

Response to Comment No. 104-1

The commentor's position on the urgency of implementing the proposed action is noted. Section 1.2 of the EIS discusses the need for action and some potential consequences of inaction.

Response to Comment No. 104-2

Section 4.6.1 has been edited to include a discussion similar to that provided by the commentor.

Response to Comment No. 104-3

The commentor's position on the lapse of the Off-Site Fuels Policy is noted.

Response to Comment No. 104-4

The commentor's position on the conversion of research reactors in the United States is noted. The majority of nongovernmental research reactors in the United States have either converted or are in the process of converting to the use of LEU fuels. DOE is also considering the utility of converting U.S. Government owned reactors to the use of LEU fuels. The United States is the originator and strongest supporter of the RERTR program and continues to pursue the goal of eliminating the civilian use of HEU. To this end, DOE has requested money for Fiscal Year 1996 to resume development of advanced, high density LEU fuels to facilitate reactor conversion.

Response to Comment No. 104-5

If a decision is made to manage foreign research reactor spent nuclear fuel in the United States, the actions that DOE would take in the case that implementation of the policy is delayed depend on the specific implementation alternatives that will be selected in the Record of Decision.

Response to Comment No. 104-6

The commentor's support for the return of HEU to the country of origin is noted. Other options are discussed in Section 2.3 of the EIS.

- 3 -

the country of origin. Having it stored at many locations worldwide may be safe today. But the world is changing. *104-6 (Cont'd.)*

I-9 Since DOE's offset of the Off-Site Fuel Policy for the Receipt of Spent Nuclear Fuel from Foreign Research Reactors operators and countries started to look at other solutions e.g.:

- reprocessing in Dounreay and further use of the reprocessed HEU
- building and licensing national long term storage facilities
- designing, licensing and construction of casks for long term dry storage
- building additional storage racks to have storage capacity for the scheduled life time of the reactor and than indirectly forever.

These actions undermine the efforts to reduce the proliferation risk worldwide. *104-7*

I-10 DOE should state in the EIS that there are legal obligations to take back the spent fuel e.g.:

- contracts with some operators
- Fed. Reg. Note from December 1987 to issue a new Fed Reg. Note for a 10 years period
- Fed. Reg. Note from February 1986 for the LEU spent fuel acceptance to ensure the return of HEU during the conversion from HEU to LEU and later on LEU!
- letter of the Secretary of DOE from July 13, 1993, which has to be seen as a Record of Decision under the condition that the risk is acceptable. This has now been confirmed in the Draft EIS.

104-8

II Specific comments

II-1 After implementing the EIS it is without any doubt that there will be a termination of this policy. DOE must be a reliable partner again, but the US must not be the world storage place for these spent fuel elements forever. *104-9*

II-2 Termination for 10 years for the production of spent fuel seems to be a reasonable time frame. But the additional 3 years only for shipment of all the spent fuel elements containing fuel of US origin seems to be away from practice. Only if everything runs well, 3 years are enough. *104-10*

II-3 DOE should consider delays between implementing the new Policy, scheduled shipments and real shipments. Delays will be caused by force majeure, law suits at all possible levels, availability of necessary licenses or permissions, availability of suitable casks meeting the feasibilities at the operators site, availability of carriers, local intervenors and demonstrants at the US and non US sites and harbors etc. Within the EIS precautions should be included for these delays. *104-11*

Response to Comment No. 104-7

The reactor operators' options in case the DOE selects the No Action Alternative are noted. These are also discussed in Sections 1.2 and 4.6 of the EIS.

Response to Comment No. 104-8

It is DOE's position that neither DOE nor the United States Government has any legal obligation to accept spent nuclear fuel from foreign research reactors.

Response to Comment No. 104-9

The commentor's position on the policy duration alternatives under Management Alternative 1 as described in Section 2.2.2.2 of the EIS is noted. The intent of the proposed policy is to remove as much U.S.-origin HEU as possible from civil programs worldwide and give foreign research reactor operators time to convert their reactors to the use of LEU fuels and to make arrangements for disposition of their LEU spent nuclear fuel (Section 1.2 of the EIS).

Response to Comment No. 104-10

If Management Alternative 1 (Management in the United States, Section 2.2 of the EIS) is adopted and if delays in implementation occur, the delays are anticipated to occur mainly in the early portions of the program. The three year acceptance period which follows the ten year policy period is intended to allow for cool down and shipment of the last elements of spent nuclear fuel from foreign research reactors to the United States.

Response to Comment No. 104-11

It is not feasible to include in an EIS precautions to account for uncertainties such as delays resulting with suits brought to stop implementation of the action as decided in the Record of Decision.

COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM (CONT'D.)

- 4 -

II-4 Not all casks listed are licensed today. And the number of necessary shipments listed are different between this EIS and DOE/EIS-0203-F. Some casks have to be used for US domestic shipments, too. 104-12

II-5 Many solutions are possible. But only the management alternative 1 with the basic components is the only acceptable one in bringing back trust in the actions of DOE and reducing the proliferation risk really. If other management alternatives will be chosen research reactor operators will not be willing to suffer under the penalties (increasing fuel cycle costs, loss of reactor performance, licensing difficulties) of conversion of their reactors to LEU and they will stay on HEU. HEU will be spread worldwide forever. 104-13

II-6 If DOE is not taking management alternative 1 with the basic components
- only a marginal reduction in proliferation risk and
- the complete loss of reliability

will be the consequence. 104-14

II-7 HEU should be taken back under special conditions for some additional years after the implemented EIS expires for LEU. There are many reasons possible to miss the given time schedule (money can be one, even for operators in industrial nations). Reduction of proliferation risk should be the driving force. 104-15

II-8 Target material should be accepted, too. Stay on this way. 104-16

II-9 The EIS clearly demonstrated that the amount of heavy metal in foreign research reactor spent fuel is negligible compared with other sources already managed, presently managed or need to be managed by DOE. 104-17

II-10 All risks involved with shipment, storage and disposal of the spent fuel under this EIS is negligible, too. Therefore it should be without any doubt acceptable. 104-18

II-11 US tax payers should not subsidize the foreign reactor operators in the future. They did not so in the past as prices paid for the reprocessing services published in the Fed. Reg. have been calculated on a full cost recovery basis. The new prices must be an updating of the old ones as the old prices included the same services more or less plus reprocessing. 104-10

II-12 Prices should not be prohibitive high. It is clear that many operating organizations will wait in such cases for other solutions and therefore this EIS may not be successful. 104-20

II-13 The final EIS should give a preferred alternative which must be close to Management Alternative 1 with Basic Implementation Components and to the letter of the Secretary of DOE, dated July 13, 1993 (see I-10). 104-21

III Situation at the research reactor FRG-1

III-1 GKSS as operator of the FRG-1 has fully and successfully cooperated since 15 years to a very high degree with the RERTR program and the relevant activities at the IAEA.

RESPONSE TO COMMENT
COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM (CONT'D.)

Response to Comment No. 104-12

a. The potential spent nuclear fuel transportation casks identified in the EIS for marine transport (as given in Appendix B, Table B-13), except for Unifetch, have been certified by the U.S. Department of Transportation in the past. At the present time however, except for the LHRL-120 and GNS-11 casks, all others have expired certificates and need to be recertified by the U.S. Department of Transportation according to the requirements of 49 CFR Part 173.473. This is a normal procedure that each cask needs to follow in order to maintain an up-to-date certificate of compliance.

b. The difference in the number of estimated shipments in this EIS and that provided in DOE/EIS-0203-F, (Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement, [or Programmatic SNF & INEL EIS]), is due to the following reasons:

1. This EIS's estimate of the number of shipments from foreign research reactors is based on 22,700 spent nuclear fuel elements, whereas the Programmatic estimate is based on 25,000 spent nuclear fuel elements. The Programmatic SNF & INEL EIS used a bounding number of elements to cover any uncertainties in the estimated projection.

2. The Programmatic SNF & INEL EIS also adds the number of shipments containing target materials (140 shipments), whereas this EIS considers the target material shipments separately as an implementation alternative.

Both EIS's provide correct estimates of the potential spent nuclear fuel shipments from foreign research reactors, considering the different purposes of the two documents.

c. Table B-15 of Appendix B of the EIS identifies the potential domestic casks for shipments between the management sites. The domestic research reactor fuels are not considered in this EIS, but were evaluated in the Programmatic SNF & INEL EIS.

Response to Comment No. 104-13

The commentor's support for Management Alternative 1 (Section 2.2 of the EIS) is noted.

Response to Comment No. 104-14

The commentor's opposition to alternatives other than Management Alternative 1 (Section 2.2 of the EIS) is noted. Management Alternative 2, Management Alternative 3, and the No Action Alternative are described in Sections 2.3, 2.4, and 2.5 of the EIS, respectively.

COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM (CONT'D.)

- 5 -

III-2 GKSS has converted its FRG-1 early in 1991 totally to LEU as the first European and till today the only German research reactor.

III-3 GKSS was accepting the penalties caused by the conversion as it was and is fully convinced on the necessity to make the world safer by reducing the proliferation risk.

III-4 GKSS needs to operate its reactor FRG-1 for its research program and will undertake all necessary measures to reach this condition.

III-5 GKSS has approx. 16 kg HEU (~ 75 % enriched) from reprocessed uranium and is still waiting for solutions. DOS and DOE have been asked to take this material back but did not answer yet.

III-6 GKSS has from the operation of its research reactors FRG-1 and FRG-2 (shutdown in 1995) 141 spent HEU fuel elements. The last spent HEU fuel elements have been produced in 1991.

III-7 The 141 spent HEU fuel elements are loosing its self protection. Actions must be taken. The by far most convincing action will be to ship these fuel elements in two shipments (2 x 66) soon to the US. Casks (GNS-II) are available and can be used at the research reactor facility.

III-8 GKSS got a new license for its FRG-1 dated April 12, 1995, limiting explicitly the amount of fresh HEU fuel and spent HEU fuel loosing its self protection (see page 3 and 4 of this license). Therefore actions are really necessary. A copy of parts of the license is being attached.

III-9 Shipments of the spent HEU fuel elements must therefore be made in 1996 and 1997 to DOE facilities. GKSS is prepared to cover the costs.

III-10 GKSS is willing and prepared to cooperate as in the past with the RERTR program and the IAEA in all relevant activities at all necessary levels.

Dear Sir,

we are looking forward to the actions that will be made within this year at the DOE. Your decisions will be in any way very important for the RERTR program, the efforts in reducing the proliferation risk, the survival of many research reactors and for the reliable cooperation between partners. GKSS is willing to assist, if so required.

Sincerely yours,

GKSS-FORSCHUNGSZENTRUM GEESTHACHT GMBH

(pp. Dr. W. [illegible]) i.A. (Dr. W. Krull)

Enclosure

RESPONSE TO COMMENT
COMMENTOR NO. 104: GKSS FORSCHUNGSENTRUM (CONT'D.)

Response to Comment No. 104-15

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy seeking to reduce, and eventually eliminate, the use of highly enriched (weapons-grade) uranium in civil programs worldwide (Section 1.2 of the EIS). To this end, one of the implementation alternatives for Management Alternative 1 evaluated in this EIS is for indefinite acceptance of HEU (Section 2.2.2.2).

Response to Comment No. 104-16

The commentor's support for accepting target materials in addition to foreign research reactor spent nuclear fuel is noted. Acceptance of target materials is discussed in Section 2.2.2.1 of the EIS.

Response to Comment No. 104-17

The commentor's observation on the amount of heavy metal in spent nuclear fuel accepted from foreign research reactors is noted (Section 2.2.1.3 of the EIS).

Response to Comment No. 104-18

The commentor's position that the risks resulting from implementation of the proposed action would be negligible is noted.

Response to Comment No. 104-19

As discussed in Section 2.2.1.2 and 2.2.2.3 of the EIS, several financing options have been considered, ranging from collection of fees from the research reactor operators that would pay all of the costs of the program to full subsidization of the program by DOE. A compromise between these extremes would be for developed countries to be charged a competitive fee, while U.S. taxpayers would absorb the full costs of the program for developing countries and absorb the amount above a competitive fee for developed countries, to accept and manage their spent nuclear fuel. Charging a competitive fee is a market-based approach. It is likely that full-cost recovery would exceed the competitive fee.

Response to Comment No. 104-20

The competitive fee discussed in Section 2.2.1.2 of the EIS would be based on an estimate of what similar services would cost at other sites (e.g., Dounreay), with adjustments made for such factors as waste storage costs. DOE is aware that setting a fee too high would cause the program to fail. DOE is attempting to balance the interests of the RERTR program, taxpayers, and the research reactor operators.

Response to Comment No. 104-21

The commentor's preference for Management Alternative 1 is noted. Section 2.2 of the EIS describes Management Alternative 1.

COMMENTOR NO. 133: RISO NATIONAL LABORATORY

RISØ
Risø National Laboratory

Management
P.O. Box 49
DK-4000 Roskilde, Denmark
Phone +45 46 77 46 77, Telex 43116
Fax +45 42 36 85 31

United States Department of Energy
Office of Environmental Management (EM-37)
1000 Independence Avenue, S.W.
Washington, D.C. 20585-0001
USA

1995-06-09
HBM/KS/GC

Attention Mr. Charles Head

Subject: **Draft Environmental Impact Statement on a Proposed Nuclear Weapons Non-Proliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel. US Department of Energy. March 1995. DOE/EIS-0218D**

Dear Mr. Head,

Risø National Laboratory (Risø) in Denmark hereby submits comments to the above mentioned Draft Environmental Impact Statement.

We wish to express our appreciation of the great effort, which has been performed by the Department of Energy and the Department of State preparing this very comprehensive and detailed document. We see it as a strong commitment by the US Government to reestablish the earlier policy for return of US origin spent nuclear fuel from foreign research reactors. 133-1

We urge DOE to carry the ongoing process through to an early and finally positive Record of Decision in order to end nearly seven years of uncertainty concerning the future of our research reactor.

Being a member of the "Edlow Group" of foreign research reactors, Risø wants to refer to the detailed statements and comments from this group, which we strongly support.

RESPONSE TO COMMENT
COMMENTOR NO. 133: RISO NATIONAL LABORATORY

Response to Comment No. 133-1

The commentor's appreciation for the efforts put forth in preparation of this document is noted. It should be noted, however, that the acceptance of all the spent nuclear fuel from foreign research reactors (Management Alternative 1) is only one of three management alternatives and one of four overall alternatives being considered in this EIS. While the final EIS does contain a preferred alternative (Sections 2.9 and 4.7 of the EIS), the final decision on implementation of the proposed action will be presented in the Record of Decision.

COMMENTOR NO. 133:
RISO NATIONAL LABORATORY (CONT'D.)

2

Danish Background
in what follows, we will give our comments in particular with background in the Danish situation:

Denmark has always strongly supported all international initiatives leading up to the Non-Proliferation Treaty, and Denmark was one of the first countries to ratify this treaty in January 1969. Denmark, and especially Risø, actively supported and participated in the International Nuclear Fuel Cycle Evaluation, INFCE, and in accordance with this Danish policy Risø as operator of the Danish research reactor DR 3 actively joined the US-initiated RERTR Programme. Under this programme, Risø developed its own manufacturing process for low-enriched uranium-silicide fuel elements for the DR 3 Reactor.

Conversion to LEU fuel started in 1988 and full conversion was achieved in 1990, DR 3 being one of the first converted research reactors. Out of its own limited research funds, Risø invested more than 1 Million US Dollars in this conversion process.

Risø National Laboratory is a governmental institution, which was founded in 1956 as a consequence of an agreement, signed on July 25, 1955, between the Government of the United States and the Danish Government, for cooperation on civil uses of atomic energy. This agreement was later amended, and the first two research reactors at Risø were of American origin, while the third reactor, DR 3, operating since 1960, is a British type. Up to 1973, the spent fuel, containing HEU of US origin, was shipped to the U.K. for reprocessing in agreement with US authorities. Between 1978 and 1988, 684 spent fuel elements from the DR 3 reactor were shipped in 19 shipments to the US for reprocessing.

Thus, for more than 33 years, the operation of the DR 3 has depended on the shipment of the spent fuel elements for reprocessing and/or final storage, first to the U.K. and later on to the United States.

Plans for final storage of high-level radioactive waste in Denmark have never been established. After the decision in 1985 by the Danish Parliament to exclude nuclear power reactors from the Danish energy systems, no such plans could be expected to be established in a foreseeable future. Therefore reprocessing at the British Dounreay Plant is no option for Risø because this would include the obligation for Denmark to take back the high-level waste.

The 10 MW heavy-water moderated and cooled research reactor, DR 3, is today one of the most efficiently exploited research reactors in Europe and is part of the Large Installations Programme under the research programmes of the European Union. Annually this attracts more than 100 European and American scientists, specialized in Materials Science to join the international recognized group of Danish scientists. The reactor is globally also one of the largest producers of irradiated silicon for semi-conductors, and covers the Danish needs for short-lived and specialized radio-isotopes for medical use.

RESPONSE TO COMMENT
COMMENTOR NO. 133:
RISO NATIONAL LABORATORY (CONT'D.)

COMMENTOR NO. 133: RISO NATIONAL LABORATORY (CONT'D.)

3

Specific Comments on the Draft EIS

From what has been said above, it is obvious that the continued operation of the Danish research reactor DR 3 can only be assured under the Management Alternative 1: "Manage Foreign Research Reactor Spent Nuclear Fuel in the United States", or under Management Alternative 3: "A Combination of Components of Management Alternatives 1 and 2" (Hybrid Alternative). 133-2

Management Alternative 2: "Facilitate the Management of Foreign Research Reactor Spent Nuclear Fuel Overseas" would not be a politically acceptable solution in Denmark, even in the case where the reprocessing waste might be accepted by the United State for storage and ultimate geological disposal. It should be noted that all of the Scandinavian countries are opposed to reprocessing of nuclear fuel, and more specifically, they want the Dounreay Facility closed, based on environmental arguments. 133-3

Policy Duration

The proposed formulation: "Spent nuclear fuel containing HEU and LEU of US origin, that is currently being stored or is to be generated during the 10 year policy period" and "the shipment of spent nuclear fuel could be made for an additional 3 years' period", is reasonable but should also be considered as a minimum duration period. Any shorter duration would be extremely harmful to the planning and operation of the research reactors and to the possibilities of ensuring the shipment of all spent fuel, currently being stored. 133-4 133-5

The DR 3 reactor has now been in operation for 35 years, and the remaining life-time of the reactor is estimated to 10-15 years.

Therefore, we suggest that the possibility of negotiating individual bilateral contracts between e.g. DOE and Risø, covering the reception of spent nuclear fuel for the remaining life-time of the reactor, could be taken into consideration. 133-6

Financing Arrangements

As previously mentioned, Risø National Laboratory is a governmental institution, with about 50% financial funding from the Government. The remaining funds come out of national and international research programmes, which normally do not cover the related overheads. Only a limited amount of income arises from commercial contracts. This means that Risø is not a commercial company, and the high costs of running an advanced research reactor must entirely be covered within Risø's budget. Therefore the "competitive fee" which will be charged by DOE, and to which has to be added the transportation costs, should not be unrealistic high, compared to the price of 1000 Dollars per kilogramme heavy metal existing before 1988 and which price was supposed to be on a full cost recovery basis. 133-7

RESPONSE TO COMMENT COMMENTOR NO. 133: RISO NATIONAL LABORATORY (CONT'D.)

Response to Comment No. 133-2

The commentor's preference for Management Alternatives 1 or 3 is noted. These alternatives are described in Sections 2.2 and 2.4 of the EIS, respectively.

Response to Comment No. 133-3

The commentor's opposition to Management Alternative 2 and to reprocessing in general, is noted.

Response to Comment No. 133-4

The commentor's position that thirteen years represents a minimum appropriate acceptance period for spent nuclear fuel from foreign research reactors is noted. Sections 2.2.1 and 2.2.2 of the EIS discuss policy duration.

Response to Comment No. 133-5

See response to comment 133-4, above.

Response to Comment No. 133-6

Bilateral agreements are possible so long as they comply with the adopted policy and do not result in environmental impacts not addressed in this EIS.

Response to Comment No. 133-7

A competitive fee should be based on current market conditions for the most realistic alternatives, e.g., reprocessing at Dounreay, rather than on non-market fees charged before 1988. The ultimate fee structure would depend on the implementation alternative specified in the Record of Decision, and would include the charges for U.S. acceptance and disposal of high-level waste from Dounreay, if that is part of the alternative.

COMMENTOR NO. 133: RISO NATIONAL LABORATORY (CONT'D.)

4

Legal Obligations

The draft EIS does not make reference to any legal obligations by DOE to receive spent research reactor fuel.

For the record, we want to point out that as a consequence of the RERTR Programme, an agreement (dated June 15, 1984) exists between the University of Chicago (Operator of Argonne National Laboratory, ANL) and Risø National Laboratory, in which ANL agrees to accept three spent LEU fuel elements from Risø. This transfer has not taken place, and it is stated that this agreement shall remain in force until the designated fuel elements are delivered to the designated site and accepted by Argonne National Laboratory. 133-8

Amount of Foreign Research Reactor Spent Nuclear Fuel

We can agree with the figures given in Table 2-1 on Page 2-7, Vol. 1, concerning Denmark. The estimated number of shipments will, of course, depend on the size of casks available. For reason of comparison, it might be noted that during the years 1962 to 1988, Risø has performed in all approximately 60 shipments with more than 1700 spent fuel elements without any technical problems.

On behalf of Hans Bjerrum Møller, Managing Director

Yours sincerely,

Jørgen Kjems
Deputy Director

RESPONSE TO COMMENT COMMENTOR NO. 133: RISO NATIONAL LABORATORY (CONT'D.)

Response to Comment No. 133-8

With the exception of cases in which DOE has executed contracts for acceptance of spent nuclear fuel from specific foreign research reactors, DOE considers that neither the DOE nor the United States Government has any legal obligation to accept spent nuclear fuel from foreign research reactors.

COMMENTOR NO. 161: MCMASTER UNIVERSITY

McMASTER UNIVERSITY
NUCLEAR REACTOR
1280 Main Street West, Hamilton, Ontario, Canada L8S 4K1
Telephone: (905) 525-9140 Ext. 23270; Fax: (905) 528-4339
Email: reactor@mcmaster.ca

13 June 1995

Mr. Charles R. Head,
Office of Spent Fuels Management, EM-37
U.S. Department of Energy,
1000 Independence Avenue, SW,
WASHINGTON, DC 20585-0001,
U.S.A.

Dear Mr. Head:

Subject: McMaster Nuclear Reactor's Comments on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.

In reviewing the draft EIS several general comments and some specific ones were formulated. As a member of the Edlow Group we have already tabled our general comments which we will not repeat here for brevity. Likewise our Canadian colleagues from Atomic Energy of Canada Limited (AECL) have stated some general comments addressing the Canadian perspective which we support. We would like, however, to address concerns specific to the McMaster Nuclear Reactor (MNR).

The most important comment from MNR is that the proposed schedule for completion of the Final EIS and the resulting Record of Decision (ROD) be adhered to and, in fact, accelerated as much as possible. As stated on several previous occasions, MNR will run out of spent fuel storage space very early in 1996. The fact that McMaster recently announced that the reactor will be shutdown for decommissioning in January 1996 does not reduce the problem, in fact it may exacerbate it. 161-1

We gather from the wording in Appendix E - Evaluation of Human Health Effects of Overland Transportation, that the truck routes shown in Figure E1-21 - Representative Truck Routes from Eastern Canada to Department of Energy Sites, are just that; representative. The routes shown are those that would be taken for the AECL shipments from Chalk River, Ontario, entering United

.... continued

RESPONSE TO COMMENT
COMMENTOR NO. 161: MCMASTER UNIVERSITY

Response to Comment No. 161-1

DOE intends to complete work on this EIS as soon as practicable. However, in completing this effort, DOE must comply with NEPA and applicable internal DOE procedure and regulation which require a thorough review of the document and the analyses contained therein, and approval by all appropriate officials, including the Secretary. In accordance with NEPA, DOE anticipates issuing the Record of Decision no sooner than 30 days after publication of the final EIS.

States at Alexandria Bay, NY. The route from MNR is not shown but presumably, from the wording - representative - could be used. That route, approved by the USNRC for many shipments in the past, enters United States at Buffalo, NY and then follows I-190 south to I-90, I-90 west to I-79, I-79 south to US-48, US-48 east to US-40, US-40 east to I-70, and I-70 south to I-81 where we are back on the route shown in Figure E1-21 to the Savannah River Site (SRS). Our comment is to ensure that the MNR route to SRS be explicitly included if it is not implicitly included by the word "representative". 161-2

We congratulate DOE on bringing the return of foreign spent fuels issue to a point where a favourable resolution seems imminent. We trust that DOE's commitment to this policy will not be derailed by side issues and look forward to the issuance of the Final EIS in early September. 161-3

Yours truly

Peter C. Ernst
Reactor Manager

cc: Guy Saint-Jacques, Canadian Embassy, Washington
Jack Edlow, Edlow International
W. J. Garland, MNR

Response to Comment No. 161-2

The word representative does allow for the inclusion of additional routes. Representative routes were chosen for the purpose of risk analysis. On the other hand, the shipments from the MNR reactor could travel over Canadian roads to enter the United States at Alexandria Bay, NY. The shipper would request that the NRC approve its exact route before each shipment or campaign of shipments.

Response to Comment No. 161-3

The commentor's preference for acceptance of the spent nuclear fuel from foreign research reactors into the United States is noted (Section 2.2 and 2.4 of the EIS, Management Alternative 1 or 3).

COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION

AUSTRALIAN NUCLEAR SCIENCE
& TECHNOLOGY ORGANISATION

LUCAS HEIGHTS RESEARCH LABORATORIES NEW ILLAWARRA ROAD, LUCAS HEIGHTS, NSW

PRIVATE MAIL BAG 1
MENAI NSW 2234

14 June, 1995

Mr Charles Head
Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
US Department of Energy
1000 Independence Avenue, SW
WASHINGTON DC 20585
USA

by fax: 1-202-586-5256

Dear Mr Head

ANSTO Comments on Draft EIS, DOE/EIS-0218D of March 1995

The Australian Nuclear Science and Technology Organisation (ANSTO) is grateful for the opportunity to comment on the *Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.*

ANSTO's comments on the Draft EIS are attached and we trust these will be taken into account in the finalisation of this important document. In summary, we are highly supportive of the proposal which we believe will serve well the interests of nuclear nonproliferation as well as meeting existing USDOE obligations to research reactor operators.

Yours sincerely

John Rolland

John Rolland
Director, Information Services

ansto

Telephone (02) 717 3111 • Telegram Ansto Sydney • Facsimile (02) 543 5097 • Telex AA 24562

RESPONSE TO COMMENT
COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION

COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION COMMENTS ON DRAFT EIS ON A PROPOSED NUCLEAR WEAPONS NONPROLIFERATION POLICY CONCERNING FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL

GENERAL

We greatly welcome the issue of this Draft EIS on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel. The quality of the report is of a very high standard and the coverage comprehensive. The analysis provided in the EIS is convincing and a more than adequate basis to support the conclusions that the policy to accept foreign research reactor fuel will have an extremely low health and environmental impact. 164-1

We particularly welcome the clear statement that the objective of the policy is to secure for the United States the nonproliferation benefits of reducing, and ultimately eliminating, HEU from civilian commerce. We believe that the proposed policy will produce real nonproliferation gains by reducing the quantities and locations of HEU holdings around the world. It follows that where the EIS offers alternatives or proposes conditions or criteria for participation, then only those alternatives, criteria or conditions that lead to maximising the return of HEU to the US, and hence maximising the benefits to the US, should be seen as meeting the basic objectives of the EIS. 164-2

It follows from the above that of the major options analysed the clearly preferred approach should be the Basic Implementation of Management Alternative 1, as this approach fully maximises the quantity of returned spent fuel and is thus likely to be most successful in addressing the fundamental objectives of the policy. 164-3

We feel that in assessing the environmental impact of this proposed policy it is important to keep in perspective that the total amount of foreign research reactor spent fuel considered for return to the US (less than 20 tonnes HM) is only a tiny fraction of the existing US holdings of DOE research reactor (2,700 tonnes) or commercial power reactor (28,000 tonnes) spent fuel. 164-4

Finally, it is noted that the EIS is jointly the responsibility of the United States Department of Energy and the United States Department of State. We consider this to be highly appropriate and would suggest that this fact be reflected by inclusion of Department of State on the Cover of the EIS as joint sponsor. 164-5

In addition to these general comments we have a number of suggestions to offer regarding details of the EIS which we feel would further improve the technical soundness of the case. These suggestions and comments are provided in the following section.

1

RESPONSE TO COMMENT
COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

Response to Comment No. 164-1

The commentor's acknowledgment that the analysis in the EIS supports the conclusion of low human health or environmental impacts as described in Section 4 of the EIS, is noted.

Response to Comment No. 164-2

The commentor's position on the need for reduction of HEU in civilian commerce is noted.

Response to Comment No. 164-3

The commentor's support for the basic implementation of Management Alternative 1 as described in Section 2.2.1 of the EIS is noted.

Response to Comment No. 164-4

As discussed in Section 2.2.1.3 of the EIS, the amount of foreign research reactor spent nuclear fuel to be managed under the proposed action is less than 1 percent of the total mass of heavy metal that DOE currently manages as spent nuclear fuel. The environmental impacts evaluated in Section 4 of the EIS reflect the management of the foreign research reactor spent nuclear fuel portion.

Response to Comment No. 164-5

In compliance with the National Environmental Policy Act and Council on Environmental Quality Regulations (Section 5 of the EIS), DOE is the lead agency for the proposed action, and the Department of State is a cooperating agency. While DOE assumes primary responsibility for preparation of this EIS, the document was developed under consultation with the Department of State. It is customary to include the names of the lead agencies on the cover of the EIS and acknowledge the cooperative agencies in the text of the EIS. Omission of the cooperating agency's status on the cover is not intended to diminish the Department of State's significant contributions to this EIS.

COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

DETAILED COMMENTS

Reprocessing Wastes - Throughout the EIS these are frequently referred to as high level wastes and vitrified HLW. For example in the Summary Volume on p 11, p 24, and p 45. Our understanding is that the UK reprocessor does not produce a vitrified HLW waste form but that the waste is cemented and of such low heat generation and activity that it does not qualify as HLW but rather is long-lived ILW. This distinction can be important for some disposal options and should be recognised in the EIS. 164-6

Costs/charges - The cost estimates, eg on p47 of the Summary, seem inflated. If these costs were to be charged on a full cost recovery basis the charges would certainly not be competitive with other current reprocessors and would be several times the charges previously levied by USDOE or included in earlier USDOE reprocessing contracts. Such charges would clearly undermine the policy and cause foreign research reactor operators to seek alternative solutions such as overseas reprocessing which is only available for HEU fuels. This would perpetuate the undesirable worldwide holdings of HEU and continuation of HEU use, contrary to the intended impact of the policy. We note that the US Government Accounting Office has recommended, in GAO/RECD-94-119 (p14), that the DOE should assess the operators of foreign research reactors a charge for returned spent fuel that balances the need to minimise the cost burden on the US with the reactor operators' need for a reasonable affordable charge. We strongly endorse this approach. We further point out that the fundamental objective of the policy is not to provide a commercial service for the foreign research reactor operators but to support US nonproliferation policies: it is also meeting commitments given to foreign research reactor operators over many years, including contractual obligations in some cases. We therefore consider that the US should clearly expect to meet a significant part of the resultant cost in obtaining these nonproliferation benefits. 164-7

Specific Comments on Vol 1

Management Alternative 2 generally - We give little support to this alternative as it would result in a perpetuation of overseas storage and/or processing of HEU which is directly contrary to the objectives of the EIS. However, should this option be adopted we make the point that Australia is one of those countries without a nuclear power industry that is not in a position to readily take back reprocessing wastes. We would therefore look for any wastes to be accepted by the US for storage and ultimate geologic disposal. 164-8

P 2-55, Section 2.6.5.2 - In connection with "chemical separation", the statement is made that "Vitrification of the high-level waste is the preferred waste management approach." We would see benefit in having a range of approaches available to optimise waste management on the basis of, for example, whether the waste is really HLW or, in some cases, ILW, and depending on what specific disposal alternatives are available. For some circumstances cement or Synroc or other wasteforms might be preferable to glass. 164-9

2

RESPONSE TO COMMENT
COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

Response to Comment No. 164-6

In the United States, the waste stream from chemical separations that contains most of the fission products is always termed high-level waste, independent of the specific activity. The cemented waste produced at the Dounreay site would not be acceptable in the United States. The possible exchange of vitrified high-level waste from Sellafield for cemented waste from Dounreay is discussed in Section 4.4.2.3 of the EIS.

Response to Comment No. 164-7

The price of overseas reprocessing would be a consideration in establishing the U.S. price (not cost) for management of spent nuclear fuel accepted from developed countries. The analysis in the final EIS assumes that the price of foreign reprocessing is similar to the cost of chemical separation in the United States.

The requirement that countries reprocessing at Dounreay (or Marcoule) accept the return of their high-level waste is a factor that these countries must consider in deciding how to proceed. For countries without waste handling capability, accepting the waste would not be feasible. For countries with waste handling capability, especially those with large-scale power reactor programs, accepting the waste could be acceptable.

One alternative is for the United States to base its fee on the competitive fees charged by others, notably Dounreay. These fees would have to be adjusted for factors such as the ultimate acceptance of the high level waste. For developed countries, affordability would be treated in the context of the cost to the foreign research reactors for alternatives to U.S. acceptance, not the revenues or budgetary factors affecting the foreign research reactor operators.

Response to Comment No. 164-8

The commentor's opposition to Management Alternative 2 is noted. The fact that Australia has no nuclear power infrastructure is also noted.

Response to Comment No. 164-9

See the response to Comment 164-6, above.

COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

P 3-3, Section 3.1.2 - It is mentioned that seawater naturally contains around 1 pCi/L of uranium radioactivity as a baseline for assessing potential impacts on the marine environment. It would place marine radioactivity into a more accurate perspective if the EIS also showed the 300 pCi/L of potassium-40 radioactivity that is also ubiquitous in seawater. 164-10

Pp 4-9 to 4-10 - The assessment that the population dose to ships' crews for the entire 13 year program would not exceed 85 person-rem for the case of regularly scheduled commercial ships and 75 person-rem in the case of chartered ships is certainly a convincing demonstration that the impact on crew will be inconsequential. However, given the precision of the estimates and underlying assumptions, the difference between 85 person-rem and 75 person-rem does not permit the conclusion on page 4-9 that "the use of a chartered ship represents the means of shipping the foreign research reactor spent nuclear fuel expected to result in lower total crew exposures, and lower overall crew risk for basic implementation of Management Alternative 1." Rather the conclusion should be that "shipment by either mode results in similar, inconsequential exposures and risks to crews and estimated radiation exposure cannot be a basis for preferring one mode of shipping over another." ANSTO considers that the sea shipment of the spent fuel should be in accordance with the internationally agreed provisions of the IAEA Transport Regulations and the IMO Code. Any EIS requirement to use only specially chartered vessels would be unwarranted and would be an extreme financial disincentive against participation, particularly for countries like Australia and other Pacific and Indian Ocean countries where there is no opportunity to aggregate shipments from several countries. Such an outcome would therefore be highly prejudicial to the fundamental objectives of the EIS. 164-11 164-12

P 4-117, Section 4.6 and data in Section 4.7 - In these sections and throughout the EIS it is suggested that the No Action Alternative will have no impact within the US. This is not correct, at least at the inconsequential scale of the many other impacts that are examined in great detail in the EIS. As stated in the EIS the US currently relies on overseas research reactors for essentially 100% of its medical radioisotopes. It is also acknowledged that adopting the No Action Alternative will inevitably lead to the closure of a number of these overseas reactors. It follows directly that in this circumstance the availability of medical radioisotopes to the US will decrease with obvious detrimental public health impact in the US. Alternatively, the US could address any shortfall by establishing major isotope production operations at its own research reactors. The radiation exposures and risks from such an implication, though undoubtedly very small, should nonetheless be counted as a detriment against the No Action Alternative as they would be a direct consequence of adopting this alternative. 164-13

ANSTO Specific Comments (Volume 2 refers)

Number of fuel elements from Australia included - We note that 975 elements are shown as the Australian total of US-origin elements up to year 2006 (Table 2-1), while Table B-9 shows 785 elements up to year 2001. We note that in arriving at these 164-14

3

RESPONSE TO COMMENT
COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

Response to Comment No. 164-10

Mention of non-uranium radioisotopes found in seawater has been added to Section 3.1.2 of the EIS.

Response to Comment No. 164-11

The section cited by the commentor (Section 4.2.1.2 of the EIS) has been revised to indicate that the selection of chartered or regularly scheduled ships would be based on several factors, including crew exposures and costs.

Response to Comment No. 164-12

DOE agrees with the commentor. The analysis in the EIS demonstrates that the use of commercial ships is a viable means to transport the foreign research reactor spent nuclear fuel.

Response to Comment No. 164-13

Most of the radioisotopes used in nuclear medicine in the United States (Section 1.1 of the EIS) come from foreign research reactors. In the event that foreign research reactors that supply medical isotopes to the United States were forced to shut down, it would be necessary to find alternative foreign suppliers or augment capabilities for domestic production of medical radioisotopes. Construction of a new reactor, if these shutdowns occur and if a new reactor in the United States were required, would have to be addressed under a separate environmental document.

Response to Comment No. 164-14

The intent of the proposed action is to support U.S. nuclear weapons nonproliferation policy. The policy is limited to those spent nuclear fuel elements that contain uranium enriched in the United States (Sections 1.3 and 2.1 of the EIS). DOE and the Department of State consider that only 50 percent of the spent nuclear fuel elements in question contain U.S.-origin enriched uranium. It is the amount of U.S.-origin material that is of concern to the United States, and not the precise atoms or molecules which must be accounted for. Therefore, consistent with the policy, 221 out of 441 elements were considered to be acceptable.

COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

numbers the DOE has counted some 441 HIFAR fuel elements that contain both US-origin and UK-origin HEU as if they are only 220 US-origin elements. This is a curious and arbitrary decision because it serves to unnecessarily deprive the US of the nonproliferation benefit of the return of the additional 221 elements that could otherwise be achieved if all the elements containing US-origin HEU were included. The physical facts are that all 441 relevant elements contain US-origin HEU, all 441 elements have been regularly included in the US-origin inventory that Australia is required to submit to US authorities and all 441 elements have been accepted by US authorities as being part of the Australian inventory of US-origin HEU. It is contrary to the objectives of the EIS to omit these additional 221 elements from the EIS and hence deny the US the benefits of their inclusion so clearly spelt out in the EIS. 164-14 (Cont'd.)

MOATA Status, Table B-6 - In line with the recent ANSTO Board decision to cease operating Moata at the end of May 1995, it would now be appropriate to have Moata moved to the category of "Shutdown Reactors Possessing HEU Fuel". The IAEA has been formally advised of the shutdown of Moata. 164-15

LHRL-120 Configuration - The statement on the bottom of page B-21 that LHRL-120 has only one internal configuration and can accommodate only a specific type of spent nuclear fuel is incorrect and should be deleted as it could have commercially prejudicial impact. LHRL-120 holds the fuel in removable baskets just like IU-04, and these can be manufactured to accommodate the different geometries of a wide range of fuels, subject only to the decay heat/activity and criticality limits of the certificate. (This would not however change the "bounding cask" decision for the EIS.) 164-16

Finally, we are disappointed to note that nowhere does the EIS indicate that USDOE has legal obligations in the form of a signed contract with ANSTO to take back US-origin spent fuel and that failure to proceed with this policy could expose DOE to legal proceedings for redress. Indeed, failure to honour this commitment has already lead to the Australian Government reviewing its options for the management of spent research reactor fuel and may force Australia to consider conditioning its spent fuel into a more stable and more amenable wasteform for storage and ultimate disposal, recognising that waste acceptance criteria for direct disposal of research reactor spent fuel in a repository have not been developed. Australia's unique and large holdings of UK-origin, US-origin and unobligated (Australian-origin) HEU spent fuel lend some attraction to this domestic conditioning option in the circumstances of uncertain and expensive overseas options. 164-17

Australian Nuclear Science and Technology Organisation
June 1995

4

RESPONSE TO COMMENT
COMMENTOR NO. 164: AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY ORGANIZATION (CONT'D.)

Response to Comment No. 164-15

Table B-3 of Appendix B has been revised and the status of MOATA reactor is changed to Shutdown Reactors Possessing HEU Fuel.

Response to Comment No. 164-16

The reference to LHRL-120 in Appendix B (page B-21) of the EIS was only intended to indicate that a variety of certified spent nuclear fuel transportation casks (including basket and internals) are available. Currently, the LHRL-120 does not have a certification to use fuels other than the one that it is specifically designed for, which is HIFAR spent nuclear fuel. The IU-04 transportation cask has already been certified to carry different baskets and fuels. Nevertheless, Appendix B, Section B.1.6 has been revised to avoid any commercially prejudicial impact.

Response to Comment No. 164-17

It is DOE's position that neither DOE nor the United States Government has any legal obligation to accept spent nuclear fuel from foreign research reactors.

COMMENTOR NO. 199: COMMONWEALTH DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

COMMONWEALTH DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY
EDMUND BARTON BUILDING, BARTON ACT
Postal Address: GPO Box 858, Canberra ACT 2601 Tel: (06) 272 3933 Telex: 62189 Fax: (06) 272 5161

Mr Charles Head
Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
US Department of Energy
1000 Independence Avenue, SW
WASHINGTON DC 20585
USA

Dear Mr Head

The Australian Department of Primary Industries and Energy (DPIE) which has responsibility for radioactive waste management policy in Australia, welcomes the opportunity to comment on the *Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.*

Australia has given long standing international support to policies which contribute to nuclear non-proliferation. Most recently Australia made a significant contribution to achieving indefinite extension of the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT). Australia's efforts complemented the US approach to achieve this objective. DPIE believes that continuance of US policy on the return of spent research reactor fuel will also contribute considerably to non-proliferation.

DPIE would therefore wish to place on record its support for the policy and the maintenance of non-proliferation as the primary objective throughout the draft EIS. DPIE supports full implementation of Management Alternative 1 and believes that the draft EIS convincingly supports the conclusion that the policy will have minimal environmental impact. *199-1*

On a more practical level, it is important to state that as Australia does not have a nuclear power industry, it is not in a position to readily accept for storage or disposal waste from the reprocessing of research reactor spent fuel. *199-2* Australia has therefore come to rely on undertakings given by the US over the past thirty years that it will repatriate research reactor spent fuel of US origin. We should add that we consider that there is also a contractual commitment in place on the part of the US to take back research reactor spent fuel of US origin. *199-3*

Lastly, full implementation of Management Alternative 1 would also greatly assist in Australia's considerations on a replacement research reactor. A decision in this regard is dependent on the satisfactory resolution of the management of our existing inventory of spent fuel. *199-4*

RESPONSE TO COMMENT
COMMENTOR NO. 199: COMMONWEALTH DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

Response to Comment No. 199-1

The commentor's support for the proposed action, the maintenance of nonproliferation and the full implementation of Management Alternative 1, as described in Section 2.2 of the EIS is noted.

Response to Comment No. 199-2

DOE acknowledges that Australia is not in a position to readily accept for storage or disposal waste from the reprocessing of research reactor spent nuclear fuel. This alternative is discussed in Sections 2.3 and 4.4.2 of the EIS.

Response to Comment No. 199-3

It is DOE's position that neither DOE nor the United States Government has any legal obligation to accept spent nuclear fuel from foreign research reactors.

Response to Comment No. 199-4

DOE does not wish to complicate Australia's decisions regarding a replacement research reactor. Nevertheless, as specified in Section 2.1 of the EIS, spent nuclear fuel (either HEU or LEU) would not be accepted from any new research reactor starting operation after the implementation date of any new foreign research reactor spent nuclear fuel management policy. Accordingly, this comment is beyond the scope of the EIS.

Commentor No. 199: Commonwealth Department of Primary Industries and Energy (Cont'd.)

2

In summary our views should be seen as supportive of Management Alternative 1.

Yours sincerely

R N Rawson
Assistant Secretary
Uranium & Nuclear Policy Branch

13 June 1995

Response to Comment
Commentor No. 199: Commonwealth Department of Primary Industries and Energy (Cont'd.)

COMMENTOR NO. 214: EURATOM SUPPLY AGENCY

950623

EURATOM-VERSORGUNGSAGENTUR
EURATOM SUPPLY AGENCY
AGENCE D'APPROVISIONNEMENT D'EURATOM

Brussels, 15 VI. 1995
JM257jm/jmc

Fax No. 1-202-586 5256

Mr. Charles Head
Office of Spent Fuel Management,
EM-37
US Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0001

Subject: Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Dear Mr. Head,

The Euratom Supply Agency welcomes the completion and publication of the subject Draft Environmental Impact Statement (EIS). We regret that it took so long to arrive at the decision to prepare such a draft EIS given the hardship on the reactor operators for having to store their spent fuel for much longer than could reasonably be anticipated.

The return of spent research reactor fuel originally supplied by the United States is vital, in particular for countries which do not have a commercial nuclear power programme and which therefore have no sites for the disposal of spent nuclear fuel/waste. As these countries have relied on assurances provided by the United States for the final disposal of their spent fuel, it would be highly uneconomical and unreasonable for them now to have to build repository sites for minute quantities of fuel or high level waste. 214-1

Some reactor operators are under intense pressure to remove spent fuel from their sites to be able to justify continued operation or to decommission the reactors. Any further delays by DOE in completing the EIS, or in issuing a Record of Decision, would create emergency situations which should be avoided.

Yours sincerely,

M. Goppel
Director-General

Postal address: Rue de la Loi 200, B-1049 Brussels, Belgium - MDB 605
Telephone: direct line (+32-2)295.23.99 exchange 299.11.11 Telex: COMEU B 21877 . Fax: 295.05.27
Office address: Rue du Luxembourg 46, B-1040 Brussels, Belgium

RESPONSE TO COMMENT
COMMENTOR NO. 214: EURATOM SUPPLY AGENCY

Response to Comment No. 214-1

The commentor's support for Management Alternative 1, as described in Section 2.2 of the EIS, is noted.

Commentor No. 216:
Physikalisch-Technische Bundesanatalt

W. Hajek In

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

PTB

Physikalisch-Technische Bundesanstalt Postfach 33 45 38023 Braunschweig

Charles Head, Program Manager
Office of Spent Nuclear Fuel
Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
U.S.A.

Ihr Zeichen, Ihre Nachricht vom	Unser Zeichen, unsere Nachricht vom	Telefon	Datum
	7.11/95/Haj-wa	7110	16.06.95

Comment on: Published Draft Environmental Impact Statement on a Proposal Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Dear Charles Head

First of all, we like to thank you for your extraordinary efforts which led to the publication of the Draft EIS, highly appreciated by us.

We are memeber of the so-called 'Edlow Group' and support the comments which have been filed through this Group on behalf of the foreign Research Reactor group members.

In addition, with reference to the our specific facility - the FMRB reactor - we believe it is imperative that DOE supplements ist eligibility criteria on page 2-5 of Volume 1 of the Draft EIS to include following language:

„Spent nuclear fuel (HEU) would be accepted from research reactors (e.g. FMRB of PTB) planning to shut down by a specific date and which, although they have not yet converted to LEU fuel, consume only that HEU fuel which was already previously purchased and is available on site." *216-1*

We believe, this language is essential to minimize the likelihood of ambiguity or confusion in the existing language.

Hausanschrift: Bundesallee 100 38116 Braunschweig Deutschland
Telefon (Zentrale): (0531) 592 0 Telefax: (0531) 592 92 02
Bundeskasse Hannover Postbank Berlin-304 (BLZ 200 100 20) Bundeskasse Hannover LZB Hannover 250 01 000 (BLZ 250 000 00)
PTB Berlin-Charlottenburg Abbestraße 2-12, 10587 Berlin PTB Berlin-Friedrichshagen Fürstenwalder Damm 388, 12587 Berlin

Response to Comment
Commentor No. 216:
Physikalisch-Technische Bundesanatalt

Response to Comment No. 216-1

DOE considers that the discussion in Section 2.1 of the EIS under Qualifying Fuel Types and Policy Stipulations is appropriate. The proposed policy is not intended to cover spent nuclear fuel from foreign research reactors that plan to shutdown at a date beyond the expiration of the policy.

COMMENTOR NO. 216: PHYSIKALISCH-TECHNISCHE BUNDESANATALT (CONT'D.)

We count on your continued co-operation and like to thank your for unterstanding of our urgent need of a successful implementation of this Policy.

Yours faithfully

i.A. Walter Hajek

Address Correspondence to:

Physikalisch-Technische Bundesanstalt
Walter Hajek
Bundesallee 100
38023 Braunschweig
Tel. +int+ 531 592 7110
Fax +int+ 531 592 7015
Email: Walter.Hajek@.PTB.DE

RESPONSE TO COMMENT
COMMENTOR NO. 216: PHYSIKALISCH-TECHNISCHE BUNDESANATALT (CONT'D)

COMMENTOR NO. 258: STUDSVIK

Studsvik

Handläggare - Matter handled by

Datum - Date
June 16, 1995
Ert datum - Your date

1(2)
Vår referens - Our reference
LE/Kdt
Er referens - Your reference

Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
USA

Comments of Studsvik AB on DOE's Draft Environmental Impact Statement on a Proposed Nuclear Weapons Non-proliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

Studsvik AB is pleased to have the opportunity to comment on DOE's Draft Environmental Impact Statement DOE/EIS-0218D released in April 1995 and discussed at DOE's public hearing held on May 31, 1995 in Washington DC.

These comments are made in addition to the comments of the Edlow Group submitted jointly by 14 research reactor operators including Studsvik AB.

Three management Alternatives listed in the Draft EIS are understood as follows:

1 Acceptance and management of foreign fuel from US enrichment origin at DOE sites – with interim storage or near-term chemical separation in the US.

2 Facilitation of financial and technical assistance to foreign research reactor operators to store SNF at their sites – or ship it for reprocessing at French or British facilities.

3 Development of a hybrid approach, using a combination of the first two alternatives.

Of these three Management Alternatives, Studsvik finds only Alternative 1 to be totally acceptable as it is listed. 258-1 However, Studsvik could support and participate in the development and implementation of Alternative 3, ***provided that reprocessing or chemical separation was not*** an integral part of the approach. 258-2 Reprocessing of the SNF is not an acceptable option for Studsvik since it involves relinquishing control of the fuel to a foreign nation(s).

RESPONSE TO COMMENT COMMENTOR NO. 258: STUDSVIK

Response to Comment No. 258-1

The commentor's support for Management Alternative 1, as described in Section 2.2 of the EIS, is noted.

Response to Comment No. 258-2

The commentor's qualified support for Management Alternative 3 as long as no reprocessing or chemical separation is included, is noted. Management Alternative 3 is described in Section 2.4 of the EIS.

Studsvik

Handläggare - Mottor handled by

Datum - Date
June 16, 1995
Ert datum - Your date

2(2)
Vår referens - Our reference
LE/Kdt
Er referens - Your reference

The cost for the take-back of the spent fuel is very important but is not clearly addressed in the EIS.

Too high a cost level would jeopardize the take-back and would also force research/test reactors to shut down. The price level for irradiation services provided by research/test reactor including radioisotope production are generally too low to balance a significant increase of the cost for the take-back of the spent fuel. 258-3

The cost structure should distinguish between HEU-fuel and LEU-fuel.

In the joining of the RERTR-program for conversion from HEU to LEU reactor operators were promised that those converting to LEU would not be penalized economically or competitively compared to those sticking to HEU. 258-4

In reality, operating the reactor with LEU-fuel is about 20 % more expensive than operating with HEU-fuel taking into account differences in the cost for fresh fuel and reactor capacity.

In order to restore balance economically or competitively the cost for the take-back of an LEU-element need to be 20 % lower than for an HEU-element.

It should be noted that an LEU-fuel element is typically 55 % heavier than an HEU-element of the same type and dimensions. Thus, the cost for the take-back should not be related to the weight of the fuel element but rather to the volume. 258-5

The next shipment of HEU-elements from Studsvik needs to take place in February 1996. This is the time point when HEU-elements have decayed to such a low radiation level that the requirements for self protection are no longer fulfilled. 258-6

Sincerely yours

STUDSVIK AB

Töive Kivikas

Response to Comment No. 258-3

DOE agrees that if the fee charged for any spent nuclear fuel management activities that might be undertaken by DOE were too high, some research reactor operators would choose not to participate. DOE is addressing this issue by studying ways to keep the cost of any spent nuclear fuel management activities as low as a possible, including possible fee levels. However, DOE prefers not to use the EIS as the vehicle through which to establish the fee which would be charged if DOE does decide to implement foreign research reactor spent nuclear fuel management activities. Instead, the fee would be specified in a Federal Register notice, as it was under the Off-Site Fuels Policy.

Response to Comment No. 258-4

Since its inception in 1978, the goals of the RERTR program have been to convert research reactors to LEU fuel without decreasing their safety and without significantly affecting their performance.

In the mid-1980's, an extensive joint study on LEU conversion of the R2 reactor was performed by Studsvik and the Argonne National Laboratory. The study involved analyses of both reactor performance and fuel cycle economics, and the testing of LEU fuels in the R2 reactor. The studies concluded that an LEU fuel element containing 400 grams of U-235 would give a cycle length of 24 days and would be a good comparison between considerations of fuel economy and performance. This fuel element was used for LEU conversion of the R2 in the early 1990's. For comparison purposes, the HEU fuel element with 250 grams of U-235 that was used in the R2 reactor for many years had a cycle length of only 17 days. To provide future options for more economical operation, an LEU fuel element containing 490 grams of U-235 was successfully tested in the R2 reactor in the late 1980's.

A cost structure that fairly distinguishes between the acceptance costs for HEU and LEU fuel elements for all reactors covered by the proposed action would not be practical. Each reactor that has undergone conversion has different fuel cycle economic circumstances, and substantial documentation of operating costs would be required. Instead, Studsvik may wish to give serious consideration to increasing the U-235 loading of the R2 fuel elements in order to make both the front end and the back end of the R2 fuel cycle more economical.

COMMENTOR NO. 258: STUDSVIK (CONT'D.)

RESPONSE TO COMMENT
COMMENTOR NO. 258: STUDSVIK (CONT'D.)

Response to Comment No. 258-5

DOE is considering a number of options for final disposal of spent nuclear fuel that may be accepted into the United States under the proposed action. While no decisions on final disposition have been made, initial analyses indicate that many of the final disposition costs are related to the weight of a spent nuclear fuel element, rather than to its volume. On this basis, DOE plans to continue to use the final delivered weight of the spent nuclear fuel elements for purposes of costing the actions that might be undertaken subsequent to completion of this EIS.

Response to Comment No. 258-6

The commentor's statement that Studsvik needs to ship HEU elements by February 1996 because the elements have decayed to a point where their radiation level will no longer be self-protecting is noted.

COMMENTOR NO. 261: MULL AND IONA WASTE WATCHERS

MULL AND IONA WASTE WATCHERS

Hazel O'Leary,
Energy Secretary
USA Department of Energy,
1000 Independence Avenue SW,
Washington, DC 20585

Kinloch Steadings,
Isle of Mull,
Scotland, PA70 6HB.

19 June 1995

Dear Hazel O'Leary,

Proposal to Re-process Highly Enriched Urasium at Dounreay, Scotland

We understand that the US Department of energy is considering options for dealing with the spent fuel rods constituting the balance of the highly enriched uranium which the USA supplied to various countries during the Atoms for Peace Era. Since 1988 it has not, of course, been possible to re-process this material in the USA following action by environmental groups.

We are one such group in the UK and are perturbed to learn that one of the options under consideration is to contract for the re-processing of part of this material at Dounreay in Scotland.

We can only assume that you are unaware of the problems at this installation, some of which were revealed in the second report of the UK Committee on Medical Aspects of Radiation in the Environment, published on 13 June. The original Fast Reactor, which ceased operation in 1977, still contains jammed fuel rods, and no way has yet been found to remove these or the fuel coolant. Areas surrounding Dounreay, including the cliffs to the east and the slipway are contaminated with radio-active material and radio-active particles have been found on the foreshore. There is also a 65 metre shaft in which radio-active wastes were dumped and in which there was an explosion in 1977 caused by sodium and potassium reacting with water seeping through the fractured rock: test bores have found contamination in this rock. There is no record of what the shaft contains and no safe way of clearing it has yet been identified. Nevertheless the management is now applying for planning permission for new waste pits. There have been safety violation incidents at Dounreay in six of the last seven months. Further, the re-processing installation is now 40 years old and said to be in poor shape. We have, therefore, no confidence in the safety of future operations on this site. 261-1

It this were not enough, we understand that the proposal calls for the transport of twenty shipments a year of highly radio-active fuel rods across the UK by narrow and congested roads or by rail through thickly populated areas in which most people would oppose such an operation. Transport by sea would involve the passage of dangerous and environmentally sensitive waters.

We accordingly write to urge you to reject the option of re-processing the fuel rods at Dounreay We further urge you to bear in mind that such a course would add to the existing stock-pile of nuclear waste, and to recognise that whilst no environmentally benign means of its disposal has been found every effort should be made to avoid its further accumulation.

Yours sincerely,

A.B. Gardner,
Hon. Secretary.

RESPONSE TO COMMENT
COMMENTOR NO. 261: MULL AND IONA WASTE WATCHERS

Response to Comment No. 261-1

The commentor's opposition to reprocessing at Dounreay (Management Alternative 2, Subalternative 1b) is noted. This alternative is discussed in Sections 2.3 and 4.4.2 of the EIS. If any foreign research reactor spent nuclear fuel were to be sent to Dounreay for reprocessing as a result of decisions made after completion of this EIS, that action would be subject to regulation and oversight under the laws of the United Kingdom, including consideration and any required resolution of issues such as those discussed by the commentor.

Commentor No. 268: Japan Atomic Energy Research Institute

Japan Atomic Energy Research Institute

2-4, Uchisaiwai-cho 2-chome, Chiyoda-ku, Tokyo 100
Telephone: (03) 3592-2305
Facsimile: (03) 3580-6107
Telex: J24568
Cable: JAERIRIPPON TOKYO
Our ref.:

June 9, 1995

Mr. Charles Head
Office of Spent Nuclear Fuel Management(RW-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
U.S.A.

Dear Mr. Head,

Enclosed please find a copy of our comments on the Department of Energy's Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy concerning Foreign Research Reactor Spent Nuclear Fuel.

I would appreciate your kind consideration of the above.

Sincerely yours,

Eiji Shirai

Eiji Shirai
Director
Office of Safety and Control
Japan Atomic Energy Research Institute

Telephone: (03)3592-2190
Facsimile: (03)3592-2199

[BRANCH]
•TOKAI RESEARCH ESTABLISHMENT, Tokai, Ibaraki 319-11 Tel. (0292) 82-5019, Fax. (0292) 82-5111
•NAKA FUSION RESEARCH ESTABLISHMENT, Naka, Ibaraki 311-02 Tel. (0292) 70-7219, Fax. (0292) 93-1540
•TAKASAKI RADIATION CHEMISTRY RESEARCH ESTABLISHMENT, Takasaki, Gunma 370-12 Tel. (0273) 46-0220, Fax. (0273) 47-2591
•OARAI RESEARCH ESTABLISHMENT, Oarai, Ibaraki 311-13 Tel. (0292) 64-8383, Fax. (0292) 64-8471
•MUTSU ESTABLISHMENT, Mutsu, Aomori 035 Tel. (0175) 22-4211, Fax. (0175) 23-4285

Response to Comment Commentor No. 268: Japan Atomic Energy Research Institute

COMMENTOR NO. 268: JAPAN ATOMIC ENERGY RESEARCH INSTITUTE (CONT'D.)

Comments by Japan Atomic Energy Research Institute
and Kyoto University
on
The Department of Energy's Draft Environmental Impact Statement
on a Proposed Nuclear Weapons Nonproliferation Policy
concerning Foreign Research Reactor Spent Nuclear Fuel

June 1995

We are filing written comments on the draft Environmental Impact Statement (EIS). Although we generally support its analysis, we have great concerns in the following points:

1. The cost estimates by DOE are tremendously high. Statements on the items of the costs, namely, the basis of actual cost, are necessary to be categorized. 268-1

2. Although we are willing to pay a truly cost-based price, any additional fee which would come from the change of the management, is difficult to be paid for budgetary clarification.

3. A failed fuel which would be sealed in a can, needs to be accepted by the U.S. 268-2

4. The Department of Energy shall compensate the reactor operator for uranium in the spent nuclear fuel accepted in the U.S. Such compensation by DOE will consists of providing LEU of equivalent value or financial settlement. 268-3

5. When DOE decided to promote reprocessing of the U.S. origin spent nuclear fuel outside of the U.S., such as the United Kingdom or France, the United States should accept the radioactive wastes resulting from the processing. 268-4

6. Typical transportation casks are illustrated in the EIS. Unfortunately, JAERI's casks, such as JRC-80Y-20T and JMS-87Y-18.5T, are not found in Volume 1 or Appendix B.
Those casks were licensed in the past, and their certificate number were USA/0208/B(U)F and USA/0401/B(U)F-85, respectively. We think that those casks approved by the U.S. Competent Authority, can be used for the transportation of our research reactor spent nuclear fuel. 268-5

Japan Atomic Energy Research Institute is joining in the Edlow Group which is an association of 14 foreign research reactors facilities. We believe that our comments mentioned above, are fundamentally in conformity Edlow's and we support them, firmly.

Finally, we would like to request that a Record of Decision followed by the final EIS will be issued by the end of December 1995 as scheduled.

RESPONSE TO COMMENT COMMENTOR NO. 268: JAPAN ATOMIC ENERGY RESEARCH INSTITUTE (CONT'D.)

Response to Comment No. 268-1

Costs for the important components of the program are based on information received from the Savannah River Site, the Idaho National Engineering Laboratory, the United Kingdom Atomic Energy Authority, shippers of spent nuclear fuel (including Edlow International), and the DOE's Office of Civilian Radioactive Waste Management. Excluding uncertainties, the final EIS shows that the overall costs for chemical separation at the Savannah River Site and geologic disposal of high-level waste in the United States would cost about the same as reprocessing at Dounreay and geologic disposal outside the United States.

Response to Comment No. 268-2

As stated in Appendix F, Section F.6.5 of the EIS, both sound and damaged spent nuclear fuel would be accepted. However, any damaged spent nuclear fuel would have to be canned before shipment. The canning process would ensure that any damaged spent nuclear fuel elements to be shipped is mechanically sound by sealing the damaged elements inside an aluminum or stainless steel can.

Response to Comment No. 268-3

Such compensation is not offered at this time and is not addressed in this EIS.

Response to Comment No. 268-4

Management Alternative 2, Subalternative 1b, involves U.S. assistance in overseas reprocessing and is discussed in Sections 2.3 and 4.4.2 of the EIS. One of the options under this alternative includes the acceptance of the vitrified high-level waste from reprocessing into the United States. The commentor's support for this option is noted.

Response to Comment No. 268-5

Appendix B, Table B-14 of the EIS identifies representative casks that might be used during spent nuclear fuel transport. Other casks could be used if they become available and are approved by the U.S. Department of Transportation.

Commentor No. 270: International Atomic Energy Agency

INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)
WAGRAMERSTRASSE 5, P.O. BOX 100, A-1400 VIENNA (AUSTRIA)
Telephone: +43 1 2360-0 (or ext.) Telex: 112645 ATOM A Facsimile: +43 1 23.45 64

762065 10 JUN 95

DIVISION OF NUCLEAR FUEL CYCLE AND WASTE MANAGEMENT
NUCLEAR MATERIALS AND FUEL CYCLE TECHNOLOGY SECTION

FACSIMILE + 43 1 20607, TELEPHONE: +43 1 2060, Ext. 22759

TO: Mr. Charles Head
Program Manager
Office of Spent nuclear Fuel Management (RM-37)
US Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
USA

INFO COPIES:

DATE:1995-06-19

TOTAL NO. OF PAGES 4

Fax: 202 586 3256

File Ref. 641.T1-T10

MESSAGE:

Dear Charles,

I have only just returned to my Office after the trip that I made to D.C. and on to the Hanford site. I believe that I promised to send you a fair copy of the statement that I made at the Public Hearing on the EIS and a copy of the letter from Mr. Blix to Mr. Michailov.

I hope that the EIS stays on track and is followed by a positive ROD and then promptly by shipments of spent fuel. Congratulations on the excellent job that you did in presenting the EIS in Washington. I look forward to meeting you again, perhaps at the RERTR meeting in Paris next September.

Yours sincerely,

Iain Ritchie

Iain Ritchie
Division of Nuclear Fuel Cycle and
Waste Management

Response to Comment Commentor No. 270: International Atomic Energy Agency

COMMENTOR NO. 270: INTERNATIONAL ATOMIC ENERGY AGENCY (CONT'D.)

Statement made by Dr. I. G. Ritchie of the IAEA at the Public Meeting on the Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, held 31 May 1995 at the Omni Shoreham Hotel, Washington D.C.

My name is Iain Ritchie and I am a Nuclear Engineer in the Nuclear Materials and Fuel Cycle Technology Section in the Department of Nuclear Energy and Safety of the International Atomic Energy Agency (IAEA). The IAEA has supported the Reduced Enrichment for Research and Test Reactors (RERTR) programme since its inception and it goes without saying that the IAEA supports all of the non-proliferation goals of RERTR. When it looked as though RERTR was in jeopardy two years ago, the Director General of the IAEA, Dr. Hans Blix, wrote to Secretary O'Leary urging the Department of Energy to reinstate the lapsed Off-Site Fuels Policy that was threatening to slow down or even reverse RERTR. One of the crisis reactors at that time was Astra, located in Siebersdorf, Austria, which the IAEA has relied upon for the training of safeguards inspectors. Fortunately, Astra was able to ship its spent fuel of US origin under the Emergency Environmental Assessment (EA) last September and is still operating. Other research reactors with similar crises were not as lucky and their crises continue.

The IAEA commends DOE on the draft EIS and trusts that the Record of Decision will be positive and promptly followed by the resumption of shipments of spent fuel of US origin back to the US. The IAEA stands ready to help in any way that it can consistent with its mandate and budgetary constraints.

Once the shipments of fuel from the crisis reactors identified in the Emergency EA have taken place, the IAEA believes that if the driving force for the take-back programme is non-proliferation, the priorities should be the following:

1. Return of fresh (unirradiated) highly enriched uranium (HEU) fuel elements.
2. Return of spent HEU that has lost much of its self-protection through decay of the radioactive species present during long storage times. 270-1
3. Return of spent fuel from facilities thought to have inadequate levels of physical security.
4. Return of spent fuel in poor physical condition from corrosion of the fuel cladding.

The IAEA would very much like to see both RERTR and fuel take-back programmes become universal with the goal of reducing and eventually eliminating all civil commerce in HEU for research reactors. Towards these ends, the Director General of the IAEA, Dr. Hans Blix, wrote a letter on 2 February 1995 to Mr. Victor Michailov, Minister of Atomic Energy of the Russian Federation, suggesting that his country, as a full partner in RERTR, consider taking back spent fuel of Russian origin from foreign research reactors.

RESPONSE TO COMMENT
COMMENTOR NO. 270: INTERNATIONAL ATOMIC ENERGY AGENCY (CONT'D.)

Response to Comment No. 270-1

The commentor's suggestion for prioritization of foreign research reactor spent nuclear fuel shipments is noted. The only prioritization considered in the EIS is for foreign research reactor operators who possess both HEU and LEU fuel, the HEU would have priority (Section 2.1). Any further prioritization is not considered for the purposes of the EIS. DOE would consider the merit of the suggestion, if contractual agreements are made for shipments under a new policy.

COMMENTOR NO. 270: INTERNATIONAL ATOMIC ENERGY AGENCY (CONT'D.)

INTERNATIONAL ATOMIC ENERGY AGENCY

THE DIRECTOR GENERAL

1995-02-02

Sir, Dear Minister Michailov,

I have the honour to refer to the international Reduced Enrichment for Research and Test Reactors (RERTR) programme, which originated in the United States and has become almost world-wide over the last several years with the full participation of your country. The objective of this programme is to limit the use and location of highly enriched uranium (HEU) fuel.

The RERTR programme assists research reactor operators to convert their reactor cores from burning HEU to low enriched uranium (LEU) that is less than or equal to 20% enrichment. When and where the possibility exists, the programme is facilitated and sustained by the ability of the reactor operators to return their spent fuel to the country where it was originally enriched.

The plan in the former USSR was to convert research reactors in two steps, firstly to 36% enrichment and secondly to less than or equal to 20% enrichment. It was implemented in parallel with the original RERTR programme in the United States and has gone a long way to reducing proliferation concerns about research reactor HEU of Russian origin. Nevertheless, to reach and sustain the objective of the RERTR programme, the possibility of your country accepting the return of foreign research reactor fuel of Russian origin should be seriously considered at this stage.

Many foreign research reactor operators with fuel of Russian origin are experiencing problems with the management of their spent fuel. Several spent fuel stores are filled to capacity and there is concern about the integrity of the ageing fuel. The research institutes in question face the prospect of building extra spent fuel storage capacity or permanently shutting down their research reactors. Countries with research reactors but with no nuclear power programme will eventually have to construct permanent spent fuel repositories for relatively small quantities of spent fuel, if the possibility of sending it back to Russia is not offered to them. The cost of such a facility is likely to be much greater than the cost of reprocessing the fuel in its country of origin, and therefore, if the cost of transportation and subsequent reprocessing is reasonable, paying for spent fuel to be reprocessed in its country

The Honourable Victor Michailov
Minister for Atomic Energy
ul. B. Ordynka, 26
101000 Moscow
Russian Federation

./.

WAGRAMERSTRASSE 5, P. O. BOX 100, A-1400 VIENNA, AUSTRIA, TELEX 1 12015, CABLE: NATOM VIENNA, TEL. 2300 [illegible]

RESPONSE TO COMMENT COMMENTOR NO. 270: INTERNATIONAL ATOMIC ENERGY AGENCY (CONT'D.)

COMMENTOR NO. 270: INTERNATIONAL ATOMIC ENERGY AGENCY (CONT'D.)

of origin could be an attractive proposition for the research institute in question. Some of the research facilities concerned by this question are the only sources of radioisotope production for medical uses in these countries and their closure would limit the benefits of nuclear medicine and hinder the progress of fundamental science in many disciplines.

I am fully aware that certain legislative difficulties will be encountered when trying to address the issue of foreign research reactors returning their spent fuel to Russia. Nevertheless, the Agency hopes that your Ministry will manage to present convincing political, non-proliferation and economical arguments to overcome such difficulties and initiate appropriate changes in legislation. On 1 July 1993, I wrote a similar letter to the Secretary of Energy of the United States of America urging the Department of Energy to reinstate its Off-Site Fuels Policy for the return of foreign research reactor fuel of U. S. origin. There are also legal barriers in the U. S. that have to be overcome before the acceptance of foreign research reactor fuel can take place. To comply with the National Environmental Policy Act the U. S. Department of Energy is legally bound to prepare a full Environmental Impact Statement (EIS), leading to a Finding of No Significant Impact, before acceptance of foreign research reactor spent fuel can be reinstated. The preparation of such an EIS is well advanced.

If the RERTR programme goals could be achieved and both major supplier countries, the U. S. and Russia, take back spent research reactor fuel, international trade in HEU for research reactors will almost completely disappear and spent HEU fuel will be safely stored in only a few locations.

The Agency stands ready to help in this worthwhile international endeavour in any way it can, consistent with its mandate and budgetary constraints.

Accept, Sir, the expression of my highest consideration.

With best personal regards

Yours sincerely,

Hans Blix

Hans Blix

RESPONSE TO COMMENT COMMENTOR NO. 270: INTERNATIONAL ATOMIC ENERGY AGENCY (CONT'D.)

Commentor No. 272: Embassy of the Federal Republic of Germany

EMBASSY
OF THE
FEDERAL REPUBLIC OF GERMANY
WASHINGTON, D.C.

Dear Mr. Head:

I have the honor of presenting to you the enclosed message from the German Foreign Office regarding nuclear weapons nonproliferation policy.

Peter Wenzel-Constabel

(Counselor, Science and Technology)

Washington, D.C., June 19, 1995

Mr. Charles Head, Program Manager
Office of Spent Nuclear Fuel, Management (EM-37)
US Department of Energy
1000 Independece Avenue, SW
Washington, DC 20585, USA

Response to Comment Commentor No. 272: Embassy of the Federal Republic of Germany

COMMENTOR NO. 272: EMBASSY OF THE FEDERAL REPUBLIC OF GERMANY (CONT'D.)

Comments on the draft environmental impact statement on a proposed nuclear weapons nonproliferation policy concerning foreign research reactor spent nuclear fuel.

The government of Germany welcomes the opportunity to comment on the draft environmental impact statement related to the policy of the US government concerning spent fuel from foreign research reactors.

Germany has always strongly supported the policy of nonproliferation of nuclear weapons and has supported the indefinite extension of the NPT at the New York Conference some weeks ago. The conversion of most research reactors from HEU to LEU fuel has confirmed this Germany policy. *272-1*

The German government, acting on behalf of the operators of research reactors in Germany, would welcome a decision of the US government retaining management alternative 1 as the preferred option because it may be regarded as a continuation of previous obligations most easily. *272-2* Under certain circumstances an option for management alternative 3 in a form which would enable operators of research reactors using HEU or LEU of US-origin to return significant quantities of that fuel to the US might be acceptable as well. *272-3* If neither of these options will be put into action some research reactor operators will be forced to seek reprocessing elsewhere or shut down their reactors. In case however, reprocessing will become necessary the German government would not agree to a blending down of reprocessed HEU. *272-4*

In this context the German government takes an interest because the Hahn-Meitner-Institut, Berlin (MHI), a research institution and operator of the research reactor BER-2, which will be converted to LEU soon, has stated to the Berlin licensing authorities that with regard to the management and disposition of spent nuclear fuel from the reactor HMI intended to take advantage of DOE's "site fuels policy" as confirmed by Secretary O'Leary in a policy statement dated 13 July 1993. *272-5* The government of Germany and HMI trust that the US Department of Energy will be in a position to implement acceptance policy announced in that statement."

RESPONSE TO COMMENT COMMENTOR NO. 272: EMBASSY OF THE FEDERAL REPUBLIC OF GERMANY (CONT'D.)

Response to Comment No. 272-1

The commentor's support of policies for the nonproliferation of nuclear weapons is noted.

Response to Comment No. 272-2

The commentor's support for Management Alternative 1, as described in Section 2.2 of the EIS, is noted.

Response to Comment No. 272-3

The commentor's qualified support for Management Alternative 3 is noted. Management Alternative 3 is discussed in Section 2.4 of the EIS.

Response to Comment No. 272-4

The commentor's position on reprocessing or shutting down reactors is noted. Management Alternative 2, Subalternative 1b, involves U.S. assistance in overseas reprocessing and is discussed in Sections 2.3 and 4.4.2 of the EIS. Under this alternative, the U.S. would encourage the reprocessor to blend down the recovered HEU and encourage the research reactor operators to use LEU fuel in their reactors.

Response to Comment No. 272-5

The 13 July 1993 letter from Secretary O'Leary to Secretary Christopher announced that DOE would be preparing this EIS. The decision on whether DOE will or will not implement any of the alternatives analyzed in this EIS will be announced in a Record of Decision no sooner than 30 days after issuance of this final EIS.

COMMENTOR NO. 283: GREENPEACE INTERNATIONAL

GREENPEACE
international

Keizersgracht 176
1016 DW Amsterdam
The Netherlands
Telephone (31) 20-523 6222
Fax (31) 20-523 6200
ABN-Amro: 54.03.03.909
email: greenpeace.international@green2.dnt.de

June 16 1995

Dear Sir,

Please find enclosed copies of articles from the UK press related to the Dounreay nuclear installation. These are submitted as supporting information for Greenpeace International's comment on the Department of Energy and Department of State draft Environmental Impact Statement (EIS) on Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel. 283-1

Our comments will be submitted on June 20th, 1995.

Yours sincerley,

Shaun Burnie
Research Coordintor
Greenpeace International

STICHTING GREENPEACE COUNCIL
GREENPEACE OFFICES: ARGENTINA, AUSTRALIA, AUSTRIA, BELGIUM, BRAZIL, CANADA, CHILE, CZECHOSLOVAKIA, DENMARK, FINLAND, FRANCE, GERMANY, GREECE, GUATEMALA, IRELAND, ITALY, JAPAN, LUXEMBOURG, MEXICO, NETHERLANDS, NEW ZEALAND, NORWAY, RUSSIA, SPAIN, SWEDEN, SWITZERLAND, TUNESIA, TURKEY, UNITED STATES OF AMERICA, UNITED KINGDOM
PRINTED ON 100% CHLORINE FREE PAPER

RESPONSE TO COMMENT
COMMENTOR NO. 283: GREENPEACE INTERNATIONAL

Response to Comment No. 283-1

DOE appreciates the articles submitted by the commentor regarding the Dounreay Facility.

COMMENTOR NO. 284:
AUSTRIAN RESEARCH CENTRE SEIBERSDORF

FORSCHUNGSZENTRUM SEIBERSDORF
Verfahrens- und Umwelttechnik

Forschungszentrum
A-2444 Seibersdorf
Telefon 02254-780-*
Fax 02254-74080
Telex 14-355 fzs

Stadtbüro
Krumergasse 1, A-1010 Wien
Telefon 0222-533 96 26
Fax 0222-533 96 28-11

Bankverbindungen
BAWAG 01110-760-759
CA-BV 26-34343/02
Die Erste 012-10122
Bank Austria AG 106-100-432

Mr. Charles R. Head
Office of Spent Fuel Management, EM-37
U.S. Department of Energy
1000 Independence Avenue, SW
WASHINGTON, DC 20585-0001
USA

Ihr Zeichen, Ihre Nachricht vom	Unser Zeichen, Bearbeiter	Tel. (Durchwahl) *	Datum
- -	VF/Ca/ss Dipl.-Ing. J. Casta	3221	1995-06-14

Draft EIS comments

Dear Mr. Head,

A general description of the status of the ASTRA-Reactor, which is operated by the Austrian Research Centre Seibersdorf (ÖFZS) is given in the "Environmental Assessment of Urgent Relief Acceptance of Foreign Research Reactor Spent Nuclear Fuel" (page 2-30 - 2-33). Due to the shipment of 26 fuel elements under the EA in 1994 the fuel situation of the ASTRA-Reactor has improved. The next shipment of spent fuel elements will be necessary about the year 2000. Constraints on ordering fresh fuel were lifted by the Austrian government. Two LEU fuel elements were received in March 1995 and several fresh fuel elements have been already ordered guaranteeing fuel supply for the ASTRA-Reactor at least to the year 2000.

The situation in Austria with respect to nuclear power and high level waste storage is still the same as described in the EA. Austria has no power reactor program and there are no plans to build a high level waste storage facility. It is not possible in Austria, neither to store spent fuel elements, nor to take back high level waste after reprocessing. Therefore the further operation of the ASTRA is completely depending on the willingness of the US to implement a new policy to manage foreign research reactors spent nuclear fuel.

ASTRA would prefer strongly the management alternative 1 with a policy duration of 10 years and a truly cost based price. This would give us a fair chance either to find a new solution to manage our spent fuel in the future or to plan an organized shut down of the ASTRA-Reactor in a reasonable time period. 284-1

/2

Österreichisches Forschungszentrum Seibersdorf Ges. m. b. H.
Austrian Research Centre Seibersdorf

Bankleitung: Geschäftsführer m.b.H. Sitz: Wien Firmenbuchgericht: Handelsgericht Wien Firmenbuchnummer: FRB 16.765 DVR: 0806450

RESPONSE TO COMMENT
COMMENTOR NO. 284:
AUSTRIAN RESEARCH CENTRE SEIBERSDORF

Response to Comment No. 284-1

The commentor's preference for Management Alternative 1, with a policy duration of 10 years as discussed in Section 2.2.2.2 of the EIS and a price based on cost is noted. Financing arrangements are discussed in Section 2.2.2.3 of the EIS.

COMMENTOR NO. 284: AUSTRIAN RESEARCH CENTRE SEIBERSDORF (CONT'D.)

page 2 Mr. Charles R. Head
Office of Spent Fuel Management, RM-37
U.S. Department of Energy
WASHINGTON, DC 20585-0001

Implementation alternatives 1a (Accept spent nuclear fuel only from developing countries), 1b (Accept only HEU) and 2.5 (No action alternative) are extremely unfair, since we relied from the beginning of reactor operation on the repeated assurances of the U.S. government, that the United States would accept the return of our spent fuel elements. 284-2

Moreover the ASTRA was one of the first reactors, which was converted from HEU-fuel to LEU-fuel. After the EA shipment most of our fuel inventory is consisting of high density LEU-fuel, which neither can be reprocessed at Dounreay nor would be taken back by the United States.

Implementation alternative 2a (Five years policy duration) gives practically no chance to build up a new fuel cycle and would cause a quick decision to shut down our reactor and we assume also a lot of other research reactors. Such a decision would cause transport problems and we doubt, based on our experience with the EA transport and the lack of suitable transport containers, that 18 800 fuel elements could be shipped in a time period of 8 years. 284-3

We checked the data of the Austrian Reactors in the draft EIS and we found a mistake in table B-3, page B-6, Volume 2. The SAR-Graz (line 18 in table B-3) has two reactor cores

1. a highly enriched core consisting of 90 % enriched fuel plates (125 plates, total amount of U-235: 2505 g)
2. a low enriched core consisting of 20 % enriched fuel plates (234 plates, total amount of U-235: 4870 g)

The low enriched core is not indicated in the column "Initial Enrichment, Enr. 3". The correction is indicated on page B-6, which is attached to the comments. 284-4

We hope that you will successfully complete the final EIS.

Sincerely,

M. Casta

Dipl.-Ing. Jürg Casta
Head of Reactor Operation

RESPONSE TO COMMENT COMMENTOR NO. 284: AUSTRIAN RESEARCH CENTRE SEIBERSDORF (CONT'D.)

Response to Comment No. 284-2

The commentor's opposition to Implementation Subalternative 1a (Section 2.2.2.1 of the EIS, accepting spent nuclear fuel only from developing countries), to Implementation Subalternative 1b (Section 2.2.2.1 of the EIS, accepting only highly enriched uranium), and the No Action Alternative (Section 2.5 of the EIS) is noted. The bases for the opposition were also noted.

Response to Comment No. 284-3

The commentor's opposition to Implementation Subalternative 2a for Management Alternative 1, wherein the policy period for receipt would be 5 years (Section 2.2.2.2 of the EIS), is noted.

Response to Comment No. 284-4

Based on the commentor's information on SAR-Graz research reactor nuclear fuel usage, Tables 2-1 and 2-4 of Volume 1 and Tables B-1, B-3, B-9, B-11 and B-12 of Appendix B of the EIS have been revised.

COMMENTOR NO. 442: UNITED KINGDOM ATOMIC ENERGY AGENCY

UKAEA

Government
Division
Nuclear Site
Operations

Dounreay
Thurso
Caithness KW14 7TZ
United Kingdom
Telephone 0847 802121

Mr Charles Head
Programme Manager
Office of Spare Nuclear Management (EM37)
US Department of Energy
1000 Independence Ave SW
Washington DC 20585

Dear Charles,

Appendix F of the Draft Environmental Impact Statement DOE/EIS-0218D contains some inaccuracies relating to the UKAEA reprocessing option. These inaccuracies are reflected elsewhere in the draft EIS.

1. Para F.7 Page F268

A more correct statement would be:

"The UKAEA have yet to develop proposals for waste substitution in respect of reprocessing MTR fuels. BNFL have developed some proposals for the substitution of waste from THORP (substituting vitrified waste for cemented waste). However these proposals are currently under discussion and have not yet been accepted by the UK Government. If they are accepted they might form the basis for the development of waste substitution proposals that will be applied to MTR fuel reprocessing". 442-1

2. Para F.7.1 Page F.271

Comments as above.

3. Para F.7.3 Page F.298

Comments as above.

4. Para F.7.3 Page F.298

The UKAEA price of $5000 to $6000 does not relate to 100 element batches but is the price range that would apply to a substantial campaign extending over several years, reprocessing some 600-700 elements per year.

The United Kingdom Atomic Energy Authority

RESPONSE TO COMMENT COMMENTOR NO. 442: UNITED KINGDOM ATOMIC ENERGY AGENCY

Response to Comment No. 442-1

Appendix F, Section F.7 of the EIS has been modified to reflect the commentor's concerns.

COMMENTOR NO. 442: UNITED KINGDOM ATOMIC ENERGY AGENCY (CONT'D.)

5. Para F.7.4 Page F.298

"The core of nuclear weapons non-proliferation" equals the difference between the non-US alternatives and the US costs is a statement which could be interpreted as indicating the non-US option could allow proliferation.

442-2

It perhaps could be emphasised in this section that all work on the MTR fuel cycle within the UK and the Euratom countries falls under the control of the Euratom Safeguards organisation. Their main aim is to ensure the non-proliferation of material that could be used to make nuclear weapons.

It is not correct to say as on page 1-7 of Volume 1 Section 1.2 that the potential for diversion increases when the separated HEU leaves the reprocessing plant; as export is only permitted to countries operating full Euratom or International Safeguards procedures. Much of the material produced from reprocessing is being downblended to HEU. The attached figure shows the current performance and expectations of UKAEA in this case. The material "pending" is waiting customer decisions on its final enrichment and form.

442-3

The re-use of reprocessed uranium achieves the maximum value for HEU reducing the requirement for fresh HEU supplies from the US for specifically approved reactors. The uranium isotopic composition of recycled HEU rapidly (after a few cycles) makes the manufacture of fresh fuel increasingly more difficult, such that when <60%U235 is present further value is best obtained by blending to <20%U235.

The stocks of US supplied HEU will in the next few years rapidly reach the unusable enrichment level of <60%U235 "mopping up" the European stockpile and requiring only minimal "top up" from the US.

Yours sincerely

20/6/95.

DAVID THOM
Group Manager, Business Development

RESPONSE TO COMMENT COMMENTOR NO. 442: UNITED KINGDOM ATOMIC ENERGY AGENCY (CONT'D.)

Response to Comment No. 442-2

The change recommend by the commentor has been added to Appendix F, Section F.7.4 of the EIS.

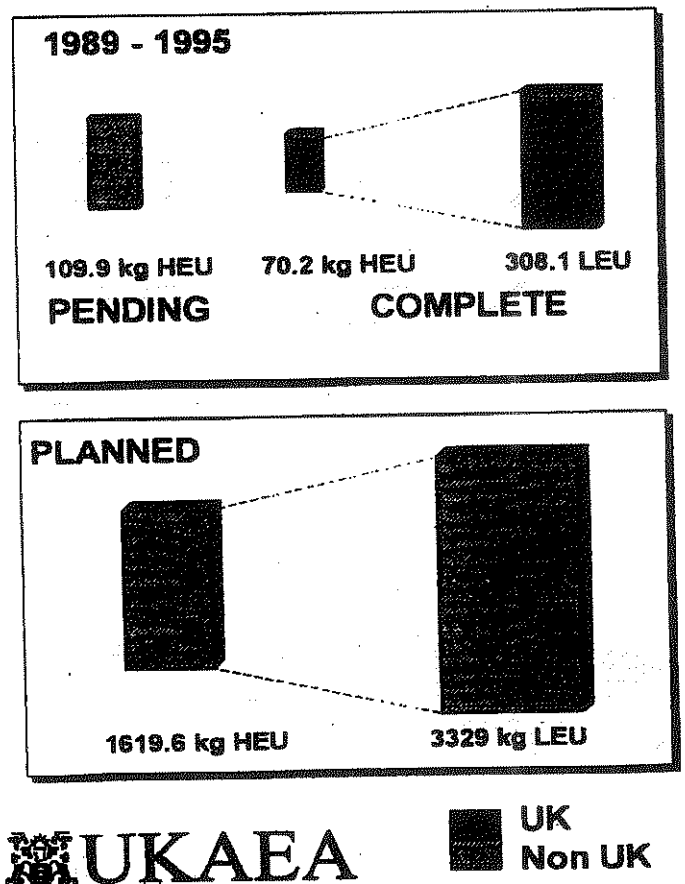
Response to Comment No. 442-3

DOE acknowledges the effectiveness of United Kingdom Atomic Energy Authority's export restrictions that act as barriers to potential diversion. Nevertheless, HEU from reprocessing would be significantly more desirable to a potential proliferator than spent nuclear fuel containing the same HEU, so the concern about illegal proliferation would be heightened. The text cited by the commentor has been revised in the final EIS to emphasize that the proliferation concern stems only from the physical properties of the HEU, not the United Kingdom Atomic Energy Authority's export procedures.

DOE also acknowledges the United Kingdom Atomic Energy Authority's capability to blend down HEU to LEU. When separated HEU is blended down to LEU inside the reprocessing facility, the United States' nuclear weapons nonproliferation policy is satisfied.

The Energy Policy Act of 1992 placed strict limitations on the export of HEU by the United States (Section 1.1 of the EIS). Since passage of this Act, no new export licenses for HEU have been issued by the United States. Therefore, it is unlikely that the United States would top the European HEU stockpile, as suggested by the commentor.

Commentor No. 442: United Kingdom Atomic Energy Agency (Cont'd.)



Response to Comment
Commentor No. 442: United Kingdom Atomic Energy Agency (Cont'd.)

COMMENTOR NO. 445: CHALK RIVER LABORATORIES

AECL EACL

RESEARCH AND PRODUCT DEVELOPMENT
Nuclear Operations
Radioactive Materials Services
Chalk River & Whiteshell

RECHERCHE ET DÉVELOPPEMENT DES PRODUITS
Exploitation nucléaire
Services des matières nucléaires
Chalk River et Whiteshell

Chalk River Laboratories
Chalk River Ontario
Canada K0J 1J0
Tel (613) 584-3311
Fax (613) 584-1394

Laboratoires de Chalk River
Chalk River (Ontario)
Canada K0J 1J0
Tél (613) 584-3311
Fax (613) 584-1394

1995 June 20
RMSC-95-192

Mr. C.R. Head
Office of Spent Fuel Management
Department of Energy
Washington, DC 20585

Dear Mr. Head:

ATOMIC ENERGY OF CANADA'S COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) ON A PROPOSED NUCLEAR WEAPONS NONPROLIFERATION POLICY CONCERNING FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL

Atomic Energy of Canada (AECL) and a representative from the Canadian Embassy in Washington, attended the 1995 May 31 public hearing in Washington, DC on the above EIS. At the hearing, AECL presented both verbal and written comments to the EIS process, comments which we wish to restate, emphasize and add to.

Canada has embraced the aims of non proliferation through the RERTR from its inception and after many years of fuel development, finally completed the conversion of the NRU reactor (130 MW) from HEU driver fuel to LEU. In that period, use of US origin HEU has been reduced from 96 Kg/a to approximately 25 Kg/a. This 25 kg HEU is largely used as target material for medical isotope production, i.e. Mo^{99}. Most of the diagnoses and treatments, ~90%, using these isotopes, are carried out in the US. Spent target wastes, containing HEU at about 91% U-235, are produced as a result of this Mo^{99} production. Canada has the largest accumulation of these low burnup spent target fuels, i.e. 0.525 MTHM out of a world total of 0.555 MTHM.

In the Draft EIS, Section 4.3.1.3 is an implementation subalternative 1c, "Accept Target Material in Addition to Foreign Research Reactor Spent Fuel". It is important that serious consideration is given to incorporating management of this material, as a preferred management alternative. Return of spent target wastes will be in the spirit of RERTR, and DOE has a responsibility under these RERTR and non proliferation umbrella's, to reopen the spent fuel return agreements and take back this fuel. *445-1*

RESPONSE TO COMMENT
COMMENTOR NO. 445: CHALK RIVER LABORATORIES

Response to Comment No. 445-1

The commentor's support for accepting target materials in addition to foreign research reactor spent nuclear fuel is noted. Acceptance of target materials is discussed in Section 2.2.2.1 of the EIS.

- 2 -

The term, "competitive price", for return of the spent fuel, should be rewritten to read "reasonable" or "consistent with that being charged at the time of expiry of the previous agreement". With only one "player" in the market, i.e. Dounreay, who do not offer the storage option, using their reprocessing price does not appear to be a relevant comparison. 445-2

The alternative of spent fuel processing, should, of course, be kept open, but should not be included in this EIS as an option. This option in itself, could involve significant delays through further EIS's and lawsuits. The one and only option at this point in time is, return of the spent fuel. 445-3

In addition to the low burnup spent target material and spent driver fuels described (note that out of a world holding of 18.185 MTHM Research Reactor spent fuel, Canada holds 4.478 MTHM), an additional 17.568 Kg of HEU in 16 low burnup (3%) booster fuel rods, is held at Chalk River, Canada. These fuel rods, consisting of fuel elements containing 22.5% U/Al alloy fuel meat in an aluminum cladding, are similar in construction to NRU and NRX spent fuels which have been delivered in previous years to Savannah River. The rods were used intermittently for xenon poison overide in the G-1 power reactor at Gentilly in Quebec which has since been shut down and decommissioned. These elements are very similar to NRU fuel elements and contain HEU ~91% U-235. Storage would not pose any problems over and above that of NRU fuel elements and subsequent post storage treatment would not involve any process variants over and above those needed for NRU type elements. 445-4

Despite their brief power reactor involvement, AECL requests that these rods be considered, for non proliferation purposes, in the same envelope as Research Reactor U/Al fuels, for return to the US.

The DOE are to be congratulated on bringing the prospects of reopening of the return of Research Reactor spent fuels, at last within reach. Return of these material can be seen to complement the aims of the RERTR program and its non proliferation ideals.

Yours truly,

F. Keeling
Manager Nuclear Materials

FK/ns

c: M.G. Wright

Response to Comment No. 445-2

DOE considers that any fee that might be charged for foreign research reactor spent nuclear fuel management activities conducted by DOE, however determined, should be based on current conditions rather than on those prevailing at the expiration of the previous spent nuclear fuel acceptance policy. Nevertheless, DOE recognizes the need to find a compromise that would allow all parties to any future foreign research reactor spent nuclear fuel policy to consider the fee to be fair. Determination of any competitive fee would have to include consideration of such concepts.

Response to Comment No. 445-3

The commentor's support for accepting the foreign research reactor spent nuclear fuel into the United States is noted. The commentor's opposition to including chemical separation as an alternative (Implementation Alternative 6) is also noted. NEPA requires that the environmental impacts of reasonable alternatives be evaluated, regardless of political opposition or potential litigation.

Response to Comment No. 445-4

DOE considers the commentor's suggestion to be consistent with the overall nuclear weapons nonproliferation policy of the United States and with the fuel type acceptance detailed in the EIS. The booster rod spent nuclear fuel elements have similar design characteristics to that of the NRU reactor fuel pins and contain a total of almost 17 kilograms of uranium-235. They have been irradiated to a very low burnup similar to that of the target materials that have been considered for inclusion in the EIS. This addition of 16 spent nuclear fuel rods is not expected to change the total number of shipments estimated for Canada. In addition, if McMaster research reactor were to shutdown as announced during the May 25, 1995 public meeting in Washington D.C., there would be less fuel available to be brought back from Canada.

COMMENTOR NO. 450: NUCLEAR FREE LOCAL AUTHORITIES

NATIONAL STEERING COMMITTEE

NUCLEAR FREE LOCAL AUTHORITIES

NUCLEAR POLICY AND INFORMATION UNIT
MANCHESTER CITY COUNCIL
TOWN HALL
MANCHESTER
M60 2LA

SECRETARY: STEWART KEMP

Your Ref:
Our Ref: SK/NPIU
Date: 20 June 1995
Contact Officer: Stewart Kemp
Direct Tel: 0161 234 3324
Fax: 0161 236 8864
Email: nfznsc@gn.apc.org

United States Department of Energy
Office of Environmental Management
Attn: Mr Charles Head
1000 Independence Avenue, S.W.
Washington, D.C. 20585-0001

Dear Sir

Draft Environmental Impact Statement (EIS) on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel

I am responding belatedly to the consultation on the above EIS without having had the benefit of sight of the complete document. However, I am advised that one option being considered under the above proposed policy is the return of a proportion of spent HEU fuel elements to Dounreay. In the circumstances outlined below my Committee, which is supported by 157 local authorities in England, Scotland and Wales who represent the interests of more than half the population in Britain, strongly opposes any further reprocessing at the Dounreay site because of the poor environmental record and historical mismanagement.

Part of your EIS which I have seen describes the UK having "modern fuel cycle facilities". This cannot be said of Dounreay where the reprocessing facilities have operated for nearly 40 years and which is the principal source of radioactive contamination of surrounding terrestrial and marine environments. Importation of spent HEU would, ofcourse, increase the volume of reprocessing, prolong plant operation and increase waste streams for management within the UK or discharge to the environment. 450-1

Currently we are contesting an application by the management of the Dounreay plant for authorisation to increase atmospheric and marine discharges on average between 600-900% compared to actual discharges over the previous four years. The increase results from UK Department of Trade and Industry proposal to step up reprocessing work at Dounreay. The DTI propose to process thirty tonnes of fast reactor fuel in 3-5 years. This is more than the total of 29 tonnes reprocessed at Dounreay in the previous thirty years.

We are also investigating discharges of large quantities of radioactive nitric acid without consent. The acid has been discharged since the late 1950s, but only since 1985 has the Dounreay plant management needed to inform the Highland

- 1 -

PRINTED ON RE-CYCLED PAPER

RESPONSE TO COMMENT
COMMENTOR NO. 450: NUCLEAR FREE LOCAL AUTHORITIES

Response to Comment No. 450-1

Complete copies of the draft and final EIS's have been sent to the commentor. The commentor's opposition to reprocessing at Dounreay (Management Alternative 2, Subalternative 1b) is noted. This alternative is discussed in Sections 2.3 and 4.4.2 of the EIS.

While some of the facilities at the Dounreay Site are old, the United Kingdom has complete modern fuel cycle facilities at the Sellafield Site. The point of the statement in the EIS is that the technical expertise to reprocess already exists in France and the United Kingdom. Thus, contracting for reprocessing services in one or both of those countries would not increase the risk of proliferation.

The subjects of airborne and liquid releases from reprocessing operations in foreign countries are outside the scope of this EIS. Please see Section 4.4.2.1 of the EIS and the response to Comment 484-11. The subject of fast reactor spent nuclear fuel reprocessing is also outside the scope of this EIS.

DOE is considering a wide range of alternatives for the management of the foreign research reactor spent nuclear fuel and cannot eliminate an alternative for reasons that are outside the scope of the EIS.

COMMENTOR NO. 450: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

River Purification Board (HRPB) and obtain consent, which it has not done and does not have.

My Committee has instructed its Legal Adviser to review, inter alia:

* The case for judicial review of the decision to reprocess PFR fuel as quickly as possible, even though this increases environmental discharges in contravention of the current authorisations which require Dounreay to adopt the best practical means to minimise discharges of activity from the site.

* The case for judicial review of the decision by the DTI to reprocess fast reactor fuel, with resulting environmental discharges, including illegal nitric acid discharges, when there is no longer any need for the separated plutonium to fabricate new fuel. The Government withdrew funding from the fast breeder reactor programme last year because it was a waste of money.

* Whether an interim interdict (injunction) should be sought to stop practices (ie. reprocessing of fast reactor fuel) which result in illegal discharges of radioactive nitric acid until a neutralising plant is built or other method of neutralising the discharges is implemented, or a consent has been issued by regulatory authorities.

* The case for judicial review of the decision by HRPB to allow Dounreay to continue discharges of illegal nitric acid.

* The case for judicial review of the decision to allow Dounreay to begin fast reactor fuel reprocessing -

  (a) on the basis of old authorisations despite there being a substantial change in circumstances ie. closure of the fast reactor and no need for the plutonium, and when revised authorisations are already overdue;

  (b) despite the fact the fuel reprocessing from the shutdown fast reactor core represents a significantly different scale of operation from previous activity and should be subject to full and separate regulatory and public scrutiny;

  (c) when the proposed reprocessing should be subject to the test of justification according to European and UK laws (HMIPI inspectors for Dounreay say they entirely accept that the English THORP ruling about the need to justify harm caused by discharges to the environment in terms of the benefits a proposed practice will bring, applies in Scotland and should be applied to Dounreay's application for revised discharge authorisations.

450-1 (Cont'd.)

In these circumstances it is irresponsible to consider Dounreay a fit place to send spent HEU fuel elements. Further, it is vital that you be aware of the recent findings of two Government Advisory Bodies which serve to underscore our concern. The details are as follows:

Radioactive Waste Management Advisory Committee (RWMAC) and Committee on the Medical Aspects of Radiation in the Environment (CoMARE) Joint Report on Possible Sources of Radioactive Particles near Dounreay

450-2

- 2 -

RESPONSE TO COMMENT COMMENTOR NO. 450: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

Response to Comment No. 450-2

If the Record of Decision for this EIS results in foreign research reactor spent nuclear fuel being sent to Dounreay for reprocessing, that action would be subject to regulation and oversight under the laws of the United Kingdom. It is DOE's understanding that the radioactive particles mentioned in the CoMARE/RWMAC report are already being surveyed and cleaned up at the Dounreay Site. This issue, however, is outside the scope of this EIS.

COMMENTOR NO. 450: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

In short, this report identifies the explosion in 1977 in a radioactive waste shaft on the Dounreay site as the most likely source of local off-site contamination and recommends a review of how to stop it, believing waste retrieval, repackaging and disposal elsewhere together with shaft decontamination to be the most likely requirement. Little alternative to waste removal appears to exist because cliff erosion at Dounreay is likely to expose the waste shaft within the next century.

Both the CoMARE Chairman and the RWMAC Chairman accused Dounreay Management and accused the regulators, HM Industrial Pollution Inspectorate of providing incomplete and inaccurate information during the preparation of their report.

450-2 (Cont'd.)

The investigation was prompted by CoMARE's observation that incidents of radiation related cancers near Dounreay were associated with use of the Plant's foreshore (which has only recently been closed) and were highest following the explosion in 1977. The RWMAC issued a press statement at the time of report publication and this is attached as Annex A.

In the light of the above observations I trust you will agree the Dounreay plant is a considerable environmental burden on the UK and will cost the UK taxpayer many hundreds of millions of pounds to ensure its waste legacy is safely managed for the future. This burden must be minimised not exacerbated.

450-3

Finally, I am not aware of potential sources and volumes of HEU spent fuel which you consider could be disposed at Dounreay, or the conditions under which it is proposed to transport it, or the routes to be taken. I would be grateful for information on these matters and the environmental impacts which you have identified. I would also be grateful for information on the accident hazards you have identified in shipping spent HEU fuel to Dounreay and how you assess the implications for North Sea communities dependent on the maintenance of public confidence in the fisheries, food and tourism products they offer.

Thomas Grumbly's 10 April letter advises that you plan to issue the final EIS in September 1995. Again I would be grateful if you would provide my Committee with a copy at the earliest opportunity.

Your confirmation that my Committee's views will be fully considered would be appreciated.

Yours sincerely

Stewart Kemp
Secretary

RESPONSE TO COMMENT COMMENTOR NO. 450: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

Response to Comment No. 450-3

The potential sources and volumes of foreign research reactor spent nuclear fuel involved in the proposed action are listed in Tables 2-1 and 2-2 in Section 2.2.1.3 of the EIS. The transport conditions, routes, and potential environmental impacts in the United Kingdom are outside the scope of this EIS. Actions within the United Kingdom are subject to the laws and regulations of the United Kingdom, not those of the United States. The accident hazards and implications for North Sea communities are also outside the scope of this EIS.

COMMENTOR NO. 482: INSTITUT MAX VON LAUE

INSTITUT MAX VON LAUE - PAUL LANGEVIN

Division Réacteur

Charles HEAD, Program Manager
Office of Spent Nuclear Fuel
Management (EM-37)
U.S Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Grenoble, le — V/lettre du — Notre référence à rappeler :

20 june 1995

DRe-EB/RV 95.220

Objet : **Draft Environmental impact statement - DOE/EIS-0218D March 1995**

Dear Mr. HEAD,

Thank you for the copy of the draft Environmental Impact Statement DOE/EIS 0218D which I received on 19.06.1995.

Volume 2, Appendix B, Table B3 "Foreign Research and Test Reactors that Possess Only Aluminium-Based contains an error concerning the High Flux Reactor (RHF) operated by the Institut Laue-Langevin.

Line 50 RHF is given in the wrong category "HEU Reactors Fully-or Partially-Converted to LEU Fuel".
The correct category is "HEU Operating Reactors that Cannot Be Converted With Current Technology" the same as line 48 BR-2 and line 49 ORPHEE. 482-1

I would be grateful if you could take into account this correction.

Sincerely,

Dr. Ekkehardt BAUER
Chef de la Division Réacteur.

RESPONSE TO COMMENT
COMMENTOR NO. 482: INSTITUT MAX VON LAUE

Response to Comment No. 482-1

As stated by the commentor, the header of Table B-3 in Appendix B of the EIS places RHF reactor in the wrong category. The correct category is that of the BR-2 and ORPHEE reactors which is HEU operating reactors that cannot be converted with current technology. The table has been revised accordingly.

COMMENTOR NO. 487: SCOTLAND AGAINST NUCLEAR DUMPING

SCOTLAND AGAINST
NUCLEAR DUMPING

S.A.N.D.

4 Fountainhead,
Bunessan,
Isle of Mull,
Argyll PA67 6DP
tel/fax 01681 700 431

19th June 1995

Charles Head,
Office of Spent Fuel Management (EM-37),
US Department of Energy,
1000 Independence Ave., S.W.,
Washington D.C. 20585

Dear Mr Head,

SPENT FUEL TO DOUNREAY?

I am writing on behalf of an umbrella organization with affiliated groups from Shetland to Dumfries in Scotland, S.A.N.D., to give the US Department of Energy our views on the transport and reprocessing of spent fuel rods from European MTRs.

There is shock here in Scotland, that no non governmental organizations have been asked to contribute their views, which is the protocol ratified at the Rio Summit in Agenda 21.

There has been a public consultation in the form of a draft Environmental Impact Assessment in the USA seeking to ascertain the future of this spent fuel. It appears that representations have been made to your department by the UK Department of Trade and Industry and by the management of Dounreay for the contract of reprocessing up to 9,000 fuel rods over a period of 10-12 years. This is re-enforced by the quotation from a memo from your Department dated 8th February saying that "We need Dounreay as a partner to accomplish the mission of minimising the civil use of HEU worldwide."

There has not been, nor will there be, any form of public consultation or Environmental Assessment in Scotland, or elsewhere in the U.K. into a controversial commercial deal which will have a significant impact on the environment, and the potential for an accident for which no technology exists to remedy.

487-1

RESPONSE TO COMMENT COMMENTOR NO. 487: SCOTLAND AGAINST NUCLEAR DUMPING

Response to Comment No. 487-1

The commentor's opposition to reprocessing at Dounreay (Management Alternative 2, Subalternative 1b) is noted. This alternative is discussed in Sections 2.3 and 4.4.2 of the EIS. The subject of public consultation in Scotland is outside the scope of this EIS.

COMMENTOR NO. 487: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

-2-

The USA should therefore take full head of the objections raised in this letter as part of their consultation process. *487-1 (Cont'd.)*

** Transporting highly enriched uranium spent fuel rods across Scotland and particularly along the narrow twisting roads in the Highlands of Scotland was publicly unacceptable in 1993, and will be again. The general public, local authorities, as well as environmental campaigners are aware of the risks involved of such transports, and find the risks associated with the number of proposed transports per year completely unacceptable. The route such dangerous loads take is directly through many urban areas, where people do not expect such hazardous loads to be passing through, nor do the local public authorities have provision for nuclear accidents. The route is also along the A9 to Thurso, where there are frequent road accidents, and which has precipitous drops of 40m and exceedingly steep gradients. *487-2*

** The flasks used for transportation are inadequate for their task. They are licensed only to operate to the limit of a 9 metre drop. which as detailed above, is less than required.

Should the HEU be sent by sea, the flasks are even less suitable, as they are tested for immersion to a depth of 200 metres for half an hour. This raises the question of how flasks would or could be raised within that time, given the remote nature of Scotland's coastline, and the lack of provision for dealing with a major nuclear incident of this kind by either the local authority fire, coastguard or medical services.

In the event of a fire, these flasks are tested to 800°C for 30 minutes. This temperature is that of the beginning of an average fire incident in a house, and when glass will break and furnishings blaze, and is obviously too low a temperature for a road accident involving highly flammable petroleum or diesel, or other fuels, chemicals or gases which are regularly taken by road rather than rail. Should a ship fire occur, were the spent fuel to be taken by sea, the average fire on board ship lasts for 24 hours or longer, and exceeds 1000°C. If a ship fire occurred with a prevailing on shore breeze, there would be such a major nuclear incident that could cause death, radiation sickness, cancers in the long term, and render whole cities and counties uninhabitable and uncultivatable for thousands of years *487-3*

RESPONSE TO COMMENT COMMENTOR NO. 487: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

Response to Comment No. 487-2

Any actions in the United Kingdom resulting from decisions made after completion of this EIS will be subject to the laws and regulations of the United Kingdom and oversight by appropriate regulatory authorities in the United Kingdom. Accordingly, the subject of ground transport in the United Kingdom is outside the scope of this EIS.

Response to Comment No. 487-3

It is inaccurate to state that the spent nuclear fuel transportation casks are licensed only to operate to the limit of a 9 meter drop, as the commentor suggested. The rigorous tests of representative transportation casks have shown that the casks would survive (not lose confinement) even with broadside crashes at 84 miles per hour, or the equivalent of a 70 meters free fall drop. The cask immersion test to a depth of 200 meters for half an hour, as required by the International Atomic Energy Agency, does not mean that the sunken cask has to be retrieved in half an hour. The test is to determine the tightness of the cask seals, and is not for structural damage evaluation.

In respect to the impact a ship fire might have on a spent nuclear fuel transportation cask, there are three facts that mitigate the potential damage. First, ship fires tend to move to different areas of the ship as the combustible material is consumed, so the cask would not be exposed for the entire duration of the fire. Second, a ship fire's intensity is normally limited by the amount of oxygen that can reach the interior of a hold. Third, all ships that would be used to transport foreign research reactor spent nuclear fuel have built-in fire suppression equipment, which as a minimum would keep fires well below the extreme temperatures needed to damage the transportation cask. For these reasons, it is almost impossible for spent nuclear fuel inside the transportation cask to reach 900 degrees Kelvin (1,160 degrees F), the melting point of research reactor spent nuclear fuel. The probability of reaching such a temperature was calculated to be less than one in a billion (Attachment D5 to Appendix D of the EIS). To put this temperature into perspective, steel used in a ship's structure buckles at around 700 degrees Kelvin (800 degrees F).

COMMENTOR NO. 487: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

-3

** The radioactive emissions to the sea and the air from reprocessing at Dounreay will of necessity increase dramatically.
Dounreay are already renegotiating its permits from Her Majesty's Industrial Pollution Inspectorate to discharge radioactivity into the environment.
The AEA want to increase alpha discharges into the sea by over 900%; caesium-137 by 560% and plutonium by over 400%.
Emissions into the air of iodine could increase by nearly 1,000% and of plutonium by 625%.

There already exists an excess of leukaemia cases in Thurso, the town nearest to Dounreay, which mirrors the situation at the UK's other reprocessing plant at Sellafield, therefore caution must be exercised and radioactive discharges to the sea and the air ought to be zero.

487-4

** The US Government argue that the HEU must be reprocessed by Dounreay to minimise the spread of HEU. Dounreay are claiming that they can down blend the HEU to LEU, and thereby comply with USA aspirations.

It must be made quite clear to your department and government that Dounreay are running a commercial operation, and will of course say what they hope will be true in order to win the contract. The US Dept. of Energy should know that on the best independent authority known to S.A.N.D., it is technologically extremely difficult to down blend HEU to LEU, if not nigh on impossible. Dounreay's capabilities to carry this out must be thoroughly examined in this instance. It is our further understanding that MTRs are not presently configured to use LEU, and that there is no wish to reconfigure any MTRs that we are aware of, either now or in the future. Under EURATOM the USA cannot enforce the process of down blending, so it is more than likely to our thinking that the HEU will remain HEU< as that will be the cheapest option. Furthermore, Dounreay's record of honesty, public accountability and transparency is non existent. See press cutting appended. It would indeed be very surprising should the USA government choose to trust an establishment with such a track record.

** Nuclear wastes arising from the reprocessing of HEU are supposed to be sent back to the country of origin for disposal in a repository. As there are few such facilities at present, it is more likely that a substitution would be agreed. This will not be acceptable.

487-5

RESPONSE TO COMMENT COMMENTOR NO. 487: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

Response to Comment No. 487-4

The subjects of airborne and liquid releases from reprocessing operations in foreign countries are outside the scope of this EIS. Please see Section 4.4.2.1 of the EIS and the response to Comment 484-11.

Response to Comment No. 487-5

DOE disagrees with the commentor's assertion that it is extremely difficult to blend down HEU to LEU. This operation has been performed successfully in the past at the Dounreay Site (see the figure attached to Comment Document 442).

As discussed in Appendix B, Section B.1.1 of the EIS, many MTRs are presently configured to use LEU and others are being converted. It is true that the U.S. cannot enforce the process of downblending, but the U.S. can encourage the foreign research reactor operators to use only LEU and the fuel reprocessors (such as United Kingdom Atomic Energy Authority) to supply only LEU. (See Section 2.3 of the EIS.)

The commentor's opposition to a waste substitution arrangement is noted. This possibility is described briefly in Section 4.4.2.3 of the EIS.

The commentor's speculation about curtailed nuclear transports in Europe is outside the scope of this EIS.

COMMENTOR NO. 487:
SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

-4-

It is also likely, given the public concern and increased environmental knowledge throughout Europe, that nuclear transports will be curtailed in the future, leaving high and intermediate level nuclear waste in Scotland which does not belong here.

** There is already serious public concern about the US Dept. of Energy proposal, and should the proposal become fact, the USA and Dounreay must face massive public and political outcry and opprobrium, not just in Scotland, nor just the U.K., but across the whole of Europe.

487-5 (Cont'd.)

I trust that these objections to the proposal to reprocess HTR spent fuel at Dounreay will be taken fully into account in the decision making process. If there is any further information you require, I will be happy to assist.

I look forward to your response.

Yours sincerely,

Anne E Baxter.

Anne Baxter,
Convener

RESPONSE TO COMMENT
COMMENTOR NO. 487:
SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

COMMENTOR NO. 490: FRIENDS OF THE EARTH, SCOTLAND

Charles Head
Programme Manager
Office of Spent Nuclear Fuel Management (EM-37)
US Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
USA

20 June 1995

Dear Mr Head

REPROCESSING OF HEU AT DOUNREAY — COMMENTS IN RESPONSE TO THE DRAFT EIS

As one of Scotland's leading environmental organisations, Friends of the Earth Scotland strongly objects to the proposal for reprocessing US-origin spent highly enriched uranium (HEU) at Dounreay.

The proposal, contained in the draft Environmental Impact Statement (EIS) published in April, would have significant environmental impacts which we consider to be unacceptable. Furthermore, the EIS contains a number of inconsistencies and misunderstandings with regard to Dounreay.

The history of operations at Dounreay is a catalogue of mis-management, contamination and accidents. As well as the risk of radioactive release resulting from an accident, reprocessing of US-origin HEU would result in significant increases in radioactive discharges to air and sea. Dounreay has already applied to Her Majesty's Industrial Pollution Inspectorate for permission to increase its discharges by nearly 1,000% from current actual levels.

Transportation to Dounreay is likely to be in non-purpose-built ships to the south coast of England and by road to Dounreay in the north of Scotland. We believe that the current safety standards for transports of spent nuclear fuel to be inadequate.

The EIS discusses using the Prototype Fast Reactor Reprocessing Plant, but this plant would not be available for additional reprocessing work until the end of 1997 at the earliest, and possibly not until 1999 or later. The UK Department of Trade and Industry, which owns the plant, has expressed concerned over the age of the plant and the possibility of a serious breakdown.

The EIS gives two different figures for the number of spent fuel elements to be reprocessed at Dounreay. The summary document mentions 750 elements a year for 12 years (9,000 elements), while volume one states that 5,613 elements would be reprocessed outside the US.

MORE/...

FRIENDS OF THE EARTH SCOTLAND

Friends of the Earth Scotland is committed to the conservation, restoration and sustainable use of the environment for the benefit of the community.

490-1

72 Newhaven Road
Edinburgh EH6 5QG
Scotland UK

Telephone 0131 554 9977
Fax 0131 554 0656
E-mail foescotland@gn.apc.org

490-1 (Cont'd.)

A charity (SC002442)

Friends of the Earth Scotland is a member of Friends of the Earth International which campaigns for the environment in over 50 countries worldwide.

Friends of the Earth
Les Amis de la Terre
Amigos de la Tierra

RESPONSE TO COMMENT
COMMENTOR NO. 490: FRIENDS OF THE EARTH, SCOTLAND

Response to Comment No. 490-1

The commentor's opposition to reprocessing at Dounreay is noted. This is Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS.

The text in the Summary has been revised to eliminate the reference to the Prototype Fast Reactor Reprocessing Plant. The decision of which Dounreay plant(s) to use would be up to the plant operators and United Kingdom government regulators, not DOE.

Every alternative involves the same amount of spent nuclear fuel: approximately 22,700 elements as shown in Tables 2-1 and 2-2 in Section 2 of the EIS. Under Management Alternative 2, Subalternative 1b, all 22,700 elements could be reprocessed at Dounreay. Under Management Alternative 3, only a portion of the total amount would be sent to Dounreay: 5,613 elements as shown in Table 2-3. The references to 750 elements per year from 1996 through 2008 in Section 4.9.4 of Volume 1 and in Section S.4.10 of the draft Summary have been revised.

The discussion about current reprocessing activities at Dounreay in Section 2.3 of the EIS has been revised. Reprocessing at Dounreay, as it has been conducted in the past, could only be used as a means of spent nuclear fuel management by reactors that are using HEU for fuel. This would serve to perpetuate the use of HEU in civil programs, in direct opposition to United States nuclear weapons nonproliferation policy goals. However, if some means can be developed for revising the practices for reprocessing at Dounreay, in a manner that will achieve United States nuclear weapons nonproliferation policy objectives (such as are discussed in Section 2.3 of the EIS), then this approach might be acceptable. DOE and the Department of State are actively working with counterparts in the United Kingdom in an attempt to make this a feasible option.

Commentor No. 490:
Friends of the Earth, Scotland (Cont'd.)

Whichever figure is used, it represents a massive increase on previous reprocessing of overseas spent fuel elements at Dounreay. Between 1958 and 1994 Dounreay reprocessed a total of 3,415 spent fuel elements from overseas research reactors. *490-1 (Cont'd.)*

It is claimed in the EIS that Dounreay is "currently reprocessing foreign reactor fuel", this is not the case.

Finally, we do not believe that reprocessing of spent HEU fuel at Dounreay is the best option for reducing the proliferation risks associated with HEU. Rather, it is likely to perpetuate the use of weapons grade HEU.

We trust that you will take on board our comments in considering your future policy on dealing with spent HEU.

Yours sincerely

Graham Stein

Graham Stein
Safe Energy Project Co-ordinator

Response to Comment
Commentor No. 490:
Friends of the Earth, Scotland (Cont'd.)

COMMENTOR NO. 577: WEST LOTHIAN DISTRICT COUNCIL

WEST LOTHIAN
DISTRICT COUNCIL
Administration
St David House South Bridge Street
Bathgate West Lothian EH48 1TT
Tel: (01506) 637000 Fax: (01506) 635454
DX No. 485

Our Ref: DA/14/4/CL

Your Ref:

If calling please ask for: Christine Law

Direct dial no: 01506-637254

27 June 1995

Charles Head
Office of Spent Fuel Management (EH 37)
US Department of Energy
1000 Independence Ave, S.W.
Washington D.C.
United States of America
20585

Dear Sir

Re-processing of Spent Fuel Rods

West Lothian District Council is aware that the United States Department of Energy propose to send up to 9000 spent fuel rods to Dounreay for re-processing over the next 10 - 12 years and considers that it is unacceptable that the Scottish public have not been consulted on this issue. My authority wishes to convey its total opposition to this course of action which it considers would (i) cause a major hazard in the transportation of the highly enriched uranium through the length of Scotland and (ii) result in the dumping of nuclear waste into the sea and air through re-processing. 577-1

In addition, recent confirmed incidences of radioactive accidents and leaks into the public environment at Dounreay as reported in the national press have added to public concerns over the safety of the operation of the Dounreay plant, especially since assurances of total safety control have been repeatedly given over a period of many years.

Accordingly, I write to convey the District Council's exhortations that your government take account of the above observations and resolve to send the spent fuel rods to the nuclear facility nearest to their point of origin for safe above-ground storage and monitoring. 577-2

Yours faithfully

Assistant Director of Administration

Copied to the Department of Trade and Industry

Gordon Elder LLB (Hons) Director of Administration

RESPONSE TO COMMENT
COMMENTOR NO. 577: WEST LOTHIAN DISTRICT COUNCIL

Response to Comment No. 577-1

The commentor's opposition to reprocessing at the Dounreay Site is noted. This is Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS.

The subjects of ground transport in foreign countries, allowed airborne and liquid releases in foreign countries, and public concerns over safety in foreign countries are outside the scope of this EIS. See Section 4.4.2.1 of the EIS and the response to Comment 484-11.

Response to Comment No. 577-2

The commentor's preference for overseas storage at facilities near the research reactors is noted. This is covered under Management Alternative 2, Subalternative 1a, which is discussed in Sections 2.3 and 4.4.1 of the EIS.

Commentor No. 730: Forskningsministeriet, Ministry of Research

FORSKNINGSMINISTERIET

Ministry
of Research

Bredgade 43
DK-1260 København K.

Tel. + 45 3392 9700
Fax + 45 3332 3501
Telex 15089 fd

15 JUNI 1995

Mr. Thomas P. Grumbly
Assistant Secretary for Environmental Management
Department of Energy
Forrestal Building
1000 Independence Avenue, S.W.
Washington, D.C. 20585-0001
USA

Subject: Draft Environmental Impact Statement on a Proposed Nuclear Weapons Non-Proliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, US Department of Energy, March 1995, DOE/EIS-0218D

Dear Assistant Secretary,

The Danish Ministry of Research, under whose auspices Risø National Laboratory (Risø) belongs, would like to submit the following comments on the above mentioned Draft Environmental Impact Statement.

We wish to express our appreciation of the great effort, which has been performed by the Department of Energy and the Department of State, preparing this very comprehensive and detailed document. We see it as a strong commitment by the US Government to reestablish the earlier policy for return of US origin spent nuclear fuel from foreign research reactors.

Denmark has always strongly supported all international initiatives leading up to the Non-Proliferation Treaty, and Denmark was one of the first countries to ratify this treaty in January 1969. Denmark, and especially Risø, actively supported and participated in the International Nuclear Fuel Cycle Evaluation, INFCE, and in accordance with the Danish policy Risø as operator of the Danish research reactor DR 3 actively joined the US-initiated RERTR Programme. Under this programme, Risø developed its own manufacturing process for low-enriched uranium-silicide fuel elements for the DR 3 Reactor.

Response to Comment Commentor No. 730: Forskningsministeriet, Ministry of Research

COMMENTOR NO. 730: FORSKNINGSMINISTERIET, MINISTRY OF RESEARCH (CONT'D.)

Conversion to LEU fuel started in 1988 and full conversion was achieved in 1990, DR 3 being one of the first converted research reactors.

For more than 33 years, the operation of the DR 3 has depended on the shipment of the spent fuel elements for reprocessing and/or final storage, first to the U.K. and later on to the United States.

Plans for final storage of high-level radioactive waste in Denmark have never been established. After the decision in 1985 by the Danish Parliament to exclude nuclear power reactors from the Danish energy systems, no such plans could be expected to be established in a foreseeable future. Therefore reprocessing at the British Dounreay Plant is no option for Risø because this would include the obligation for Denmark to take back the high-level waste.

Today DR 3 is one of the most efficiently exploited research reactors in Europe and is part of the Large Installations Programme under the research programmes of the European Union. Annually this attracts more than 100 European and American scientists, specialized in Materials Science to join the international recognized group of Danish scientists. The reactor is globally also one of the largest producers of irradiated silicon for semi-conductors, and covers the Danish needs for short-lived and specialized radio-isotopes for medical use.

The Danish Ministry of Research therefore fully support the intention of the U.S. Department of Energy to reestablish the policy for return of U.S. origin spent fuel from foreign research reactors as soon as possible in order to end nearly seven years of uncertainty in this matter. 730-1

I refer to the detailed comments forwarded directly to the U.S. Department of Energy by the Managing Director of Risø National Laboratory, Dr. Hans Bjørnum Møller, which are fully supported by the Danish Ministry of Research.

Yours sincerely,

Knud Larsen
Permanent Secretary

RESPONSE TO COMMENT COMMENTOR NO. 730: FORSKNINGSMINISTERIET, MINISTRY OF RESEARCH (CONT'D.)

Response to Comment No. 730-1

The commentor's support for Management Alternative 1, management of foreign research reactor spent nuclear fuel in the United States, as described in Section 2.2 of the EIS, is noted.

COMMENTOR NO. 857: GUNN, JOHN

CHARLES HEAD
OFFICE OF SPENT FUEL MANAGEMENT (EM-34)
U.S. DEPARTMENT OF ENERGY
1000 INDEPENDENCE AVE S.W.
WASHINGTON D.C. 20585

26 JUNE 1995.

JOHN GUNN.
16 OWEN PL
WICK. CAITHNESS
SCOTLAND KW1 4HT.

Sir

I am taking the liberty of writing to you about a serious matter that concerns your country and mine. It is about the efforts of the UKAEA to convince your people to send spent nuclear fuel to the Dounreay nuclear plant for re processing.

The management at Dounreay can not be trusted, their safety standards are poor. Beaches here have been contaminated with nuclear waste, there has been countless accidents with the release of radio activity into the environment, one had been recently. when radioactivity escaped into the air would have contaminated the county of Caithness and beyond, if the wind had been from the north.

Nuclear material frequently goes missing from the nuclear plant (I have enclosed some newspaper cuttings) I believe the U.S. government is very concerned about the availability of ~~radioactive~~ nuclear material that can be used for making nuclear weapons. I understand that the Dounreay re processing plant is past its safe working life

857-1

RESPONSE TO COMMENT
COMMENTOR NO. 857: GUNN, JOHN

Response to Comment No. 857-1

The subjects of airborne and liquid releases from reprocessing operations in foreign countries are outside the scope of this EIS. Please see Section 4.4.2.1 of the EIS and the response to Comment 484-11. Nevertheless, the commentor's opposition to reprocessing at the Dounreay Site is noted.

COMMENTOR NO. 857: GUNN, JOHN (CONT'D.)

Sending spent fuel rods to Dounreay for reprocessing would be hazardous in transporting it the length of Scotland, and would cause more nuclear waste to be dumped into the sea and the air in the reprocessing.

There is a cluster of child leukemia cases around Dounreay, it is obvious that this caused by the nuclear plant, but they just deny everything.

I understand that the USA. is consulting with their public on whether to send your spent fuel rods here to our country. Nobody here consults the Scottish people about such things, the UK government just imposes what it wants on us, everybody I talk to is against the plan to send your spent fuel rods from Europe to Scotland. The USA is very concerned for the environment, please show some concern for ours. Would it not be a better plan to send the spent fuel rods to their nearest nuclear facility for safe, above ground storage, and monitoring?

Yours sincerely John Gunn

857-1 (Cont'd.)

RESPONSE TO COMMENT
COMMENTOR NO. 857: GUNN, JOHN (CONT'D.)

COMMENTOR NO. 865: AUSTRALIAN DEPARTMENT OF FOREIGN AFFAIRS AND TRADE

DEPARTMENT OF FOREIGN AFFAIRS AND TRADE

CANBERRA ACT 2600

Mr Charles Head
Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
US Department of Energy
1000 Independence Avenue, SW
WASHINGTON DC 20585
USA

29 June, 1995

Dear Mr Head

The Australian Department of Foreign Affairs and Trade (DFAT) welcomes the opportunity to comment on the United States Department of Energy's Draft Environmental Impact Statement (EIS) on a Proposed Nuclear Weapons Non-Proliferation Policy concerning Foreign Research Reactor Spent Nuclear Fuel.

Our approach to this issue is guided by the primacy of our interests in nuclear non-proliferation. Both Australia and the United States have long been supportive of the international nuclear non-proliferation regime. This shared commitment to promoting nuclear non-proliferation was evident at the recent Nuclear Non-Proliferation Treaty Review and Extension Conference (NPTREC) through our common support for, and our respective efforts to secure, indefinite extension of the Treaty. An important part of our shared non-proliferation effort entails ensuring the proper management, accounting, physical protection, safety and eventual disposition of nuclear material. The NPTREC gave explicit endorsement, as part of its agreed Principles and Objectives for Nuclear Non-proliferation and Disarmament, to maintaining the most rigorous international standards in these practices.

The Draft Statement states clearly that one of the main intentions of the proposed new policy is to remove as much US-origin HEU as possible from international commerce so as to promote nuclear non-proliferation. DFAT strongly supports this approach. We consider that, of the three basic alternatives canvassed by the Draft Statement, Management Alternative 1, which requires the return to the US (for disposal or other management) of US-origin foreign research reactor spent nuclear fuel, represents by far the most effective way of pursuing this non-proliferation objective. Australia would be particularly concerned if a decision by the United States not to accept the return of spent reactor fuel were to lead to increased demand for reprocessing facilities in countries now holding US-origin fuel. Australia believes this would be contrary to sound non-proliferation principles which require sensitive nuclear facilities to exist in as few countries as possible. Nor do we believe it to be in the best interests of non-proliferation for there to exist substantial holdings of fissile material, albeit in spent fuel, in countries excess to their requirements. In Australia's case, where there is no call

865-1

865-2

RESPONSE TO COMMENT COMMENTOR NO. 865: AUSTRALIAN DEPARTMENT OF FOREIGN AFFAIRS AND TRADE

Response to Comment No. 865-1

The commentor's support for accepting and managing foreign research reactor spent nuclear fuel in the United States, is noted. Acceptance of foreign research reactor spent nuclear fuel in the U.S. is considered under Management Alternative 1 or 3, described in Section 2.2 and 2.4 of the EIS, respectively.

Response to Comment No. 865-2

The commentor's concern that selection of Management Alternative 2, as described in Section 2.3 of the EIS might lead to an increased demand for overseas reprocessing facilities is noted. In the event that Management Alternative 2 is selected, the United States would seek cooperative agreements with foreign reprocessing facilities to blend down the resultant HEU to LEU. It would also be important that existing foreign reprocessing facilities develop or maintain the capability to reprocess LEU so that conversions to or continued use of LEU in research reactors would be encouraged.

COMMENTOR NO. 865: AUSTRALIAN DEPARTMENT OF FOREIGN AFFAIRS AND TRADE (CONT'D.)

- 2 -

on such stocks for nuclear power generation, this fissile material is clearly excess to requirements and should desirably be removed.

The Draft Statement analyses in some detail the possible effects on the environment of the return of US-origin spent nuclear fuel. It notes the return of the spent fuel under Management Alternative 1 would be carried out according to strict international safety regulations relating to transport of radioactive material by ship and over land. Additionally, the various proposed ports of entry, management sites and storage technologies are canvassed with a view to minimising the impact on the environment and any possible risks to human health. We note that the Draft Statement concludes that the potential impact on the environment of Management Alternative 1 would be small.

The right of the United States to recover excess HEU (including irradiated HEU) supplied to Australia is clearly established in the United States-Australia Agreement concerning the Peaceful Uses of Nuclear Energy of 5 July 1979. The United States gave an undertaking that it would exercise that right when in January 1987 the DOE concluded a contract with the Australian Nuclear Science and Technology Organisation (ANSTO) for the return and reprocessing, on a commercial basis, of all its (then) US-origin holdings of spent fuel. Since then, Australia's consideration of the management of its spent fuel has been based upon the assumption that at least that material would be returned to the US. The spent fuel is held in storage at ANSTO pending a decision by DOE to proceed with its return. Since 1987, the inventory of spent research reactor fuel at ANSTO has grown close to filling the available storage facilities. Uncertainty about the United States' long-term position has undermined the basis for ANSTO pursuing its spent fuel management strategies. 865-3

The Department of Foreign Affairs and Trade considers the above factors should be taken fully into account in considering the various management alternatives in the EIS. They lead us to the clear conclusion that our common interests in effective and sound non-proliferation policies and practices would be best served by the implementation of Management Alternative 1.

Yours sincerely

Les Luck
Assistant Secretary
Nuclear Policy Branch

RESPONSE TO COMMENT COMMENTOR NO. 865: AUSTRALIAN DEPARTMENT OF FOREIGN AFFAIRS AND TRADE (CONT'D.)

Response to Comment No. 865-3

It is DOE's position that neither DOE nor the United States Government has any legal obligation to accept spent nuclear fuel from foreign research reactors.

COMMENTOR NO. 1012: GILMOUR, M.

27 MacRae St.,
Wick,
Caithness KW1 5QN.
Scotland.

24.6.95

Dear Sir,

The public in U.S.A. have been consulted on their views regarding the sending of 5000 spent fuel rods to Dounreay (Scotland). As there is no such opportunity in the U.K. I would like to give my objection to the scheme.

The major hazard involved in the transporting of this highly enriched uranium half way round the world seems ludicrous and with the end result being more nuclear waste to contend with, unacceptable.

1012-1

RESPONSE TO COMMENT
COMMENTOR NO. 1012: GILMOUR, M.

Response to Comment No. 1012-1

The commentor's opposition to reprocessing at the Dounreay Site is noted. This is part of Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS.

COMMENTOR NO. 1012: M. GILMOUR (CONT'D.)

As you are probably aware, the problems with disposal of the nuclear waste, especially in this part of the country have reached disturbing conclusions, with leaks being found on the shore + surrounding areas. **1012-1 (Cont'd.)**

For the sake of future generations please do not agree to this alarming project but approve the spent fuel rods being sent to their nearest facility for safe, above ground storage where they can be monitored, until they can be dealt with safely. **1012-2**

Sincerely,
M Gilmour.

RESPONSE TO COMMENT
COMMENTOR NO. 1012: M. GILMOUR (CONT'D.)

Response to Comment No. 1012-2

The commentor's preference for the alternative of overseas storage is noted. This is Management Alternative 2, Subalternative 1a, which is discussed in Sections 2.3 and 4.4.1 of the EIS.

COMMENTOR NO. 1021: HEATH, BERNARD J.

TELEPHONE (0847) 85664

Bernard and Betty Heath
"Little Clett"
Brough, DUNNET
Caithness
KW14 8XR

Charles Head
Office of Spent Fuel
U.S. Dept of Energy
1000 Independence Ave SW
WASHINGTON DC 20585

30-6-95

Dear Sir

The majority of the people up here in the NORTH of SCOTLAND have no faith in Dounreay's self styled 'Centre of Excellence'. There have been some terrible cock-ups over the years — many of these incidents are just now coming to light — you must be aware of these. 1021-1

Space age technology may come up with the final disposal answer, meantime please don't send your dangerous materials over here to our tiny island, store it safely meantime.

Yours sincerely
Bernard J Heath BEM
E.S. Heath BEM

RESPONSE TO COMMENT
COMMENTOR NO. 1021: HEATH, BERNARD J.

Response to Comment No. 1021-1

The commentor's opposition to reprocessing at the Dounreay Site is noted. This is part of Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS.

COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES

Nuclear Free Local Authorities (Scotland)
Secretariat

City of Aberdeen

SOLICITOR'S DIVISION
Town House, Aberdeen. AB9 1AQ
Telephone: 01224 276276
Fax: 01224 522491
DX: AB52

Our Ref: 23/4/5 GG
Date: 12/7/95

CONFIRMATION OF FAX.

Charles Head,
Programme Manager,
Office of Spent Nuclear Fuel
Management (EM-37),
US Department of Energy,
1000 Independence Avenue SW,
WASHINGTON, DC 20585.

Dear Mr. Head,

Response to Consultation on Draft Environmental Impact Assessment
Reprocessing of HEU Fuel

I am writing on behalf of Nuclear Free Local Authorities (Scotland). NFLA(S) is an organisation to which most of the Regional, District and Islands Councils in Scotland are affiliated; local authorities in membership presently represent more than 90% of the Scottish population. NFLA (Scotland) is part of International Nuclear Free Local Authorities, an International Organisation of several thousand local councils spanning all major continents and recognised by the United Nations as a non-governmental organisation. In this way, local councils are united in pressing their national governments to do more to reduce and ultimately eliminate the risks associated with the continued use and proliferation of nuclear technologies.

The Scottish Steering Committee, at their meeting in Aberdeen on 19th June, instructed that I submit on their behalf a response to the consultation presently being undertaken by the Department of Energy on proposals which may, inter alia, allow the reprocessing of HEU fuel from overseas reactors at UK AEA's Dounreay Nuclear Establishment in Caithness. The response is enclosed with this letter.

Whilst I am aware that the consultation period was to have expired on 20th June, I now understand that this has been extended to 20th July.

I should therefore be obliged if you would acknowledge timeous receipt of this letter and confirm that the submission enclosed herewith will be taken fully into consideration in the preparation of your Department's report on the issues which, I understand will be available in September, although perhaps you would confirm that this is so.

I should be grateful if you would provide me with a copy of the final EIS at the earliest opportunity.

Yours faithfully,

John A. Marr
Solicitor
Secretary to NFLA (Scotland)

ALAN T TOWNS
CITY SOLICITOR

RESPONSE TO COMMENT
COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES

COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

SUBMISSION OF NUCLEAR FREE LOCAL AUTHORITIES (SCOTLAND)

to

US DEPARTMENT OF ENERGY CONSULTATION

on

REPROCESSING OF HEU FUEL

1. **Proposals**

In order to facilitate the reprocessing of approximately 22,700 US-origin weapons grade spent highly enriched uranium (HEU) fuel rods from research reactors in 41 countries, it has been proposed that 5,613 rods be reprocessed at UK AEA's Dounreay Nuclear Establishment in Caithness, Scotland.

2. **Timescale for Consultation**

A draft Environmental Impact Statement (EIS) concerning this and other proposals for the reprocessing of HEU fuel from overseas research reactors was published by the US Department of Energy in April, 1995. Responses to the statement were invited as part of a consultation exercise which expired originally on 20th June, 1995, but which is now due to expire on 20th July, 1995.

NFLA(S) are concerned that, whilst the EIS was published for consultation in the United States in April, the Statement did not become available in Scotland until the beginning of June thereby allowing insufficient time for the significant proposals contained therein to be assessed and evaluated.

Accordingly, NFLA(S) are concerned that the Department of Energy may be seeking to hasten the consultation process by allowing less time for the preparation of submissions from this Country than those from the US. *1117-1*

NFLA(S) further feel that the effect of the shorter time available for preparation of submissions will be that the concerns of many organisations in Scotland may either go unheard, or may be stated hastily with the result that the Consultation may be concluded without the benefit of the best information presented in a rational, unhurried manner.

2. **The Suitability of Dounreay as a Venue for Intensive Spent Fuel Reprocessing**

NFLA(S) understands that the Department of Energy has proposed using plant at Dounreay associated with the Prototype Fast Reactor (PFR) and not the Materials Testing Reactor (MTR) which has carried out such work in the past. *1117-2*

RESPONSE TO COMMENT COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

Response to Comment No. 1117-1

DOE regrets any delay that may have occurred in the commentor's receipt of the draft EIS. Notice of the proposed policy was provided with the publication in the *Federal Register* (60 FR 19899, April 21, 1995) of the availability of the draft EIS. In order to ensure that an interested party (e.g., a foreign nation) has adequate time to review a document prepared under NEPA, it is recommended that attempts be made to secure access to the *Federal Register* so that such interested parties may review, at the earliest opportunity, announcements by a Federal agency (e.g., DOE) of proposed major Federal actions.

Response to Comment No. 1117-2

The text in the Summary has been revised to eliminate the reference to the Prototype Fast Reactor Reprocessing Plant. The decision of which Dounreay plant(s) to use would be up to the plant operators and United Kingdom government regulators, not DOE. The discussion about current reprocessing activities at the Dounreay Site has also been revised in Section 2.3 of the EIS. (See the response to Comment 490-1.)

COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

It is likely, however, according to estimates of AEA which runs the Dounreay site, that the PFR plant would not be able to undertake such work until 1997/98 when the reprocessing of the last charge of PFR fuel has been completed.

Accordingly, NFLA(S) would wish to question the rationale behind the desire of the Department of Energy that the work be undertaken at the PFR plant which is engaged until 1997/98 when the MTR plant is already idle and was, in fact, mothballed in 1994, and would call for clarification of which reprocessing plant the Department of Energy proposes making use of.

Part of the EIS describes the UK as having modern fuel cycle facilities. NFLA(S) believe this cannot be said of Dounreay where reprocessing facilities have operated for nearly 40 years.

NFLA(S) is concerned that the EIS presents an inaccurate picture of events at Dounreay by claiming that "the British facilities at Dounreay are currently reprocessing foreign research reactor fuel". This is not so, as earlier reprocessing contracts expired in 1994.

NFLA(S) is further concerned by the inevitable increases in marine and aerial discharges which would accompany any intensification of reprocessing work undertaken at the plant which is already nearing the end of its working life.

Aware that US policy is to discourage reprocessing, NFLA(S) is concerned that any moves towards US-backed contracts for sending HEU fuel to Dounreay would prolong the operation of the plant which would otherwise close.

Between 1958 and 1994, Dounreay reprocessed some 3,415 spent fuel elements from foreign research reactors. Now, however, it is proposed that the plant increase its throughput massively by reprocessing some 5,613 elements in just 12 years; indeed NFLA(S) is aware that some sources suggest up to 15000 elements are being considered for overseas reprocessing.

Importation of spent HEU fuel for remediation on this scale would increase waste streams for management in this Country or discharge to the environment.

Dounreay is currently renegotiating its permits to discharge radioactivity into the environment and has submitted an application to HM Industrial Pollution Inspectorate (HMIPI) which seeks approval to increase its actual discharges by up to 1000%. NFLA (Scotland) is working with NFLA (UK) in contesting the application on a number of grounds.

1117-2 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

While some of the facilities at the Dounreay Site are old, the United Kingdom has complete modern fuel cycle facilities at the Sellafield Site. The point of the statement in the EIS, however, is that the technical expertise to reprocess already exists in France and the United Kingdom. Thus, contracting for reprocessing services in one or both of those countries would not increase the risk of proliferation.

The subjects of airborne and liquid releases from reprocessing operations in foreign countries are outside the scope of this EIS. See Section 4.4.2.1 of the EIS and the response to Comment 484-11.

The commentor's statement that U.S. policy is to discourage reprocessing is incorrect. As explained in Section 1.1 of the EIS, the U.S. Government does not encourage the civil use of plutonium, but it is also committed to being a reliable nuclear trading partner and to avoiding interference in peaceful nuclear programs.

For the number of elements that could be reprocessed at the Dounreay Site under each of the alternatives, see the response to Comment 490-1.

COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

NFLA(S) is therefore extremely concerned by the current situation regarding a possible lack of valid discharge authorisations in respect of reprocessing activities at the site and is further gravely concerned by the safety implications of massively increasing reprocessing throughput given the site's poor safety record as evidenced by continuing instances of accidents involving the escape of plutonium dust from reprocessing plant D1206 together with ongoing problems in respect of a redundant radioactive and chemical waste storage shaft which exploded in 1977 and which was highlighted in a recent joint report by two UK Government Advisory Bodies (the Radioactive Waste Management Advisory Committee and the Committee on Medical Aspects of Radiation in the Environment) as the most likely source of radioactive contamination found on nearby beaches and also within the site itself. Indeed, at the time of writing, further radioactive hotspots have been discovered within the site which are believed also to have originated from the waste shaft explosion, together with small quantities in a Dounreay office building. 1117-2 (Cont'd.)

Whilst the RWMAC/COMARE report highlighted the waste shaft as the most likely source of the contaminants, it could not rule out other possible sources including the fuel handling area which would be most likely to receive the HEU fuel in the first instance.

3. Transport Implications

Transport routes to Dounreay from foreign research reactors will depend on the country of origin but experience so far suggests that waste will arrive on non-purpose built ships at ports in the south of Britain and then travel by road to Dounreay.

It is understood that the International Atomic Energy Agency (IAEA) require flasks for transporting spent fuel be designed to survive the impact of a nine metre fall, being engulfed in fire for 30 minutes at a temperature of 800°C and immersion at a depth of 200 metres for one hour. 1117-3

It is further understood that International Maritime Organisation statistics show a average duration of a shipboard fire as 28 hours at sea and 23 hours in port with temperatures exceeding 1000°C.

Accordingly, NFLA(S) is extremely concerned that IAEA requirements regarding flask integrity may be inadequate. Indeed, such are the possible consequence of a major accident during transportation of radioactive materials that the world's leading marine insurance markets have introduced clauses into their policies excluding coverage of accidents involving radioactive contamination.

RESPONSE TO COMMENT COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

Response to Comment No. 1117-3

The transportation casks that would be used for the foreign research reactor spent nuclear fuel are certified if their design meets certain tests, including a fire test, and if the individual casks pass periodic inspections (Section 2.6.2 of the EIS). These certification standards were developed for use of the transportation casks on land, hence the 30 minute fire test, which is considered to be the extent of a high intensity fire resulting from a collision with a tanker truck. The duration of a ship fire is directly related to the amount of combustibles carried on board. The number of severe fires on ships is relatively small. Data available on the last 15 years from Lloyd's of London indicate that of 1,073 ship collisions in port worldwide, only eleven led to fires, and of those, only five caused extensive damage, with only one actually causing buckling of structures.

In respect to the impact a ship fire might have on a transportation cask, there are three facts that would mitigate the potential damage. First, ship fires tend to move to different areas of the ship as the combustible material is consumed, so the cask would not be exposed for the entire duration of the fire. Second, a ship's fire intensity is normally limited by the amount of oxygen that can reach the interior of a hold. Third, all ships that would be used to transport foreign research reactor spent nuclear fuel have built-in fire suppression equipment, which at a minimum would keep fires well below the extreme temperatures needed to damage the spent nuclear fuel transportation cask. For these reasons, it would be almost impossible for spent nuclear fuel inside the transportation cask to reach 900 degrees Kelvin (1,160 degrees F), the melting point of research reactor spent nuclear fuel. The probability of reaching such a temperature was calculated to be less than one in a billion (see Attachment D5 to Appendix D of the EIS). To put this temperature into perspective, steel used in a ship's structure buckles at around 700 degrees Kelvin (800 degrees F).

The EIS contains the results of an analysis of the effects of an accident that involves a severe fire (severity category 6), which does not reach the temperature to melt foreign research reactor spent nuclear fuel. Appendix D, Sections D.5.3 of the EIS presents detailed discussion of accident probabilities and radioactive material source terms and Section D.5.4 presents the results of the analyses.

In conclusion, although long duration ship fires are possible, and have occurred, they are uncommon events. Analyses in the EIS indicate that even in the event of a severe ship fire involving a transportation cask, neither the consequences nor risks are great (see Appendix D, Section D.5.5 of the EIS).

COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

NFLA(S) has campaigned vigorously for many years against the transportation of radioactive waste materials and in this regard the Organisation is concerned by proposals contained in the EIS for intensive transportation of considerable quantities of radioactive wastes to the Dounreay site for remediation.

4. **Conclusions**

NFLA(S) recognises the importance of reducing and ultimately eliminating the threat of proliferation of nuclear weapons through proper management of spent fuel from foreign research reactors. *1117-4*

In this regard, NFLA(S) is of the view that "proper management" should not include the option of remediation either in the US or abroad but should concentrate instead, on high security above-ground storage and monitoring of waste materials. *1117-5*

NFLA(S) believes Dounreay will not be a suitable site for the intensive waste remediation proposed by the Department of Energy because *1117-2 (Cont'd.)*

- risks associated with an accident in transportation may not be minimised.
- the Dounreay site is elderly and may not be able to safely handle an intensive programme of reprocessing work.
- the Dounreay site has a very poor safety record.
- UK Government bodies believe radioactive hotspots in and around the plant are most likely to have originated from an unstable waste shaft although the fuel handling area cannot be ruled out as a possible source.
- Dounreay management has demonstrated a cavalier attitude to regulatory and safety requirements.

NFLA(S) would be grateful to receive a copy of the final EIS as soon as it is available.

John A. Marr
Solicitor and Secretary
on behalf of Nuclear Free Local Authorities (Scotland)

RESPONSE TO COMMENT COMMENTOR NO. 1117: NUCLEAR FREE LOCAL AUTHORITIES (CONT'D.)

Response to Comment No. 1117-4

The commentor's support for the nonproliferation of nuclear weapons is noted.

Response to Comment No. 1117-5

The commentor's preference for storage over reprocessing, whether in the U.S. or abroad, is noted. Storage is included under Management Alternatives 1, 2, and 3, which are discussed in Sections 2.2, 2.3, 2.4, 4.2, 4.3, 4.4, and 4.5 of the EIS.

COMMENTOR NO. 1119: GREENPEACE, NETHERLANDS

Stichting GREENPEACE Nederland
Keizersgracht 174
1016 DW Amsterdam
Telefoon: 020-6261 077
Telefax: 020-6231 272

Mr. Charles Head, Program Manager
Office of Spent Nuclear Fuel Management (EM-37)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
U.S.A.
FAX: 00.1.202.586.5256

Amsterdam, July 18th, 1995.

Dear Sir,

Please find below our comments on the "Draft Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Fuel".

General information

In the Netherlands there are three research reactors using high enriched uranium (HEU) of US origin:

1. High Flux Reactor (HFR of pool type) of 45 Megawatt using 93% HEU. This reactor is located near the village Petten and operated by the Joint Research Center of the European Commission (EC). The EC (Euratom) is the formal owner.

2. Low Flux Reactor (LFR of Argonaut type) of 30 Kilowatt using 90% HEU. This reactor is owned and operated by the state-owned Netherlands Energy Research Foundation (ECN) which is also a major client of the HFR. The LFR is also on the premises of ECN near Petten.

3. Hoger Onderwijs Reactor (HOR of pool type) of 2 Megawatt using 93% HEU. This reactor is owned by the University of Delft and operated by the Interuniversity Reactor Institute (IRI). The HOR is the only reactor in the Netherlands to be converted in the near future to use LEU.

RESPONSE TO COMMENT
COMMENTOR NO. 1119: GREENPEACE, NETHERLANDS

COMMENTOR NO. 1119: GREENPEACE, NETHERLANDS (CONT'D.)

Nonproliferation objectives

As it comes to US nonproliferation policies the main concern of Greenpeace Netherlands is the High Flux Reactor (HFR) since this reactor is one of the most powerful multi-purpose research and test reactors in the world.

In short, the main reason for this concern is the actual transformation of the HFR as a reactor for scientific research into a production reactor for commercial purposes.

Recently the ECN asked for new licences in order to exploit the HFR for more commercial use in the medical field. One of the main activities of the HFR in the near future is the production of Molybdenum-99 which will be separated in a special ECN laboratory from HFR's irradiated fuel elements.
This molybdenum-99 (Mo-99) is the 'raw material' for the production of technetium-99m (Tc-99) by the US firm Mallinckrodt Medical BV, also based at the premises of ECN at Petten. TC-99 is a decay product of Mo-99.
Although the owner, the European Commission, seems to be willing to convert the HFR to LEU according to the US RERTR program, it is in the commercial interest of ECN and of the US company Mallinckrodt to continue the irradiation and fission of HEU targets (Ual) in the HFR since production of molybdenum-99 is much more effective and cheaper from HEU than from LEU.

1119-1

Production of Mo-99 from LEU is possible by using U_3Si_2 targets instead of Ual targets. Separation of Mo-99 from Silicate targets, however, needs a different dissolution technology, new installations and a new development process. It is, therefore, not in the interest of the US company Mallinckrodt to promote a rapid conversion program. So the ongoing delay of a conversion program of the HFR - conversion studies have been carried out already from 1985 onwards -is not only the responsability of Euratom and the ECN, but also of the US company Mallinckrodt.
Since the purpose of the proposed US policy is to promote nonproliferation objectives by seeking reduction of HEU from civilian commerce, Greenpeace Netherlands believes the US government should address the proliferation issue also to the US company Mallinckrodt which, as the major client of ECN, is also responsable for the present deadlock situation in respect to conversion plans of the HFR.

In the near future governmental responsabilities of the HFR might shift more and more from the European level to the national level, in casu to the Dutch government. At the moment, for a four-year period (1992-1996), the HFR is financed via Euratom by government subsidies from Germany (42.5 million Ecu or 85 million Dutch guilders) and the Netherlands (75 million Dutch guilders).
The German government has indicated it will not renew its subsidies for the next four-year period. As part of a nuclear phase-out

RESPONSE TO COMMENT
COMMENTOR NO. 1119: GREENPEACE, NETHERLANDS (CONT'D.)

Response to Comment No. 1119-1

The commentor's reiteration of the fact that some foreign research reactors are used to produce medical isotopes, and the commentor's emphasis on the importance of converting foreign research reactors from using HEU to LEU, are noted. The intent of the proposed policy is to remove as much U.S.-origin HEU as possible from civil programs worldwide and give foreign research reactor operators time to convert their reactors to the use of LEU fuels and to make arrangements for disposition of their LEU spent nuclear fuel (Section 1.2 of the EIS).

At a power rating of 45 MW, this reactor is one of the most powerful research reactors fueled by HEU enriched in the United States. The commentor's concern about the HFR and support for its quick conversion are noted. As shown in Appendix B, Table B-3, this reactor can be converted to the use of LEU fuel and this conversion is expected to begin before 2001.

DOE and the Department of State are also promoting the conversion of HEU targets to LEU targets in foreign research reactors by offering the same incentives for target material as for spent nuclear fuel from foreign research reactors. These incentives apply to the reactor owners, reactor operators, or whoever else may be responsible for management of target material. If Mallinckrodt Medical BV is responsible, directly or indirectly, for the management of target material that was enriched in the United States, then it could benefit from these incentives. DOE and the Department of State cannot, however, apply any additional or direct pressure on Mallinckrodt Medical BV, as suggested by the commentor. Consideration of U.S. corporations' roles as clients to foreign research reactor owners/operators is outside the scope of this EIS.

The issue of funding for HFR is also outside the scope of this EIS.

policy the Dutch government has already cut subsidies for nuclear research by ECN and is encouraging the ECN to find funding from commercial sources. At the moment it is not clear if the Dutch government will continue to fund the HFR.

In this situation, where continued exploitation of the HFR has become very controversial in the Netherlands, where there have been discussions with the Russian company Minatom as an alternative supplier of HEU, and where there is a real threat of sending HFR's spent fuel to the ill-managed Dounreay reprocessing plant in Scotland, Greenpeace Netherlands concludes that the proliferation risks of the use of HEU of US origin can only be solved by a quick conversion process. 1119-1 (Cont'd.)

Sincerely yours,

Jaap Bodenburg

Greenpeace Netherlands
Nuclear Campaign

COMMENTOR NO. 1131: DEJONGHE, PAUL

DR. IR. PAUL DEJONGHE

8400 OOSTENDE
MARN. JANSSENSLAAN 5, BUS 7
TEL. 059/50 15 08

Oostende, 23.05.1995

Edlow International Company
1666 Connecticut Ave.,N.W. Suite 500
Washington D.C. 20009, USA

Fax 00.1.202.483.4959

Dear Jack,

conc. : meeting of the "Edlow Group" May 30 and 31 inWashington D.C.

Please find herewith two notes which we prepared after we received your messages in view of the meeting of next week and which were submitted to the new management at SCK/CEN. I will try to have at hand a new version of the table which summarizes our needs in shipping or reprocessing during the coming years.

Looking again at page 3 of the EIS Summary document, which illustrates Uses and Benefits of Research Reactors, I am surprised finding no single reference towards a major use of research reactors, which is the testing of materials and fuels. In recent years, more and more attention is being paid to testing various modern fuel forms, not only MOX (safety experiments) but also NPT more friendly fuels such as cermets and fuels for actinide burning programmes; Reactor safety is also a major subject requiring irradiations. Ignoring such uses of research reactors can sound very good if one wants to illustrate that research reactors mainly serve objectives of scientific research, medicine and quality control in industry. However, it does not necessarily reflect the total truth and this might become counterproductive at some time. 1131-1

I am looking forward to our meeting.

Sincerely,

Paul Dejonghe

encl : 2
Total # of pages : 3

RESPONSE TO COMMENT
COMMENTOR NO. 1131: DEJONGHE, PAUL

Response to Comment No. 1131-1

In Section 1.1 of the EIS, testing of materials was attributed to the research reactor benefits. Testing of materials and fuels has been added to Figure S-1 of the EIS Summary to highlight further the research reactors' usefulness and benefits.

COMMENTOR NO. 1132: JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

May 18, 1995

Ms. Marilena Conde
Assistant to the President
Edlow International Company
1666 Connecticut Ave., N.W., Suite 201
Washington, D.C. 20009
U.S.A.

Dear Ms. Conde,

Thank you very much for your welcome letter dated April 17, 1995. I also be happy to work with you for research reactors.

Now, I am sending our comments for the draft NIS which was released April 12. Please find it in the attached paper. I would be happy if you could synthesize the these comments into your comments.

One of our staff in JAERI's Washington office will attend the public hearing on the NIS in Washington on May 31, as well as the meeting of the Edlow Group on May 30.

Sincerely yours,

H. Tsuruta

H. Tsuruta
General Manager
Office of Nuclear Fuel Management
Office of Safety and Control
Japan Atomic Energy Research Inst.

1

RESPONSE TO COMMENT COMMENTOR NO. 1132: JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

COMMENTOR NO. 1132: JAPAN ATOMIC ENERGY RESEARCH INSTITUTE (CONT'D.)

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
OFFICE OF SAFETY AND CONTROL

FUKOKU-SEIMEI BLDG
2-2-2 UCHISAIWAI-CHO
CHIYODA-KU, TOKYO 100
JAPAN

FAX 81-3-3592-2198
PHONE 81-3-3592-2361

TO : FAX 202-488-4840

MRS. MARILENA CHEDE
ASSISTANT TO THE PRESIDENT

EDLOW INTERNATIONAL COMPANY
1666 CONNECTICUT AVE., N.W., SUITE 201
WASHINGTON, D.C. 20009
U.S.A.

FROM : HANMICHI TSUBUTA
OFFICE OF NUCLEAR FUEL MANAGEMENT

DATE : JUNE 20, 1995

TOTAL PAGES INCLUDING THIS COVER PAGE: 2

SUBJECT : COMMENTS BY JAERI AND KYOTO UNIV. ON DRAFT EIS

TEXT : FOR YOUR REFERENCE, ATTACHED IS A COPY OF OUR COMMENTS ON DOE'S DRAFT EIS UNDER JOINT SIGNATURE OF JAERI AND KYOTO UNIV. THE COMMENTS WERE SUBMITTED TO MR. CHARLES HEAD, PROGRAM MANAGER OF U.S.DOE, ON JUNE 16, 1995. 1132-1

AS STATED IN ITEM 8 OF THE COMMENTS, WE THINK THAT JAERI'S TRANSPORTATION CASKS CAN BE USED FOR OUR TEST AND RESEARCH REACTORS, SUCH AS JMTR, JRR-2, JRR-3 AND JRR-4. ACCORDING TO OUR REPRESENTATIVE AT EDLOW'S CONFERENCE HELD AT WASHINGTON D.C. ON MAY 30, 1995, HOWEVER, MR. JACK EDLOW MENTIONED THAT JAPAN IS NOT LIKELY SHARE THE CASKS AND A NEW CASK TYPE IS NEEDED. I WOULD APPRECIATE IT IF YOU WOULD KINDLY EXPLAIN MORE DETAILS WHY OUR CASKS ARE NOT APPLICABLE. 1132-2

WE LOOK FORWARD TO HEARING FROM YOU. THANK YOU.

RESPONSE TO COMMENT COMMENTOR NO. 1132: JAPAN ATOMIC ENERGY RESEARCH INSTITUTE (CONT'D.)

Response to Comment No. 1132-1

The attachment which contains additional specific comments on the draft EIS has been received by DOE and is identified as document 268. Responses have been provided to each of the attached comments in the response to document 268.

Response to Comment No. 1132-2

Table B-14 of the EIS identifies representative transportation casks that might be used during spent nuclear fuel transport. Other casks could be used if they become available and are approved by the U.S. Department of Transportation.

Commentor No. 1132: Japan Atomic Energy Research Institute (Cont'd.)

Comments by Japan Atomic Energy Research Institute
and Kyoto University
on
The Department of Energy's Draft Environmental Impact Statement
on a Proposed Nuclear Weapons Nonproliferation Policy
concerning Foreign Research Reactor Spent Nuclear Fuel

June 1995

We are filing written comments on the draft Environmental Impact Statement (EIS). Although we generally support its analysis, we have great concerns in the following points:

1. The cost estimates by DOE are tremendously high. Statements on the items of the costs, namely, the basis of actual cost, are necessary to be categorized.

2. Although we are willing to pay a truly cost-based price, any additional fee which would come from the change of the management, is difficult to be paid for budgetary clarification.

3. A failed fuel which would be sealed in a can, needs to be accepted by the U.S.

4. The Department of Energy shall compensate the reactor operator for uranium in the spent nuclear fuel accepted in the U.S. Such compensation by DOE will consists of providing LEU of equivalent value or financial settlement.

5. When DOE decided to promote reprocessing of the U.S. origin spent nuclear fuel outside of the U.S., such as the United Kingdom or France, the United States should accept the radioactive wastes resulting from the processing.

6. Typical transportation casks are illustrated in the EIS. Unfortunately, JAERI's casks, such as JRC-80Y-20T and JMS-87Y-18.5T, are not found in Volume 1 or Appendix B.
Those casks were licensed in the past, and their certificate number were USA/0208/B(U)F and USA/0401/B(U)F-85, respectively. We think that these casks approved by the U.S. Competent Authority, can be used for the transportation of our research reactor spent nuclear fuel.

Japan Atomic Energy Research Institute is joining in the Edlow Group which is an association of 14 foreign research reactors facilities. We believe that our comments mentioned above, are fundamentally in conformity Edlow's and we support them, firmly.

Finally, we would like to request that a Record of Decision followed by the final EIS will be issued by the end of December 1995 as scheduled.

Response to Comment Commentor No. 1132: Japan Atomic Energy Research Institute (Cont'd.)

COMMENTOR NO. 1133: PAUL SCHERRER INSTITUT

PAUL SCHERRER INSTITUT

CH-5232 Villigen PSI
Schweiz

Telefon zentral 056 / 99 21 11
direkt 056 / 99 26 93
Telefax direkt 056 / 99 23 27

Villigen 20.5.95

United States Department of Energy
Office of Environmental Management (EM-37)
Attn: Mr. Charles Head
1000 Independence Avenue, S.W.
Washington, DC 20585-0001

SUBJECT: EIS Draft Comments from Paul Scherrer Intitute

Comment 1
In the introduction of the EIS-Draft DOE's "Off-Site Fuels Policy" is defined contradictive to the prior consent between PSI and DOE. In 1986 DOE declared to accept all spent fuel which contains uranium, enriched in the US as a prerequisitive of the implementation of the RERTR program.
PSI trusted on the assurance of the US to accept this fuel and started very early under great effort and costs the conversion of its research reactor to LEU-fuel. We also supported the international cooperation to reach the goals of the non proliferation policy by assisting the IAEA's consultant group. Our contributions are documented in the "Research Reactor Core Conversion from the Use of Highly enriched Uranium to the Use of Low enriched Uranium Fuels guidebook" (IAEA-TECDOC-233).
We are concerned about the change in the US policy, when the "Off-Site Fuels Policy" of 1988 was unilaterally declared as expired in spite of the contract which we still regard as valid. *1133-1*

Comment 2
In the intaduction on page 1-3, 4th paragraph, concerning the non acceptance of spent fuel, only 153 elements are excepted from non acceptance this instead of the 409 elements, for which DOE has signed contracts. The second shipment is still due to be accepted by the US. *1133-2*

Comment 3
In the table B-1 in of Appendix B, 159 spent fuel elements from Switzerland are estimated to be managed under the EIS policy by january 2006. Included in this total number of elements are the 33 elements to be shipped under the EA agreement as soon as the ligitation in South Carolina is resolved.
PSI has a valid contract for the return of these elements under the EA agreement and can therefore not accept, that these 33 elements are accounted under the EIS, as published in the draft of the EIS. These 33 elements are prepared for shipment by cutting off the bottom adaptors and top ends with handles.
An extraordinary extension for temporarily storage of these elements in our hotlab's transfer pool expires in August 1995 because this pool is only licenced for loading fuel transportation casks. *1133-3*

Yours sincerely
Paul Scherrer Institute

R. Brogli

R. Brogli

RESPONSE TO COMMENT
COMMENTOR NO. 1133: PAUL SCHERRER INSTITUT

Response to Comment No. 1133-1

The commentor's position that the United States is legally obligated to accept spent nuclear fuel from the Paul Scherrer Institut is noted. It is DOE's position that neither DOE nor the United States Government has any legal obligation to accept spent nuclear fuel from foreign research reactors.

Response to Comment No. 1133-2

The Environmental Assessment of Urgent-Relief Acceptance of Foreign Research Reactor Spent Nuclear Fuel covers 409 spent nuclear fuel elements, of which 153 have been shipped to the United States as of September 1995. Shipment of the remainder of the elements is pending.

Response to Comment No. 1133-3

Tables 2-1 (Section 2.2.1, Volume 1) and B-1 (Appendix B) of the EIS show the total number of spent nuclear fuel elements from Switzerland that are estimated for management under the proposed action. Totals shown include elements to be accepted under the Urgent-Relief Environmental Assessment (Section 1.5 of the EIS).

COMMENTOR NO. 1134: NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS"

NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS"
153 10 AG. PARASKEVI ATTIKIS POB 60228 TEL. 6513111-9 6518911-8 TLX 216199 ATOM

Research Reactor Laboratory
Tel: 6514118
Fax: 6533431

Aghia Paraskevi, 26/5/95

To: Edlow International Company
1666 Connecticut Ave.,
N.W. Suite 500
Washington, D.C. 20009
U.S.A.

Dear Jack,

Unfortunately I cannot attend the meeting of May 30th. I hope that Mr. Chronopoulos will represent us like last time did.

We agree with your arguments stated on the "Statement" on the DOE's EIS and the whole text is very solid and sound. 1134-1

Additionally we send you some comments on the draft EIS.

Finally we would like you to make clear the situation concerning the transportation cask for our case. In the draft EIS, vol. 2, ap. B, page B36, it is stated that NAC-LWT cask is "NA for MTR", but in page B45 it is stated that the cask "could be used with a proper basket design". Since we have signed a contract to use NAC-LWT casks please explain if there is any problem. On the other hand Transnucleaire shows a strong interest to undertake the transportation although we have repeatedly stated to them that we already have signed the above mentioned contract. 1134-2

I hope that the meeting will be quite successful and that the Public hearing will turn to be very favourable for all of us.

Best regards,

RESPONSE TO COMMENT
COMMENTOR NO. 1134: NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS"

Response to Comment No. 1134-1

The commentor's support for the proposed action and the acknowledgment for the soundness of the analysis presented in the EIS is noted.

Response to Comment No. 1134-2

As indicated in Appendix B, NAC LWT cask could be used with a proper basket to ship foreign research reactor spent nuclear fuel. At the time of the draft EIS, NAC LWT did not have a certificate of compliance to be used for shipment of HEU spent nuclear fuel. Recently the cask manufacturer has received a certificate from the U.S. Department of Transportation. Appendix B of the EIS has been revised to accommodate the changes regarding the new certification.

COMMENTOR NO. 1134: NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS" (CONT'D.)

Comments on the draft EIS from GRR-1

1. ***Application of draft EIS***

The draft EIS gives a solution to the problem for GRR-1 for the future.
The situation now is quite critical.
The reactor is operating only two or three days per week (9 hours/day) due to high burn-up of HEU fuel in use. LEU fuel has already been delivered but the conversion procedure has stopped for the present, due to lack of availability of storage for spent fuel.

2. ***Programmating and regulatory aspects***

GRR-1 is the sole nuclear research reactor operating in the country.
It is used for basic and applied research, as well as for radioisotope production and other applications in medicine, agriculture, industry e.t.c.

We consider the operation of our reactor quite valuable for the country.
The accumulation of big number of spent fuel assemblies produces not only operational problems for the reactor, but also troubles with the regulatory authorities.

In the past, the regulatory authorities were demanding us to ensure about the shipment of the spent fuel in order to issue the import licence for the LEU fuel which was about to be delivered.

1134-3

RESPONSE TO COMMENT
COMMENTOR NO. 1134: NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS" (CONT'D.)

Response to Comment No. 1134-3

The commentor's acknowledgment that the proposed action would resolve problems with the continued operation of the Greek research reactor GRR-1 is noted.

COMMENTOR NO. 1134: NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS" (CONT'D.)

3. ***Needs during 1996-1997***

The Needs for shipment during the transition period 1996-97 depend on the court decision for "urgent relief". If the decision is favourable for "Edlow Group" and the shipment of 66 spent fuel assemblies from GRR-1 takes place in the near future (in 1995), then we can program shipment under EIS in 1997. In case the decision is not favourable, we must program a shipment of 60-70 assemblies in 1996 or a shipment of 30-35 assemblies in 1996 and one equal shipment in 1997. *1134-4*

4. ***Reprocessing at Dounreay***

The lack of a high radiation waste disposal site in Greece makes the Dounreay solution unapplicable for our case if we have to take back and store the highrad waste. *1134-5*

For GRR-1,

C. Papastergiou

Reactor Manager

RESPONSE TO COMMENT COMMENTOR NO. 1134: NATIONAL CENTRE FOR SCIENTIFIC RESEARCH "DEMOKRITOS" (CONT'D.)

Response to Comment No. 1134-4

The commentor's position that court decisions for urgent relief shipments could affect shipping schedules under this EIS is noted. If a policy to manage foreign research reactor spent nuclear fuel in the United States is adopted, the Record of Decision for this action would be scheduled for publication no sooner than 30 days after publication of this document.

Response to Comment No. 1134-5

DOE acknowledges the lack of high-level waste handling, storage, and disposal capabilities in Greece.

COMMENTOR NO. 1218: ATOMIC ENERGY BUREAU, SCIENCE AND TECHNOLOGY AGENCY

SCIENCE AND TECHNOLOGY AGENCY
PRIME MINISTER'S OFFICE

科学技術庁
〒100 東京都千代田区霞が関2－2－1

2-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100, JAPAN
Telephone: Tokyo (03)3581-8271
Telex: 02228720 STASGDJ
Fax: +81-3581-5196

July 20, 1995

Mr. Charles Head
Office of Spent Nuclear Fuel Manager
U.S. Department of Energy
1000 Independence Avenue. SW
Washington, DC 20585
U. S. A

Dear Mr. Head,

I express my gratitude for your study for restarting of acceptance of foreign research reactor spent nuclear fuel by the United States Department of Energy (DOE). I wish that the acceptance of the spent fuel of research reactors of Japan will be restarted soon by USA., from the view point of continuous and smooth operation of research reactors in Japan. *1218-1*

I also hope you to consider the comments of Japan Atomic Energy Research Institute and Kyoto University on the Draft Environmental Impact Statement (EIS) on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel, which was announced on 12 April 1995.

In this concern, I wonder why the spent fuel of the Hitachi Training Reactor (HTR) owned by Hitachi Nuclear Engineering Co., Ltd is not included in the list of object of foreign research reactor in draft EIS (Table B-4 in appendix B p. b-8). I hope that the spent fuel of HTR is to be included in it. The spent fuel of HTR was described in "information regarding spent nuclear fuel originating in the United States and irradiated in foreign research reactors", which was sent you on 27 July 1994 *1218-2*

RESPONSE TO COMMENT
COMMENTOR NO. 1218: ATOMIC ENERGY BUREAU, SCIENCE AND TECHNOLOGY AGENCY

Response to Comment No. 1218-1

The commentor's support for the restarting of acceptance of foreign research reactor spent nuclear fuel by DOE is noted.

Response to Comment No. 1218-2

The acceptance of foreign research reactor spent nuclear fuel types, as detailed in Section B.1.1.1 of Appendix B, include those types of fuel that were accepted under the Offsite Fuels Policy which was in effect until 1988. The HTR reactor spent nuclear fuels are of the UO2 rodded type that have never been accepted back under any previous policy of the United States, and there has never been an expectation that these fuels were going to be accepted into the United States under this proposed action.

Commentor No. 1218: Atomic Energy Bureau, Science and Technology Agency (Cont'd.)

SCIENCE AND TECHNOLOGY AGENCY
PRIME MINISTER'S OFFICE

科学技術庁
〒100 東京都千代田区霞が関２－２－１

2-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100, JAPAN
Telephone : Tokyo (03)581-5271
Telex : 02228720 STASGDJ

Fax: +81-3581-5190

on the name of my predecessor (enclosed).

If you need further information about this reactor, I will be pleased to provide with it for you.

Sincerely yours,

Shinichiro Izumi
Director,
Nuclear Fuel Division,
Atomic Energy Bureau,
Science and Technology Agency

Response to Comment
Commentor No. 1218: Atomic Energy Bureau, Science and Technology Agency (Cont'd.)

Commentor No. 1282: Shetland Islands Council, Environmental Services Department

Shetland Islands Council
ENVIRONMENTAL SERVICES DEPARTMENT

Director: Martin R. Hall, B.Sc., M.R.E.H.I.S., M.I.E.H.
Telephone: Lerwick (01595) 696789
Fax: Lerwick: (01595) 692605

Greenhead,
Lerwick,
Shetland.
ZE1 0PY

Our Ref: JGL/MEC

29 August 1995

Mr C Head
Office of Spent Nuclear Fuel Management
(EM-37)
US Department of Energy
1000 Independence Avenue, SW
Washington DC
USA

Dear Sir

EIS CONSULTATION EXERCISE
POTENTIAL USE OF DOUNREAY COMPLEX, CAITHNESS FOR REPROCESSING SPENT FUEL

I refer to the above subject on which you are currently accepting comments as part of the Draft Impact Statement Consultation exercise.

I understand my colleagues in Highland Regional Council, Scotland have already commented, and Shetland Islands Council, as members of NFLA (Nuclear Free Local Authorities) and KIMO (Kommunenes Internasjonale Miljeorganisasjon) would like to add our concerns in this regard.

Recent events and disclosures regarding the Dounreay site cause the Council and other interested bodies a great deal of concern. Standards of waste accommodation, management and control of, in particular the so called "Dounreay Shaft", give rise to serious doubts over whether any new initiatives should take place and assurances have already been sought from the UK Government in this regard. *1282-1*

The Council also has serious concerns over the importation of or indeed any transportation of foreign fuels for reprocessing and have in place a policy of objection in this regard.

Response to Comment Commentor No. 1282: Shetland Islands Council, Environmental Services Department

Response to Comment No. 1282-1

The commentor's opposition to foreign research reactor spent nuclear fuel being transported to, and reprocessed at, the Dounreay Site is noted. If any foreign research reactor spent nuclear fuel were to be sent to Dounreay for reprocessing as a result of decisions made after completion of this EIS, that action would be subject to regulation and oversight under the laws of the United Kingdom. The cleanup of the Dounreay Shaft mentioned by the commentor is being regulated by the United Kingdom authorities, but no waste from the reprocessing of foreign research reactor spent nuclear fuel would be placed down that shaft anyway.

The subjects of airborne and liquid releases from reprocessing operations in foreign countries are outside the scope of this EIS. See Section 4.4.2.1 of the EIS and the response to Comment 484-11.

COMMENTOR NO. 1282: SHETLAND ISLANDS COUNCIL, ENVIRONMENTAL SERVICES DEPARTMENT (CONT'D.)

Shetland has a very high standard and reputation for clean environmental conditions, and any contamination entering the North Sea has potential to be carried by the Gulf Stream to our area with consequential detrimental impact to Shetland's indigenous industries. *1282-2*

As I understand, the local regulatory bodies are investigating the current discharges and outfalls on the site and this Council believes it would be precipitous in the extreme, to even consider expanding the site capabilities prior to publication of the full investigative report. *1282-1 (Cont'd.)*

I would ask that you take account of these comments within your consultation exercise. I would also request a copy of the final EIS report.

Yours faithfully

Martin R Hall
Director of Environmental Services

cc: Scottish Office Environment Department, 27 Perth Street, Edinburgh
J Wallace, MP, House of Commons, Westminster, London

RESPONSE TO COMMENT
COMMENTOR NO. 1282: SHETLAND ISLANDS COUNCIL, ENVIRONMENTAL SERVICES DEPARTMENT (CONT'D.)

Response to Comment No. 1282-2

The commentor's concern with the potential environmental effects on the North Sea of reprocessing at the Dounreay Site is noted. Overseas reprocessing is Management Alternative 2, Subalternative 1b, which is discussed in Sections 2.3 and 4.4.2 of the EIS. The EIS includes analysis of impacts on the global commons in accordance with Executive Order 12114, but not analysis of impacts in foreign countries. The subject of environmental impacts in foreign countries is outside the scope of this EIS.

COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING

Midoxgate House
Fearn
Rossshire
IV20 1RP

12 July 1995

Charles Head,
Office of Spent Fuel Management
US Department of Energy
1000 Independence Avenue SW
Washington DC 20585
USA

Dear Sir,

Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel.

I have only recently come to hear of your consultation on the Draft Environmental Impact Statement in relation to the above policy. Despite the fact that your proposed policy may have significant effects in our country, local authorities who control planning in relation to such proposals are not yet fully aware of the consultation and of the contents of the Draft EIS.

We are particularly concerned that all or part of the material under discussion may come to the Dounreay Nuclear Establishment in the Scottish Highlands.

The facility in which Dounreay would reprocess this material is not, as stated in your EIS "currently reprocessing foreign research reactor fuel" (2-24). The facility is, in fact, closed and has now been mothballed for about nine months. We are extremely concerned about this particular plant and about management of the Dounreay site as a whole.

Dounreay was the UK's only fast reactor site. The final fast reactor on the site closed in March 1994, and since then, the site has switched to decommissioning work. There are two reprocessing plants on the Dounreay site, the PFR (Prototype Fast Reactor) reprocessing plant and the MTR (Materials Testing Reactor). Both of these are very elderly. The PFR reprocessing plant is now 25 years old and the MTR reprocessing plant is 38 years old.

The PFR reprocessing plant is the one which your EIS seems to suggest would be involved in the reprocessing. This is not the case. The PFR reprocessing plant is fully occupied, by government order, with the reprocessing of Dounreay's own fast reactor fuel core and is prohibited from taking any further work until this is completed. This is likely to be no earlier than 1998. The reason that Dounreay has been refused government permission to take any additional contracts for the PFR reprocessing plant is that the government appears concerned that, with a 25-year-old plant, the risk of expensive repairs is unacceptable. The government would, of course, have to pick up the tab for such repairs if the PFR fuel reprocessing had not been completed. In addition, enquiries at Dounreay have confirmed that the PFR plant would not, in any case, be suitable for work of this nature.

1283-1

It is the MTR reprocessing plant which Dounreay intends to use, should it get contracts to reprocess foreign spent fuel. As previously outlined, this plant is some 38 years old and does not currently operate having been mothballed for some months. We are not aware of major refurbishment work having been undertaken at the MTR plant over the past 10 years, and in 1986

RESPONSE TO COMMENT COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING

Response to Comment No. 1283-1

The MTR reprocessing plant has not been mothballed as suggested by the commentor. It is not currently operating, but would be capable of operating if necessary. Nevertheless, the text of the EIS (Section 2.3) has been revised to indicate that the facilities are currently capable of reprocessing foreign research reactor spent nuclear fuel. Also see the response to Comment 1137-10.

The age of the facilities at Dounreay does not necessarily imply unsafe operating conditions. All decisions on safety of the facilities would be made by the UKAEA and the regulatory authorities in the United Kingdom.

The text in the Summary has been revised to eliminate the reference to the Prototype Fast Reactor Reprocessing Plant. The decision of which Dounreay plant(s) to use would be up to the plant operators and the United Kingdom government regulators, not DOE or the Department of State.

With regard to the revision of discharge authorizations, UKAEA has submitted the required document to the Scottish Office. The document is titled, "Social and Economic Effects of Dounreay's Projected Programme of Work 1995-2005" and is dated 15 September 1995. The discharge authorizations and the public consultation process in the United Kingdom, however, are outside the scope of this EIS. The cleanup of old waste pits and the operation of new waste pits at Dounreay are also outside the scope of this EIS.

COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

at the Dounreay Public Inquiry Dounreay's own witnesses, including their then head of fuel services, Owen Pugh, described the MTR plant as being in a less than satisfactory condition. It is questionable whether the MTR plant should be allowed to reopen even in the short term; it is virtually impossible that it could continue to function over the timescale which will be necessary for your purposes.

It is believed that the MTR plant has, over the past 38 years, reprocessed about 10,000 spent fuel pins, an average of about 250 per year. Even at this average level of throughput, there have been various problems and accidents. We do not believe that the MTR plant would be capable of handling the increased throughput you propose.

1283-1 (Cont'd.)

There are several other major problems associated with Dounreay.

Pending legal action

Dounreay has been ignoring legislation in this country which prohibits them from discharging radioactive acids directly into the sea. The appropriate regulatory authority (Highland River Purification Board) is now taking Dounreay to court over this. It is not clear when the case will be heard but it seems clear that they are likely to be required to build a neutralisation facility at the site to neutralise their acid discharges. This will take several years, even if they are able to get planning permission for such a facility. In the meantime it is not clear whether the courts would allow an illegal practice to continue or whether they will require Dounreay to desist immediately from discharging the offending materials. If the latter course is taken, Dounreay will be unable to carry out any reprocessing at all until they have completed their neutralisation plant.

The Local Authority with responsibility for planning for the area is Highland Regional Council. On April 6 1996, Highland Regional Council will cease to exist and a new Highland Council will become the planning authority. It is far from clear whether either of these bodies will be prepared to grant planning permission for a neutralisation facility. If planning permission is turned down, an appeal to the Secretary of State for Scotland would follow.

When appeals go to the Secretary of State, he then becomes the planning authority. He has to take evidence, either in written form, or in the form of a Public Inquiry. Parties to the planning application are consulted and if the Local Authority requests a Public Inquiry (which would be normal for situations such as this) a Public Inquiry will certainly be held. The timescales at present are as follows:- from announcement of Public Inquiry to commencement of same - 9 months to a year; duration of Public Inquiry - several weeks to a year; from conclusion of Public Inquiry to announcement of Secretary of State's decision - a year to fifteen months.

1283-2

Revision of Discharge Authorisations

Some three years ago, Dounreay was required to submit an application for revised Discharge Authorisations to the relevant regulatory authority (Her Majesty's Industrial Pollution Inspectorate). Submissions were received eighteen months ago, but a judgement against British Nuclear Fuels in relation to discharges from their Sellafield plant has resulted in a requirement for operators to justify their level of discharges in social and economic terms. HMIPI asked Dounreay for a document stating their justification arguments, but nothing has been forthcoming.

Dounreay proposes to increase its discharges tenfold over the highest they have been in any year from 1987 - 1992 (the last years for which figures are available). This proposed increase is mainly to allow for increased reprocessing of the fast reactor fuel core. HMIPI anticipates receiving Dounreay's completed application in the very near future and will then formulate its own response. After that the whole issue has to go to public consultation.

1283-1 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

Response to Comment No. 1283-2

The commentor's position on regional planning and legal issues is noted. These issues are outside the scope of this EIS (Section 1.5 of the EIS). It would be inappropriate for DOE to interfere in regulatory and legal issues in Scotland.

COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

There is likely to be considerable resistance to proposals for such large increases in discharges to the environment. The issue of justification will also be a rather fraught one and it is difficult to see how it is possible to formulate reasonable social and economic justifications for such large increases in discharges. There will be particular concern that the last time discharges were a high as this, they were followed by a ten-fold increase in the incidence of childhood leukaemia within 12.5 kilometres of Dounreay.

Dounreay has already started discharging the increased levels in advance of receiving the appropriate consents. It argues that it can do this under current consents as the permitted limits currently stand at about thirty times the highest level of actual historical usage. When revised limits are finally agreed, however, Dounreay may require to reduce substantially its level of reprocessing activity in order to keep within the new regime. This would, effectively, rule out the reprocessing of foreign research reactor fuel.

Waste Pits

In 1993 Dounreay submitted a planning application to Highland Regional Council for the construction of a new low-level-waste pit at the Dounreay site.

It is important to note that the UK's classification of wastes depend solely on concentration rather than on half-life or type of disintegration (alpha, beta, etc). We do not have the restrictions which apply in the States which require the separate classification of transuranic wastes. Therefore, extraordinary as it may seem, Dounreay is allowed to dispose of materials that are contaminated with plutonium directly into low level waste pits and also to discharge plutonium into the sea and air. A recent accident involving the release of 20 million becquerels of plutonium into the atmosphere did not contravene the site's discharge limits!

Highland Regional Council has refused planning permission for the waste pit, following an unexpected site visit where the council saw for the first time the way waste is kept at Dounreay. In the open trenches, they saw rusting drums and barrels of waste. Some had holes in the side you could put your fist through. In others the lids had fallen off. The drums were scattered in a haphazard way in the pit. The pit was open to the air and chicken wire had recently been stretched across the top in an attempt to stop the wind, birds and vermin picking up the waste and distributing it around the countryside. Stacks of rusting drums were also sitting at the side of the pits. These stacks were about 4- 5 metres high and were badly corroded having stood in the sea air close to the pits (which are right on the shore) for about seven years. Several hundred drums were stacked in this way. In another pit, the council saw an example of "tumble tipping". Dounreay had simply been driving a tipper truck loaded with loose items of radioactive waste to the pit and tipping them in. It was hardly surprising that, in the light of all this, they refused planning permission for another pit.

Dounreay has now dealt with some of the stacks of waste and has made cosmetic improvements to the pits; basically covering them with ground and planting grass seed on the top so that you can't actually see what sort of condition they are in underneath. Having invited councillors to have a look around their nice neat site, they will shortly submit a fresh planning application for the new pit.

Again, it is by no means certain that councillors will be taken in by the cosmetic improvements there have been and it is far from certain that the new application will fare any better than the old one. If planning permission is, again, refused then the issue will revert to the Secretary of State and to a Public Inquiry, as outlined in the section on Legal Action (above).

Competence

1283-1 (Cont'd.)

RESPONSE TO COMMENT COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

In addition to all of this, there are serious doubts as to the competence of the staff and management at Dounreay, doubts which have been brought into sharp focus recently by the discovery of several areas of serious contamination both on and off site.

Five main contaminated areas have been found off site. The most serious contamination comprises 170 metallic fragments which range from 10^6 to 10^9 becquerels each. The government's Radioactive Waste Management Advisory Committee has estimated that there is a "reservoir" of particles in the soil around the top of a disused waste shaft and that the number of such particles is likely to greatly exceed the number which have already been found. The particles are thought to have arisen as a result of an explosion in the waste shaft. While most of the particles have been found on the rocky foreshore at Dounreay which, while a public area, is little used, one such particle has been found on a local public beach. Particles continue to be discovered at the rate of about one per month.

The government's Commission on Medical Aspects of Radiation in the Environment has expressed its disquiet that, while investigating the leukaemia excess around Dounreay they were misled as to the level of discharges. Total figures which they were given by Dounreay management for discharges were less than the levels of radioactivity in a single particle. Interestingly, the particles in question are thought to have originated in the MTR reprocessing plant - the same one which Dounreay intends to use for the reprocessing of foreign spent research reactor fuel.

Other areas of contamination exist around Dounreay Castle, a historic building near the Dounreay site; on a slipway; on a grassy cliff top area east of the Dounreay site and in a "non-active" rubbish dump off the Dounreay site. These have varying levels of contamination, though none are as serious or severe as the foreshore problem.

1283-1 (Cont'd.)

More metallic particles - the same as those found on the foreshore - have been found in various places on the site, mostly on grass verges beside the site roads. These were discovered when street lighting on site was being replaced.

Dounreay's current management are criticised by the regulatory bodies for the inadequacy of documentation submitted in relation to the foreshore particles, and Dounreay's current management are refusing to release the report of the shaft accident to the public.

Additional contamination is now starting to be found in buildings on the site. Yesterday (12th July) a contaminated area was found on a worker's chair in the administration building, a non-active area. Thankfully, the level of contamination was low but as the contamination has been there, it is thought, for some years, there is no saying the sort of damage cleaners or office staff may have been exposed to. The real lesson to be learned from this contamination is that the safety procedures which are supposed to set off alarms as soon as any radioactivity is transported into a non-active area has patently failed. The other conclusion of both this incident and the discovery of particles on the roadside verges is that Dounreay's current monitoring regime is completely inadequate. As I write the monitoring work in buildings is on-going but it is anticipated that more particles will be found, and an announcement is due next week.

There have also been several accidents recently in the PFR reprocessing plant including two incidents, in February and April, during which workers were exposed to plutonium dust. In the first incident 20 million becquerels of plutonium dust were released up the Dounreay chimney stack into the atmosphere. In the second the contamination was contained within the building.

I request that all of the above is taken into consideration when you produce your final EIS.

RESPONSE TO COMMENT COMMENTOR NO. 1283: SCOTLAND AGAINST NUCLEAR DUMPING (CONT'D.)

Commentor No. 1283: Scotland Against Nuclear Dumping (Cont'd.)

I further request that:-

1) as the effects of the proposals in the EIS have such fundamental importance for Scotland, the Draft EIS should be consulted upon in Scotland as well as in the US. Copies of the Draft EIS should be sent to all parties with a locus in the matter and placed in public libraries. In addition, responses should be requested from the planning authority and from the public via newspaper advertisements.

2) work should be commissioned to assess the environmental impact in Scotland of reprocessing foreign research reactor fuel at Dounreay;

3) the deadline for the consultation should be extended as required to allow points 1 and 2 to be implemented.

1283-3

Yours sincerely,

Lorraine Marin
Scotland Against Nuclear Dumping

Response to Comment Commentor No. 1283: Scotland Against Nuclear Dumping (Cont'd.)

Response to Comment No. 1283-3

It would not be feasible, nor does U.S. environmental law require, that hearings be conducted in foreign nations which might be affected by this action. All nations who elect to participate in the proposed action would do so voluntarily. It is the responsibility of each participant to comply with their own laws and regulations. Copies of the draft and final EIS were mailed to all potentially affected foreign nations. An evaluation of potential environmental benefits and burdens which could affect Scotland are the responsibility of the appropriate authorities in Scotland. DOE and the Department of State would cooperate with the Government of Scotland should Scottish authorities conduct an environmental evaluation in this matter. No plans currently exist to extend the period for public comment beyond the ninety days ending on July 20, 1995.