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

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 3.0 PUBLIC HEARINGS

1995. Twenty-eight people
re raised. The following is a

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and an official DOE
was advertised in local
so provided to local radio
was announced in the Federal
nbers were provided for pre-
IS.]

actor spent fuel expired (in
1992 for Low Enriched
s required prior to renewal of the

potential 13-year period to
npacts [in the EIS] cover a 40-

f Mt. Pleasant, it is considered
rated as part of the "Port of

evel waste are evaluated as
rocessing Facility at Savannah
high-level wastes, is scheduled

S but was dismissed due to added
n response to public comments,
EIS and is discussed in Sections

cilities/personnel) reviewed risk

inal EIS and addressing
affect consideration of comments.

PONSES

:d waste in a deep geologic repository.
itory site at Yucca Mountain in
from the chemical separation of the
ould be at the Savannah River Site (see

: Charleston/Mt. Pleasant is noted. As
criteria for receiving shipments of
he port does meet the criteria, as
the EIS.]

railroad connection, this does not
in Appendix D, Section D.1.9.4.]

resulting from a severe accident in the
ation routes were not a consideration in

hurricanes, is not considered extreme.
cusses severe natural phenomena.]

o to various management sites was
ppendix D, Section D.1.9.5).
al population, it does not consider
schools. Nevertheless, the overall
verall some schools might bring
would move them further away. The
n was found to be low.]

:s, DOE will ensure that those
ted for use, if foreign research reactor
States.]

:s in Chapter 2 of this Volume 3.]

ISSUES RAISED	DOE RESPONSES
Recommendations were made that DOE use military ports instead of commercial ports because shipments are of national interest and the military ports have experience in handling similar cargo. Commentors specifically suggested that DOE should consider the facilities in North Charleston, in place of those at the Wando Terminal.	The EIS analyses show a safe record of shipping through commercial ports and these risks are not at a level that would preclude commercial ports. [Of the 161 ports considered by the draft EIS, eight were military ports. As the result of public comment, an additional nine military ports, five on the West Coast and four on the East Coast, were considered after the draft EIS was released. No significant reduction in risk was found by using any of the additional military ports. However, the Naval Weapons station in the Charleston, South Carolina area was found to be an excellent facility because of its low population, hazardous cargo handling experience, nuclear experience, and proximity to Interstate highways and rail lines.]
A question was asked if the selection of storage sites and ports of entry are related.	The draft EIS proposes use of any of the 10 candidate ports identified in the draft EIS. Specific ports for a given shipment will depend on shipping arrangements existing at the time. [The distance from all ports to the management site is considered in Appendix D, Section D.2 as part of the port selection process. The storage site selection was not based on proximity to ports.]
A question was asked if "No Action" is a reasonable alternative given the United States commitment to nonproliferation.	DOE and the Department of State have indicated that they do not consider No Action to be a responsible alternative, but the NEPA process requires that this alternative be addressed in an EIS. [Section 4.6 of the EIS]
A comment was made that the analysis in Appendix D is not clear as to why the Wando Terminal was chosen over the North Charleston Terminal.	[This is discussed in Appendix D, Section D.2.1.1. Wando Terminal was selected over North Charleston because of superior services and greater distance from populated areas.]
A question was asked if United States flag vessels and sailors will be used. Commentor suggested that they should be used to keep business in the United States and not disrupt port growth.	DOE has not required the use of United States vessels. Analyses in the draft EIS assume commercial vessels will be used, because experience indicates that container vessels and crew are highly qualified.
Explanation was requested as to why DOE has not provided funds to Mount Pleasant for training and response equipment.	No decision has been made on whether foreign research reactor spent nuclear fuel would come into the United States. When a decision is made, DOE will work with the States to develop a transportation plan addressing these needs.

DOE RESPONSES

cludes the five [management] sites under consideration for spent fuel
it in the draft DOE Programmatic Spent Nuclear Fuel and Idaho National
; Laboratory (SNF & INEL) EIS [Section 1.5 of the EIS]. Decisions
the Programmatic SNF & INEL EIS will determine the management
eign research reactor spent nuclear fuel. The preferred alternative in
matic SNF & INEL EIS is to store aluminum-clad spent nuclear fuel at
h River Site and non-aluminum-clad spent fuel (TRIGA) at the Idaho
gineering Laboratory. [Since the public hearing, the Programmatic
of Decision (ROD) was issued on May 30, 1995. It establishes that the
iver Site would receive aluminum-clad fuel and the Idaho National
; Laboratory would receive non-aluminum clad fuel, in the event that
arch reactor spent nuclear fuel is accepted by the United States.]

lt to provide precise figures for shipments and volumes projected over a
iod into the future.

[total] estimates are up to 22,700 fuel elements or 19.2 metric tons of
l (MTHM).

tries out of 41 have not converted to LEU, although they are physically
o. Countries include the Netherlands and France.

es have formally refused to convert their research reactors to LEU.
ree reactors in two countries (France and Belgium) that cannot be
use the LEU fuel available today. In addition, the operators of low-
rch reactors (less than 100kw) that do not need fresh fuel for the
f the service life [lifetime core], do not intend to convert to LEU fuel.]

ed that about 18 [meant 8] nuclear weapons could be produced from 10
he metric tonnage of HEU spent nuclear fuel in the proposed action.
uclear weapons could be made from 10 percent of the unirradiated
ctor nuclear fuel, eight from spent nuclear fuel.]

ment of Energy was not a party to the Federal Court Order which the
referenced. However, a review of the court order, signed in March,
ates that none of the provisions would be violated by shipping
arch reactor spent nuclear fuel into the Wando Terminal.]

anently at the Savannah River
ng ultimate disposal in a
ly capable of storing over

r fuel management. The
store aluminum-clad fuel. In
more of the reactor
ar fuel elements. [The L-
rpose.]

n the State and DOE for the
nnah River Site from Sunny
he Governor of South

maintaining emergency
DOE, as discussed in Section
plans under which DOE
ssistance. Under these plans,
State, Tribal, and local
ergency response authorities
IS.]

embly basins has degraded,
torage. RBOF, which is a
the integrity of the fuel has

ent nuclear fuel, all of which

ted under the proposed policy
is. Any spent nuclear fuel that
rage. If the fuel were to be
ill be monitored to detect any
e generated.]

E RESPONSES

worldwide commerce. Developed countries need to
d countries. Developed countries sell research
for the fuel cycle.

l use of HEU if the United States does not take
presented in the EIS is for the United States to
pent nuclear fuel overseas (Management
Section 4.4.1 of the EIS).]

designs, design verification, and establishment
d can take several years.

f criteria to withstand severe accidents. Casks
ch the cask is dropped onto an unyielding
ter; they are subjected to high temperatures; and
t.

portation cask loaded with foreign research
in any U.S. coastal waters, it will be recovered,
Puget Sound, which reaches depths of 305
C, Section C.5.5 of the EIS for information on
n coastal and deep ocean waters. Swimming or
be impacted.]

l to withstand severe accidents. An explosion
cask but the contents of the cask probably
spent nuclear fuel is a metal which is not readily
D.5.9 discusses the consequences of a terrorist

lear fuel has been stored the way DOE would
spent nuclear fuel leaves a foreign country, it will
spector [a DOE representative]. If there is a
ed in a sealed container, which then is placed

tors own the fuel until it is received into United
cepted is accompanied by information as to its
actual location of taking title to the foreign
l is discussed in Section 2.2.1.4.]

ISSUES RAISED	DOE RESPONSES
A question was asked as to whether the amount of plutonium in foreign research reactor spent nuclear fuel poses a nuclear proliferation or health risk.	Foreign research reactor spent nuclear fuel contains little plutonium, and there is not enough to present a proliferation risk. It is the highly enriched uranium that is the major proliferation risk.
Explanation was requested as to why the spent nuclear fuel was not sent to a country who wants it (e.g., France).	Overseas reprocessing by the French or the British is considered as an alternative [Management Alternative 2] in the EIS [Section 2.3].
A comment was made that spent nuclear fuel has been safely transported in the past.	[Foreign research reactor spent nuclear fuel has been transported safely over long distances without incident for over thirty years.]

List of Attendees at Charleston, SC Public Hearing

Baron, S.

Bateman, W.

Bowser, Rita

Browder, Jewel

Daly, G.H.

Harris, John G.

Harris, Susan

Hindman, T.B.

Hope, Mrs. T.B.

Hope, Reverend T.B.

Hughes, Jim

Jennings, Stephanie

Kearns, Mrs. Dorothy B.

Lundy, Howard

McDaniel, Marvin M.

McDonough, Mike

McLeod, Barrie

McManus, T.M.

Pate, Kerry

Ravenscroft, Norman

Rivers, David

Thomas, Henry G.

Tjersland, Gary T.

Waters, Chris

Wells, Christopher

Williams, Blake R.

Woods-Flowers, Mayor Cheryl

on May 22, 1995.
y presented public
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necessary
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ISSUES RAISED

e about a Channel 2, KTVU, November 1993 study that cidents at the Concord NWS. These included: aining, dropping of containers into Sacramento River, ns, crane accidents, and inappropriately packed

DOE RESPONSES

[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 Naval Weapons Station" 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."]

[Concord NWS has not dropped ordnance into the water. If ordnance were dropped into the water, Concord NWS policy is to recover it without exception. Periodic dredging of the dock area has never detected or recovered ordnance.]

[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, which is typical (1994 data is not available). 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.]

RESPONSES

siderations during the evaluation of
ed action. Sections 4.2.2 and 4.5 of the
with bringing spent nuclear fuel to any

lected because ports, sites, and transport
Transportation routes would be chosen
g regulations and guidelines. Risks to the
ıg transportation of spent nuclear fuel
ound to be low for normal operation and
adiological and non-radiological risks
over land and sea are given in Section 4

roup or individual cannot be completely
es at any port would meet or exceed
3). A discussion of terrorist attacks has
dix D, Section D.5.9 of the EIS.]

neral provisions of the Transportation
les the details associated with the
rom foreign research reactors.]

Bay to Concord NWS meets the
le Transit From Open Ocean) for port
ion process also considered the
ıg areas in determining that Concord
considerations, such as population along
rt experience with handling containers,
considered in selecting ports of entry.
e EIS for details of the port selection

ejected because they had almost no

ISSUES RAISED	DOE RESPONSES
A comment was made that the draft EIS does not identify or address the issue of a high minority population in Bay Point.	[As shown in Table A-1, Appendix A of the EIS, about 26 percent of the population residing near the port was comprised of minority persons in 1990, while approximately 33% of the populations in surrounding counties were comprised of minority persons. Population criteria for port selection are discussed in Appendix D, Section D.1.9.5 of the EIS. Section 3.2.1 identifies low-income households and describes racial and ethnic composition of minority populations around each candidate port. Environmental effects were evaluated and found to have no significant beneficial or adverse effects on the general population, including minority and low-income populations (Chapter 4 of the EIS).]
A question was asked as to why Oakland was taken off the port list.	The Defense Authorization Act states "to the extent possible the government should use low population ports." Population of the port and surrounding areas to a radius of 10 miles is one of the port selection criteria [that determined that] the Port of Oakland would not be included [among the ports in the draft EIS]. [The population criterion for port selection (Criterion 5) are discussed in more detail in Appendix D, Section D.1.9.5 of the EIS.]
Comment was made that DOE needs to address economic assistance to localities. Questions asked were: Who pays for additional security, such as local law enforcement, for large demonstrations? Is there an accident fund? Who pays for social services associated with proposed action?	[Nuclear Regulatory Commission and DOE regulations require escort of shipments of spent nuclear fuel on public highways. Normally the escort is supplied by State and/or local police, but arrangements and payment are the responsibility of the shipper. No additional personnel would be required to secure the port area or temporary storage area. Historically, shipments of foreign research reactor spent nuclear fuel have been treated the same as any other hazardous material shipment. Some State and local governments, however, may impose additional requirements on shipments of foreign research reactor spent nuclear fuel. These requirements such as additional security and other services may impact State and local agencies.] [There is no "accident fund". However in the event of a nuclear accident or incident, liability coverage would be provided under the provisions of the Price-Anderson Act.] [Dealing with demonstrations is the responsibility of local and State governments, as well as the military if such demonstrations occur on military bases. However, if the demonstration were the result of the receipt of foreign research reactor spent nuclear fuel, DOE would support local or State governments or the military organization in dealing with the demonstrations.]

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DOE RESPONSES

he establishment of Nuclear-Free Zones has been found to violate the terstate Commerce Clause of the U.S. Constitution. Research reactors can operated safely and they serve peaceful purposes, including medical, mmercial, and educational applications. Section 1.1 of the EIS describes ese applications.]

e spent nuclear fuel contains U.S.-origin enriched uranium, which is the cus of this EIS. [The intent of the proposed action is to support United ates nuclear weapons nonproliferation policy seeking to reduce and entually eliminate the use of highly enriched (weapons grade) uranium in vil programs worldwide.]

he United States has encouraged the use of low enriched uranium in research actors because it cannot be used to make nuclear weapons. Converting reign research reactors from highly enriched (weapons-grade) uranium fuel the low enriched uranium supports the United States nuclear weapons nproliferation policy.]

he EIS evaluates effects that would result from implementation of policies hich support overall nuclear weapons nonproliferation objectives of the nited States.]

oth highly enriched uranium and plutonium are potential nuclear weapons oliferation problems, but plutonium is a smaller risk than highly enriched anium with respect to foreign research reactor spent nuclear fuel [because ry little plutonium is produced from highly enriched uranium fuel]. When w enriched uranium is used as research reactor fuel, uranium^{238} amounts crease and plutonium production increases. However, because research actor fuel is enriched to contain less than 20% uranium^{235} the plutonium ses less risk than the highly enriched uranium. The amount of plutonium in ipping casks would be 7 ounces. [On the average, a loaded foreign research actor LEU spent nuclear fuel transportation cask would contain less than 13 unces of plutonium.]

Although the focus of this proposed policy is to return HEU, any plutonium at would be controlled by this policy is a positive aspect. Language has een added to Section 1.2 of the EIS to explain the relationship between HEU nd plutonium in spent nuclear fuel from foreign research reactors.]

RESPONSES

e port's and DOE's planning and procedures.
developed an Area Contingency Plan.
lities, procedures, and authorities for
., hazardous material incidents.
ssistance to local authorities to ensure that
the event of an accident. As part of this
istance Program teams from the eight
nout the country, would be used to
on assistance. Details of emergency
luded in the Transportation Plan prepared
provisions of the Transportation Plan are

pent nuclear fuel has been in use, in one
n the nuclear industry. Storage
options are discussed in Sections 2.6.5.1

his EIS.]

boratories and the amount of plutonium at
this EIS, nor do they have any bearing on

eration of Nuclear Weapons establishes
uclear technology, it also stipulates that
n the Treaty's fundamental prohibitions
istance in the manufacture of nuclear
devices. While non-nuclear weapons
nt or acquisition of nuclear weapons or
nuclear weapons states commit
apons states with peaceful applications of
ment for Research and Test Reactors
how the United States helps nations with
y. The Non-Proliferation Treaty was
and Extension Conference of the Parties
of Nuclear Weapons at the United
95.]

ISSUES RAISED	DOE RESPONSES
to how the United States can expect China to :hnology when China will not even agree to United 'ight issues.	[The non-proliferation of nuclear weapons is in China's best interest as well as the best interest of the United States and the world as a whole. China's perception of the patent and copyright issue is a separate issue.]
ited States acceptance of foreign research reactor ppose storage and transshipment in the United States.	[The commentors' opposition to management of spent nuclear fuel from foreign research reactors in the United States is noted.]
iat in this public hearing, DOE appears to be trying to	[Public hearings on the draft EIS allow the public to express opinions, voice concerns, and ask questions. In addition, the intent is to provide responses whenever possible and appropriate and to offer additional information to increase public understanding of the issues involved in the proposed action.]
iat spent nuclear fuel should remain at reactor sites il is developed.	[Due to financial or regulatory constraints, some research reactor operators may not be able to store spent nuclear fuel in their own country. This alternative would not fulfill the nonproliferation policy pursued by the United States to reduce and eventually eliminate highly enriched (weapons grade) uranium from civilian programs worldwide.]
s to what percentage of incoming shipments to the from developed/developing countries.	[Approximately] 78% of the shipments would be from developed countries and 22% from developing countries.
hat if most of the shipments are from developed tates should negotiate for overseas management of	[The EIS has evaluated the potential for implementing the proposed action overseas (Management Alternative 2; Section 2.3 of the EIS). However, many reactor operators cannot, at this time, manage their spent nuclear fuel in their own country (See Sections 1.1 and 1.2 of the EIS). An objective of the proposed action is to provide foreign research reactor operators with a limited period of time to develop arrangements for disposition of their spent nuclear fuel outside the United States, while avoiding reactor shut downs, and discouraging conversions from low enriched uranium fuel to highly enriched uranium fuel.]
that foreign research reactor operators should handle	[Due to financial or regulatory constraints, some research reactor operators may not be able to store spent nuclear fuel in their own country. This alternative would not fulfill the nonproliferation policy pursued by the United States to reduce and eventually eliminate highly enriched (weapons grade) uranium from civilian programs worldwide.]

om foreign research
f ultimate disposition
on is that the foreign
in a geologic
e disposition of spent
ntation.]

ll of the foreign
sidered in this EIS as it

pt of spent nuclear fuel
how long it would
of disposal at the

acilities is not a
n remains an
hnical expertise in
ies.]

if chemical separation

latory Commission
nearest interstate.
ecision to use a
outing regulations and
sponsive to
r could reasonably be
l include adverse
closures. In effect,
uld be viewed as a

YSES

not been selected for managing
ne United States since no policy
WS is selected as a port of entry,
ith the Department of
9 CFR Part 397.101 (a)(2)).
4, and/or Waterfront Road. The
te a preferred route, which the
rdance with 49 CFR Part
dent rates, transit time, and

dard size, so they would have no
Existing railroad structures are
ransport shipping cask. Results
the EIS show that the ground
entative routes. Other routes
risks including those along the

ast, six on the East Coast, and
ent nuclear fuel.

ts. [However, there is no legal
through the Panama Canal.]

tes for spent nuclear fuel
olishes a public information
ited and approved for specific
quired to notify State officials in
s and to notify the Governors of
prior to each shipment. No

are not available.

an incident would reside
ld provide coordination,
the State, Tribal, and local
has Radiological Assistance
located DOE offices
quest, these teams can
tor and assess radiological
basis and generally can be
r hours of notification.]

ant to shipment of
ty escort of the shipment

meet DOE and NRC

ppendix H of the EIS for
accident analyses are

d to safely transport and
storage. They are also
To date, after more than
ctive contents have ever
spent nuclear fuel, nor
en punctured, even as the
l inner and outer shells.
erent types of radiation.

ship's crew could unload.
WS would off-load.
at routinely handles

ord NWS. Concord is

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h effects.
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RESPONSES

the EIS provides a time/distance analysis
cask handling; Section D.4.5 provides the
F, Section F.5 presents and evaluation of
ion cask containing research reactor spent
kers, port workers, and ground transport
its as members of the general public: 100
tment of State would also monitor the
g inspection and handling. If a worker
ear, other workers would be used.]

e of children, as members of the general
ned in Section 4.1.3 of the EIS. There are
children in unrestricted areas.]

plied by probability of occurrence) is the
e negative impacts. High consequence
rth, must be considered with the
of the EIS describes the calculational
of the evaluation of radiological and
re detailed discussion of the calculations
C through F.]

with risks presented in the basic
on, acceptance and management of the
r fuel in the United States. The table lists
lual's chance of death in any year by one

of this EIS and has no bearing on the
osed action.]

n a 50-mile radius around each candidate
trate that the risk associated with
ncord NWS, or to any of the candidate
n for the most-affected individual. The
"thinking globally" by implementing
e the use of highly enriched nuclear
ograms worldwide.]

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ction, then it
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h a petroleum

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r Site and
le activities are

ISSUES RAISED	DOE RESPONSES
A request was made that DOE examine the cumulative impacts of congested freeway travel in which individual drivers/passengers are in close contact with spent nuclear fuel truck shipments.	[The maximum radiation dose rate near a spent nuclear fuel transportation cask would be 10 mrem per hour at 2 meters from the truck. The maximum radiation dose that an individual member of the public could legally receive is 100 REM per year. Thus, for an individual driver or passenger to receive a radiation dose equal to the annual limit on a congested freeway, he or she would have to be stuck in traffic right next to the same truck for 10 hours. This possibility is implausible, so no mitigation measures are planned.]
A comment was made that DOE is dividing the environmental impacts of actions between the foreign research reactor spent nuclear fuel and military spent nuclear fuel.	[Although this EIS does deal with spent nuclear fuel, the thrust of the proposed action and the source of the fuel are different than military spent nuclear fuel. The spent nuclear fuel of interest is already overseas and the thrust is to properly manage it so that U.S. nuclear weapons nonproliferation goals are served. The two subjects, military spent nuclear fuel and foreign research reactor spent nuclear fuel, are so different as to require a separate EISs.]
Concern was expressed about terrorism (i.e., Oklahoma City type incident).	[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. Shipments of foreign research reactor spent nuclear fuel would be conducted to meet or exceed security requirements in the Code of Federal Regulations (10 CFR Part 73). Nuclear Regulatory Commission regulations for physical security include requirements for armed escorts and two-way communications with a communications center during the journey (Sections 2.8 and 5.4.2, and Appendix H of the EIS). The risk that the spent nuclear fuel could be diverted or sabotaged is also reduced because of the size and weight of the casks. Section 2.8 and Appendix D, Section D.5.9 of the EIS discuss terrorist activities that might be associated with the transportation of spent nuclear fuel from foreign research reactors. To better describe the security and emergency preparedness associated with transportation of the foreign research reactor spent nuclear fuel, Appendix H has been added to the EIS. Appendix H presents the general provisions of the Transportation Plan which is a document that provides the details associated with the transportation of the foreign research reactor spent nuclear fuel.]
A request was made that the EIS include information about the effects of fire and earthquakes on gas and oil pipelines that run through the Concord NWS.	[No information was put in the EIS on the subject of pipelines that pass through the candidate ports. While it is true that pipelines may rupture during an earthquake and that there may be a significant fire as the result, this type of accident was not individually analyzed because the worst plausible accident, the collision between a tanker and the ship carrying the foreign research reactor spent nuclear fuel with a resultant severe fire engulfing the damaged cask, is worse than an undamaged cask being subjected to a severe fire. See Appendix D, Section D.5.4 for a discussion of the accident analyses and their results.]

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ed. A broad range of
valuated in Section 4.2 of

oreign research reactor
of seismic event is low.
gnificant stress without
Therefore, a seismic
to fail, is not expected to
ask. While local hazards
bability of an accident, they
t, which were found to be
idents (Section 4.2.2.3).
nged in seismic areas.]

assessment methodology
quakes, the local weather
y of an accident, but would

sponse process surpasses
Act, which emphasized
ons of the environmental
. The public comment
organizations may voice
action. DOE has worked
esent and future activities.
he draft EIS reflect DOE's
ticipation of the public in

t to encourage public trust
he public hearing format
etween DOE and the public,
a sense of trust. DOE
arings to assist the public
policy alternatives and

DOE RESPONSES

entor's opposition to the use of Concord NWS is noted.]

y is not to allow exploitation of any group or individual in its
products.]

tions have been made in the final EIS.]

List of Attendees at Concord, CA Public Hearing

Ace, Carol A.
Altaha, Ali
Anello, Elizabeth R.
Arnold, Joan
Attiga, S.A.
Bandet, Marilyn
Begor, Jana
Benson, Jim
Benuvante, J.
Beyl, Judith
Blackard, John F.
Briant, Michael
Briant, Cicily
Bridges, Tom
Bridges, Margaret
Brookins, C.V.
Brown, Betty
Burman, Deborah
Burmeister, Judy
Butler, Joel
Cabasso, Jackie
Carunchio, Kevin
Cerrachio, Ted
Cerrachio, Judy
Chase, Barbara
Chinn, Michael
Chinn, Beverly
Coburg, Simon
Colling, Kent
Cooper, Myles
Cooper, Jan
Cork, Victor
Craft, Suzanne
Crane, Richard
deBellis, Joan
deBellis, Tony B.
Delacruz, George
Dewey, David D
Dod, Ray
Dodson, Wallace
Drobatz, Kim
Everette, Oliver
Fisk, Rod
Fitzgerald, Sue
Fitzsimmons, J.E.
Fleming, Craig
Flori, Norman
Fons, Filbert T.
Frazer, Julian
Friedman, M.A.
Frye, Karen
Frye, Marilyn
Getty, Greg
Goldberg, Robert
Goldberg, Sheilah
Gouan, Tom
Granger, Mark
Granger, Rochelle
Hanewald, Karl
Hanson, Janess
Harrott, Edita
Harvey, Charlene D.
Harvey, Loretta
Heidt, Jill
Helmka, Charles J.
Helmka, Brenda
Hendrickson, Kristine
Hilder, Lara
Hoffman, Kathy
Holt Russ
Jacobsmeyer, Elizabeth
Jamerson, Janet
Jenkins, Kelly
Johnston, Candice
Karaim, Dennis
Karas Jim
Karrott, Edita
Kelly Marylia
Kilcoyne, Dee
Killoran, Jim
Kiplinger, Carol
Koeppel, Jim
Kolman, Isadore
Kory, David
Kuan, Yu Chu
Lane, Heather
Leone, Sherri
Lou, Paul

DEES AT CONCORD, CA PUBLIC HEARING (CONT'D.)

ichael	Rood, Marion	Stradley, Donnis
in E	Rood, Peter F.	Susag, Karen
	Roodkowsky, Tatiana	Suttles, Thomas M.
es	Rowles, Barbara	Tapac, Susan
	Roy, Catie	Tavernier, Marc
erry	Runninghorse, Frank	Theresen, Thomas R.
eff	Russell, Natalie	Tibbits, Lisa
M.	Russell, Bob	Torlakson, Tom
nry P.	Salter, Gayle	Toro, Mercedes
	Schneider, Janet	Van Slambrook, Kevin
s.	Schofield, Katy	Veilova, Michael
tor	Seawell, Patti	Viereck, Jennifer
is G. Jr.	Seeno, C. Marina	Wadington, J.A.
	Sewelson, Bess	Walker, William
n	Simpson, Marie	Warnock, Hope
l	Sloan, Cat	Wcwewrrw, Olicwe
ıda	Smith, Teri	Wenslawski, Frank
	Smith, Susan	White, Terry
s B.	Smith, Dr. Barbara M.	Williams, David B.
a	Smithson, Thelma A.	Yee, Ronald
am	Stanley, Mark	Zahn, Charles A.
ıcy	Stone, Pete	

May 17, 1995. Forty-eight people attended the hearing.
issues that were raised. Information in brackets [ ] was

DOE RESPONSES

port for implementation of Management Alternative 2 is
ae EIS).]

s material is not without risk and should be avoided when not
:, however, the United States Government considers that
r spent fuel should be removed from international commerce.
n 4 of the EIS, implementation of the proposed policy would
ks to health or the environment.]

that every gram of HEU could be recovered. However, DOE
control of 80% of the HEU is safer than retrieving none.
ll HEU, leased or sold, to foreign research reactors.]

EIS that it will not extend the policy.

licy in this EIS applies only to foreign research reactor spent
g uranium enriched in the United States]. A separate
esses all of the DOE-owned spent nuclear fuel at United States

e not been upheld by the courts because they violate the
Clause of the U.S. Constitution.

rce Clause prevents Galveston from rejecting these
DOE would work with State and local officials to determine
gency preparedness training, etc. [Appendix H has been
dress some of the emergency response issues.]

hich Galveston was chosen is recorded in Appendix D. DOE
s closer than East Coast ports to the Idaho National
y, the Nevada Test Site, and the Hanford site.

included in the 153 commercial ports originally considered.
ted on the basis of applicable experience (Appendix D of the

ISSUES RAISED	DOE RESPONSES
A question was asked as to what the actual point of entry would be at the Port of Galveston and whether or not any container terminal could be used.	No. Only certain terminals would be used.
A question was asked as to whether the recent announcement of the West Texas Low Level Waste Site played a role in DOE's selection of the Port of Galveston as a candidate port.	No. The West Texas Low Level Waste Site was not involved in the selection of the Port of Galveston as a candidate port.
A question was asked as to the rationale for transporting spent nuclear fuel across land and why the Port of Savannah could not be used instead.	Galveston is closer to the Idaho National Engineering Laboratory, the Nevada Test Site, and the Hanford site than any of the East Coast ports. The Savannah port is also under consideration.
A question was asked as to what the EPA requirements are and whether Tier II State requirements are being followed.	[A preliminary review of Texas Tier II requirements indicates that no report would need to be filed because foreign research reactor spent nuclear fuel is not a hazardous chemical. If the decision is to accept foreign research reactor spent nuclear fuel into the United States and if Galveston is to be one of the ports of entry, the requirements of Texas Title II would be more thoroughly reviewed. All local, State, and Federal requirements would be met.]
A question was asked as to whether the City of Galveston could establish its own safety requirements for transport within the city.	Yes. DOE would work with the State and local officials to satisfy local communities' safety requirements, if a decision is made to accept any of the foreign research reactor spent nuclear fuel into the United States.
A question was asked as to the cost of the EIS.	This EIS cost about $7 million.
A question was asked as to the estimated cost of the entire project.	The estimated cost of the entire project will be about $1 billion, but that figure is not based on any specific alternative.
A question was asked as to how much all the transportation will cost.	DOE is unsure about the cost for transportation, because DOE has not adopted a policy nor selected a preferred alternative.
A question was asked as to whether there is the possibility of a "Chernobyl effect" in a worst case scenario.	A "Chernobyl effect" is not possible because its physical characteristics are not conducive to a Chernobyl-type explosion. It is a much more stable fuel form.

DOE RESPONSES

a transportation cask loaded with foreign research
s sunk in any United States coastal waters, it will be
eepest portions of Puget Sound, which reaches depths of
ee Appendix C, Section C.5.5 of the EIS for information
being sunk in coastal and deep ocean waters. The
ch reactor spent nuclear fuel transportation cask being
aters are estimated in the EIS (Appendix C, Section C.5).
show that both the consequences and the risk of these
ix C, Sections C.5.4 and C.5.5).]

uclear fuel transportation casks are designed and
radioactive material contents, even in severe accidents.
r, it would not break up, even in the deepest waters. If
, the cask seal would fail due to water pressure, which
the cask and equalize the pressure within the cask.]

accidents [involving spent nuclear fuel] with no
years.

pen. However, if a cask was breached, a person would
liation if that person was within 1 to 7 meters of the cask
ase]. If pieces of the casks were scattered around, the
e to be removed and treated. [These unlikely scenarios
D to the EIS, section D.5.9.]

loyd's of London, between 1978 and 1993, there have
n ships that occurred at least 10 miles offshore. See
of the EIS for the results of sunken casks in deep water.
nbers are included.]

uld be localized. Spent nuclear fuel is a solid and its
d up by wind and transported "downwind." [In the
accident including partial vaporization of the solid metal
d for the EIS shows that some radioactive material could
and distributed into the environment. However, the
he resultant contamination is so small that no cleanup
f the ports or surrounding areas. See Section 4.2.2.3 of
mpacts.]

DOE RESPONSES

in the traffic risk calculations presented in Section 4

can be included in the final EIS. [A history of spent
ng accidents is presented in Appendix E, Section E.9

an Oklahoma City-type explosion occurred, the truck
destroyed. However, the integrity of the cask would
l be examined, monitored for radiation, and reloaded
. [See EIS Section 2.8 and Appendix D, Section
cussion.]

stion without a specific accident scenario. [The EIS
on 4.1.3, "General Radiological Health Effects." A
se prompt death, but such a dose is not possible in
rio involving the transport of foreign research

rovides details on the environmental analyses.
vironment were not performed for individual ports,
e no significant environmental impacts.]

se or beneficial] economic impacts noted in the draft
rts indicated by the port selection process would not
rations, and therefore, there should be no adverse
ic reaction to the use of the port. Historically, there
acts on the ports that received foreign research
plus years it has been received.]

g countries will be assisted by DOE in covering the
developed countries are responsible for paying the

nitoring will be borne by either DOE or the reactor

UES RAISED	*DOE RESPONSES*
r Galveston would receive compensation for the	[The Port of] Galveston will be compensated the same as for accepting other hazardous cargo.
r DOE will supply the list of all the hearing	Yes. DOE will supply the list of all [registered] hearing attendees. [The list is included in Volume III of the EIS.]
es the emergency planning and what is accident.	There are Transportation Plans developed for each shipment. These plans are developed by DOE along with State and local officials. DOE has rapid response teams around the United States; the closest one to Galveston is in Amarillo. DOE works with local responders to provide emergency response and other assistance training. [The general provisions of the Transportation Plan are provided in Appendix H.]
ıbility to evacuate Galveston in the event of an lequately evacuate people in the event of a t that Galveston is an island, and the only exit ıentor suggested that DOE consider	[Each port considered in the EIS has been required to develop an Area Contingency Plan outlining the response capabilities, procedures, and authorities for responding to, and recovering from, hazardous material incidents.]
nd transportation routes would be used.	DOE cannot give specifics because the routes are designated by the Nuclear Regulatory Commission. [Representative routes were evaluated for the purpose of risk analysis, but these exact routes may not be the ones selected. All routes must be approved by the Nuclear Regulatory Commission. DOE would notify the Governor of each State at least seven days in advance of each shipment.]
ɔuld address what happens if the causeway is	[As discussed in Section 2.6.4.2 of the EIS, NRC regulations concerning route notification are set forth in 10 CFR 73. This regulation requires DOE to notify the Governor of each State along the route at least seven days prior to the shipment. Any impediments along the route would be addressed at that time.]
e of vessels used for marine transport and ːse included: Can "special purpose" ships be h be used? Can foreign flag vessels be used? ited States transportation jobs? Are there on of the equipment?	DOE can use "special purpose" ships. Some carriers might be foreign flag. There will be equipment inspections and certifications by international authorities such as IAEA, International Maritime Organization (IMO), etc. There will not be enough shipments to impact United States transportation jobs.
any shipments will go through Galveston by pments over 30 years.	If all of the fuel came through Galveston, 3 to 4 casks per month would travel through Galveston. Shipments could be made for up to 13 years. There would be about 720 marine shipments during that time.

ISSUES RAISED	DOE RESPONSES
he importance of advance planning with State and ment.	[As discussed in Section 2.6.4.2 of the EIS, NRC regulations concerning route notification are set forth in 10 CFR Part 73. This regulation requires DOE to notify the Governor of each State along the route at least seven days prior to the shipment.]
ner the casks are vented.	No. The casks are not vented.
owns the shipping casks.	In some cases the shipper or the transportation company owns the shipping casks. [Some research reactors also own casks.]
ner there is a chance of a back-up of shipments at	Spent nuclear fuel would probably leave a port within four to six hours after receipt of shipment. If there is inclement weather, the shipment would be brought onto land and kept guarded until it could be safely transported. [The spent nuclear fuel transportation cask, in most cases, would be at the port no longer than 24 hours.]
first hearing in Galveston; Galveston was not Commentor asked who made the decision to add ports, and what recourse does Galveston have.	The scoping process took place in late 1993. DOE accepted comments from the public at that time. [The scoping process was open to anyone, regardless of the locations of the public hearings]. These comments were factored into the port selection process and, as a result, DOE's criteria were revised. Galveston was then included in the list of acceptable ports.
he final decision on the policy will be reached. nilateral decision, and how and when will the is process.	The final policy will be decided upon by the Secretary of Energy and announced in the Record of Decision. The final EIS will include all public comments.
mpact of the public's letters and statements on	Public comments do impact the development of EIS's. For example, public comments did result in changes between the scoping process and the draft EIS for this proposed policy. [Public comments are also considered in DOE's decision as to the preferred alternative in the EIS.]
ner an administrative appeal process exists at	DOE does not have an administrative appeal process.
; inadequate public notification, i.e., newspaper and not enough advance notification.	[DOE advertises public hearings in local newspapers and in radio and cable-access television announcements, as well as announcing them in the Federal Register notice. The comment on the need for better media advertising is noted.]

DOE RESPONSES

iven to public reading erg Library, commentor cument. DOE should	[Comment is noted.]
ssues raised by Dr.	[No written comments were received from any Dr. Whorton.]
he public reading room	[The commentor's request for additional availability is noted. Videos were available for viewing in the exhibit area before the public hearings and were provided to attendees who requested copies.]

List of Attendees at Galvedston, TX Public Hearing

Biondolico, Philip M.
Bircher, Lavinia
Bowers, David
Bradford, Lawren Ethridge
Brown, Gini
Brown, Harry
Camerana, Joe
Camerana, Kim
Carwana, Joe
Cole, Jackie
Connor, Ernest
Conrad, Terry
Conrad, Deborah
Crews, Barbara
Curran, Bernie
Essex, Graucis
Evans, Dee
Fish, Sally
Freudenburg, Henry
Fulmer, Beth
Goolishion, Leslie
Gourley, William
Guidry, Jim
Hardy, Bill
Jeffcoat, Dorothy
Kingsbury, Tim
Laurence, Monica
Levin, Dr. William
Levin, Edna S.
Lising, Bebe
Locki, Louisa
Martillotti, Joseph A.
Matteson, Kathy
Matteson, Robert
McBride Essex, Judith
McClure, J.R.
McMahon, Diane L.
Mitchell, Kirk
Muhich, Mark
Peck, Diane
Railey, Barbara
Somers, John
Unbehagen, John G.
Weaver, Joan
Weber, Denise
Whorton, Dr Elbert
Williams, Chris
Zamora, Gilbert, Jr.
Zimmerman, Roger

The public hearing at Richland, Washington, for the candidate Hanford Site, was held on June 14, 1995 at the Columbia Basin College. Two people perused exhibits and obtained materials, but no one attended the discussion portion of the hearing.

ISSUES RAISED

DOE RESPONSES

List of Attendees at Hanford, WA Public Hearing

Bradford, Eric

Clayton, Danetu

t the Weston Quality Inn
d issues that were raised.

lthough the Idaho
cess non-aluminum-clad
aration facilities and the

urrently France only
foreign [spent nuclear]
reprocessing business.

ernational inspection by
on.]

for pyroprocess research

and it is difficult to
d these may differ from
bers of the] public.

ist [only] on paper and

would be realized for the

aration] include other
, and the policy of the
nple, the United States is
ear fuel.

cale reprocessing plant at

ISSUES RAISED	DOE RESPONSES
Clarification was requested of the burn-up rate of HEU.	In 1994 the burn-up rate was 60%. This information can be found in Appendix B of the EIS.
A question was raised as to the size of one metric ton of heavy metal.	One metric ton of heavy metal [MTHM] is about 200 cubic feet, including structural materials. [One MTHM of pure uranium in metallic form occupies about 1.9 cubic feet.]
A comment was made that about 19 metric tons of heavy metal spent nuclear fuel could come into the United States in Management Alternative 1, with about one metric ton going to the Idaho National Engineering Laboratory and 18 metric tons going to the Savannah River Site. The question was how much of the 18 metric tons would enter northwest ports and travel across Idaho highways.	Generally, the fuel [that would be accepted through West Coast ports] would be from southeast Asia. The specific numbers are not available, but of the total 19.2 metric tons of heavy metal, about 4.8 metric tons could come to West Coast ports and 14.4 metric tons to East Coast ports.
A comment was made that processing spent nuclear fuel into a form for dry storage is preferred.	[The commentor's preference for processing the foreign research reactor spent nuclear fuel into a suitable form for dry storage is noted.]
A question was asked as to whether the calculated risk in the EIS included chemical separation risk.	DOE has included chemical separation risks [under Management Alternative 1, Implementation Alternative 6].
Explanation was requested as to the method of calculating latent cancer fatalities and whether Environmental Protection Agency (EPA) methods were used.	DOE did not use the EPA methodology for calculating risk and latent cancer fatalities.
A comparison of the risk as presented in the EIS with other industrial occupational hazards and risks was requested.	DOE did not compare these calculations [with industrial hazards. However, a comparison with a range of common hazards in provided in Section 4.9 of the EIS.]
A comment was made that the methodology used in the EPA regulations on natural background radiation data were incorrect and should not be used in the EIS.	[DOE did not use the referenced methodologies for radiation exposure calculations.]
A question was asked whether this was the only hearing in Idaho. It was noted that the Snake River Alliance, along with Representative Crapo, asked for hearings in Twin Falls, Pocatello, and Boise.	[Although the applicable regulations require a single public hearing, DOE held 17 public hearings nationwide. The Idaho Falls hearing, in combination with the 90 day period for submitting written comments, was considered by DOE as adequate for Idaho citizens to comment.]

List of Attendees at Idaho National Engineering Laboratory Public Hearing

Braitsford, Beatrice

Downs, Terry L.

Hansen, Dick

Heiselmann, Harry W.

Jobe, Lowell A.

Pole, Joyce

Wadkins, R.P.

Whitaker, Kathleen B.

The public hearing at Jacksonville, Florida, a candidate port of entry, was held in the Prime F. Osborn III Convention Center on May 12, 1996. Five people attended the hearing. The hearing discussion was interactive in nature and the following is a summary of the comments and issues that were raised. Information in brackets [ ] was not provided during the hearing.

ISSUES RAISED	DOE RESPONSES
A question was asked as to the location of reactors that still use HEU.	Of the countries that have research reactors, about 30 have converted to LEU and the others are in the process. Only a few of those that could convert have not yet done so. These include reactors in France and the Netherlands.
An explanation was requested as to why a country such as France would not convert to LEU.	Not all countries share the United States goal of eliminating commerce in HEU. In addition, HEU fuel for reactor operations provides more efficiency (than LEU) with an increase in operating performance at lower costs.
A question was asked as to how the decision is made on where to store the foreign research reactor spent nuclear fuel, if the fuel is to be managed in the United States.	The DOE Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs EIS [SNF & INEL EIS] identifies the Savannah River Site as the preferred storage site for all DOE-owned aluminum-clad spent nuclear fuel, and the Idaho National Engineering Laboratory for TRIGA and other non-aluminum-clad spent nuclear fuel. [The Record of Decision for the SNF & INEL EIS was issued May 30, 1995 and includes the explanation for DOE's decision to manage types of spent nuclear fuel in this manner.]

ISSUES RAISED	DOE RESPONSES
Clarification was requested on how Price-Anderson liability coverage applies to transportation carriers in the event of an accident. Questions asked included the following: Does Price-Anderson coverage apply to incidents causing closure of a rail route or highway? Who determines if and when Price-Anderson goes into effect? Is a cask that falls off a rail car considered an accident covered under Price Anderson? Commentor noted that CSX (a transport company) supports the government in the proposed action but needs more information on how Price-Anderson would be applied. These questions will also be submitted in writing.	[The Price-Anderson system provides very broad financial protection to compensate victims for damage or injury in the event of a nuclear incident or precautionary evacuation within the United States, including accidents that might occur during the transport of spent nuclear fuel to a DOE facility.] [In addition, the Price-Anderson system provides indemnification to parties such as railroads or trucking companies who might otherwise be found liable for injury or damage to third parties, including loss of profits or damage due to the closure of a rail route or highway, if such injury or damage were caused by a nuclear incident or precautionary evacuation ordered by an authorized State or local official. However, in the absence of a particular set of facts, it is difficult to determine whether or not Price-Anderson would apply to a particular situation.] [DOE would normally determine, in the event of a nuclear incident, whether or not the provisions of Price-Anderson would be available under a particular DOE contract or as a result of a particular DOE program. Ultimately, Price-Anderson applicability could be decided by a court of law.] [If a cask were to fall off of a rail car, and this event subsequently leads to either (1) a nuclear incident (damage or injury caused by the nuclear material), or (2) a precautionary evacuation (no actual damage or injury caused by nuclear material but imminent danger of such damage or injury) that has been ordered by an authorized State or local official, Price-Anderson is likely to apply. In the absence of a nuclear incident or precautionary evacuation, liability questions would be settled through normal legal processes.]
A question was asked as to whether the final EIS will delineate the preferred type of transportation.	Yes. See Section 2.9.]
A question was asked as to whether workers unloading the casks will be aware of their contents.	Workers handling spent nuclear fuel [transportation] casks will be aware of the cask contents.
A question was asked as to how long it will take to unload spent nuclear fuel casks at the Jacksonville port and how long will it be before the casks are transported on to the Savannah River Site.	The EIS assumes 24 hours for unloading at the ports. A more realistic estimate of the duration is about 4 hours.

ISSUES RAISED	DOE RESPONSES
quested of the volumes of spent nuclear fuel involved if foreign nt nuclear fuel is accepted into the United States.	22,700 spent nuclear fuel elements, or 19.2 metric tons of heavy metal, would be shipped to the United States [if such a decision is made] over a 13 year period. If all of the spent nuclear fuel were to be accepted through the Port of Jacksonville, the volume would be equivalent to about 3 International Shipping Organization (ISO) containers per month.
quested of the percentage of [spent nuclear] fuel in each e (e.g., aluminum-clad and TRIGA).	About 75% of the foreign research reactor spent nuclear fuel covered under the proposed policy is aluminum-clad fuel; the remaining 25% is TRIGA fuel.
presentative read a statement presenting the position of about reactor operators. (A written statement was also submitted.) arized as follows. (1) Foreign research reactors provide n research reactor operators always relied on United States pack U.S.-origin fuel; (3) United States acceptance of foreign pent nuclear fuel supports nonproliferation goals; (4) With tance of foreign research reactors' spent nuclear fuel, reactor cooperated in the RERTR program and converted to LEU; (5) actor operators are making long-term plans to deal with their (6) In the short-term, foreign research reactors do not have safe) Foreign research reactors' spent nuclear fuel makes up only content of entire DOE-owned spent nuclear fuel inventory; (8) tance can be done without significant impacts; (9) While tance adds a small amount of spent nuclear fuel to DOE -off is taking HEU out of world commerce; and (10) DOE rd with United States acceptance of foreign research reactor	[For DOE's response to comments in the statement, see comment document number 7 and 1130 in this Volume 3 of the EIS.]
ed as to whether there are other alternatives besides torage.	DOE is evaluating newer technologies, but those technologies are about 10-15 years away from being ready for use. Currently, storage and reprocessing are the options.
ed as to whether storage at the Idaho National Engineering is wet or dry.	Both Idaho National Engineering Laboratory (INEL) and the Savannah River Site use wet storage methods (spent nuclear fuel pools). INEL also currently uses dry storage methods, and the Savannah River Site could potentially use dry storage methods in the future.
ed as to how DOE will deal with short- and long-term	DOE will use spent [nuclear] fuel storage facilities in the short-term until long-term management facilities are available.

SECTION 3.6: JACKSONVILLE PUBLIC HEARING

List of Attendees at Jacksonville, FL Public Hearing

Buehler, Robert

Joy, Ted

Julian, M.

Kyte, John

Stowell, Charles

gement site at the Nevada Test Site, was held on June 12, 1995. The ummary of the comments and issues that were raised. Information in

DOE RESPONSES

mplied with NEPA and other applicable laws and regulations in advertising ublic hearings. Specifically, advertising included sending public service ements to local radio stations and to local cable access television, and dvertisements in major newspapers in each of the hearing locations. er advertisements were published one week before each hearing and again before each hearing. Also, in accordance with NEPA, announcements of ngs were published in the Federal Register.]

f the Draft EIS was mailed to Mr. William Offutt, Nye County Manager, , NV; The Honorable Cameron McRea, Chairman, Nye County ioners, Pahrump, NV; Mr. Les Bradshaw, Manager, Nye County Nuclear epository Project Office, Tonopah, NV; and the Amargosa Valley ity Library, Amargosa Valley, NV. Copies of the Final EIS will be d to the same individuals and organizations.

nment on the need for improved communication is noted. A series of fact isplays, exhibits, and a video were prepared in an effort to communicate s addressed by the EIS.]

he NEPA (Section 5.2.1 of the EIS) and environmental regulations of the ction 5.2.3 of the EIS), public participation and comments are an t component of the environmental process. Although the final decision ng management of spent nuclear fuel from foreign research reactors will be the Secretary of Energy, public comments on the draft EIS will be ed in reaching the final decision.]

S and proposed policy apply only to foreign research reactors spent nuclear taining uranium enriched in the United States. Another EIS would be to store other nuclear material in Nevada or at any other DOE management

t EIS makes it clear that EMAD would not be used in the near-term for spent fuel storage. It is considered for Phase 2 (longer-range) storage if EMAD s are made.

DE RESPONSES

anagement sites were found to be low and are
EIS.]

been discussed in the past but was eliminated
ences from a Challenger-type accident. [All
ection 2 of the EIS.]

States to maintain leadership within the world
bal nuclear weapons non-proliferation risk. In
tes has initiated the RERTR program and
rt it. It is important that the United States
it has thus far proven successful in helping to
ons.]

very interested in "who has what" in regard to
HEU from international commerce as possible.
d action is to remove foreign research reactor
enriched in the United States from international

pproach to considering the risks associated with
ive is analyzed and resultant risks are estimated
posed alternatives and the No Action
earthquakes and hurricanes were considered (EIS
were terrorist actions (EIS Appendix D, Section
4.2.1). All of these evaluations concluded that

nium that was enriched in the United States.
fuel, the United Stated maintained title
built relationships with foreign research reactor
and these] countries then assumed title. If the
ear fuel is accepted by the United States, the
le.

ISSUES RAISED	DOE RESPONSES
ed as to the average life of research reactors and the length of re in the reactor.	The useful life of a reactor [extends from] 20 to 40 years, depending on the type of reactor and its purpose. The length of time that fuel stays in the reactor depends on the reactor type. It varies from 45 days to 40 years.
ed as to when the proposed policy would start.	If DOE decides to adopt a policy, the policy would begin following issuance of the Record of Decision.
ed on plans for ultimate disposition of the foreign research ar fuel if it comes into the United States.	The EIS evaluates management of the spent nuclear fuel for up to 40 years, by which time it is expected that a decision would be made to dispose of the fuel in a geologic repository. [Disposal of the foreign research reactor spent nuclear fuel in a geologic repository is discussed in the EIS, Section 4.2.7.]
ed if the United States is still sending HEU fuel to foreign	As directed under the Energy Policy Act [of 1992], the United States can no longer send HEU to any research reactor except under special circumstances (i.e., reactor unable to convert). There are three reactors in Europe which would still be eligible to receive HEU under the special conditions, but the United States has not sent HEU overseas since the passage of the Energy Policy Act.
ed as to the duration of the proposed policy.	The duration of the proposed policy is specified in Sections 2.2.1.1 and 2.2.2.2 of the EIS.
ed as to whether U.S. storage sites are adequately secured rorism, given the recent bombing incident [at Oklahoma].	All DOE management sites have security measures to prevent unlawful entry and sabotage. The nature of spent nuclear fuel and [the weight of transportation] casks preclude ease of theft. The bigger concern is diversion of spent nuclear fuel material in other countries.
ed as to the cost for implementing the proposed policy.	Cost information for the range of alternatives is contained in the draft EIS [Section 4.8].
ked as to whether international organizations have positions on cy.	The IAEA [International Atomic Energy Agency] wrote to DOE asking for renewal of the Off-Site Fuels Policy.
ed as to whether private entities in Europe expressed interest in clear fuel.	The (United Kingdom) Atomic Energy Authority [UKAEA] and Cogema (France) have indicated [that they have the] capabilities to reprocess the [spent nuclear] fuel at their facilities in Dounreay [United Kingdom] and Marcoule [France], respectively. [The UKAEA has expressed an interest in reprocessing some of the spent nuclear fuel. No entity has expressed interest in taking the foreign research reactor spent nuclear fuel for storage.]

ISSUES RAISED	DOE RESPONSES
A question was asked as to who will make the final decision on the proposed policy and its alternatives.	The decision, which will be documented in a Record of Decision, will be made by the Secretary of Energy.
A question was asked as to whether overseas reprocessing would decrease the amount of spent nuclear fuel coming to the United States.	Yes, although some countries do not have the capability to store the high-level waste products resulting from reprocessing. [Under Management Alternative 2, high level waste from overseas reprocessing might be accepted in the United States.]
A question was asked as to how many fuel elements would come from Europe if the fuel is brought to the United States.	[The total amount of spent nuclear fuel from 16 countries in Europe would be 12,291 elements (9.4 MTHM [metric tons of heavy metal]) under the basic implementation.]
A question was asked as to which country has the largest amount of foreign research reactor spent nuclear fuel.	Canada has the largest amount of foreign research reactor spent nuclear fuel.
A question was asked as to who is the carrier for ocean transport.	[There has been no decision that any of the foreign research reactor spent nuclear fuel will be moved. Hence, no ocean carriers have been selected.]

List of Attendees at Las Vegas, NV Public Hearing

Barrows, Jim

Doerr, Ted

Gertz, Carl P.

Grassmeier, Katie

Hurley, Bruce

Lechel, Dave

MacDonald, Kenneth A.

McGowan, Tom

McSpadden, W.R.

McSpadden, Carolyn

Morgan, Darwin

Poles, James

Sims, Stanley H.

Standish, Paul

ıdidate port of entry, was held at Old Dominion University, located in Norfolk, Virginia, on May 15, 1995. ıg was interactive in nature and the following is a summary of the comments and issues that were raised. aring.

DOE RESPONSES

ıration technology was	There are two choices in separation technology. One is chemical separation in existing facilities at either the Savannah River Site or the Idaho National Engineering Laboratory. The Savannah River Site is currently operating on a limited basis. The other choice is to develop processing technologies that are an improvement over the current methods and use these to process the foreign research reactor spent nuclear fuel. One new process under development is about a year from test runs.
ıion technology was	Isotope separation technology already exists and is the technology by which the DOE enriches uranium for fuel. The United States began this process in 1942 for use in bombs.
he foreign research reactor	The assumptions for the cost analyses are described in the EIS [Section 4.8]. The options range from the United States paying all costs to the [research reactor] operators paying to return this material. The nominal approach is for the United States to pay the full costs of transporting and managing the spent nuclear fuel from developing countries and to charge developed countries a competitive fee. Numerous cost scenarios range from one billion dollars if the United States pays all costs, to nothing if the foreign research reactor operators pay these costs.
and how the United States ficit reduction.	Regarding storage, DOE estimates that if all the foreign research reactor spent nuclear fuel were brought back to the United States under this program, adequate storage space would occupy about four acres of land. The question of who will pay is a valid one and has not yet been decided by DOE.
h reactor spent nuclear fuel on Non-Proliferation, such	Yes. Israel is on the list of countries from which foreign research reactor spent nuclear fuel will be accepted. It is advantageous to include Israel [in the proposed policy] because of the United States' intent to recover nuclear weapons grade materials, such as HEU. DOE is working with the Department of State's Non-Proliferation Office on this EIS and this issue. [The only other nation involved in this proposed action that has not signed the Treaty is Pakistan.]
ent nuclear fuel destined for	[Possible] transport through the Panama Canal will depend on arrangements made for each shipment. Most shipments are expected to come on regularly scheduled container ships which usually do not go through the Panama Canal. [There are no known regulatory prohibitions to using the Panama Canal for shipping spent nuclear fuel from foreign research reactors.]

RESPONSES

m a risk standpoint, there is no practical
Rail transport to a site generally takes
)lic than trucks, which travel on the public
s where people are located. [Impacts of
Section 4.2.3 and Appendix E of the EIS.]

provides detail on the criteria for port
ial commercial ports and considered routine
ibility, ready ocean access, transportation
l populations along transportation routes
.

nium for their own use and for sale to client
l in this EIS because the scope is limited to
ed States is trying to convince both Russia
e Reduced Enrichment for Research and Test
aimed at promoting the conversion of
l to LEU fuel and thereby further eliminate
countries are known to have at least some

actical to try to address all non-proliferation
)e of this EIS is focused on U.S. origin

ely 40% of worldwide enrichment demand.]

average cask].

e cask per ISO container.

)ne to eight.

r] fuel would be removed as soon as feasible,
S analysis. DOE's experience is that the
om the ports.

shipment. In addition,
reactor spent fuel]
per shipment.

diation and purged at the

DE program, however,
n warheads because of

nuclear transport and
importance of nuclear
ce proliferation risks.
n on the Greenpeace
ne).]

ring spent nuclear fuel
t to handle this material
uclear fuel overseas, it
ed. This would be
evaluates this option and
ernative 2, subalternative

d reprocess [this type of
nd Marcoule in France.
ent nuclear fuel from other
to accept spent nuclear
o accepting HEU fuels for
ake back the wastes from
or LEU--whichever the

e France has sent research
reactors in other countries.

DOE RESPONSES

›r 'e tor ʏ is	The [foreign research reactor spent nuclear fuel] shipments will be guarded. However, the real protection is in the nature of the material itself and the container in which it is housed. [Transportation casks used for international shipment of foreign research reactor spent nuclear fuel weigh between 10 and 25.5 tons] A typical cask [used for inter-DOE site rail shipments] weighs between 100 and 120 tons; both are very robust. An explosion near the [smaller] container would probably knock it over and destroy everything around it, but the spent nuclear fuel elements would be expected to remain intact. [Section 2.8 and Appendix D, Section D.5.9 of the EIS discuss terrorism and sabotage.]
	["Red mercury" is outside the scope of this EIS.]
:lear	There are two major problem areas: costs and convincing the public that managing the spent nuclear fuel is an appropriate option.
the	[If you mean physical resistance, the answer is "No."] There were no major road blocks to the Urgent-Relief shipment of spent fuel from four countries which took place in late 1994. Although there were high public tensions in some communities, it should be noted that nothing adverse happened during the shipment.
erator	Incineration, a treatment technology using combustion at high temperatures to burn materials to destroy hazardous waste, is a chemical reaction. The character of atoms in the nucleus of radioactive material remains unchanged by fire [or high temperatures. Therefore, incineration is not an option for disposing of radioactive waste, although it is used to reduce the volume of certain radioactive wastes.]
t does ope :s to	[The commentor's concerns and aspirations are noted.]

List of Attendees at Norfolk, VA Public Hearing

pn, Kim

, Kenneth Wendell

:, Dovile

mberly S.

Jack"

al, Priscilla G.

Bill

Jimencz, Rene

Joy, Ted

Legg, Paul

Ravenscroft, Norman

Schmid, Chris

Specht, Elaine

Urbelis, Marivs

The public hearing was held on June 16, 1995 at Pollard Auditorium in Oak Ridge, Tennessee, for the candidate DOE Management site at Oak Ridge. Fifteen people attended the hearing. The format of the hearing was interactive in nature. Below is a summary of the comments and issues that were raised. Information in brackets [ ] was not provided at the hearing.

ISSUES RAISED	DOE RESPONSES
A comment was made that there appear to be two separate issues DOE is addressing: (1) What to do with spent nuclear fuel whether it is highly enriched or not; and (2) whether the United States will allow the continued use of HEU in research reactors. Commentor requested elaboration.	The proposed policy addresses two primary goals of the United States. One is to obtain control of all U.S.-origin HEU. The other is to create an environment whereby foreign research reactors will continue with an LEU fuel cycle. This latter goal is why the proposed policy includes U.S. management of LEU. Without creating an incentive for conversion to an LEU fuel cycle (i.e., U.S. acceptance of their spent nuclear fuel, whether HEU or LEU), foreign research reactors are likely to send their fuel to reprocessing facilities in the United Kingdom or France and receive back HEU for their fuel. [Regarding the issue of what to do with spent nuclear fuel, the proposed management alternatives include options for managing materials containing both LEU and HEU, as discussed in Sections 2.2 through 2.4 of the EIS. As to whether the United States will allow continued use of HEU in research reactors: the United States has not sold HEU for 3 years and is only allowed by U.S. law to provide HEU to reactors that are unable to convert to LEU at present. The proposed policy is intended to encourage conversion to LEU and ultimately eliminate the use of HEU in worldwide commerce.]

rch reactor operators
have to be shut down in
The "Urgent-Relief"
eed for urgent-relief
nts [to ensure that the
r weapons non-proliferation
of Decision issued]. A
vironmental Assessment in
1994 (144 elements from 4
e of South Carolina filed
rgent-relief shipments from
ment into the Savannah
shipments into the United
e. The lawsuit is still
t, stating its position that
rgent-relief shipments, and
Savannah River Site. [On
t Court's order blocking the
he remaining Urgent-Relief

he Edlow Group, which
elieve that the United States
nents, to accept the spent
agrees that is it legally
No-Action" Alternative in
stated that if the United
clear fuel, many of them
ng facilities and convert
The State Department and
uel cycle to help in our
oviders of enriched uranium)

ch reactors and thus
eactors matured, the United
s, gave up ownership. The
igin--whether or not the fuel
is accepted into the United

DOE RESPONSES

eign research reactor ven that commercial U.S. Fund and that the Nuclear eptance of commercial itored Retrievable Storage ding a message that and that this is not a good	[The foreign research reactor spent nuclear fuel that might be accepted by DOE under the proposed action would comprise only about 1% of the spent nuclear fuel (measured in MTHM - metric tons of heavy metal) that is already being managed by DOE. It would be less than about 0.05% of the commercial spent fuel currently being stored in the United States. Thus, there is a vast difference in the resources that would be needed to manage the two spent nuclear fuel types. Furthermore, due to the significant differences in the size and characteristics of the two different types of spent nuclear fuel (EIS Section 2.6.1), the facilities that would be used for management of the foreign research reactor spent nuclear fuel could not be used for commercial power reactor spent nuclear fuel. At the same time, due to the weapons-grade uranium content of much of the foreign research reactor spent nuclear fuel, there is a pressing need for action by DOE to manage it (EIS Sections 1.1 and 1.2). The proposed action by DOE to manage the foreign research reactor spent nuclear fuel now is not a case of giving this spent nuclear fuel priority over the commercial power reactor spent nuclear fuel. DOE is simply proposing to deal with this separate issue now because it is feasible to do so, and necessary to do so. DOE will separately continue to work toward a solution to the commercial power reactor spent nuclear fuel disposal issue as rapidly as possible.]
adopted a policy to bring lear fuel for reprocessing. tes appears to be trying to research reactor spent ed whether U.S. storage is	[There was no preferred alternative in the draft EIS. Section 2.9 of the final EIS for the preferred alternative.]
nvince environmental reactor spent nuclear fuel eir position now?	Environmental groups such as Greenpeace and NRDC [National Resources Defense Council] have consistently opposed reprocessing, whether overseas or in the United States. NRDC has indicated its general support for United States acceptance of U.S.-origin HEU foreign research reactor spent fuel as long as it is not going to be reprocessed.
EIS.	The EIS covers a policy duration of 10 years for acceptance in the United States or management overseas of the foreign research reactor spent nuclear fuel, with an additional 3-year window to allow for completion of shipments. The EIS assumes interim management of the [spent nuclear] fuel, if brought into the United States, for a 40-year period, at which time it is assumed that a geologic repository will be available.

SSUES RAISED	***DOE RESPONSES***
EIS should address the implications of not having a for disposal of foreign research reactor spent hich is likely to happen if Yucca Mountain is found stated that communities around interim storage sites ntial for longer-term storage beyond 40 years.	[Due to the speculative nature of spent nuclear fuel ultimate disposition, this subject is out of the scope of this EIS.]
draft EIS shows higher risks (primarily to workers) age of spent nuclear fuel. However, the risk risks of not reprocessing. Those risks could be riched uranium fuel may not be suitable for er action on the waste form due to criticality stated that performance assessments by Sandia that some fuel would not be acceptable for geologic reprocessing.	Waste acceptance criteria are not yet available for the [geologic] repository. Some intact HEU may not be acceptable in a repository without some change in the nature of the spent nuclear fuel. However, this does not necessarily mean reprocessing is the only option. Because waste acceptance criteria are not currently available, ultimate disposal of the foreign research reactor spent nuclear fuel in a geologic repository is only qualitatively addressed in the draft EIS (Chapter 4). With regard to reprocessing, the draft EIS states that reprocessing is not a preferred technology. In the Interim Management of Nuclear Materials draft EIS, issued in March 1995, DOE addresses the alternative of reprocessing for only DOE-owned fuel that may present a health and safety concern.
draft EIS risk estimates (exposures to radiation) are le activity (conservative estimates) rather than what entor requested that the EIS include more discussion of the analyses or use more realistic assumptions. important to public understanding, particularly with ar fuel transportation, which is of most concern to sted that DOE could use the next best approximation ange of estimates to account for burnup of the fuel.	[The evaluation of incident-free doses for marine and port activities were calculated using both the regulatory limit and the "historic" dose rates. See Appendices C and D of the EIS for the results. Ground transportation doses were calculated only at the regulatory limits, but the "historic" doses would be approximately 10% of the regulatory limit doses. The risks can be scaled the same way. As discussed in Section 4 and Appendices B through E of the EIS, risks associated with handling and transporting spent nuclear fuel from foreign research reactors would be low. Foreign research reactor spent nuclear fuel has been transported to management sites in the United States for over three decades without radiological incident]
Nuclear Waste Policy Amendments Act (NWPAA) of f a Monitored Retrievable Storage (MRS) Facility reactor spent nuclear fuel were stored at the Nevada idered an MRS and contrary to NWPAA?	The NWPAA [prohibition in Nevada] applies only to [development of an MRS for U.S.] commercial spent nuclear fuel.
DE may not have as many interim storage alternatives se to fight alternative selection in the courts (i.e.,	[The comment is noted.]

ISSUES RAISED	DOE RESPONSES
oration was requested on spent nuclear fuel storage facilities at the Savannah r Site.	The Savannah River Site would accept aluminum-clad fuel, consistent with the May 30, 1995 Record of Decision on the Programmic EIS [Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement]. In the near-term, spent nuclear fuel would be received for wet storage at the Receiving Basin for Off-Site Fuels (RBOF), which currently stores foreign research reactor spent nuclear fuel. When RBOF reaches capacity, foreign research reactor spent nuclear fuel would be received at the L-Reactor Disassembly Basin. During the 13-year period of shipments, it is anticipated that L-Reactor Disassembly Basin will also reach capacity, and new storage capacity will be needed at Savannah River Site. The draft EIS assumes under the basic implementation of [Management] Alternative 1 that new facilities will be for dry storage. Wet storage of aluminum-clad spent nuclear fuel is a disadvantage because of the corrosion potential. RBOF and L-Reactor Disassembly Basin are sufficient for near-term storage, but dry storage is assumed for longer-term storage.
omment was made that DOE should consider financial benefits for localities for pting foreign research reactor spent nuclear fuel under this policy. Such efits have been considered for other DOE programs. Commentor suggested the cost analyses in the EIS should address such payments.	[No "payments" are planned to localities for accepting foreign research reactor spent nuclear fuel, due to the minimal impacts such an action would entail and the subsequential nuclear weapons nonproliferation benefits that would result.]
omment was made that Appendix F, concerning potential impacts to Oak ge, states that the use of Bear Creek for wet storage of the foreign research tor spent nuclear fuel is consistent with land use plans. Commentor pointed that it is unclear whose land use plans are being addressed and asked for further oration.	[DOE's plans are referenced in Appendix F of the EIS (MMES, 1994).]
uestion was asked as to what is going to happen with the current spent nuclear stored at the Savannah River Site.	The Interim Management of Nuclear Materials EIS [issued in March 1995] addresses the alternatives for managing the Savannah River Site spent nuclear fuel.
omment was made urging DOE to extend the comment period to demonstrate a uine interest in receiving public comments in a meaningful way. Commentor ed that the sincerity of DOE is tied to how long it gives the public time to ment.	[The public comment period was extended from 60 days to 90 days, ending on July 20, 1995.]

ISSUES RAISED	DOE RESPONSES
A comment was made that DOE would get more people at its hearings if the hearings were not held on Friday nights.	[Comment is noted.]
An interest was expressed concerning attendance at hearings at other sites.	DOE identified the number of attendees at the various public hearings. [The number of attendees at all public hearings is included in Volume III of the Final EIS.]
A question was asked as to the means of advertising the public hearings other than newspaper advertisements.	Advertisements in the form of announcements on the radio and on cable-access channels were used in addition to the Federal Register announcements.
A comment was made that if DOE is genuinely interested in receiving participation in hearings and obtaining comments from local governments, these entities should have received formal requests, with sufficient advance notice, so that they have time to respond. The Mayor of Oak Ridge did not receive advance notice, according to commentor.	[Comment is noted, and the Mayor of Oak Ridge has been added to DOE's mailing list for future notifications. DOE complied with NEPA and other applicable laws and regulations in advertising for the public hearings. Specifically, advertising included sending public service announcements to local radio stations and to local cable access television, and placing advertisements in major newspapers in each of the hearing locations. Newspaper advertisements were published one week before each hearing and again one day before each hearing. Also, in accordance with NEPA, announcements of the hearings were published in the Federal Register.]

List of Attendees at Oak Ridge, TN Public Hearing

Anderson, Lois

Anderson, Joyce

Brown, Doyle R.

Burch, William D.

Fitzgerald, Dr. Michael R.

Fitzgerald, Amy

Forsberg, Charles

Joy, Ted

Munger, Frank

Nephew, Edward A.

Peelle, Robert

Perry, Walter

Sitzlar, Charles

Turner, Douglas W.

Weinberg, A.

, a candidate port of entry, was held at the Portland Marriott on May 25, 1995. About 85 people, 61 of whom registered, ndees requested a format in which they presented public statements with little or no dialogue between attendees and the s were not given at the hearing, but are provided in brackets [ ]. The following is a summary of the comments and issues

S RAISED	***DOE RESPONSES***
nd answer hearing format and to the lack of cted to notetakers summarizing key issues rbatim. Specific comments supporting the	This hearing format is acceptable according to the National Environmental Policy Act (NEPA), and DOE plans to use the format for all 17 public hearings. [At the majority of hearings the format was well received. The method of recording comments was determined by DOE General Counsel to be in compliance with DOE requirements and the Council on Environmental Quality (CEQ) regulations implementing NEPA. During the hearings, an independent, professional facilitator recorded the major comment themes on flip charts that the audience could see. Notetakers in the audience provided additional information to supplement the points captured by the facilitator. DOE also encouraged the submittal of written comments on forms available during the public hearings or in any other written form.]
ns and the National Environmental Policy	
mit this format. DOE may be asking us to	
e cannot have a statement considered for rative record for accuracy in reflecting	[The names of those individuals who registered for the hearing are listed in Volume 3. DOE's responses to the issues raised at the hearing are included in Chapter 3 of Volume 3.]
ne and comments in the final EIS.	
/ report the testimony.	[DOE responded to the issues presented in general. Notetakers often used specific phrases of the commentors, but an individuals comments may be included in several of the issues raised.]
tor are DOE contractors and may not be	
refers to the hearings as hearings.	
; DOE and the public in case of an	
ple attending the hearing to write down ps.	
luding the public in the decision not to	
within the DOE of Mr. Charles Head, the	Mr. Head is the Project Manager for the EIS.
law requires maintenance of an audio record bligated to have another hearing if the	[An audio record of the public hearing is not required. The format adopted by DOE for the public hearings complies fully with the requirements of NEPA implementing regulations and DOE requirements.]

E RESPONSES

:lear Fuel Management and Idaho National
ental Restoration and Waste Management
:atement has been completed and was issued in
grets if the commentor's position was

IS.

lisseminating the information including radio
ices. DOE also requested that the ad be placed
per notice was requested to be published both one
ing. This schedule was modified to fit some local
The hearing was also announced in a Federal
announcements were sent to local cable access

May 30, 1995 to the Tacoma Public Library,
coma Public Library-McCormick Branch, in
listributed to local planning officials and civic
areas, as well as to DOE reading rooms,
l and local governments.]

portunity within the city of Tacoma, DOE held a
blic Utilities Building in Tacoma on June 19, 1995
public hearing near the Seattle/Tacoma

noted.]

EPA and not by a referendum process. The public,
comment during the comment period.

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f the EIS.
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ortland, or

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ative 1) in
tation cask.
ility
earch reactor
lear fuel to
k, cask, and
rtation
U spent
ation cask

gy Policy Act of 1992
ign countries, with certain
ns nonproliferation policy is
ce in HEU. Failure to accept
undermine U.S. credibility
ch reactors to LEU, as
urchase of LEU by foreign
are available worldwide.]

technologies, including dry
ative 2 is selected, there may
ed storage technologies.]

proposed policy, the majority
ny of these countries that have
ir research reactors if the
These countries could indeed
U in the past. The suggestion
nations that are proliferation
ountries. As discussed in
ion as a proliferation risk
ences, and would likely insure
her with the United States.]

nt of the foreign research
ated Management Alternative
However, many reactors in
es cannot, at this time, dispose
ons 1.1 and 1.2 of the EIS).
ration of weapons-grade
o control by the United
de foreign research reactor
rangements for disposition of
Section 1.2 of the EIS).]

DOE RESPONSES

he commentors' preference for the No Action Alternative, which is described in ction 2.5 of the EIS, is noted. DOE addresses the potential detrimental impacts No Action in Sections 1 and 4.6 of the EIS.]

lthough ultimate disposition of foreign research reactor spent nuclear fuel is itside the scope of this EIS, it is discussed qualitatively in Section 4.2.7 of the IS.]

)ue to financial or regulatory constraints, not all foreign research reactor erators may be able to store spent nuclear fuel at their facilities. The intent of e proposed policy is to provide foreign research reactor operators with a limited riod of time to develop arrangements for disposition of their spent nuclear fuel id to convert to use of LEU fuel (Section 1.2 of the EIS).]

he advantages and disadvantages of domestic chemical separation are discussed in ctions 2.2.2.6 and 4.3.6 of the EIS. It is included in the EIS as a reasonable ternative.]

)isposal of transuranic waste is not related to this proposed action.]

he commentors' opposition to the proposed action is noted. Based on the aluation of impacts presented in Section 4 of the EIS, however, the risk to the rtland environment associated with the shipments of foreign research reactor ent nuclear fuel is low. No significant impact to land, water, or air quality is ticipated in any of the ports or any of the waterways used in the transport of reign research reactor spent nuclear fuel.]

he intended purpose of the proposed action is to aid in safeguarding the citizens the United States against the threats of proliferation of nuclear weapons (Section 1 and 1.2 of the EIS). The Department of Defense has not been and will not be volved in this proposed action, other than through voicing its support for the cessity of action by the United States, and possibly through use of one or more its ports as ports of entry for the spent nuclear fuel, if any is accepted into the nited States. The financial implications of the proposed action are discussed in ction 4.8 of the EIS. The human health and safety considerations associated with e proposed action are also fully addressed in the EIS (Section 4).

he statements comparing spent nuclear fuel shipments to Chernobyl are appropriate. The Chernobyl reactor accident was far worse than any possible cident involving a shipment of spent nuclear fuel. The health risks due to cidents are discussed in Section 4.2 of the EIS.]

ISSUES RAISED	DOE RESPONSES
A comment was made that we need to find a way to store the spent nuclear fuel even if nuclear technology is not supported. Commentor did not support shipping from country to country but supported educating countries to take responsibility for their own waste and nonproliferation. These countries benefitted from the spent nuclear fuel.	[Many foreign research reactor operators located in nations which are closely allied with the United States cannot, at this time, dispose of their spent nuclear fuel in their own country (Sections 1.1 and 1.2 of the EIS). The intent of the proposed policy is to provide foreign research reactor operators with a limited period of time to develop arrangements for disposition of their spent nuclear fuel and to encourage conversion to LEU fuel (Section 1.2 of the EIS).]
A question was asked as to whether the United States would now agree to also accept other countries' commercial fuel.	[No. The proposed policy does not include U.S. acceptance of commercial fuel. The receipt of spent nuclear fuel from nuclear power reactors is outside the scope of the EIS.]
A comment was made that action on the spent nuclear fuel issue should be held under local control.	[Consistent with its responsibilities under the National Environmental Policy Act, DOE has solicited comments and has encouraged public participation in preparing a final Environmental Impact Statement on a Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel. DOE has considered public comments in this process. The selection of the actual port(s) of entry, if foreign research reactor spent nuclear fuel is accepted into the United States, would be made after consultation with the public, State, Tribal and local governments. This decision will be made in the Record of Decision subsequent to completion of the final EIS.]
A comment was made that spent nuclear fuel is not a commercial commodity and should be shipped in "purpose built" ships with lead-lining and lead lids.	[The commentor's preference for "purpose built" ships is noted. The EIS evaluated the use of four types of ships, including purpose-built ships, for use in transporting foreign research reactor spent nuclear fuel (Section 2.6.3.2.1). No significant difference in the incident-free or accident risk were found between any of the types of ships (Sections 4.2.1 and 4.2.2).]
A question was asked as to how long the shipment would be at sea.	It takes 10 to 20 days depending on the ship [where it is coming from, the route, and the port of entry].

ISSUES RAISED	DOE RESPONSES
•stions were asked about the choice of ports. Specific questions ıe following: ıland considered a low-population density port? .s the Bremerton port not suitable? two military sites available, why are you considering a public dock. ıot off-load spent nuclear fuel in Port Astoria, transport to barges down ıbia River and off-load to rail or truck?	[Portland is considered a medium-population density port and is therefore acceptable as a port of entry for foreign research reactor spent nuclear fuel. The fact that it is not a low-population density port is balanced by its experience in handling containers and the low population on the route to Idaho National Engineering Laboratory.] [As recommended by the Military Traffic Management Command, a total of eight military ports were evaluated as candidates given their experience with dry containerized cargoes. The facility at Bremerton was not among those evaluated.] [The port selection criteria show that there is no stated preference for military ports. Either military or commercial ports, if they meet the port selection criteria, are equally acceptable.] [There are two instances in which barge transport would be feasible as a substitute for truck or rail transport of foreign research reactor spent nuclear fuel: (1) up the Columbia River to the Hanford Site and (2) up the Savannah River to the Savannah River Site. New analysis on these two possible barge transport routes has been inserted into Appendix E, Section E.8.15 of the EIS. The net result of this analysis is that barge transport would present approximately the same level of risk to workers and the public as would truck or rail transport. This level of risk is very low and the most likely outcome would be zero latent cancer fatalities.]
ıas expressed about the problems of International Shipping ion (ISO) containers. Specific comments and questions were: corrosion er by sea water; opening in the top of each container; possible : repair, improper welding, and metal fatigue of old casks; inadequate casks; does the testing of used casks include X-ray; accidents happening in release of radiation; inadequate and infrequent ISO inspection and ce; containers falling onto 15-ton hatch covers; and lower ratings e on DOE casks than on safes one can purchase at Sears.	Spent nuclear fuel is shipped in [transportation] casks that meet Nuclear Regulatory Commission (NRC) and International Atomic Energy Agency (IAEA) regulations. Casks are required to meet design conditions before certification and are tested according to NRC regulations intended to establish stresses on a cask more severe than is expected to be encountered. An example is the 30-foot drop onto an unyielding surface. Transportation casks shield the surroundings from harmful levels of radioactivity. Casks are leak-tested, visually inspected, and radiologically surveyed prior to use. This process complies with IAEA standards and is observed internationally. [Transportation Casks are radiographed (X-rayed) at the time of manufacture.] Spent nuclear fuel has been transported over United States highway and rail systems for more than 40 years without a release from a cask. [ISO shipping containers are used nationally and internationally to carry a variety of cargos by sea and land. Special reinforced ISO containers are used for spent nuclear fuel transportation casks. If well-maintained, these containers would safely carry a foreign research reactor spent nuclear fuel transportation cask. ISO containers would be inspected for integrity prior to being used to carry a foreign research reactor spent nuclear fuel transportation cask and containers that were damaged in a manner that would prevent them from safely performing their intended function would be replaced.]

SECTION 3.10: PORTLAND PUBLIC HEARING

RESPONSES

)

ysis of the effects of an accident that
6), which does not reach the temperature to
ndix D, Section D.5.3 presents a detailed
radioactive material source terms and
e analyses.]

because fire at sea on a ship is a dangerous
or have access to, the equipment and
discussed above, the probability of a severe
ugh to melt fuel, is low.]

answers in the EIS.

are sealed with "O"-ring seals on the cask
of the cask would cause an increase in
fails and the pressure is relieved. This
ask is threatened.]

a cask. Page B-24 of Appendix B in the EIS
er cask, including cesium.

accident scenarios that involve fire. The
ask damage and the release of radioactive
ent analyzed assumed that 0.1% of the
analyses included releases of up to 30%

lculated (Appendix D, Section D.5.3.3 of the
s well as the local meteorology and
nt. The results of the analysis of these
. The analysis shows that even in the event
ces and risks would be low (Appendix D,
rophic accident would obviously impact the
ts are predicted due to the presence of
uel. No decontamination, interdiction, or
from the worst plausible accident (Section

ted to remain in the port less than 24 hours.]

ISSUES RAISED	DOE RESPONSES
A comment was made that potential radioactive contamination from nuclear technology is a worldwide problem. Commentor said that we cannot lie on railroad tracks and wish problems away; those who are unhappy should put their information on the record rather than present "negative, nonconstructive remarks."	[The comment is noted.]
Several comments were made that accidents happen despite planning. Comment was made that probable transportation accidents are a collision between railcars and a barge hitting a bridge.	[Chapter 4 of the EIS describes risks estimated for hypothetical accidents at candidate ports, along transportation routes, and at interim storage sites in which some radioactive material is released. However, because the amount of radioactive material released would be small, the amount of contamination is small and no cleanup would be required, except possibly in the immediate vicinity of the cask.]
Comments were made about the need for additional security to protect spent nuclear fuel shipments in the ports and along transportation routes. Specific comments and questions included the following: - Are we going to have the National Guard? - Who will pay for the National Guard to secure each shipment? - How do we separate security of nuclear spent fuel from other cargo? - Navy shipments have been accompanied by a gunboats. - There should be 24-hour guards.	[Shipments of foreign research reactor spent nuclear fuel would be conducted to meet or exceed all the security requirements in the Code of Federal Regulations (10 CFR Part 73). Nuclear Regulatory Commission regulations for physical security include requirements for armed escorts and two-way communications with a communications center during the journey (Sections 2.8 and 5.4.2 of the EIS and Appendix H of the EIS). The National Guard does not escort spent nuclear fuel shipments.] [To better describe the security and emergency preparedness associated with transport of the foreign research reactor spent nuclear fuel, Appendix H has been added to the EIS. Appendix H presents the general provisions of the Transportation Plan which is a document that provides the details associated with the transportation of the foreign research reactor spent nuclear fuel.]
A concern was expressed about acts of terrorism and sabotage. Commentor noted that the spent nuclear fuel is probably safer from terrorism in the United States than abroad. The commentor stated the need for city evacuation plans, guarded ports, and specially-built ships to guard against terrorist acts.	[Section 2.8 and Appendix D, Section D.5.9 have been added in the EIS to discuss the consequences of terrorism and sabotage. Security measures employed would meet or exceed all the security requirements in the Code of Federal Regulations (10 CFR Part 73).] [Security and emergency preparedness associated with transportation of the foreign research reactor spent nuclear fuel are described in Appendix H of the EIS. This appendix presents the general provisions of the Transportation Plan, which is a document that provides the details that would be 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.]

ould be shipped to the
r the Department of Energy
ho National Engineering
agement Programs
995, the Savannah River
ve been identified as the two
or spent nuclear fuel. Both
ing the fuel on the effective
dered for temporary storage,

f the site or sites at which
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ory Environmental
mental Impact Statement.
), 1995, specifies that the
g Laboratory as the two
or spent nuclear fuel. Both
ing the fuel on the effective
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DOE RESPONSES

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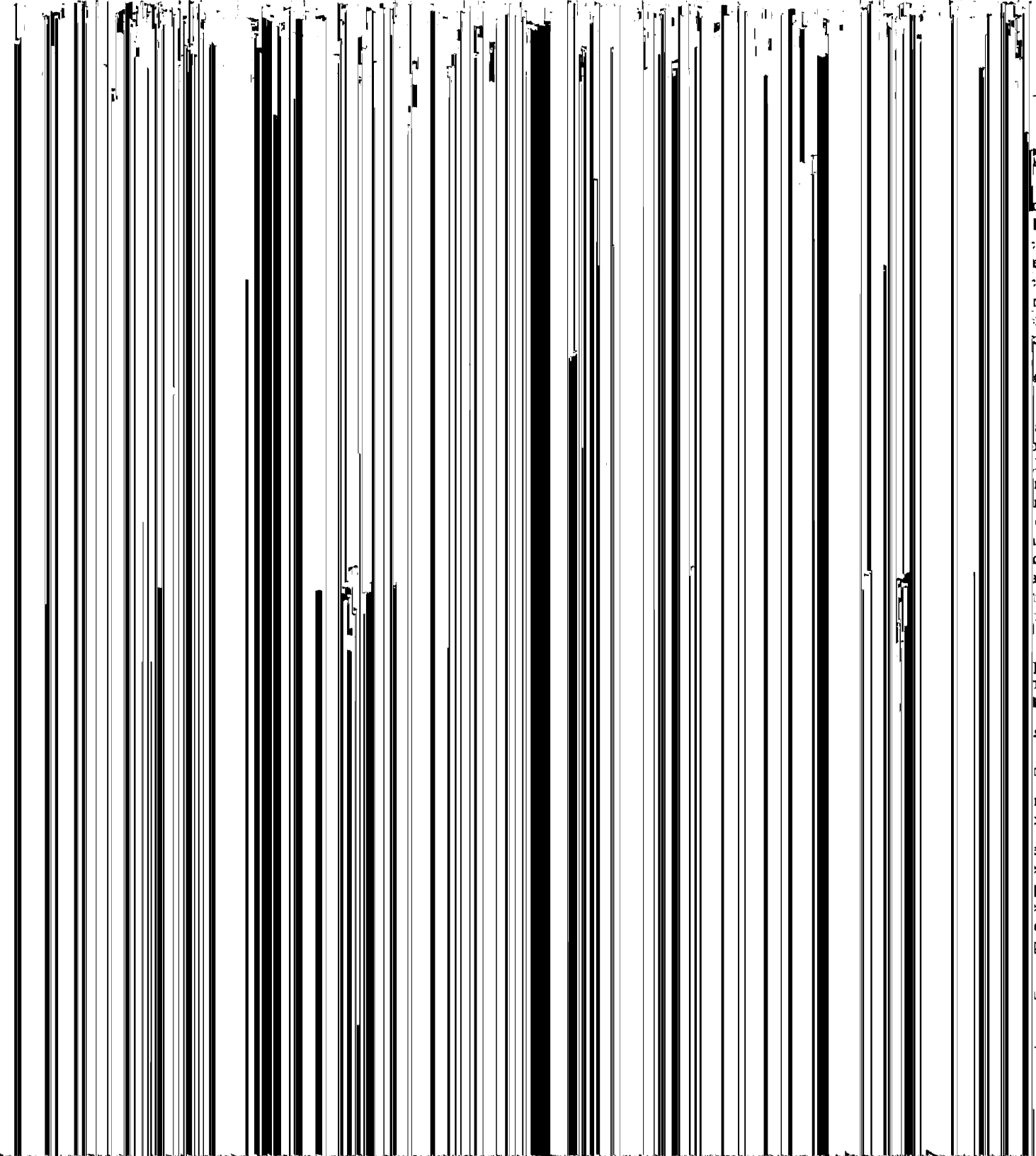
[The population residing near candidate ports and along transportation routes was an important factor that was considered in port selection and in the evaluation of environmental effects of the proposed action and management alternatives (See Section 4, Appendix D, and Appendix E of the EIS).]

[Overland shipment by rail or by truck is regulated by Department of Transportation and NRC regulations dealing with packaging, notification, escorts and communication. Under Department of Transportation regulations, those specific routes designated by appropriate State agencies are enforceable if the Department of Transportation determines that such routes are likely to result in further reduction of radiological risk. Also, shippers are required to submit proposed routes for spent nuclear fuel shipments to the Nuclear Regulatory Commission for approval. NRC then publishes a public information circular that lists routes that have been evaluated and approved for specific spent nuclear fuel shipments. All the routes take into consideration accident rates, transit time, and population density.]

[The commentors' concerns about possible economic impacts to the grain commodity shipping at the Port of Portland as a result of foreign research reactor spent nuclear fuel shipments are noted. The use of any of the ports indicated by the port selection process, including Portland, would not impact normal commercial operations, and therefore not endanger the ports' status with respect to their clients. Foreign research reactor spent nuclear fuel would be shipped to the United States in standard shipping containers that would require no special handling. There would 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 during the 30 plus years that it has been received.]



ESPONSES

ort workers would be 100 mrem per year,
l by the Nuclear Regulatory Commission to
: (Section 4.2.2.2 of the EIS). As the EIS
e for the port workers are low. To avoid
: dose limits, DOE would maintain records
rker rotation can take place if an individual
xposure. Appendix D, Section D.4.3.2.1
ask handling. Section D.4.5 provides the
F, Section F.5 presents an evaluation of
k containing research reactor spent nuclear

at the cask surface and 10 mrem/h at two
)th apply simultaneously. For shipments of
l, intense cobalt-60 sources), the 200
more stringent limit. For shipments of
m/h-at-two-meters regulatory limit turns out
of radiation is large and distributed
sk. Casks loaded with spent nuclear fuel up
diate at a level well below the 200 mrem/h
nd Appendix F, Section F.5 of the EIS).
iation from the cask for a relatively short
ith the cask due to the presence of the

ppage was one of the factors that led DOE
nent of the foreign research reactor spent
tive 1.]

s not considered in the port selection
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ng from a severe accident would be so low
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ergency preparedness associated with
:actor spent nuclear fuel, Appendix H has
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List of Attendees at Portland, OR Public Hearing

Ackerson, Amber
Anderson, Carola
Baker, Carol
Benner, David
Boyett, Keven
Brawner, Allan
Brenner, David
Butz, Andrew
Cali, Jeff
Carrigan, Michael
Cropper, Tom
Doying, David
Dreizen, Diane
Fantz, Ronald B.
Ferguson, Ken
Fisk, Rod
Ford, Mr. Lynn
Franzen, Mike
Gearhart, Frank
Glenn, William E.
Good, Melody
Greenfield, Del
Greenfield, Lou
Grover, William
Head, Tom
Henle, Bill
Horsley, Joe
Horsley, Janice
Jacobson, Brooke
Johnson, Chuck
Klausman, Steve
Knight, Paige
Kramer, Diane
Kramer, Stephen
Lee, Sharon
Logan, Patrick
Lohman, David
Lurch-Walters, Dan
Mahawk, Skip
Martiszus, Ed
Massler, Edward
McAdams, Paul
McKenzie, David
Moorehead, D. J.
Palazzolo, Michael
Palm, Charles C.
Patton, Jeanne
Peck, Gerri
Richardson, Ann
Richmond, Paul
Robinson, Bob
Ruby, Lawrence
Sims, Lynn
Soldsbury, Jalra
Stranahan, Jesse
Stranahan, Lois R.
Stump, John
Surface, Victor
Tate, Montie
Tewksbury, Ross
Wisman, Joel

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List of Attendees at Savannah, GA Public Hearing

Cajigal, George L.

Costikyan, T.W.

Dickey, James W.

Ravenscroft, Norman

Simonton, Barty

Slocumb, Bill

Wells, Nellie

Wells, Christopher

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ISSUES RAISED	DOE RESPONSES
A commentor stated that DOE did, in fact, indicate in the newspaper advertisement that the hearing would be an informal discussion. Commentor said that under the Washington Public Hearings Act there is no requirement of an official recorder for a public hearing.	[This comment is noted.]
Comments were made that DOE's provision of security at the public hearing was insulting to the hearing attendees and gave the impression that DOE believed the hearing attendees were violent.	Standard DOE policy is that security be provided at public hearings for the protection of the public and DOE in the unlikely event that someone would pose a physical threat.
Several commentors argued that foreign research reactor spent nuclear fuel should be managed overseas and not be accepted into the United States. Variations to this overall comment included support for the "No Action" alternative; support for Management Alternative 2 (overseas management with U.S. assistance); and increased verification of the spent nuclear fuel "where it is."	[Commentor's support for Management Alternative 2 or "No Action," is noted.]
Comments were made that: (1) the United States has no obligation to take the spent nuclear fuel; (2) allies pose no threat to the United States; (3) taxpayers should not have to pay for managing foreign spent nuclear fuel; (4) the International Atomic Energy Agency can easily monitor dry cask storage at reactor sites overseas; (5) the United States needs to take care of its own waste before it accepts others' wastes.	[The United States has no legal obligation to take the spent nuclear fuel; however, implementation of the proposed action would provide U.S. citizens and taxpayers increased security and the assurance that action has been taken to limit nuclear weapons proliferation, thus reducing the likelihood of a nuclear incident. While Management Alternative 1 or 3 to the proposed action would include the acceptance and management of foreign research reactor spent nuclear fuel from U.S. allies who do not pose a current proliferation threat, governments and alliances may change. The International Atomic Energy Agency could provide monitoring at overseas reactor sites; such monitoring would be considered if DOE adopts a policy using Management Alternative 2. Although the ultimate management and disposal of U.S. and foreign nuclear waste are beyond the scope of this EIS, the impacts of ultimate disposition are discussed in Section 4.2.7 of the EIS. DOE is currently working under NEPA and the Nuclear Waste Policy Act of 1982 to provide for ultimate disposition of the nuclear waste.]

DOE RESPONSES

'ould be covered under the proposed policy, the majority
es pose a [nuclear weapon] proliferation risk. However,
at have converted to LEU would be expected to switch
research reactors if the United States does not accept their
ing the enriched uranium DOE originally supplied. These
HEU -- Russia and China have both supplied HEU in the
presently working with Russia and China to get them to
the U.S. RERTR program.

should accept spent nuclear fuel only from nations that are
o the problem of identifying these countries.

that the United States provide certain nuclear
including the acceptance of foreign research reactor spent
ho cooperate in preventing the spread of nuclear weapons.
few nations have acquired nuclear weapons over the past

sue in the proposed action and is not evaluated in the EIS.
top using nuclear materials, the United States is
ough the RERTR program to convert to LEU, and thereby
ons-grade material such as HEU in international

related to ultimate disposal are beyond the scope of this
ate disposition are discussed in Section 4.2.7 of the EIS.
be the subject of future NEPA documentation. The Nuclear
2 specifies that U.S. policy is to dispose of high level
ent nuclear fuel in geologic repositories.]

purchased by British Nuclear Fuels Limited from Hanford is
mmercial nuclear power] reprocessing facilities in England.
ide the scope of this EIS.]

ISSUES RAISED	DOE RESPONSES
ıment was made that DOE's rationale that the United States must honor its itments is weak. Commentor stated that the United States has long signed nents and broken them, the commentor noted the breaking of Indian treaties example.	[It is important to show responsibility and reliability in our dealings with other nations to help maintain the U.S. leadership role in the prevention of nuclear weapons proliferation and in encouraging other nations to support U.S. efforts.]
ıment was made that the United States has a hypocritical attitude concerning ır nonproliferation. Supporting comments were that the United States has he Treaty on Non-Proliferation to proliferate in that the Treaty allows those ies that have nuclear weapons to continue to have them; the United States is ısible for more than half of the weapons shipped all over the world, and billion dollars a year is spent by the United States on military weapons; the l States is helping North Korea build reactors but North Korea will be ıg their spent nuclear fuel from the United States; the EIS fails to say the l States will no longer sell material to other countries so that it would not o take back fuel in the future; the nuclear weapons industry is irresponsible ishonest.	[The United States has never sold or exported nuclear weapons to other nations. Highly enriched uranium has been sold to other nations for use in research reactors in exchange for a pledge from those nations not to develop nuclear weapons. In fact, many nations that are non-nuclear weapons states did not develop weapons because of this arrangement.] [The sale of highly enriched uranium is no longer allowed by the Energy Policy Act of 1992, except in certain limited situations. Therefore, the management of the highly enriched uranium currently overseas is of importance. Once the highly enriched uranium used in foreign research reactors is recovered, this effort need not be repeated.] [Power reactor fuel, which contains low enriched uranium, is of much less concern for nuclear weapons proliferation. Therefore the proposal currently under discussion with North Korea has no bearing on this EIS or the proposed policy. Nor does the level of export of conventional weapons.]
ıment was made that the international activist position, based on entor's experience on panels with activists from Japan, Russia, and other ies, is to keep nuclear waste where it is.	[Many foreign research reactor operators have no immediate means for dispositioning their spent nuclear fuel outside of the United States. An objective of the proposed action is to provide them with a limited time to arrange for disposition of their spent nuclear fuel outside of the United States.]
ıment was made that DOE is in the business of segmenting its EISs. The ing examples were provided: The Savannah River Site, Hanford Site, and National Engineering Laboratory are being proposed to manage foreign ch reactor spent nuclear fuel; the same sites are being proposed under a te EIS to manage Navy fuel; and the same sites are being proposed under yet r EIS for commercial spent nuclear fuel.	Commercial spent nuclear fuel is not covered by any of the EISs mentioned by the commentor related to the three DOE sites. [Section 1.5 of the EIS explains the relationship of this EIS to other NEPA documents relating to spent nuclear fuel management. The DOE Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Restoration and Waste Management Program Environmental Impact Statement included consideration of the foreign research reactor spent nuclear fuel in its cumulative impacts.]
ıment was made that dry cask storage technology is available and is riate for use overseas.	[Dry cask storage technology is a proven storage technology. Section 2.6.5.1 of the EIS provides a summary of available storage technologies.]

ISSUES RAISED	DOE RESPONSES
A question was raised as to why DOE wants to prevent other countries from using the Sellafield reprocessing facility in the United Kingdom when DOE has issued a formal finding that reprocessing in the United Kingdom posed no proliferation risks, based on numerous international safeguards and monitoring to back up its assertion.	The Sellafield facility can only reprocess commercial spent nuclear fuel. DOE is considering, as an alternative, the use of Dounreay in Scotland [the United Kingdom] for reprocessing foreign research reactor spent nuclear fuel. Reprocessing by our allies is a difficult question. Whereas the United States does not reprocess, it nevertheless recognizes that its allies can safely reprocess. The United States recognizes that if it tried to prevent the United Kingdom from reprocessing, we would jeopardize their help in other areas.
A question was asked as to whether the Dounreay facility is subject to the same requirements as the Sellafield facility. Commentor asked whether DOE's finding that an inspection system ensures no diversion would apply if spent nuclear fuel was sent to Dounreay for reprocessing. Commentor stated that reprocessing at Dounreay appears to be a reasonable alternative and that British Nuclear Fuels Limited (BNFL) is more than willing to enter into an agreement with the United States.	Dounreay is subject to the same requirements as Sellafield. Dounreay has reprocessed spent nuclear fuel, extracted the HEU, and returned the HEU back to the country of origin. The concern of the United States is not with the Dounreay facility itself, but any diversion of HEU into international commerce after the HEU leaves Dounreay. However, reprocessing at Dounreay, with certain restrictions applied to ensure no diversion of HEU into international commerce, is an alternative being considered.
A comment was made that the best means of dealing with nuclear waste is to can it, transport it, and bury it.	[The commentor's position is noted. Underground dry storage is not one of the alternatives selected for interim management of spent nuclear fuel from foreign research reactors (Section 2.6.5.1 of the EIS).]
A question was asked about the difference between Navy and DOE spent nuclear fuel.	The characteristics of naval fuel are classified information.
Concerns were expressed about the threat of terrorist attacks or sabotage against the spent nuclear fuel casks, including the blowing up of a cask.	It would be difficult for a terrorist to divert a spent [nuclear] fuel [transportation] cask since a cask typically weighs at least 25 tons [10 to 25 tons] -- casks are extremely difficult to move. The explosion potential of a cask is very low. In the event of an explosion, the truck would likely be turned over and everything surrounding it may be gone, but the cask would remain intact. [Section 2.8 and Appendix D, Section D.5.9 have been added in the EIS to address terrorism and sabotage.]
Comments were made strongly opposing shipments of spent nuclear fuel through the Ports of Tacoma or Seattle.	[The commentor's opposition to the use of the Port of Tacoma or Seattle is noted. However, Sections 4.2.2 and 4.5 demonstrate that the risk to any port analyzed in this EIS would be low.]

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ISSUES RAISED	DOE RESPONSES
A question was asked as to what ports were used when the United States originally shipped the HEU to the foreign countries. Commentor suggested that it would be helpful to know the history.	Some HEU was shipped by vessel; some was flown by plane. DOE will provide the information on ports. [All exported TRIGA fuel was flown out of Los Angeles, except for that going to Japan, which was shipped out of the Port of Oakland. The remainder of the HEU that was used for foreign research reactor nuclear fuel was all exported by air from Albuquerque, except for one shipment that was flown out of Memphis.]
A question was asked as to whether DOE would commit that, if another port was added to the list of candidate ports, DOE would hold a public hearing at that location.	A commitment to hold additional hearings would be the decision of the Secretary [of Energy].
A question was asked as to whether DOE is proposing to ship spent nuclear fuel through the West coast and then transport the fuel to East coast sites.	That is a possibility. [Analyses in the EIS demonstrate that the risk associated with using the West Coast ports, to receive foreign research reactor spent nuclear fuel bound for the Savannah River Site, would be low. If foreign research reactor spent nuclear fuel is accepted by the United States, the decision as to which port to use for each shipment would include consideration of the population along the land route to the designated management site.]
A comment was made that two of the port selection criteria -- adequate facilities and low population -- are contradictory. Commentor stated that a port with adequate facilities will have a lot of people.	[The commentor's observation on the correlation between particular port and population size is noted.]
A question was asked as to whether it was true that only one cask per ship would be shipped into the Port of Portland.	There would be one cask per International Standards Organization (ISO) container. The EIS calculates impacts from one-to-eight casks per ship. In September 1994, four casks came into the Military Ocean Terminal at Sunny Point, North Carolina on two ships.
A question was asked as to whether container ships are double-hulled.	No.
A question was asked as to what the regulatory requirements are concerning how far apart casks are stored on a vessel. Commentor noted that containers on vessels coming into Portland were stacked according to manifests.	DOE is not aware of regulations regarding spacing for radioactive shipments. [The transportation of hazardous material is governed by the International Movement of Dangerous Goods (IMDG) Code, which is associated with the International Maritime Organization. This code establishes the international rules for shipping hazardous cargos, which includes foreign research reactor spent nuclear fuel.]

DOE RESPONSES

g food. ports is	There would be [cognizant] people at the loading site to ensure that casks are loaded properly at foreign ports. In terms of what would be done if there are other materials on board, DOE does not believe there would be a problem since the casks provide shielding, but DOE will provide more information on this. [As to isolating the casks from other freight, this would not be necessary for radiation or any other reasons. The small amount of radiation coming from the spent nuclear fuel transportation cask would be gamma radiation which does not activate or contaminate other materials, so there would be no need to isolate it. Also, see the response immediately above.]
d	[See second paragraph of the response above.]
A n	[The EIS shows that the risks associated with an accident are low (Section 4.2.2.3).]
ident if	Spent nuclear fuel shipments from foreign research reactors would not be classified. Under regulations of the Nuclear Regulatory Commission, the Governor's designee would be notified of shipments. Satellite-based tracking systems are capable of pinpointing within 15 minutes where any particular shipment is -- each State has access to this type of monitoring. [Notification of communities about accidents would be the responsibility of the State and local emergency management organizations. DOE would have a supporting role. State Troopers would be among the first to know about an accident, if one were to occur. See Section 2.8 of the EIS for details.]
l in	Advance public notification of shipments to communities cannot be given because it would violate regulations of the Nuclear Regulatory Commission. [Notification would be provided to the Governor of each state along a transportation route at least seven days prior to its scheduled occurrence. Only Governors and emergency responders would be notified [by DOE. Further notification by State Governors is a state function.].
ct and eering at	Navy spent nuclear fuel shipments are classified. States do not inspect classified shipments. [Any foreign research reactor spent nuclear fuel shipments would not be classified.]

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DOE RESPONSES

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- Drivers (including:
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  Selection Criteria,
  Turnover Rate, and
  Incentive Program),
- Carrier Management,
- Equipment Maintenance Program,
- Hazardous Material Routing Policy,
- Security,
- U.S. DOT OMC Safety Rating, and
- Carrier Interviews.]

[Every vehicle transporting foreign research reactor spent nuclear fuel would be clearly marked in accordance with Department of Transportation regulations. See Section 5.4 of the EIS for details.]

[To better describe the security and emergency preparedness that would be associated with transportation of the foreign research reactor spent nuclear fuel, Appendix H has been added to the EIS. This appendix presents the general provisions of the Transportation Plan, which is a document that provides the details that would be 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.]

[The comment is outside the scope of the EIS.]

PONSES

uclear fuel are discussed in Section
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ge capacity for 1400 spent nuclear fuel
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such as spent nuclear fuel management.]

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Section 4.2], and costs [Section 4.8],
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essed in the DOE Programmatic Spent
nal Engineering Laboratory Restoration
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aste Management Program
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rnatives analyzed are presented in the
ed with an accident are low (See Sections
EIS) and that the risks associated with
dents associated with the foreign
e also low (See Sections 4.2.1.2,

DOE RESPONSES

was done to correlate radiation doses with cancer
ere from real-life incidents. For example, people
as a result of Hiroshima and Nagasaki were tracked to
internationally accepted results on which the EIS
d in Section 4.1.3 of the EIS.]

n exposure is 10 mrem [per hour] at 2 meters away
nuclear fuel shipments are much less than that.
would receive handling, working or traveling near a
llowed to the public in an unrestricted area by NRC
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has not conducted scientific research on this subject
sed parameters recognized by the scientific
uclear Regulatory Commission and the International
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use of the Hanford site is noted. In the Record of
Spent Nuclear Fuel Program, the Savannah River
gineering Laboratory were designated as interim
ear fuel from foreign research reactors. The
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ion exposure and latent cancer fatalities (LCF) used
opulation, which includes children, pregnant
dividuals. The exception is where only workers are
s. In these instances, a worker dose-LCF

a cask is 200 mrem/hr, the limit 2 meters from the
container in this case) is only 10 mrem. See
scussion of the general radiological health effects.]

en established, the comment is noted. Section 4.9
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and compares these risks with those due to the
l other common risks.]

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List of Attendees at Seattle/Tacoma, WA Public Hearing

Amdahl, Drew

Barton, Mike

Braekins, Lonnie R.

Brown, Rachel

Clark, Tim

Crandall, Kathy

Detamore, Cindy

Devoy, Tiffany

Dyson, Jessica

Evans, Robert W.

Fisk, Rod

Gordon, Susan

Hackmack, Gregov

Herbst, Rodger

Keller, Sherry F.

Koppel, Anci

Kraft, Roger

Marzano, Dick

Meyer, Collin

Notro, Jennifer

O'Malley, Pat

Pangborn, Sally

Rayson, Chris

Rogerson, Pete

Ryan, Laura

Syracopoulos, Thalia

Topel, Anoko

Walters, Bennie E.

Wilhite, Melody R.

Yerxa, Jon

Zepeda, Barbara

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D, Section D.2.1.5
o MOTSU.]

pment of hazardous
ensure that channels
reparedness is

ion on the] spent
. This is not meant
er, DOE will work
s about a shipment

d work with the State
respond to any

s are also continually

ergency response
ould provide
to the State, Tribal,
as Radiological
y located DOE offices
chnical expertise and
ams are activated on
m their home station

e escort of shipments
rt is supplied by State
sponsibility of the
EIS to address security

DOE RESPONSES

ine for submission of comments in response to the draft EIS was hirty days from June 20 to July 20, 1995, a total of 90 days.]

noted but is beyond the scope of the EIS. [The United States supported ite extension of the Treaty on the Nonproliferation of Nuclear Weapons, he foundation for the international nuclear weapons nonproliferation

ed policy in this EIS deals only with spent nuclear fuel at foreign actors that contains uranium enriched in the United States.

l States is encouraging its own research reactors to convert to the use of d of HEU. Most United States research reactors have either converted to LEU or are in the process of converting to the use of LEU.

nited States sold the fuel to the foreign research reactors. The uranium ed in the United States. Under the policy, the United States would merely g the spent [nuclear] fuel containing U.S.-enriched uranium if a decision the United States to manage the spent [nuclear] fuel.

States has not exported HEU for 3 years [since enactment of the Energy of 1992 prohibited the export of HEU, except under special ces].

ction of nuclear weapons from spent nuclear fuel is against current United cy.

to an Edlow Group representative, there are about 8-10 [spent nuclear ortation] casks available.

pe depends on the characteristics of the spent nuclear fuel to be shipped angements made by the shippers. Cask descriptions are contained in f the EIS and Appendix B.

ONSES

d [severe] accident tests, including a
nd a fire test. [Engineering analysis
hese tests, rather than performing

conducted in the United States in
Federal standards (10 CFR Part 71)
ost severe accidents. Similar tests
ny and Japan. In each of these tests,
y analysis, but no simulated

sign] goes through an evaluation
(NRC) and certification by the
RC evaluation concludes that the cask
ertification for the United States

e percent of the metric tons of heavy
inventory. MTHM is a standard
of the mass of heavy metal] of

rations that show the differences
inventory of spent nuclear fuel is
inventory. The DOE inventory is
ently about 2,700 MTHM of DOE
s DOE facilities.]

y do not enrich uranium. Uranium
ts.

uel in a geologic repository.

ISSUES RAISED	DOE RESPONSES
An Edlow Group representative read a statement presenting the position of about 14 foreign research reactor operators. (A written statement is included in Volume 3 of the EIS.) Statement is summarized as follows: (1) Foreign research reactors provide benefits; (2) Foreign research reactor operators always relied on United States assurances to take back U.S.-origin fuel; (3) United States acceptance of foreign research reactor's spent nuclear fuel supports nonproliferation goals; (4) With United States acceptance of foreign research reactors' spent nuclear fuel, reactor operators willingly cooperated in the RERTR program and converted to LEU fuel; (5) Foreign research reactor operators are making long-term plans to deal with their own fuel overseas; (6) In the short-term, foreign research reactors do not have safe storage capacity; (7) Foreign research reactor spent nuclear fuel makes up only 1% of heavy metal content of entire DOE-owned spent nuclear fuel inventory; (8) United States acceptance can be done without significant impacts; (9) While United States acceptance adds a small amount of spent nuclear fuel to DOE inventory, the trade-off is taking HEU out of world commerce; and (10) DOE should move forward with United States acceptance of foreign research reactor spent nuclear fuel.	[Comments are noted. Statement was also submitted as a written comment. DOE response is included in Volume 3 of the EIS, written comments section, document number 7.]

List of Attendees at Southport, NC Public Hearing

, Thad
on, Billy R.
, Arthur
Steve
baum, Howard
an, Renee
Cathy
Susan
ohn
ear, Ron
n Sister

Osborne, Suzanne
Pendleton, Trois
Pennock, Joyce E.
Pope, Terry D.
Quinn, Bob
Ravenscroft, Norman
Roof, Charles
Shelton, Kelly
Trojanowski, Robert
Wells, Christopher

the Savannah River Site, was held in the North
the comments and issues that were raised at the

E RESPONSES

presentative, the foreign research reactor operators
ed States domestic policy and have taken no
with the spent nuclear fuel upon United States
a group of 14, mostly European, foreign research
Edlow International Company, an international

oth have experience in reprocessing. [Germany
n reprocessing.]

presentative, most foreign research reactor
preclude near-term storage (laws, time-
of capacity). Therefore, storage is not a viable
actors would likely revert to, or continue using,
gement Alternative 2, the overseas management
U.S. assistance in reprocessing as well as

dry storage facilities for aluminum-clad fuel.
ilities for aluminum clad fuel.]

that use in the United States.]

presentative, the official position of the foreign
long to the Edlow Group) is that they do not want
ir shipping of spent nuclear fuel to the United
willing to pay actual costs as long as they are real
sed to market-based pricing). The Edlow Group
tember 1994 cost of the urgent-relief shipment
more than twice what DOE had charged prior to
87.

included in this

to accept foreign

ts for acceptance of
considers that
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in cases where there
e United States,
ther DOE nor the
he spent nuclear

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he contracts have not

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willing to
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ISSUES RAISED	DOE RESPONSES
A question was asked as to why the proposed policy is limited to only U.S.-origin enriched uranium and why there is a time limit.	The EIS addresses a finite action, which applies only to foreign research reactor spent nuclear fuel with U.S.-origin enriched uranium. The 10-year policy duration would accept from foreign research reactors all of the U.S.-origin spent [nuclear] fuel [containing HEU]. [The United States is encouraging Russia and China to retrieve the HEU that they supplied. The time limit is to encourage foreign nations to arrange for their own nuclear waste disposal outside of the United States.]
Clarification was requested of the NEPA actions that followed expiration of the HEU Off-Site Fuels Policy in 1988 for HEU and 1992 for LEU fuels.	As described in more detail in Chapter 1 of the EIS, an Environmental Assessment [and draft "Finding of No Significant Impacts" (FONSI)] were prepared following expiration of the Off-Site Fuels Policy to evaluate possible implementation of a new policy for United States acceptance of foreign research reactor spent nuclear fuel. Because of the strong negative comments received on the Environmental Assessment [and draft FONSI, this NEPA review] was never completed. Key concerns during public comment on the Environmental Assessment involved opposition to a United States acceptance policy in general and the need for a more comprehensive NEPA review, resulting in preparation of this EIS.
A question was asked about the relationship between the Environmental Assessment prepared in 1994 for the U.S. acceptance of Urgent-Relief shipments of foreign research reactor spent nuclear fuel and the South Carolina lawsuit.	The State of South Carolina filed a lawsuit in September 1994 while the first of two shipments under the 1994 Environmental Assessment was in progress. The second shipment has not taken place and the lawsuit is still pending. [On August 23, 1995, a Federal appeals court overruled a District court order that had blocked shipment of the spent nuclear fuel. This ruling clears the way for the remaining Urgent Relief shipment.]
A comment was made that the burn-up of plutonium and tritium in a reactor goes hand-in-hand with nonproliferation. Commentor asked if DOE is looking at multi-purpose reactors that would burn up plutonium and tritium.	DOE is studying burn-up reactors as part of a separate NEPA review.
A question was asked as to how DOE, in its public outreach, responds to the legal issues and States' opposition to storing spent nuclear fuel in their States. Was it a matter of "sharing the larger world issues"?	DOE's preferred approach is to conduct outreach activities that explain the reasons why an action is being proposed and how the action or lack of action may affect [the public].
Clarification was requested as to what fraction of worldwide HEU is represented in the proposed policy.	It is difficult at this time to estimate the amount of worldwide HEU. Currently, there is a major undertaking between DOE and Russian laboratories to identify the HEU in Russia. Efforts are also underway with China. Russia and China are also pursuing programs similar to the United States to retrieve the HEU that they have provided to others.

ISSUES RAISED	DOE RESPONSES
lked as to whether more plutonium is generated as reactors	Only a small increase in plutonium is generated [when the fuel is converted] from [HEU to] LEU. In comparison with HEU, there is a net decrease in weapons grade material [when reactors convert to LEU].
ıade that there does not appear to be a concern by DOE or the ıte that any of the spent nuclear fuel could be stolen or hijacked. uestioned the use of commercial shipping because of a terrorist ked that military shipping should be used.	The weapons-grade material is an integral part of the solid metal fuel elements. Before the weapons grade material can be usable, it must be separated from the fuel element. This can only be done by a reprocessing plant. A terrorist could not "run up and grab" a [spent nuclear fuel transportation] cask. [Casks used for marine and ground transport weigh about 10-25 metric tons. EIS Section 2.8 and Appendix H have been added to the Final EIS. They describe, among other items, the security that will be in place for shipments.]
ked as to how dry storage of all aluminum-clad nuclear fuel at the ite compares in scale to the aluminum-clad nuclear fuel in rcial power plants.	About 4 acres would be required for the dry storage of all DOE-owned aluminum-clad fuel. This is comparable to the storage of spent nuclear fuel at just one commercial nuclear power plant. [Commercial power reactors do not use aluminum-clad fuel.]
ıade that aluminum-clad nuclear fuel should be chemically avannah River Site. Reasons cited were the massive costs and es associated with the canning of failed aluminum-clad elements e availability of the chemical separation technology. Comment ign research reactor spent nuclear fuel and existing DOE-owned	[The DOE Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Environmental Impact Statement Record of Decision issued May 30, 1995 identifies the Savannah River Site for consolidation of aluminum-clad spent nuclear fuel. This EIS includes an evaluation of alternatives under which the aluminum based spent nuclear fuel could be reprocessed there.]
ıade that it seems incomprehensible for DOE to consider ing some of its own fuel and not foreign research reactor spent	Under a separate NEPA action, DOE is evaluating the chemical separation of certain DOE-owned spent nuclear fuel at the Savannah River Site. The analysis contained in this EIS [Sections 2.2.2.6 and 4.3.6] include alternatives under which foreign research reactor spent nuclear fuel could be chemically separated, if other DOE-owned fuel is to be chemically separated.
ked if, in order to store or dispose of aluminum-clad fuel, each ve to be individually canned.	Only those elements found to be defective would require separate canning.
equested of the amount of aluminum-clad foreign research ar fuel.	The total amount of foreign research reactor spent nuclear fuel covered under the proposed policy is about 19.2 metric tons of heavy metal from about 22,700 individual spent fuel elements. Aluminum-clad fuel represents about 75% of this amount.

ISSUES RAISED	DOE RESPONSES
A comment was made that page 15 of the draft EIS Summary states that shippers would generally select the most direct route. Commentor noted that this was not the case with the August 1994 urgent-relief shipment into the Military Ocean Terminal at Sunny Point, where the shipment went from Sunny Point by rail to the Savannah River Site on a route that was not the most direct route.	[Once the port of entry is selected, the most direct route to the DOE management site will normally be selected. Sometimes, for reasons beyond the control of the shipper, alternate routes are used. In any case, the risk of ground transportation of the foreign research reactor spent nuclear fuel is low. NRC approval of the route taken is always required. Port selection will be part of the Record of Decision.]

List of Attendees at North Augusta, SC Public Hearing

Benjamin, Vickie

Coleman, Barbara

Darlington, Stephen

Egan, Joseph R.

Fernandez, Dr. LeVerne

Geddes, R.L.

Harris, John

Hoglund, Sarah

Jones, Michael W.

Manville, Paul

Martin, Donna

McFarland, Scott

McGehee, Berny

Pajeglio, John W.

Pittman, Randall

Rozelle, Martin

Sieg, Paul

Taylor, Linda

Tjersland, Gary T.

Walters, Vanessa

Wells, Christopher

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ISSUES RAISED	DOE RESPONSES
; made urging members of the audience to continue the fight against tion. Specific comments included the following: ot met the burden of the last injunction, and the Heart of America is committed to a state-wide initiative to stop DOE. eep the emotions boiling and not let up in our fight against this ction. This first came to our attention in 1988 and it was ignored as become a possibility. We must stick together. decides what port to use it will be a political decision. That is come in. The campaign starts tonight. must send the message repeatedly to DOE and must write and send ongress, Mr. Head, and the President. nty was able to keep a nuclear power plant out if its county and the can do the same. f Tacoma is united against spent nuclear fuel shipments through Tacoma. e DOE to court if it attempts to bring in spent nuclear fuel through Tacoma.	[The commentor's opposition to bringing foreign research reactor spent nuclear fuel through the Port of Tacoma is noted. In evaluating and selecting acceptable candidate ports of entry for receipt of foreign research reactor spent nuclear fuel, the EIS developed and applied evaluation criteria which are described in Appendix D, Section D.1.9 of the EIS. The Port of Tacoma is included in this evaluation. DOE considers that the port selection criteria successfully identify ports than can safely handle the spent nuclear fuel. The decision as to which port(s) would be used if foreign research reactor spent nuclear fuel is accepted by the United States, will be made in the Record of Decision.]
asked as to why Secretary O'Leary has not visited the Tacoma area his hearing.	[Although Secretary O'Leary cannot be personally involved in every DOE action or hearing, she will be involved in reaching the final decision on this issue.]
made indicating that the public distrusts the Department of	[Secretary O'Leary has made a concerted effort to provide the public with information on past DOE actions to increase public trust. Public hearings provide opportunity for increased interaction between DOE and the public, thus serving to facilitate communication and build a sense of trust. DOE has provided fact sheets, videos, and exhibits at the hearings to assist the public in gathering factual knowledge about the proposed policy alternatives and their environmental impacts.]
asked as to whether this EIS is conceptual in nature.	An EIS is not necessarily conceptual. Programmatic EISs are broad, but project-specific EISs such as this one [on foreign research reactor spent fuel] are not.
asked as to whether Mr. Head (DOE) has a personal bond in case the re wrong. Commentor stated that since Mr. Head is promoting hould be held liable if there was an accident and people were	Mr. Head does not have a personal bond [to cover performance of his DOE functions. Mr. Head is not personally liable for DOE information or actions.] The United States has a law, known as the Price-Anderson Act [that would cover costs associated with a nuclear incident. Mr. Head is not personally liable for DOE information or actions. However, DOE considers that the EIS analyses are correct.]

ISSUES RAISED	DOE RESPONSES
A comment was made that the proposed action was short-sighted and that the United States would be taking on the liability as world police for the foreign countries for thousands of years.	[The proposed action has both short and long-term goals. The objective of the proposed action is to support United States nuclear weapons nonproliferation policy by seeking to reduce and ultimately eliminate the use of highly enriched (weapons grade) uranium in civil programs worldwide.] [The proposed action is not a "world police" activity, nor would the management of spent research reactor fuel from foreign research reactors continue beyond the limited proposed policy duration.]
Comments were made questioning why the United States needs to accept spent fuel from countries that are not a proliferation risk. Specific comments included the following: More than 75% of the countries covered in the proposed action are allies; only 1.4% of the proposed shipments come from countries that are nuclear proliferation risks; any nation can develop nuclear weapons; the nonproliferation argument is not strong; the EIS leaves the impression that some of the countries cannot be trusted, such as Japan, Sweden, Canada, France and Switzerland -- this is insulting to these countries; eliminate allied countries from the list and focus on the remaining countries, which would eliminate about 90% of the problem.	Unless the United States provides an incentive for foreign research reactor operators to switch to the use of low enriched fuels, these reactor operators may return to the use of highly enriched uranium fuel. In addition to operating research reactors, some of our allies are manufacturing and exporting research reactors. Countries also may continue exporting research reactors that run on highly enriched uranium fuel, and the market for highly enriched uranium will continue. The proposed policy seeks to provide an incentive for countries to convert to low enriched uranium. The United States is also working with Russia and China to do the same with their client states. [DOE believes it is not prudent to publicly label selected nations as allies or to label those seen as threatening to the United States (Section 2.8 of the EIS). Negative political and diplomatic reactions from nations designated as threats would likely preclude their cooperation in efforts to reduce international commerce in highly enriched uranium.]
A question was asked as to why the spent nuclear fuel is not contained and left in countries where it is generated.	An option, in addition to United States acceptance of the foreign research reactor spent nuclear fuel [Management Alternatives 1 or 3], is for the United States to assist in [overseas reprocessing or] developing secure storage facilities at more than 100 foreign research reactors worldwide [Management Alternative 2]. However, some governments are not stable, and there would be no assurances that the spent nuclear fuel would stay in those storage facilities. The spent fuel could be diverted to nuclear weapons production.
Comments were made that the United States should not bear the responsibility for other countries' spent nuclear fuel. Specific comments included the following: The United States should encourage responsibility and accountability on the part of the countries who have benefitted from the U.S.-origin highly enriched uranium; why should the United States be responsible for the whole world; first they take our jobs -- now they are shipping us their waste.	[The intent of the proposed action is to support United States nuclear weapons nonproliferation policy by seeking to reduce and eventually eliminate the use of highly enriched (weapons grade) uranium in civil programs worldwide. As discussed in Chapter 4 of the EIS, implementation of the proposed action would have no significant environmental effects, including economic or employment effects.]

DOE RESPONSES

t of the "Atoms for Peace" program, particularly in the early
s provided research reactor technology, and the highly
ssary to fuel the research reactors, to foreign nations in
mise to forego development of nuclear weapons. (Section 1.1

to concern about the potential diversion of highly enriched
ım for use in nuclear weapons, the DOE initiated the Reduced
ch and Test Reactors (RERTR) program. This program was
ıse of highly enriched uranium (HEU) in civilian programs by
ion of foreign research reactors from HEU to LEU. Research
because the major civilian use of HEU is as nuclear research
TR program has been successful and many foreign research
dified to operate with high-density low enriched fuel instead
x B, Table B-3 provides information on the status of
have, or can be, converted to low enriched fuel.]

ention by the Japanese to build an HEU reactor. Any such
OE official would have been made in error.]

on to Management Alternative 1 and support for
ve 2 or the No Action Alternative are noted.]

oposed action is to reduce and eventually eliminate all HEU
merce. Even relatively small amounts of HEU could be used
ıpons.]

s have the capability to chemically separate spent nuclear
S also considers possible overseas reprocessing in
ve 2 in Sections 2.3 and 4.4.2. The EIS also addresses the
ıs reprocessors could return waste to countries from which it

Management Alternative 2 (Section 2.3 of the EIS) discusses
EU down to LEU. Once LEU, the disposition of the material
from a nonproliferation point of view. It could be returned to
wever, whether HEU or LEU, most countries do not have the
to store this spent nuclear fuel.]

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are discussed in Section 4.8 of the
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ports might be used. Under the
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ted States, the Record of Decision
n of the port of entry for a given
and DOE.]

s.] The port selection process
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of ports and applied these criteria to
down. Appendix D of the EIS gives
cussed in Section 4.2.2 of the EIS,
ose no significant benefits or risks
date ports.]

horization Act for Fiscal Year 1994
lection. However, the Act is not
analyzed the populations of port
ght difference between port
re desirable of the two ports.
was written specifically to regulate
r spent nuclear fuel at DOE's
criterion in identifying ports of
n extent practicable.]

ISSUES RAISED	DOE RESPONSES
A comment was made that DOE has not explained how other ports were eliminated and why Tacoma remains on the list. Commentor noted that Seattle was eliminated due to population and asked why, if there is no risk, population was a criterion. A comment was made that DOE ignored fairness and equity issues by selecting a small port such as Tacoma.	[The port selection process is documented in Appendix D of the EIS. DOE initially considered 161 ports of entry for foreign research reactor spent nuclear fuel. These ports were evaluated against the five evaluation criteria described in Appendix D, Section D.1.9, resulting in ten candidate ports, including Tacoma, that met all of the criteria as being acceptable for the receipt and handling of the spent nuclear fuel. Criterion 5 of the port selection criteria indicates ports that can safely handle foreign research reactor spent nuclear fuel with the least risk to populations near the port. Although the Defense Authorization Act for Fiscal Year 1994 specifies that only low population ports should be used for receipt of foreign research reactor spent nuclear fuel, the Act is not explicit on how to apply this requirement. DOE analyzed the populations of port cities and transportation routes. By seeking to minimize the risk to populations surrounding the ports of entry, the EIS further diminishes the low risks associated with an accident (Section 4.2.2.3). DOE believes 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.]
Concern was expressed that the Port of Tacoma is in close proximity to residential areas.	[The population residing near candidate ports and along transportation routes was an important factor that was considered in port selection and in the evaluation of environmental effects of the proposed action and management alternatives (See Section 4, Appendix D, and Appendix E of the EIS).]
Commentors expressed strong opposition to using Tacoma as a port of entry of spent fuel. Commentors cited resolutions passed by the Port of Seattle, the City of Federal Way, and the City of Fife. Also cited was a vote by the Board of Tacoma/Pierce County Chamber of Commerce opposing importation of spent nuclear fuel through Tacoma. Comments were also made that the longshoremen will not handle spent nuclear fuel at the ports.	[The commentor's opposition to use of the Port of Tacoma is noted. DOE has also noted the resolutions passed by local governments and local authorities. However, Sections 4.2.2 and 4.5 demonstrate 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. The potential environmental impacts (including radiation exposure) to port workers is discussed in Section 4.2.2 of the EIS.]
A comment was made that the purpose of the hearing was to be talking about Tacoma -- "not wet and dry facilities or high-octane or low-octane fuel." Commentor did not believe it was necessary to explain technical reasons for not bring the fuel into Tacoma -- commentor had "people reasons."	[The National Environmental Policy Act requires federal agencies to evaluate the environmental effects of proposed actions. The environmental evaluation is required to assess environmental impacts as accurately as possible. The purpose of the public hearing is to inform the public and to obtain comments from the public concerning the proposed action and its environmental effects.]

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ld not increase the
r for both marine and
, the overall low risk is

RESPONSES

el -- the aluminum-clad fuel -- would be
r Site. Other types would be shipped [to a
] to the Idaho National Engineering
Europe, West Africa, and Eastern South
East Coast port, while non-aluminum-clad
rough a West Coast port and then shipped to
ratory.

nagement site would require less ground
te, port selection considers a number of other
, safe transit from the open ocean, and port
).]

ation if foreign research reactor spent nuclear
. The responsibility for arranging the shipping
the hands of the owners of the material, the
ors. DOE would require, in the contract with
, that only well-equipped, well-maintained
safety. Ships entering U.S. territorial waters
ng in the United States must meet U.S. safety

l because transporting this material is not part
ks associated with using either commercial or
cussed in Appendix D, Section D.1 of the EIS,
vere evaluated. No significant environmental
tion of the proposed action at any of the
orts (Section 4.2.2 and 4.5 of the EIS).]

idered, but dismissed for the reasons given in
ns include prohibitive costs, lack of standard
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asks for air transport.]

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OE RESPONSES

aterials by a determined group or individual cannot
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search reactor spent nuclear fuel would be
he security requirements in the Code of Federal
Nuclear Regulatory Commission regulations for
nents for armed escorts and two-way
rvals with a communications center during the
). Section 2.8 and Appendix D, Section D.5.9
t sabotage and terrorist attack activities. To better
ncy preparedness that would be associated with
reactor spent nuclear fuel, Appendix H has been
resents the general provisions of the Transportation
ovides the details that would be associated with the
arch reactor spent nuclear fuel.]

e transport of radioactive material are noted. The
sociated with transport of the foreign research
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escribes several accident scenarios that involve
of these accidents can be found in Section D.5.4.
the event of a severe ship fire, neither the
(Section D.5.5). Although the non-radiological
cident would obviously impact the local
cts are predicted due to the presence of foreign
el.]

ED	DOE RESPONSES
ren who could be stuck in traffic e argued that the equivalencies take into account the health impact	[The relationship between radiation exposure and latent cancer fatalities (LCF) used in the EIS was for the general population, which includes children, pregnant females and other higher risk individuals. The exception is where only workers are present. In these instances, a worker dose-LCF relationship was used.] [As explained in Section 4.1.3 of the EIS, the relation between dose and LCF for the general public is 0.0005 LCF per person-rem. If a person were to sit next to the cask for one hour, he or she would receive 10 mrem or 0.01 person-rem. Therefore, the probability of the person dying from cancer as a result of this exposure is 0.000005, or one in 200,000.]
ted the health and environmental underestimated the potential for es provided for latent cancer as to be misleading, or were still ents will happen; there are still the proposal; exposure to the t of an accident would cause certain uclear fuel in their own backyards if	[These same analyses calculate the maximum expected population dose for the worst plausible accident if it were to occur at any of the 10 candidate ports. The resulting population dose, multiplied by the industry accepted conversion to latent cancer fatalities, are the results presented in the EIS. Appendix D, Section D.5.9 has been added to the EIS to discuss the results of terrorism. In this section, the radiation dose rates from a fully exposed transportation cask load of research reactor spent nuclear fuel is presented. In the unlikely event of a severe accident, the analysis performed for the EIS shows that some radioactive material could be released from the cask and distributed into the environment. However, the analysis also shows (Section 4.2.2.3) that the resultant contamination would be so small that no cleanup would be required in any of the ports or surrounding areas.]

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Port of Tacoma, or

d at the Hanford
ent of Energy
nal Engineering
: Programs
reign research
the Savannah River
t nuclear fuel to be
ering Laboratory.
ld be shipped to the

orst case" that is
ling one more drum
In addition, for each
were, the probability
nalyze the severe
ation cask is
each the shipping
ision (Section 4.2.2.3

ed for the EIS shows
and distributed into
esultant
ired in any of the
ask would likely
on air and water
).5 detail the accident

OE RESPONSES

t sea is discussed in Appendix C, Section C.5.5 of
probabilities are found in Appendix D, Section
ne risks associated with an accident are low
n of accident probabilities, both marine and land,
ates, which include human error factors as they
owever, while human errors might cause an
n the EIS, they would not increase the
ch were found to be minor for both marine and
e likelihood of human error is further reduced
ign research reactors would be shipped in standard
special handling techniques (Section 2.6.3.2.2 of
ond that required by NRC regulation which can be
Additionally, no special precautions are required by
.3.2.2 of the EIS).]

es is a local function, the Federal government,
and local governments in preparation for
preparedness details would be part of DOE's
prepared prior to any actual shipments. The
are identified in Appendix H of the EIS.]

industry" is beyond the scope of this EIS. Health
tions during the evaluation of environmental
d its management alternatives. Conservative
radiological impacts show that risks to the
ection 4.2.2 of the EIS). Section 4.9 describes
ace of the spent nuclear fuel and compares these
background radiation and other common risks.]

casks are designed and built to preclude release of
cates no adverse impact to the quality of water in
C, Section C.4). If a cask was sunk in Puget
aters, it would be recovered, with no significant
ling the fishing industry.]

ISSUES RAISED	DOE RESPONSES
Comments were made about the economic impacts to the Port and City of Tacoma as a result of spent nuclear fuel shipments. Specific comments included the following: - The Port of Tacoma is in competition with other West coast ports for shipping business and could lose business from other countries because of the nuclear stigma. - Spent nuclear fuel shipments will hurt the image of Tacoma as a safe, friendly and attractive place to visit. Tacoma enjoys a $365 million industry from visitors and does not want that destroyed. - Companies will not relocate businesses to the Port of Tacoma if nuclear waste is brought in -- they will go to the Port of Vancouver. Jobs are needed in Tacoma. - Tacoma exports 70% of all agriculture produced in the State of Washington. "We don't want our apples next to your waste."	[The use of any of the ports indicated by the port selection process, including the Port of Tacoma, would not impact normal commercial operations, and therefore not endanger the ports' economic development. Nor should it contribute to any stigma associated with the spent nuclear fuel because the EIS indicates that there would be no 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). This belief is based on the fact that the foreign research reactor spent nuclear fuel would be shipped to the United States in standard shipping containers that would require no special handling or precautions. Historically, there were no adverse economic or cultural impacts to the ports that received foreign research reactor spent nuclear fuel for the more than 30 years it has been received.]

List of Attendees at Tacoma, WA Public Hearing

Acheson, Frances
Allen, Roger E.
Amdahl, Oneta
Anderson, Stephen R.
Avery, John
Bamford, Caroline
Baarsma, Bill
Bates, Sonnie
Berry, John
Bestrom, Beth
Bresman, Larry
Brewer, Doug
Brosman, Larry
Buckingham, David F.
Campbell, Tom
Casey, Mary
Christiansen, Doris
Clark, Gary L.
Clayton, P. Marc
Cleaveland, Robert G.
Cobey, Michael
Conover, Steve
Cook, Leland E.
Crooks, Gregory W.
Cunio, Linda
Dalbalcon, Brian
Dalbalcon, Whitney
Dam, Donald
Dam, Natalie
Davis, B. B.
Eberson, Brian
Evans, Bob
Farm, Jerry
Fabulich, Jack
Fisher, Ruth
Fletcher, Mike
Folden, Mike
Franklin, Rosa
Georges, Grace
Giddings, Roxy
Golden, Lisa
Golden, Alta M.
Gorsline, Arden E.
Gregg, Loraine
Gubbe, Kim
Hamilton, Carol
Hammond, Mary W.
Hampton, Alphonso
Harris, Diane
Hart, Allen
Hawes, Robert E.
Haycheck, V. R.
Hazleton, Deanne
Healey, Joan
Healy, Lynn
Hebleton, Deanne
Hermansen, D.
Hess, George H.
Hittle, Craig
Holden, Leonard W.
Isensee, Michael
Johnson, Anita C.
Kaufman, Don
Keener, Edwin
Keener, Martha G.
Keightley, Philip D.
Keller, Beverly
Keller, Monty
Kelly, Margaret
Kelly, Eugene
Kendall, Ross S.
Kirtland, Kirk
Koch, Janet
Koon, Richard L.
Kreidler, Mike
Kueber, Mary
Lantz, Shirley A.
Lewis, Mr. Edward G.
Lewis, Mrs. Edward G.
Linville, Othel
Linville, Sue
Louie, Vernon
Macy, Mrs. Homer
Macy, Mr. Homer
Martee, Tom
Martin, Judy Ann
Marzano, Dick
McCord, Evan W.

List of Attendees at Tacoma, WA Public Hearing (Cont'd.)

McElroy, June
McGoldrick, Kelly
Melville, Marilyn
Metcalf, Sharon
Miller, Paul
Moss, Harold
Munro, Andrew
Navaro, Rudy
Nicholson, M.
Okazaki, Midori
O'Malley, Pat
Omero, Helja
Orchal, Alice
Otis, Glen
Pederson, Mary
Penter, J.C.
Peterson, H.E.
Petrich, Claire
Pohl, Dr. Geraldine L.
Pollet, Gerald
Powers, M. Sheila
Preston, Anita W.
Price, David
Rasmussen, Marilyn
Rayment, Bruce
Rhouds, Kathy
Ripple, Glen
Roberts, Laura
Robinson, Ray K.
Rogels, Lindy
Roth, Laureen
Ryan, Laura
Ryan, Rick
Schaus, Jeff
Sensel, Lorri
Sensel, Patrick
Shaughnessy, Robin
Shawl, Sallie
Simpson, B.
Slusarz, Donna
Smith, Linda
Smith, Stefanie
Spika, Nicholas C.
Sprinker, Patty
Stokesberry, Catherine
Sullivan, Maura E.
Sutherland, Martin A.
Terkovich, Valerie
Thorpe, Jerry
Trotter, Robert E.
Turosik, George A.
Turosik, Leona
Turosite, Barbara
Tyler, Valerie
Varner, Paula
Vaughn, Skip
Verburg, Rens
Wajahn, R. Lorraine
Waslery, Darlene J.
Watkins, Nancy
Watkins, Phil
Whitacre, Katheryn
Wilhite, Melody R.
Wojahn, Lorraine
Wood, Doug
Woolery, Darlene J.
Wright, Curtis
Yates, Henry
York, Barbara

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ISSUES RAISED	DOE RESPONSES
A request was made to clarify the relationship of the proposed policy to the International Atomic Energy Agency (IAEA).	The following response was provided at the hearing by an IAEA representative: The IAEA supports the Reduced Enrichment for Research and Test Reactors (RERTR) program and urged reinstatement of the Off-Site Fuels Policy. To support IAEA nonproliferation goals, IAEA recommends an EIS decision of shipping foreign research reactor spent nuclear fuel (containing United States-enriched uranium) back to the United States. This includes (1) return of fresh HEU, (2) return of HEU that has lost its "self-protection", (3) return of spent nuclear fuel from low-security facilities, and (4) return of spent nuclear fuel that is in poor condition. The IAEA has also sent a letter to the Minister of Atomic Energy of the Russian Federation suggesting that Russia consider the take-back of spent [nuclear] fuel of Russian origin.
A question was asked as to why the United States is assuming responsibility for foreign research reactor spent nuclear fuel.	In order to comply with its [nuclear weapons] nonproliferation goals, the United States accepted spent nuclear fuel enriched in the United States for over thirty years. This action created an expectation that spent nuclear fuel acceptance would continue. If the United States does not adopt a policy, many research reactor operations could be shut down as the countries did not plan for, or have, long term storage facilities. In addition, the Dounreay reprocessing facilities can only handle HEU [at this time], and reactor operators would be likely to return to HEU use from LEU use if a policy is not adopted. The United States is seeking to eliminate world-wide commerce in HEU and needs a policy to manage United States-origin enriched uranium.

DOE RESPONSES

ases in which DOE has executed contracts for acceptance of
pecific foreign research reactors, DOE considers that
United States Government has any legal obligation to
l from foreign research reactors. Even in cases where there
for shipment of spent unclear fuel to the United States,
llows, in which DOE considers that neither DOE nor the
nt have any legal obligation to accept the spent nuclear

mpleted Appendix A for each shipment, mutually agreed to
reactor operator, DOE considers that the contracts have not
not binding.

mpleted review under the National Environmental policy
issuance of a Record of Decision or Finding of No
fically covering the proposed shipment), DOE considers
be subject to successful legal challenge and would not be

y this proposed policy to influence such policy decisions.
ith [foreign research reactor] spent nuclear fuel. By
ge situations until countries develop their own storage
d action will allow for continued operation of foreign
United States does not take action, then countries would be
atment, storage, and disposal even though many do not

not need to develop a new process for chemical separation of
facilities at the Savannah River Site are technically capable
the aluminum-based foreign research reactor spent nuclear
t the Idaho National Engineering Laboratory are technically
eparating all the foreign research reactor spent nuclear fuel.

ion on storage of HEU and monitoring during blending
ates in the EIS its preference for blending sown any separated

DOE RESPONSES

ces to ctors / and e Jnited ries.	[The commentor's opposition to Management Alternative 2 is noted and a preference for wet or dry interim storage in the United States prior to geologic disposal.]
ay or ınd the	[The current practice of the Dounreay, Scotland facility is to allow the customer (reactor operator) to specify the form of the separated uranium and its disposition (Section 2.3 of the EIS). This could mean that separated HEU could be returned as HEU, contrary to United States nuclear weapons nonproliferation objectives. Further, Dounreay does not currently have the capability to reprocess the new high density LEU fuel the United States is encouraging operators to use.]
hes uel to ates	The United States is not telling the British (Dounreay) what to do. Both countries are discussing options that are mutually beneficial, including the business interests of Dounreay. The United States and Dounreay are in discussion regarding Dounreay's willingness to reprocess in ways consistent with the United States nuclear weapons nonproliferation goals. Also, as some of these countries support the United States' policy, it is not clear that the countries in question will ask Dounreay to send HEU back or that Dounreay would comply.
ny	[Under Management Alternative 2 (Section 2.3 of the EIS), the United States might accept reprocessing waste from countries that cannot take back their waste.]
rom te for	[Under Management Alternative 2 (Section 2.3 of the EIS), the United States might accept reprocessing waste from countries that cannot take back their waste.]
l rces ally in ı	[The intent of the proposed action is to support United States nuclear weapons nonproliferation objectives, not to address the practicality and pricing of the disposal of foreign research reactor spent nuclear fuel. However, DOE is aware that the implementation of this policy, in compliance with the Record of Decision, would impact the disposal of foreign research reactor spent nuclear fuel and the price of that service. These considerations will enter into the development of the Record of Decision.]

DOE RESPONSES

als, ted or	[The acceptance of target material is subalternative 1c of Implementation Alternative 1 for Management Alternative 1, which is discussed in Section 2.2.2.1 of the EIS.]
entor of	Under the Hybrid Alternative (Management Alternative 3) DOE and the Department of State may consider adopting components of Management Alternatives 1 and 2, such as some reprocessing overseas and some storage in the United States. As not all countries can accept their reprocessed waste from a reprocessing facility, under the Hybrid Alternative the United States could accept and manage this remaining waste.
l take hat a	[Development of high-density LEU for use in these reactors is a high priority for DOE.]
ıck, ling	[The comment is noted.]
ıg on	The wording in the draft EIS does not preclude shipping on I-90 through Buffalo. The routes in the draft EIS are representative. Actual routing is selected at the time of shipping.
hould rity	[DOD opinions will be considered in developing the decision that goes into the Record of Decision.]
e	[The comment is noted.]
: ıl	At the time of this public hearing (May 31, 1995), DOE is in the process of preparing to release a Record of Decision on or about June 1, 1995. [The SNF & INEL EIS Record of Decision was released on May 30, 1995.]

DOE RESPONSES

ent period by 30 days, the need to avoid delay is
be made to adhere to the schedule for release of the
d of the calendar year.]

be made after the Record of Decision, if spent nuclear
actors is to be managed by the United States.]

nore clearly in the EIS. [Appendix D of the EIS, Section
EIS to discuss terrorism and sabotage, and new
to discuss security. This appendix presents the general
tion Plan, which is a document that provides all of the
ansportation of the foreign research reactor spent
curity arrangements in port and in transit to the DOE

reprocessing only if it complies with United States
ation goals. DOE is considering the vulnerability

nission of written comments from the listed groups.
ne 3 of the EIS for the public written comments and the

IDEES AT WASHINGTON, DC PUBLIC HEARING

Schmidt, T.

Shapar, Howard

Silverman, Jennifer

Stenberg, Bo

Sundman, Bo

Svenson, Erik A.

Temple, Jonathan

Thom, David

Tjersland, Gary T

Traverso, Jay

Umino, Yasao

von Arb, Christopher

Walter, Hajek

D. Wenzel-Constabel, Peter

Wiley, Patricia

Wolf, Walt H.

Yourish, Karen

Ziegler, Leopold A.

Zmora, Hagai

ge Auditorium on May 22, 1995.
nents and issues that were raised.

VSES

lternative 2 is noted. This
of the EIS.]

reign research reactor operators are
ent nuclear fuel to the United States
ussed in Section 2.2.1.2 and
ve been considered, ranging from
ators that would pay all of the costs
am by DOE. A compromise
countries to be charged a
t nuclear fuel. U.S. taxpayers would
ing countries and absorb the
ountries. The reasons the U.S.
are: 1) some countries would be
and would have no safe alternative
, the developing countries); and 2)
weapons-grade nuclear material
ve fee and absorbs any costs above
.] It should be noted that the United
anium.

is for the proposed action, including
shipping the fuel to the United
tor operators are willing to pay the
States (provided the costs are
uts affecting essential activities such
vere abolished in response to action
nagement of spent nuclear fuel would
vernment agency to protect the
lear fuel will not simply go away,

DOE RESPONSES

;m and theft of materials by a determined group or individuals cannot
recluded. However, proper security measures greatly reduce the
ents of foreign research reactor spent nuclear fuel would be
eet or exceed all the security requirements in the Code of Federal
CFR Part 73). DOE supports these regulations as being adequate to
gn research reactor spent nuclear fuel. Nuclear Regulatory
;ulations for physical security include requirements for armed
-way communications with a communications center during the
5.4.2 of the EIS). Section 2.8 and Appendix D, Section D.5.9
es of sabotage and terrorist activities. To more fully describe the
ergency preparedness associated with transport of the foreign
spent nuclear fuel, Appendix H has been added to the final EIS.]

ient by rail or by truck is regulated by Department of
nd NRC regulations dealing with packaging, notification, escorts
ion. Under Department of Transportation regulations, those
esignated by appropriate State agencies are enforceable if the
ransportation determines that such routes are likely to result in
of radiological risk. Also, shippers are required to submit
for spent nuclear fuel shipments to the Nuclear Regulatory
approval. NRC then publishes a public information circular that
ave been evaluated and approved for specific spent nuclear fuel
he routes take into consideration accident rates, transit time, and
y. Hundreds of shipments of spent nuclear fuel have
early four decades over highway and rail routes in the United
logical incident involving spent nuclear fuel has occurred during
n 4.2.3 of the EIS).]

Edlow Group representative, spent nuclear fuel shipments have
ilar ocean-going vessels for the past 30 years, with a safe
.

ed the use of four types of ships for transporting the spent nuclear
accepted into the United States: container vessels, roll-on/roll-off
rgo ships, and purpose-built ships. No significant difference in
or accident risk were found between any of the types of ships
d 4.2.2 of the EIS).]

ES

ar fuel would be conducted to
Federal Regulations (10 CFR
ns for physical security include
nications with a
o better describe the security
rt of the foreign research
d to the EIS. Appendix H
Plan which is a document
th the transportation of the
security.]

ly increase the probability of
s of the accident, which were
accidents (Section 4.2.2.3 of

tion when scheduling
uel. Receipt of spent nuclear
the same time as other port

cts were found to be low along
ogical health effects are

nd have passed severe accident
uel is more benign than
ppendix B, Section B.2 of the
ndergo in order to be certified
rding the nature of the spent
mount of radiation are
ribe the nature of the spent
ociated with a spent nuclear fuel
itions.]

SPONSES

document 18 was considered. Local
ident initiators and may therefore
ent. However, they would not increase
hich were found to be low (Section

rack shipments in the United States, it
in the United States, particularly that
herefore, more easily handled. [All
uclear fuel would be conducted meeting
the Code of Federal Regulations (10
Section D.5.9 discuss the issue of
escribe the security and emergency
of the spent nuclear fuel, Appendix H
cludes the general provisions of the
ils that would be associated with the
spent nuclear fuel, including the
o the DOE management site.]

ave been added to the EIS to address
ss the consequences of just such a
veral types of ship fires, the impacts
results of an explosion involving a
nergy content of a severe fire greatly
vere fire not only would the
e by a large explosion, but the heat of
m the transportation cask, spreading
fecting more people. The impacts of
be equivalent to the Category 6
ated cask being engulfed by a severe
in the EIS shows that neither the
decontamination, interdiction, or
he worst plausible accident (Section

DOE worked with North Carolina and
are for the shipment, including
onal emergency responders were
y to make sure proper local

DOE RESPONSES

ssed in Section 2.7 of the EIS, primary responsibility for emergency to an incident would reside with the State, Tribal, and local authorities. ıld provide coordination, financial and technical assistance, and training to Tribal, and local emergency response personnel. In addition DOE has ical Assistance Program teams that operate from eight strategically OE offices around the country. These teams can provide technical and assistance to monitor and assess radiological hazards. To better the security and emergency preparedness associated with transport of the search reactor spent nuclear fuel, Appendix H has been added to the EIS. H presents the general provisions of the Transportation Plan which is a t that provides the details which would be associated with the ation of the foreign research reactor spent nuclear fuel.]

currently enough capacity at the Receiving Basin for Offsite Fuels (RBOF) spent nuclear fuel through 1996. DOE is in the process of upgrading L- Disassembly] Basin for receipt of spent nuclear fuel after 1996. ves are also being considered for new [dry] storage facilities at the ı River Site. To receive all foreign research reactor spent nuclear fuel, new acilities would be needed. DOE does not expect to have to move spent uel out of RBOF, L-[Reactor Disassembly] Basin, or any new facilities epository is available.

t EIS includes reprocessing (chemical separation) as a viable option [(See 2.2.2 and 4.3 of the EIS). Reprocessing would not violate current United licy as long as the separated uranium is not used in nuclear weapons.]

ongoing dialogue among DOE, the Federal Emergency Management (FEMA), States, and emergency response associations as to the proper nt for each layer of response. Once agreements are reached with the State, ll provide financial assistance for emergency equipment for local ions. For the Urgent-Relief shipment, DOE provided specialized cy response training at State and some local levels [four courses in North and South Carolina and specialized training at MOTSU]. The Savannah te Radiological Assistance Team shadowed the train throughout the t to assist local responders in the event of an accident.

ent through a deliberative process in preparation of the Urgent-Relief t, coordinating with the State on route selection and emergency response. oks to the State to assure that local communities are adequately represented mining routes and emergency preparedness needs.

DOE RESPONSES

dix A of the EIS responds to Executive Order 12898 which directs Federal
s to identify and address disproportionately high and adverse environmental
of their policies and activities on minority populations and low-income
ions. Environmental effects of Management Alternatives 1 and 3
ement in the United States) were evaluated and found to have no significant
ial or adverse effects on the general population, including minority
ions and low-income populations surrounding Wilmington, the Savannah
ite, Charleston, or any other port or site in the EIS. Section 3.2.1 of the
ntifies low-income households and describes the racial and ethnic
ition of resident minority populations surrounding each of the candidate
Environmental justice at candidate ports, along ground routes, and at interim
ment sites is discussed in Sections 4.2.2.6, 4.2.3.7 and 4.2.4.5
vely, of the EIS.]

ntor was provided the 1-800 telephone number for Charles Head, Project
r of the EIS.]

ntries cited by the commentor are on the list because they have spent
fuel containing uranium enriched in the United States, which the United
ants back under its control. LEU will not be provided to countries, such as
Pakistan, that are not committed to nonproliferation.

in DOE's scope [of the EIS] to argue the merits of the Treaty on Non-
tion [of Nuclear Weapons] and whether or not it supports nonproliferation.
, it has been successful to date in minimizing the spread of bomb-grade
available world-wide [as well as the spread of nuclear weapons].

1 countries that would be covered under the proposed policy, the majority
se a proliferation risk. However, many of these countries that have
l to LEU may switch back to HEU to fuel their research reactors if the
tates does not accept their spent nuclear fuel containing the HEU originally
by the United States. These countries could buy HEU -- Russia and China
supplied HEU in the past. The suggestion to accept spent nuclear fuel
nations that are proliferation risks also leads to the problem of
g these countries. As discussed in Section 2.8 of the EIS, nations that
licly labeled as proliferation risks would very likely withdraw from further
on in nuclear weapon nonproliferation efforts.]

nited States
l commerce. An
iate, civilian use
his objective is a

icy. Many of

has the right to
he authority to
l only U.S.-origin
arch reactors.

enriched
l commerce in

policy, which
ranium].

nanent solution is
y within 40 years.

ESPONSES

ance of foreign research reactor spent
3) is noted. The Edlow group written
f this Volume, documents 7 and 1130.]

cancer fatalities expected from the EIS
ge is based on over 40 years of
pent nuclear fuel. To date, there have
n cask has ruptured or otherwise released
withstand severe accidents through a
asks were crashed, dropped, and burned.

were not calculated in the EIS because
higher probability fatal cancer rate was
on 4.1.3 of the EIS).]

ic currently being discussed among
able. The dose of latent cancer fatality
industry-accepted value (Section 4.1.3 of
re also accepted by the International
nd the U.S. Nuclear Regulatory

ISSUES RAISED	DOE RESPONSES
A comment was made that DOE is lying when it says LEU, which is enriched at below 20%, cannot be used in making a bomb. Commentor stated that if a country can turn 20% or greater enriched uranium into a bomb, it can also turn 5% enriched uranium into a bomb.	The average terrorist and country could not convert LEU to a bomb. The only way for it to become bomb-grade is for the enrichment to be increased to greater than 20%, which can only be done in a huge, complex facility. Only five countries currently have the capability to enrich uranium. [Eleven nations have some enrichment capability.] Most countries are faced with three choices: (1) shut down their reactors; (2) go to other enriched uranium suppliers, including countries that are not as careful with respect to nonproliferation (China or Russia--two of the five); or (3) develop their own enrichment capability.
A comment was made that DOE's use of "spent" in spent nuclear fuel is a miscommunication. Commentor stated that the term sounds like something is depleted when in fact it is more dangerous than before.	"Spent" fuel means that there is less Uranium-235 in the fuel than when the fuel originally started in the reactor.

List of Attendees at Wilmington, NC Public Hearing

Best, Denny

Brown, Paula

Bryson, Thad

Creech, Melainie G.

Glenn, Steven N.

Gold, Scott

Hoyle, Janet M.

Jackson, Buddy

Johnston, Russ

Kyte, John

Pearce, Wayne

Peterson, Ginny

Quinn, Robert

Ravenscroft, Norman

Summers, Dan E.

Vick, Therese

Williams, Blake R.

Zeller, Louis

ATTACHMENT 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 Concering Foreign Research Reactor Spent Nuclear Fuel

Facilitator - Leslie Wilderson (LW): Welcome to the Department of Energy meeting on the nuclear weapons nonproliferation policy concerning spent nuclear fuel from foreign research reactors. This is a meeting to discuss the Draft Environmental Impact Statement (DEIS) that the Department of Energy (DOE) has developed in deciding their proposals.

My name is Leslie Wilderson. I am here as a neutral facilitator. I do not work for DOE, I work for a small company in Denver, Colorado. My job is to make sure that all of you who want to be heard tonight get an opportunity to be heard and that no one gets an opportunity to be heard more than their share. So, we have a lot of people here tonight. I am very pleased to see this many people turning out to participate in public policy determination for our country.

We have a deceptively simple agenda for this evening. There will be a presentation by Mr. Charles Head, who is the Program Manager for the foreign research reactors, and who is the Project Manager for the DOE's Environmental Impact Statement (EIS) on this project. He will give a brief overview of the DEIS for those of you who haven't had a chance to plough through all of the pages of that document, and so that everyone will have an opportunity to have a level playing field in terms of the knowledge of the project. After that, we'll have some questions and answers and discussions. This room, as some of you, I know, up front have heard us talking over the last few minutes, about how this is [illegible] to discussion, which is really the purpose of this meeting -- is to talk and

could do?) Anyway, there are exhibits and some printed materials out there, if you didn't get a chance before the meeting to avail yourself of those resources, by all means do so after the meeting. There are also note pads so that you can prepare written comments, if you would prefer doing it that way, and of course the Department is, I guess, still receiving written comments through normal channels (i.e., to say writing a letter to the address in Washington, DC). All of the comments are given the same weight. There is no particular advantage to giving a written presentation versus an oral presentation. As soon as Mr. Head finishes the overview, we will be taking people who signed up to speak in the order in which you signed up.

I see a question in the back row - Yes:

[someone from the audience, mostly inaudible, asked about taking a vote to see how many people were for and how many were against it].

Apparently that was a good suggestion, that's good. [Vote took place later -- after DOE presentation and Q/A session, but before formal audience presentation.] Would you like me to introduce you now? Okay, without further ado and especially because we are...excuse me? I don't know, those are not part of the Department's, it's the yellow...who is passing them out and who is collecting those? Okay, the gentleman in the red shirt, there.
Okay, without further ado, I'd like to introduce Mr. Charles Head, who is the Program Manager for this project.

Charles Head: Thank you very much, Leslie. Does this thing work better if I hold it a little further from my mouth? [audience: "NO"] Alright....okay, you think it works better further away, alright, I think you're right. Okay, this is an overview of the Environmental Impact Statement on a Proposed Nuclear Nonproliferation Policy concerning the Spent Fuel from Foreign Research Reactors. I'll tell you very briefly, at first, what might happen if we were to decide to accept any of this spent fuel and if it were to come into Tacoma. It would probably come in on a normal commercial container liner, the same as you see coming up the Sound all the time. We are estimating that there might be as many as one cask shipment a month, so in all likelihood, there would be no change in the number of ships coming up the channel, at all. The spent fuel would be loaded inside shipping casks, and the shipping casks would be loaded inside standard ISO containers. The ISO containers would be handled using the same equipment, the same mechanisms, and procedures as are used for any other commodity. There would be radiation surveys conducted on the containers to ensure that the shipping cask is performing as it's supposed to. But, in most aspects, the shipment would be done just as for any other commodity. On receipt in the port, the casks would be off-loaded onto either railcars or onto truck. These particular photographs that I'm showing you were taken during past transportation. Those onto railcars were taken in September of 1994 in a shipment that came into North Carolina. Once the spent fuel was loaded onto the railcars or onto the trucks, they would be taken either to the Idaho National Engineering Laboratory (INEL) or to the Savannah River Site (SRS) in South Carolina. Once they get to those two sites, the spent fuel would either go into wet or dry storage and, possibly, some of it, might be reprocessed. That which was put into wet storage would go into a facility that looks somewhat like this one: This picture was taken at the SRS in South Carolina. This is the Receiving Basin for Off-site Fuels. What you see here, is mostly spent fuel from foreign research reactors that has been accepted by the United States in the past. If it was to be stored dry, it would probably go into a...it could go into a facility that looks like this one: This particular photograph shows dry storage of commercial power reactor spent fuel. The spent fuel is loaded inside a hermetically sealed cylinder and it is then moved into this big concrete blockhouse. This thing is, basically, a concrete garage that you park the cylinder (that contains the spent

fuel) in. That, in a nutshell, is what would be likely to happen if we decide to accept any spent fuel and if it was to come in through Tacoma.

Now, let me explain, very briefly, why we are considering this. This goes back to the days, right after World War II, when everybody thought that nuclear power was going to be the great panacea that was going to help everyone. We were going to be driving around in atomic powered automobiles, flying in atomic powered airplanes, we were each going to have a nuclear power plant in our basement, and electricity was going to be too cheap to meter any more. Most of the countries around the world wanted to get into this act before they were left behind. They didn't want to have to buy their nuclear technology from the United States or from one of the developed countries, they wanted to be able to do it on their own. What we were concerned about was that, if other countries started developing their stand-alone nuclear technology, they would inevitably also develop the capability of making nuclear weapons. So we developed a nonproliferation concept which called for other countries to promise not to develop nuclear weapons if we would promise to help them with peaceful applications of nuclear energy. And the way we helped them with peaceful applications of nuclear energy, one of the major ways, was to help them obtain research reactors and operate those research reactors in their countries. Now, the type of research reactors that we provided them used highly enriched uranium (HEU) for fuel. HEU is weapons-grade material. It could be made into a nuclear weapon if you could take it out of the spent fuel. From the beginning, the way we kept that from happening, was to accept the return of the spent fuel after it was used. In fact, in the early days, we leased the fuel to the other countries and the provisions of the lease required that it be returned to the United States after they were through with it. As time went on and people got more comfortable with the program, those leases were eventually changed into sales, and the provisions that required that the material be returned to the United States were dropped. Nevertheless, the process of having the spent fuel shipped back to the United States continued and went on for about 30 years. Now, as time went on, the United States got more concerned about the proliferation of nuclear weapons, in general, and specifically about this weapons-grade material that was used in research reactors. In 1978, we started a program called the Reduced Enrichment for Research Test Reactors program that was aimed at developing a new type of fuel for the research reactors. By the time we got to 1978, the state-of-the-art was advanced to the point where we could make the fuel for these research reactors out of low-enriched uranium (LEU); that is, uranium that cannot be used directly in nuclear weapons. The United States developed this fuel and then started trying to convince the people (whom we had been supplying with fuel in the past) to stop using HEU and switch over to LEU. That is an expensive process, to convert the reactor. The reactors didn't operate as well on LEU as they did on HEU. Nevertheless, we were able to convince them to start switching over to this less troublesome fuel, but one of the major incentives that we used to get them to switch was that we continued to accept their spent fuel including the LEU spent fuel. This went on until 1987. The policy under which we were accepting this spent fuel was announced in the Federal Register every five years, basically the terms and conditions under which we would accept the spent fuel, and we renewed it routinely on about a 5-year cycle. In 1987, however, the Department decided, that before we renewed it again, we had better do a full environmental review of the actions to make sure that we were in full compliance with environmental laws. We extended the policy for one year to give us time to do the environmental review. However, that review ran into problems and was never completed. As a result, in 1988, the policy for accepting HEU spent fuel from foreign research reactors expired. Now, what we are doing, right now, is finally finishing that environmental review.

The DEIS has several alternatives in it for dealing with this problem, and one of the alternatives that is suggested is to do nothing whatsoever. Leave the spent fuel where it is, tell the research reactor operators that they are on their own, and walk away from the problem. The Department doesn't

recommend that approach. We are very concerned that, if we did, we would rapidly wind up with the situation where the availability of weapons-grade material would escalate around the world. Instead, we [redacted] from those foreign research reactors. Now, the type

as I said before, we have been doing for over 30 years with no problems of any sort. We didn't run into problems in the past and we don't anticipate any in the future. The highest estimated risk to any member of the general public (living within fifty miles of any of the DOE management sites) from any of the alternatives would be less than 1/2 of an additional latent cancer fatality. This translates to less than one-in-one million chance of developing a latent cancer fatality. Basically, that same risk level applies to workers, as well, and none of the alternatives would significantly contribute to cumulative impacts.

As we finish this EIS, there are a number of decisions that have to be made. Most fundamentally, we have to decide if we are going to do anything at all. Are we going to adopt a policy to manage the foreign research reactor spent nuclear fuel or to take no action? If we decide to take an action, which one of the management alternatives would we take? Would we bring it into the United States? If we do that, what will we do with it? Do we store it, reprocess it? If we manage it overseas, what would we do there? These are all questions that we have to answer as we finish this EIS. Now, in closing, I want to emphasize that this is a DRAFT EIS. There have been no decisions made, at this time, that the United States is going to do anything. Before we would make any decisions, we have to finish the public comment period, consider the public comments and finish the final EIS, which is scheduled for October of this year. Then, we are required to wait for 30 days before we make any decision on the action to be taken. We basically expect that the decision (on what action would come out of this process) will happen shortly before the end of this calendar year. Let's see, these, this schedule, in fact, is old. We have slipped the schedule for about a month since it was made. In fact, the reason we slipped the schedule is that the public comment period was originally planned to run through the month of June. However, in response to a request that came out of Patty Murray's office, the Secretary of Energy is expected to, very shortly, sign an authorization to extend the public comment period through the 20th of July, adding another month to the comment period. Now, that finishes my overview.

At this point, I'd be happy to answer any questions that anybody has or to hear comments. We do have a makeshift portable mike that Larry, who is standing right back there, can walk around to you folks if you'd like to comment from where you are sitting, or if you'd like to come up to either the podium or one of these microphones, you're certainly welcome to do so as well. Larry, could you come down here to this gentleman?

LW: There is going to be some movement here with the podium.

Q: What port is this going to be shipped through, and when will that port be decided?

LW: We are waiting for the sound system to get reinstalled and please bear with us for a few moments.

CRH: Now, we are back on-line. You asked "which port, and when would we know?"

A: There are 10 ports listed in the Draft EIS. What we hope to do is show that any one of these 10 ports could be used. Then it will be up to the shipper who is making all of the arrangements for the transportation to determine which port works best based on the availability of the ships to bring it overseas and truck or rail to carry it over land when the shipment is made.

Q: So, in other words, we have no choice in this matter?

A: That's why we are going through this review process and asking for comments from the public.

Q: How does one affect or influence the decision?

A: If, and there are, 2 levels to answer that question. If some member of the public shows us a technical reason why it shouldn't be done here or why it would cause an unreasonable level of risk. Then that could make us to rule that port out.

Q: Will this be handled with the same level of expertise as at Hanford? If you want technical reasons you have to give us more information than the approximate minute and a half you spent on shipments.

A: Well, this was only intended to be an overview. If you want more detail, there is lots of it in the EIS itself. I don't claim that the way spent fuel has been managed at Hanford is a sterling example of how that process is supposed to be done. The fact is that we don't plan to take any of the spent fuel to Hanford. Where we do anticipate on taking it is to either Idaho or South Carolina where they have been accepting it for several decades. Those facilities happen to be the best that DOE has. The spent fuel that is in storage there is in excellent condition and we expect it to continue those operations at least as well as we have been doing so far.

Q: There are a lot of unanswered questions. The public comment period time...really Senator Patty Murray is to be commended for what she did... How did we come to the conclusion that we were to take the spent fuel from all over the world into Tacoma?.

A: Okay, the process of selecting Tacoma -- we started with a list of every commercial port in the United States. We didn't go to every marina and fishing port, but we did go to all of the big ports that we could identify. We did work with a panel of marine experts from the U.S. Maritime Academy in New York and came up with a series of criteria that would enable us to winnow down the list to a shorter list of ports that would have the types of characteristics that we would like for this type of job. That whole winnowing process is explained in Appendix D of the DEIS.

LW: Can I interject here? I know that there are a lot of you with your hands up, there are also over 50 people that have signed up to give presentations. Let's, if we could, agree on about ten more minutes for specific questions about the presentations or about the EIS. Then, we could move into specific discussions. And, there is some concern about the sound system and I apologize. For those of you who have questions, if you could shout, that would be good. For those of you who have presentations, and who want to, there will be a microphone down here or Larry with the portable mike. There are some hands in the back, I believe, that were some of the first ones, that gentleman, there.

Q: The majority of nuclear waste coming through here are from our allies and there is not much of an amount here. My concern is that you got Germany, and you got France in here and they reap the benefits of this. I don't see why you don't just leave it in place where they're at. I am concerned about places like Romania and places like that. Sure, I can see us getting that out. But, the rest of this...Japan and everything else...that's quite a bit that they want to bring in. They get the benefits of what we gave them for technology. We got our own problems, too. So I don't have any problems with leaving it where it's at.

A: Okay, there are a couple of reasons that we are considering accepting spent fuel from our wealthy allies. One of them is that those countries, several of them, manufacture and export research reactors and (if we don't accept spent fuel from them) they are probably going to switch their domestic reactors back to the use of HEU and then when they go about selling research reactors to other countries in the world, largely third world countries, they will be very likely to end up selling research reactors that operate on HEU which would wind up with having a demand for HEU in exactly the kind of countries that you are concerned about. Another problem is, we are not the only country in the world who started a process like this. The Soviet Union (back when there was a Soviet Union) did the same thing and so did the Chinese, in both cases, with their client states. The United States, right now, is in the middle of trying to convince both the Russians and the Chinese that they need to work with their client states to get them to stop using nuclear weapons material as fuel in their research reactors. If we take steps that cause our allies, no matter how rich they are, no matter how stable they are, to switch back to the HEU, we are not going to have a ghost of a chance of getting the Russians or Chinese to twist their allies arms to stop using weapons-grade material.

Q: Whatever happened to world-wide citizens' responsibility? These people are responsible for what they do in their countries. Why should we be the only ones responsible for the whole world? We're not. We have some responsibility for our own country.

A: That's a valid point of view. I would hope that we could get them to.

LW: Lady in the pink.

Q: I'd like to know the technicality of why Seattle was not selected and what the difference was between the population of Seattle and Tacoma and the impacts if there was an accident on the Columbia River.

A: It is, in fact, a very, very, fine line between the use of Seattle and Tacoma. In the Defense Authorization Act, for fiscal year 1994, Congress inserted a rider that told us to use to the greatest extent practicable ports that would expose this action to the lowest number of population. That particular phrase was not very explicit and we had to do some figuring to try to find out how to apply it. What we wound up doing, was to do an analysis of the populations of both the potential port cities, and the populations along the transportation routes, for both the rail lines and the truck lines. What we found was that there was a very slight difference between the potential population exposed between Tacoma and Seattle, but made Tacoma a more desirable port.

Q: You are worried about accidents, right? You have to come up with the least number, so you are worried about accidents, right?

A: We were concerned with complying with Congress' direction.

LW: Let's do it in order. There is a white sleeve that I see in the back there, a red short sleeve after that.

Q: If one of the storage facilities in South Carolina, why not send it directly there using a more direct route (east coast)?

A: Okay, a large portion of the spent fuel if we decide to accept it at all, we'd probably do exactly what you are suggesting. Remember, that the decision has been to put the aluminum-clad spent fuel at the SRS and the other types of spent fuel that are just physically different, out in Idaho. The aluminum-clad spent fuel from Europe and Western Africa and the Eastern part of South America probably would go in through the East Coast. The non-aluminum-clad spent fuel from Europe would probably go into the East Coast and be trucked across the United States to Idaho. The spent fuel from the Pacific Rim countries, if it was going on its way to Idaho, would probably come in through West Coast ports. If it was on its way to the SRS, it might well go through the Panama Canal and in through an East Coast Port.

Q: If we're concerned about not letting unfriendly people get a hold of this fuel, why don't we ship it through military ports, where they already have security trained in this. Why are we shipping it through a public port?

A: Okay, fair question! What you've got to recognize is that there is a world of difference between HEU that's trapped inside a spent fuel element and that which has been somehow extracted. If we leave the spent fuel overseas, in other countries where the governments in fact want to develop nuclear weapons or are willing to look the other way as a terrorist organization does it, if we leave it in a situation where organizations have the financial backing of a country and time to do it, you can extract HEU from spent fuel and manufacture it into a weapon. But, you have to have a lot of time and a lot of money and a very sophisticated chemical processing capability to do that. Now, when you are shipping the spent fuel....on the other hand, this weapons material is an integral part of the spent fuel element along with the highly radioactive fission products that are still in there as well. The net result of all this is that it is not a very attractive thing for somebody to try to steal during transportation. It also is inside of a shipping cask that probably weighs a minimum of 25 tons, probably more. If you're trying to make a quick get-away, its not very conducive to being able to move quickly.

Q: If it's not desirable to take it when it is contained while being shipped, why can't we contain it and leave it where it is? If it would be a costly, expensive quick get-away thing, why move it? Why can't we just spend our resources containing it there instead of shipping it? We just had 2 derailments of trains this last weekend. What's going to happen when they go?

A: Well, we could try to build much, much better, more secure, storage facilities at around the 100 reactors around the world. The problem with doing that is that all it takes is a change in government, like we had in Iran for example, and all of the sudden that spent fuel, even though its in the most secure storage facilities that we could possibly provide them, the government can decide to take it out of that storage facility and give it to their weapons production program. You have no assurance that it will stay in that storage facility.

Q: So, then I'm sorry to keep asking the same question, but are you saying that we don't have to have any special training or security to have this stuff come into our ports? The military would not be better equipped for doing this? We're already paying them.

A: The military would not be any better equipped to do this shipment than a standard commercial port.

Q: Then what is going to happen when the U.S. Government decides to phase-out DOE, where will we be then?

A: You'd be in somewhat the same situation as you were with those programs that were in the Atomic Energy Commission before ERDA [the Energy Research and Development Administration] was developed and with those programs that were under ERDA before DOE was developed. The spent fuel is still going to be there, and if Congress decides to do away with DOE, it will have to establish some other agency to pick up the program.

LW: Excuse me, but there are some hands up on the other side, and unless you decide that you don't want the presentations from the 50-some people coming up, we only have a few minutes left for questions. So those who have already signed up can ask your questions. The gentleman in the blue shirt.

Q: If the U.S. accepts the fuel, will the transportation be overseen by DOE or will it be done by private contractors?

A: The transportation will be subject to regulation by the Department of Transportation, by the Nuclear Regulatory Commission and, for those parts of it that are overseas or in international waters, by the International Atomic Energy Agency. The transportation would actually be done by private contractors, the same way almost all DOE activities are done here in the United States. There are not enough DOE Federal employees to actually do it. But, it would be subject to Federal oversight.

Q: Do these people still have oversight of spent fuel?

A: They've been overseeing spent fuel transportation for a number of years, both DOE spent fuel transportation and some done in the commercial sector.

Q: Overseas shipments?

A: In the overseas shipments...there have been overseas shipments, yes, it goes on.

LW: Gentleman in the green hat.

Q: No matter where you go, you're going to have people speaking against nuclear waste. How much does public opinion really mean if you decide that you are going to put nuclear waste here? I mean how much does it really mean? No matter where you go, you will find people speaking out against it. There are just as many people here speaking out against it in Seattle as there are in Savannah, Georgia or anywhere. How much assurance do we have that there won't be any leakage or damage?

A: Okay. You might be interested to know that, everywhere we go, we don't hear this. Interestingly enough, there have been...[audience: "go THERE, go THERE"] but then, what is the impact of meeting like this? As I've pointed out a minute ago, if someone points out to us a technical error that's been made or a technical point that has been overlooked, we absolutely have to address it. But, when it comes to the policy questions of whether we should be doing

this program or not, the Department is doing this because we've have been told to by the Administration.

LW: The gentleman in the white sleeve, in the back row.

Q: I'd like to point out a technical error. First of all, would you agree with me that an EIS is more or less conceptual in nature?

A: Not necessarily. Programmatic Environmental Impact Statements are very broad, but project-specific Environmental Impact Statements are much more specific.

Q: Do you have a personal bond since you've been working at this just in case you are wrong?

A: Well, I don't have a personal bond, but the U.S. government does have one. It's called the Price Anderson Act.

Q: You're talking about our taxes. But, I believe that when you're talking about something of this magnitude, I'd like to point out that you're putting us in jeopardy and I believe that whatever responsibility or claim you have or whoever is responsible for doing this should have liability. I don't know if you would be able to continue doing what you're doing if you had to sign a piece of paper waiving all your rights under legislative statutes and be subject to liability. I feel that any corporation or company or individual or department or anybody who would bring all the problems without being personally responsible...because you are the ones who would have to pick

economic issue. It's not a technical issue. And just as a point on the basis, I don't think that a nonproliferation treaty will stop any sovereign state that decides it must (for its own national reasons) need nuclear weapons. It won't slow them down more than a year anyway. No terrorist

unacceptable. As you know, the Seattle City Council has passed a series of resolutions stating its clear and unequivocal opposition to DOE's proposals to transport such intrinsically dangerous material through heavily populated areas of the country, including any Puget Sound Port. The City's concerns, expressed previously, have focused on the risks of shipboard fires, which we do not feel have been adequately analyzed in the EISs, and on transportation related accidents. We have a very highly congested transportation corridor. We know that we do not in any of our communities have adequate emergency response capability to deal with the problems that might arise from the type of accidents that [redacted]

identify emergency response in the event of a catastrophic mishap, and it fails to adequately address the socioeconomic impacts associated with the stigma of being within the proximity of a port of entry of spent nuclear waste. Whereas, the City of Federal Way is a major municipality of 73,500 persons located only one mile from the Port of Tacoma. Now, therefore, the City Council of the City of Federal Way hereby resolves as follows: Statement in opposition. The City of Federal Way City Council strongly opposes the shipment of spent nuclear materials through the Port of Tacoma and encourages the Department of Energy to choose a more suitable site to receive these materials. This is resolved by the City Council on June 6th. The City has also sent to DOE a letter that summarizes the EIS items that do not meet the environmental impact adequately.

I will give a copy of this resolution to you and the letters. Thank you very much.

Larry Brosman: My name is Larry Brosman and I am a resident of the city of Renton. It is pleasing to know that not just Tacoma residents feel the impacts of this possible action. We in Renton...the Seattle Attorney was here -- we're very concerned about this throughout the Puget Sound area. And that's as it should be because we're a community here. We're just not one city or two cities; we're a whole community. One thing, that I would like to address, is that DOE's recommendations don't really talk about Management Alternative 2 which says: "Do it abroad". Forty-one countries produce this nuclear waste, and one country is being seen as the depository of the nuclear waste. It just does not seem fair to me. Also, the belief that the U.S. managing nuclear waste will prevent nuclear proliferation, I think, is a vain belief. Nuclear proliferation will happen anyway. We have tried in the past to be the world's policeman with guns, and bombs, and things like that, and that hasn't worked too well. And now, we are trying to prevent nuclear proliferation by storing all the decaying nuclear fuel here. I don't think that will work either. There are three negative impacts, I think, that say: "Don't do this at all". First of all, the possibility of an accident. I'm not in shipping, but I respect shippers. Nonetheless, there have been accidents in Puget Sound with oil and that sort of thing. Well, an oil spill is hard to clean up. It has a negative impact on life, and on birds, and things like that, but the half-life of uranium is strongly greater and much longer than it would take to clean up than an oil spill. Secondly, the economic burden of transport and storage seems to be placed primarily on the United States in the DOE's alternative. That's not fair, either. Our nation's pockets only go so deep and those pockets shouldn't pay this bill. Thirdly, the perception of how Tacoma is seen is important to me. Mt. Rainier is a beautiful national and natural historic site. People come here to vacation because they love to see Mt. Rainier, they love to be around Tacoma. Well, let's go to Tacoma, let's go watch some nuclear waste being stored. Can you imagine? I mean, Tacoma is a nice town, now. But, if we allow nuclear waste to go in and out all the time, how

[redacted]

LW: Excuse me, I need to be doing a mike check. Am I on? Am I not on? Let me alert a few more

The Tacoma Environmental Commission has reviewed the U.S. DOE's proposed policy to manage spent fuel from foreign research reactors and the accompanying environmental analysis. The Commission raises the following environmental concerns which have not been adequately addressed: Number 1, information about the Port of Tacoma -- it's terminals, it's operations, and the surrounding area contained in the environmental analysis -- is outdated and does not accurately reflect current conditions. The deep water depth of Puget Sound, as mentioned by the previous speaker, would cause substantial problems in the recovery of nuclear fuel shipping containers in the case of an accident. An explosion or fire on board a vessel navigating Puget Sound would pose considerable harm to the surrounding populations and environment. Commencement Bay is currently designated a Federal Superfund site. Considerable cleanup has already been undertaken by the Port of Tacoma, the City, and the industries of Commencement Bay to address contamination issues. The Port of Tacoma is in close proximity to residential neighborhoods despite what DOE may think in that regard. Operational procedures regarding handling of the shipments are inadequate. Permanent disposal of the spent nuclear fuel has not been determined and the security aspects of the shipments have not been addressed. The citizens of Tacoma have determined to live in a clean environment and have undertaken to restore to the City the highest standards of clean air, clean water, and clean land. High-level radioactive waste presents a threat of the most catastrophic injury to Tacoma residents. The potential release of radiation from high-level radioactive waste presents an unacceptable risk. Therefore, the Tacoma Environmental Commission strongly opposes the introduction, storage, or shipment of high-level radioactive waste through Tacoma's port, rail lines, or highways. And we further urge DOE to remove Tacoma as a possible United States entry site for these shipments.

Thank you. [applause]

Monty Keller: My name is Monty Keller, and I must admit that I came here tonight and found that I was very ignorant to the issues of nuclear waste. However, I came here tonight to represent my children. I don't want my child to become a statistic, or to be the one, or the first man to die. I believe our kids are very good technical reasons not to have nuclear waste come through the Port of Tacoma.

Paul Miller: Thank you. Paul Miller, Tacoma City Council. The Tacoma City Council has recently adopted a Resolution standing in opposition to the selection of the Port of Tacoma as a transhipment site. Many of my Council colleges are here tonight and I will allow them to speak to that issue. I want to speak, first of all, to the short-sighted attitude that DOE seems to be expressing. You talked about the naivete with which we approached nuclear waste and nuclear reactors in 1958. Yet, I believe that we are taking that same short-sighted approach to waste shipments, and the acceptance of waste shipments, in this proposal. We are taking on the liability under the guise of being the policemen for the world. We are taking on the liability, not for the next 10 or 20 years for these countries, but for the next 1,000 or 10,0000 years. Not only affecting my children or grandchildren, but generations beyond generations. I think that the DEIS has skirted the issue of Alternative Number 2. I encourage you to go back and in greater depth analyze the opportunity for equal investment in placement of secure facilities within the country of origin for the nuclear waste. I don't buy that France, or England, or Japan are in any greater

within the Port and leads the City of Tacoma to believe that the same errors and the same lack of thoroughness with which DOE has investigated and identified, the configuration and layout of the Port of Tacoma, has to carry forward to the configuration of the population centers and the impacts in the surrounding area. Secondly, as stated previously, DOE has, in its own document, indicated the difficulty or near impossibility of recovering fuel casks from depths greater than 200 meters and indicates that those depths only exist in the ocean. Whereas, simple investigation of the Puget Sound would identify numerous sites within the Puget Sound area, in the shipping channels leading to the Port of Tacoma, that exceed the stated 200 meter depth. Commencement Bay and the Port of Tacoma are located in a Federally designated Superfund site. Over 200 million dollars have been spent, or will be spent, in the cleanup of past contamination within the Port of Tacoma and Commencement Bay. We are endeavoring to remove the stigma, the economic stigma, that has existed on Tacoma because of past excesses, of not only industry, but Government, in the waste handling within this nation. We do not need to carry that process forward. DOE did not properly evaluate or determine the impact of a severe fire or explosion of a shipping cask which would cause severe damage and have long-term effects on a large area near the disaster site. Both within the Port of Tacoma and the economic impacts that would occur based on that damage, but also within the Puget Sound area, is an enclosed ecosystem which has very little flushing action within it to resolve any long-term impacts.

I would add that, onto your presentation tonight, your presentation in the back room, you talk in terms of the percentage of this shipment in comparison to all radioactive materials. I think that it is an oversimplification and an attempt to cloud the issue to include medical waste within your presentations. Clearly, we are talking something absolutely different than the material waste left over from an x-ray at a hospital than what we are talking about in these type of shipments. Secondarily, you talk, in terms of the DEIS, the potential risk of death or fatality when, in reality, the dangers go far beyond mere fatalities to health problems, and property damage, and economic loss; and those issues need to be addressed in DEIS.

The DEIS does not adequately address security requirements nor the training for port facilities and the basis of security around these shipments. I have to believe that if our concern is the potential for these materials to fall into the hands of individuals, or countries that can make use of them and pose a security risk to the United States, that the farther we ship these, the greater opportunity we provide for those materials to fall into the wrong hands, and that the closer we can contain them, and store them, and secure them to their original site, the less risk we have of that opportunity. Clearly, DOE did not properly address first response capability. It is put on the onus of the fire departments, the State, and the localities within the shipment area to have first response. There is no provision made in the DEIS for upgrading or training of the local first response team. Secondarily, it is on the onus of the City of Tacoma, the Port of Tacoma, Pierce County, and the State of Washington to have financial responsibility for that first response. And your own documents only say that, if and when it is determined by DOE that it is necessary to respond, you will respond. DOE did not analyze the effects of an accident classified as a disaster on the local area or the population. DOE did not address effects and cost incurred in a local area should a local accident occur. And, DOE fully ignored fairness and equity issues by selecting smaller ports. Lastly, I would like to indicate that I think that DOE, if you get beyond the first issue, of which I believe Alternative 2 is a more appropriate issue to be studied, and that is leaving the materials where they are generated. But, if you get beyond that to selecting an entry port, I believe that it's absolutely wrong for DOE to take the approach of isolating down to only commercial ports for entry. Clearly, we have military bases that are structured and set up, not for just security purposes, but already handle radioactive materials; Trident being one of those, where materials can come in through a port where radioactive material is handled on a regular basis, where security measures are in place, and where

the personnel are already trained in not only the handling, but in the safe and secure methodology of transportation of highly radioactive material. I resent, I resent, the U.S. government presuming that a population base of Tacoma is small enough to impose such a high risk on, and to pass on, the cost liabilities. [applause]

Maggie Kelly: A few years ago, a thief broke into my house. An alert neighbor called the police and, fortunately, he was unable to get away with anything. But in the meantime, he had gone through my personal possessions and he had strewn my lingerie and private items all over the house. As you can well imagine, I felt violated.

Mr. Head, local dignitaries, fellow citizens of Tacoma, my name is Maggie Kelly, and I'm here as a private citizen, to tell you that my sense of privacy and citizenry in this great city have been violated in the same way that a thief violated my home. I'm here to say also, that I am insulted. Now, I'm sorry that may sound like strong language for someone to come this distance and give us a presentation, but I am insulted because this presentation was supposed to be about Tacoma being the port of entry. Not about the wet and dry storage facilities, not about the differences between high octane and low octane fuel. No, we were to be talking, strictly, about the Port of Tacoma as the port of entry. And, the fact that it was assumed, I don't know, is it because we don't have enough people in Tacoma? Is that why we're supposed to sit and listen to this and take this as some real information? I'm not sure. I am insulted. I am insulted when someone comes to me and says, and I quote: "You have to demonstrate to us a technical reason". Ladies and gentlemen, Mr. Head, Department of Energy, I don't need one of your goddamn technical reasons. We've got PEOPLE reasons! [applause] Ladies and gentlemen, there [redacted] skewed about a government's reasoning that blackmails its own people in order to

and safety concerns that we think present a compelling case for DOE to preclude any further consideration of any commercial port, including Tacoma, as a port of entry. And, these concerns were addressed more fully in a letter that was sent to the Secretary of DOE by Senator Murray, Representative Dicks, and Representative McDermott. The Senator hopes that DOE would limit its focus to military ports, either those currently ID'd in the DEIS or any other appropriate military port. Thank you for coming again, tonight, and we hope that you will consider these and other comments. I'm sure you will hear a lot tonight. Thank you. [applause]

Mike Isensee: Hello, I'm Mike Isensee and I'm here tonight representing Citizens for a Healthy Bay. We're a Tacoma-based environmental non-profit organization that works the clean-up, restoration, and stewardship of Commencement Bay and its surrounding watersheds. I'm here tonight, speaking on behalf of my Board of Directors who voted unanimously to oppose the shipment of spent nuclear fuel through the Port of Tacoma. We do so knowing full well, at its face, that it is sort of a "not in my back yard" attitude and we don't believe that is an appropriate response to these issues. So we did look at what we thought were the appropriate alternatives to this issue, and I want to speak briefly to those tonight.

We believe that DOE and the State Department gave inadequate attention to Alternative No. 2 that is in their DEIS. In the EIS, only two pages, actually less than two pages, of space were given to this alternative. The Alternative No. 2 actually is two alternatives that could be looked at. First, is the storage of spent nuclear fuel at the nuclear facility where it has been used. We believe that this alternative should be looked at and that there are quite likely means of ensuring that

In addition, at this time, we think that the DEIS is inadequate in responding to the potential of a catastrophic fire or explosion that involves one of the ships or trucks involved in the transport of this material and what the risks of such an event would be.

I appreciate those people, especially at the port and the city of Tacoma, that worked for this final public hearing. This was not a DOE scheduled public hearing. It was only because members of the local community stood up and said: "We need to have adequate public notice and a public meeting where you, the residents of Tacoma, can come and hear about this and speak about it". I want to thank you all for coming tonight. [applause]

Gerald Pollet: My name is Gerald Pollet and I am representing the citizens group, Heart of America Northwest, here tonight which, on behalf of our 16,000 members, we've have been fighting this fight against DOE's stupidity for about a decade and it seems to keep coming back.

There is one thing all of us in this room need to think about tonight about this proposal. Someone's already talked about it. It's our children, it's our children. Do you want your child to be stuck in traffic next to a high-level nuclear waste cask? A gentleman earlier said: "Well, there's no technical problems with this," and it's the only time that Mr. Head didn't respond. You can lie by failing to respond as well as by offering responses. If our children are stuck in traffic next to one of these high level nuclear waste

radiation dose to the ship's crews, who are members of the public, by 27 percent. DOE, basically, will expose, potentially, the ships crew -- remember I said that 25 millirems is the allowable exposure. Recalculating using their own methodology, correcting their math errors, the ships crew can get up to 760 millirem which is 3,040 percent of the allowable annual radiation dose for the general public. That is a lot of radiation dose! How do we get that figure? Well, number one, without going through the math here, DOE says that, unloading a cask, the maximum exposed individual gets 9 millirem of radiation. They assume an average of 5.5 meters away from the cask. Any high school student, though, can calculate that at 5.5 meters for an hour, the average radiation dose should be over 11 millirems, not 9. That seemingly small error adds up and adds up, and it's important because the DOE has its own self-regulatory standard and says in the EIS: "Hey, someone unloading a ship once will not be in danger of exceeding our own self-regulatory standard for radiation exposure." They will be at 66 percent of our own self-regulatory standard, they say. Ah, but they will be at 2.5 times of what the public is supposed receive in a year. And, they'll be at far more multiples of that if they unload shipments more than once in a year. Now, there is no rational basis for assuming that someone is going to be 5.5 meters away from the cask, actually. It's an irrational assumption used to lower the figures. In fact, if you play with the figure and someone happens to walk a little closer to the cask for a little while -- let's say 40 minutes at 10 meters away, giving you the benefit of the doubt that they are further away for two-thirds of the time -- but, if they spent 20 minutes 2 meters away, 6 feet away from the cask, all of the sudden their radiation exposure goes up in an hour by 33 percent. This is how you can use statistics to try to say "there is no significant environmental impact, and ignore our children."

There are other errors throughout this EIS that impact our health and safety. First off, the risk of a fire on inland waters is not adequately considered, whatsoever. Puget Sound is inland waters. The calculations in the materials that we've handed out to people, and which we've submitted before, show that the radiation exposure risk from a potential shipboard fire, using DOE's and the NRC's own analysis of how much radiation can be released in a shipboard fire exceeding 1,475 degrees for 30 minutes -- it's all they are required to meet for their cask. We have shipboard fires that exceed 2,000 degrees -- heating up the hull to 2,000 degrees for 24 hours in Puget Sound, and I read from a consultant's report: "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 of 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 one year." Yes, we all have something to worry about.

We have some choices. First off, we need to thank the Port of Tacoma, the City of Tacoma, Senator Murray for fighting to get us this hearing. But, we can't stop. We've got to go and ask the local governments to tell DOE, in no uncertain terms, we will take you to court for these violations. Let them know it, now, by Resolution. We have alternatives. People have talked about dry cask storage abroad. Why the heck should we be importing nuclear waste instead of exporting the technology we use in this country for safe storage? Only 1.4 percent of this waste comes from the countries that Mr. Head acknowledges the U.S. government says are proliferation risks, 1.4 percent only. Finally, if litigation threats won't work, and litigation is needed, we will litigate. Yes, we will sue you again. You haven't met the burden we put on you by the last injunction, Mr. Head. And, if that doesn't work, we must ask everyone in the State Congressional delegation to go back and fight for the legislation that former Congressman Mike Hydler introduced two years ago that would have given us the ability to say: "We can't expose our neighbors and children to more radiation than would otherwise be allowed just because the DOE self-regulates." And, if we can't get it through Congress, Heart of America Northwest is committed to do a State-wide initiative. We hope you will all be there with us. Thank you. [applause]

LW: Is there a portable mike available? Yes, it's alive.

Linda Cunio: My name is Linda Cunio, and I am here on behalf of myself and the next seven generations, the grandchildren that you will have, but I will never have, because a long time ago I had to make a very difficult choice. Back about the time that Captain Kirk was first hearing Scottie tell him that the anti-matter mixture was off and about to explode, I learned that since I had grown up in eastern Washington and lived approximately 100 kilometers from Hanford, that I had been the subject of deliberate radiation release experiments by our Government along with everyone else who lived in eastern Washington. But, I didn't find this out until I was in my twenties. Gerald cited statistics of acceptable levels of around 28/25. At times, when the Greenrun was being released from Hanford, which was what it was called, we were subjected to upwards of 650 millirems. I don't know what this is going to do to my body. But, I know that, for me, this was not an acceptable risk to have the choice or the chance of passing the problems on to my children. So, I won't have any. So, when I hear that our government assures me that this shipment is safe, that there are no technical problems, from personal experience, I can't put a lot of stock by that. Gerald very rightly pointed out that he's asking for technical reasons. We're not technicians, we're people. Our children, the next seven generations, the next ten generations, the next hundred generations are our technical reasons. I work in the transportation industry here in Tacoma. I work with truck shipments, and rail shipments, and water shipments. And I know the kind of things that can go wrong, even with the best of preparation, the best trained people. I don't want to be involved in one of these. I don't want to be in the same county, I don't want to be in the same hemisphere, if something goes wrong. Technical reasons. Mt. Rainier is beautiful, but it is not dead. Mt. Tahoma is very much alive. It's been placed at the top of the list of most dangerous volcanos in the world for 1995. Due to its proximity to population centers, due to its increasing seismic activity, volcanic activity, due to the history of seismic activity in our area, the Puget Sound area, as far away as Portland, Oregon, has, on average, 20 minor earthquakes every month. The experts tell us that we are due for a big one and that our chances of having more devastation far exceeds that of Los Angeles. They have newly discovered, or newly advised us, of faults, very shallow faults that run along the Bainbridge Island to Seattle corridor and others which in the past have caused as much as 200 feet instantaneous drop in the level of the areas around it, like Washington. There are cedar trees in the bottom of Lake Washington, 200 feet under water. Technical problems. I don't need any other technical problems. The grandchildren that I will never have on my knee are enough technical problems. I vote No. [applause]

Alice Orchal: My name is Alice Orchal. I'm in awe of these statements that have proceeded me. I am an individual, but I am a mother, a grandmother, a great-grandmother, a neighbor that is called Grandma Alice or Aunt Alice, a caring citizen that feels that each and every one of us need to stand up and be counted. I live in the area by Tacoma landfill. I fought pollution for many years. Now, I am asked to allow nuclear shipments to come through our city. I believe that we have been subject to enough pollution. I believe that the risk is far too great, not to us, but to the children and the generations to come. I believe that it is inconceivable, that we, as a city, should be deliberately placed at risk from a nuclear shipment. We deserve the right to be free from fear. He talked about how his child, coming next to one of these nuclear shipments, could be effected. Quite frankly, if I drove past one, it would scare the living daylights out of me. I think we have a right to be free from this kind of persecution. If these shipments come through our highly populated area, it would be like sitting on an unexploded, live, ticking time bomb. It must not be permitted to happen. We need to protect our environment. It is a God-given opportunity and obligation, not only for this generation, but the generations to come. I stand up to be counted. I say "NO" to nuclear shipments, not only in Tacoma, but in the Pacific Northwest. We have a right to live. [applause]

Mike Kreidler: My name is Mike Kreidler..

LW: I'm stunned, but I don't see you on the list.

Mike Kreidler: I was just about to say, that I was generously afforded the opportunity to take Kelly McGoldrich's place.

LW: Okay, great. And, let me read the on-deck list: Anita Johnson, Bob Evans, Bill Baarsma, Grace Georges, and Pat O'Mally.

Mike Kreidler: I don't believe that DOE has come into the changes that have taken place in the world today. There is a whole new world out there. The threat of the Soviet Union, the changes that are taking place across this planet of ours, really forced them to re-evaluate the policies and the commitments they made many years ago, and are attempting to fulfill here today, through the Port of Tacoma. I was born and raised here. My parents were born and raised here. I know the Puget Sound. I value the Puget Sound. I value this community. This is a community that has always been willing to step up and do its fair share. But, it's not a community that is willing to take responsibility for problems that should be resolved elsewhere. And, that means that we should not even be in the process, right now, of accepting shipments into this country until the thoughtful re-evaluation that should be taking place has been undertaken; the potential for reprocessing in other countries, the threats that realistically exist in this day and age, have been taken into consideration. That doesn't exist today in DOE. As a part of their thinking, it needs to be, before you come to this step. But, as I said before, Tacoma has always been willing to step up to its responsibilities. But, the way this whole issue has been approached, is one that comes at a time when it gives people reason to think that maybe there are conspiracies. Maybe there are reasons why things happen the way they do. Tacoma is a responsible community that has a history of doing the right thing. We are on the verge of seeing some major growth in our community by virtue of the kind of commitment we've made -- environmentalists, and business and industry groups together -- to see that that happens. But, now, you would subject us to the threat of what could happen with nuclear waste. That's why, in 1994, along with Congressman Norm Dicks, I introduced the Safe Handling and Shipment Act of 1994. That Act would have given the Port of Tacoma the authority to establish reasonable guidelines, and failure to meet those reasonable guidelines would have been cause for them to deny the acceptance of nuclear waste through the Port. It doesn't take an Act of Congress. This is something that DOE could enact itself. But, it would have called for the training of workers for the handling of these materials, a comprehensive response plan in case there was a fire, spill, or other type of contingency. Local communities would have been informed about the shipments and about the potential risks that existed. Radiation exposure levels for workers may not exceed standards for public exposure already set in regulation. And on top of that, for DOE and the Federal government to accept the costs that go along, and commensurate, with those activities. That's a bare minimum. But, as I said before, as we urge Congress, as we urge our leaders, to take responsible positions to make sure that happens. The bottom line is that DOE has not gone through the thought process to bring us into the changes that exist in 1995. We can do better. We will do better. I urge you to go back to the drawing board and re-evaluate your policies, take into account the types of programs and policies that should be granted to the Port of Tacoma, or any port in this country of ours, before shipment would be considered for them. This is the bare minimum for any community. Tacoma will do its part, but don't shove this at us and let us have these kind of risks. Thank you. [applause]

Martin Sutherland: Good afternoon, my name is Martin Sutherland and, first of all, I would like to say that it is a pleasure to see quite a bit of people to show up for this. I was kind of getting worried when I got here pretty early.

I would just like to mention some names here. I will refer to my notes the best I can, here: John Langdon, Rufus King, William Patterson, Robert Morris, James Wilson, George Read, Roger Sherman, John Blair, William Few, and these are just a few names of a group of men who brought forth one of the most important documents ever written in the United States and that was called the Constitution of the United States of America. The first three words are: "We The People". [applause] Thanks. These are the three most precious words I consider in the Constitution. And these words set forth that the people have a voice of what our government does and we as a people must be heard and that we are also heard in the process. The people in this city stand united against an unreasonable government entity that is supposed to hear our voice and has overlooked that very important element. The people of this great city of Tacoma have stated on numerous occasions the concern of unanswered questions and the effects of such nuclear waste entering these ports and, not just our ports, but our waters too. The City of Tacoma is going through an evolution in which our ports are being transformed into a cleaner and healthier environment. But, for the use of all nations, for commercial use. The thought of allowing nuclear waste, as proposed by DOE, to enter our ports is not just a concern at home to Tacomans, but also abroad. So the people of Tacoma have spoken loud and clear and we are not wanting these products entering our ports, and in the interest of all parties, that these countries that have benefitted from these technologies should convey the detriment. It must never be forgotten that the voice of the people are to be heard at all times. This is what our forefathers believed in, fought for, and died for through our brief history. And Tacomans stand united with other cities to keep nuclear waste out of our city and out of our ports. Thank you very much. [applause]

Anita Johnson: My name is Anita Johnson and I live on 36th and East K Street. And, I started out at a quarter to three yesterday, and someone conveniently handed me three of these, and I thought that I'd just go around and chat to my neighbors, and it turned out that I had more friends in my neighborhood than I thought. I only went two blocks and I filled up three. These are my friends and my neighbors, and this is my son, Matthew, and that is the reason that I don't want any nuclear waste coming through Tacoma. Because life is too precious. Thank you.

Bob Evans: Good evening, I'm Bob Evans, the Deputy Mayor of Tacoma, and I have some canned remarks which I'm trying to shorten, or get rid of, because I think what I'm seeing here and listening to tonight is really a voice of people. It's more than that. It's the emotions of people, as well as either your intuition or informed opinions, or your scattershot opinions -- it is all valid. Those kind of things are more effective than any DEIS statistic. I think you must keep those emotions boiling as long as this issue is before us. This came to the city several years ago, in 1988. It was ignored. It came again, and was regarded then as a kind of, perhaps, late hippie bloom of some sort which is really out of town and

Rosa Franklin, probably Steve Conway somewhere, also of like mind. We must, again, draw together, keep this package boiling hot while it lasts. I must say that I've heard some specifics about the DEIS, and it is in my view, in some measure at least, a fictional document. It goes for what it wants, ignores the problems which are not otherwise addressed, masks those things which are critical, exposes those things which are frequently scare-heads. And, one of them which has just come up today really offends me. We are given the impression, in some areas, that those other nations are not really to be trusted -- the ones which have those fuels now. And I might list those other nations for you. There are forty-one nations, some of which cannot be trusted, it's true. But the ones which we may trust, which also have 70 percent of the total material of what we are talking about are: The United Kingdom, France, Germany, Switzerland, Sweden, Japan, and Canada. I think those nations can be trusted, and if they have the material, and since they have not only the material, but the reprocessing and storage facilities, the trained personnel, and equipment, let it stay there, which is Alternative No. 2, which we heard about earlier. [applause] It seems to me entirely insane to drag that material halfway around the world and then pump it back into the middle of our nation, and it will only be there for ten years, or thirteen if we are lucky, and, at the end of that time there will still be no solution. This country has no reprocessing, no storage plume that I know, no storage facility that is adequate, and no means really of delivering it back where it came from. We have, at our Hanford, as you may know, a plume of radioactive water creeping out into the Columbia River and materials like this, low grade it's true, stored on the ground. We don't need to do this, we are spending 274,000 billion dollars to cleanup the Superfund site, which is Tacoma. Do we need to bring this in and pollute us back to where we used to be? No more. I think you must keep the emotion you've got, and keep it red-hot as long as you can until this issue is resolved. Thank you. [applause]

Bill Baarsma: My name is Bill Baarsma. I'm a member of the Tacoma City Council, and thank you, Deputy Mayor Bob, you did a terrific job. I would like to introduce very briefly, if I may, the Mayor of Fife, who will have to leave us. Mayor Stegham will you stand so the people can see you? The Mayor has given me a resolution that was passed by the City Council. I'll read the last line and just a few sentences from the letter of transmittal to DOE:

> "Be it resolved that the City Council of the City of Fife, strongly opposes the shipment of spent nuclear materials from foreign research reactors through the Port of Tacoma and the City of Fife. Passed on the 13th day of June." The cover letter -- I'm just summarizing some of the highlights -- "our city, our businesses and our surrounding population and businesses feel strongly that the risks involved in shipment through our area, or anywhere in the United States, represent an unacceptable burden and risk upon our citizens. Therefore, we strongly oppose option or Alternative No. 1 and support

misleading one as far as our community is concerned. Yes, the Tacoma Fire Department has a hazardous materials unit. There is a four member team that provides coverage, seven days a week, around the clock. It involves 20 highly trained fire fighters. The unit is located in the tide flats area. Its charge is to handle and control the spillage of oil and other toxic materials. However, this unit has no equipment nor does it have the training or capability to handle accidents involving radioactive materials. Again, our fire fighters are highly motivated and skilled -- among the best anywhere. But, they do not have the resources to handle a catastrophe or an accident involving radioactive waste. And, I must say, that we as a city would not put that burden on them. Our emergency management division of the county government does have a hazardous materials management team. But, for radioactive spillage or accidents, its capability is limited to monitoring and detection of materials after the fact, using, I might note, 1950's and 1960's technology. It can, in concert with the Tacoma Fire Department, set up perimeters around an affected site. It has no resource capability or training to cleanup or control the extent of an accident. And finally, I would like to say that we've had a number of shipboard fires in this area and fairly recently. Two in Commencement Bay alone. In one case, the fire department had to tow the vessel to the center of Commencement Bay where it burned to the water line. Smoke congregated in the basin area of Commencement Bay, and then drifted north with the prevailing winds. The other fire of furnace intensity involved a container ship. We had to call in support services from Seattle to help control that disaster. So, the DEIS places the burden for response to any incidents on the local jurisdictions. This is viewed by us as yet another unfunded Federal mandate that must tax our citizenry -- that taxes our citizens. Bringing this high-level nuclear waste through the Port of Tacoma poses a financial risk, a security risk, an environmental risk, and a health risk; in sum, an unacceptable risk. We are philosophically opposed to buying a problem that has great cost and does not benefit this community. Thank you, Mr. Head. [applause]

Grace Georges: My name is Grace Georges, I live in Puyallup. Mr. Head, I'm going to give you an opportunity to say something. I will be very brief. I have three very short questions. The first one is that I'm curious as to why the United States has chosen to be the world's garbage dump and I want to know what is going to happen when the dumps become full? Number two, one small construction flaw in the space shuttle Challenger caused a major disaster. Do we have any guarantees that there will be no construction flaws in the capsules (what do you call them?), the waste casks as they're shipped? And, number three is a question that a young man in the audience posed earlier, and I didn't hear the answer to. Is this meeting really going to change anything or has the government made a decision and we truly have no voice? Thank you. [applause]

Charles Head: Okay. Could you go over the first question, again, so I make sure I remember it?

Grace Georges: Well, my first question was regarding the United States being the world's garbage dump

Grace Georges: Okay.

Charles Head: So, we are doing it for our own interests.

Grace Georges: What happens when our areas get full. Do we just keep getting more and more?

Charles Head: We're still anticipating that a geologic repository will be opened in which we can ultimately dispose of spent fuel.

Grace Georges: I'm sorry, but I don't know what that means.

Charles Head: That means that we plan to essentially dig a very deep mine and put the spent fuel back in the earth from whence it came.

Audience Member: Is there ever enough room for all of the United States' waste, that DOE's Yucca Mountain would...

Grace Georges: Excuse me (to audience), but these are my questions right now, you've had your turn. Okay. My second question is: Can we guarantee that there will be no construction flaws in the waste casks?

Charles Head: The casks are very carefully inspected as they're built. And, one of the interesting [redacted] radioactive materials in them is that if they are not shielding it right you

LW: Let me interject something here, get some more on-deck speakers, and say a couple of things. First of all, it's almost nine o'clock, and after I read the list of the next five speakers, what I'm wondering is: Would you like to take a very -- I'm not going to say a break -- but would you like to stand up and just kind of stretch...those chairs look comfy, but they're not very comfy for very long. So let me read the next list and, as the speakers are coming up, stand up and sort of stretch and then sit back down and we'll carry on. We've got, now, close to sixty people on the list and we've gone through twenty.

Audience Member: Excuse me; before you do that, we have state legislators here who have statements to be made. I'd like to have them come up at this point, if that is agreeable to the audience. [audience shouting no.]

LW: The State can be on record. The question is, wait, wait, wait, the question is, and this is for us all, I guess, to think about. We have a list of people who signed up in order and the question is: Would it be acceptable to this group to have some of your state legislators read a statement or present a written statement? Hand something in [audience saying no.] Okay, okay. I think the elected representatives have their answer. Let me read the next few names, there is: Ray Robinson, Jack Fabulich, Steve Anderson, Mike Fletcher, and Melody Wilhite. Okay, now as they are coming forward just take a real quick stretch in place and sit back down.

LW: Well, we've done...give you another minute or two. We are at number twenty, we just finished our twentieth speaker, if I could have your attention please! We've just finished our twentieth speaker, and we have forty more to go. So, in the interest of everybody's life, and I know this is very important to you, and what I'd like to encourage you to do is, as you give your written presentations, if you have some written remarks to hand those in and do a brief summary. Many of you who have previously spoken have been very successful with that. So I would encourage the rest of you to do that as well.

Pat O'Malley: Hello, I'm Pat O'Malley, President of the Port Commission. Along with my fellow port commissioners, Mr. Fabulich, Mike Fletcher, and Jerry Thorpe, we appreciate the opportunity to be here tonight, and we thank you all for coming.

The Port of Tacoma believes that HEU has no place in commercial channels. That's why we support the goals of nuclear non-proliferation. However, adopting Alternative 1, which calls for all HEU to be returned to the United States, is bad management. We believe it's bad policy, and it's bad finance. It's bad management because we believe Alternative 1 makes the United States -- makes us all custodians of a warehouse of nuclear waste that we are unable to reprocess, recycle, or store. Look at Hanford. We can't manage our own nuclear waste why are we taking on more? It's bad policy because storing nuclear waste, with no long-term operational storage site, sends the wrong message to other countries with research and commercial reactors. It encourages risk and irresponsibility. It's bad finance. Returning this fuel, and using Alternative 2, is at least one billion dollars less expensive that Alternative 1. There are no benefits to Tacoma, or to our region. There are no benefits to the port, there is no job that is created. Our longshoremen's union will be exposed to radiation. They've taken the position that they are unanimously opposing this. They've also said that they won't handle it under any circumstances. [applause] Some of the other speakers have noticed that this amounts to an ongoing unfunded mandate. And, why is that? Because we are, we, the City of Tacoma, going to be charged with the primary response in case there is a spill. That's going to require more training, more expertise; it is going to require equipment. I would suggest to you, that there isn't a fire department on the West Coast that could respond to a nuclear accident. This material is dangerous. In the DEIS, actually in a letter that

I received recently, the DOE admits that open contact with the contents inside one of these casks will cause certain death within two days. We believe the case is compelling for Alternative 2. It's a simple question and I want to phrase it properly. Since over 70 percent of the spent fuel under the proposed policy resides in seven countries having major commercial nuclear reactor programs, all having major spent fuel storage capability, three having spent nuclear fuel reprocessing capability, and all participating in the IAEA nuclear safeguards program, why not eliminate Germany, Sweden, Switzerland, France, Canada, Japan, and the United Kingdom from consideration and select Alternative 2 and focus on the remaining 30 percent of the problem? Alternative 2, we believe, focuses, as I said, on the short- and long-term disposal issues. It permits fuel to be recycled. France, United Kingdom, and Japan currently have the capability and are reprocessing and recycling this fuel right now. They have capability for long-term storage. In fact, the U.K. has a reprocessing facility in Scotland that they are considering shutting down because they don't have enough HEU to supply their reprocessing reactor. In short, the DOE should select Alternative 2. Returning this weapons-grade material to the U.S. risks our quality of life and those of future generations. There is a wonderful statement in management theory: That, if you make the wrong decision, that you will execute it poorly. It is clear to us, the Port, that bringing this material back to the United States when we have the inability to store it, to reprocess it, is a terrible decision. We thank also the Port of Seattle that is here, Henry Yates, and the other communities that have supported us in this venture, and we thank you, again, for coming out tonight. Thanks, Mr. Head.

Oh, and I yield the rest of my time to Mr. Ebersol. [applause]

Brian Ebersol: Anita Preston yielded her time also, so you're going to get two for the price of one, here. I'm Brian Ebersol, the State Representative representing this area, and I appreciate the opportunity to very briefly comment on this issue that is very important, not only to the future for the Port of Tacoma, but also the future of Tacoma and the entire Puget Sound region. President Clinton has said, repeatedly, that his Administration would pay attention to ordinary citizens on issues such as this. Well, this is that kind of chance and I hope he'll will pay attention on this issue because both public officials and ordinary citizens in Tacoma want no part of this nuclear waste shipment scheme. Our port officials are unanimously against it, our port workers are unanimously against it, our city officials are against it, and common sense is very much against it. Puget Sound is one of the top five or six most heavily traveled transportation corridors in the entire country. How anyone would think that this is a good place to transport nuclear waste is beyond me. There is no way to tap dance around the issue that nuclear waste is one of the most deadly and persistent poisons known to mankind. The best engineers in the world have worked for decades to try to find ways to store it safely and without good result. It still poses a tremendous threat to people and material. This deadly material simply has no place in a commercial port, or near waters, or on our highways, or in a densely populated urban area. The DOE has not explained to anyone's satisfaction how other ports were eliminated from consideration while our commercial port remained high on the list of possible nuclear waste transport sites. Why was Seattle eliminated? Well, because there's a lot of people that live there. Well, if there is no threat, why do you care how many people live there? The answer to all these questions is "No", and that should be the answer we should give loud and clear tonight. We've worked very hard to have the Port of Tacoma be a world-class port that has global commerce of all kinds and we don't want Federal nuclear waste mandates threatening the progress that we've made. Let me close by saying that this issue is vital to Tacoma, but it is not just a Tacoma issue, it is a Puget Sound issue, it's a State issue because no one wants waste on State highways. That is why it is up to us to take the lead. We should take the lead on this issue by saying: "No, Hell no, we don't want the nuclear waste coming here." There has got to be a better way to solve the problem. Let's find it. Thank you very much. [applause]

Ray Robinson: My name is Ray Robinson. I've been retained by the Port of Tacoma to help them with the assessment with these three alternatives and I'd like to address one of those better ways, Brian. Before I do so, at the risk of correcting one of my five bosses, the five port commissioners, I believe Mr. O'Malley said something about a one-million dollar cost differential. As I read the EIS, the draft, I believe the high side cost estimate for Alternative 1 is close to 2 billion dollars, and I believe the high side cost estimate for Alternative 2 and 3 are like something slightly under 1 billion. So I believe that there is, roughly, a 1 billion dollar difference between Alternative No. 1 and the other two alternatives. Is that correct, Mr. Head?

CH: I would have to go back and check those numbers.

Ray Robinson: I believe that is correct, and if it is not correct, I would appreciate it if you would correct me, that would be useful. I would like to just briefly comment. A couple of things about my experience -- I have over twenty years of nuclear fuel experience in a wide variety of settings, mostly in the commercial nuclear fuel sector. I'm also a 25-year plus resident of this state, my family, my kids, my two kids, were born and raised on the east side of the state and also we lived on the west side on the Puget Sound, and they went to school on both sides of the state. We currently are residing in the state of Washington and we have a personal interest in this as well as a professional interest. I would like to say that Alternative 2 provides a significant advantage, in my opinion, to all the other Alternatives. And, I'd like to comment about a few objections I've found in the Summary on page 5. One of those is, and I believe that the DOE states: "Currently overseas reprocessing results in separated HEU that is placed back into commerce for use as new reactor fuel." Nothing is mentioned in the EIS, as far as I can tell, about the possibility of taking that HEU that can be reprocessed today at the Dounreay reactor in Scotland, and it can be diluted down to lower than bomb grade material, and it can be, yes, it can be recycled, but as a bomb-proofed and non-proliferation proofed material. Having high value, it can be recycled back to the countries from whence it came. You also state that the overseas reprocessing facilities, for example, Dounreay in Scotland, currently do not have the capability to reprocess the high density low-enriched fuels that the United States is encouraging the foreign research reactors to use to replace the HEU fuels. In talking to some of the top technical people at the Dounreay reactor in Scotland, I find that they do have the capability to reprocess, fairly immediately, approximately half of the materials identified in the DEIS. That material, specifically, is the HEU coming from the aluminum-based or metal-based type of fuel elements. They do not currently have the capability of reprocessing the TRIGA reactor, the fairly unique specialized fuel which comprises approximately 10 percent of the total 20 metric tons that are in question here. And, they currently do not have the capability to process the low enriched high-density uranium fuel. In speaking with these people, they are seeking business in this area. They have published a price for what they would charge for the HEU and, in informal conversations, they have an interest in pursuing alternatives that would allow them to take care of all three types of fuels at the Dounreay reactor reprocessing facilities in Scotland. So I believe that you are partially correct in the Summary -- they currently do not have the capability to do all three.

seven countries are on this list and, as mentioned by Mr. O'Malley, comprise roughly 70 percent of the total inventory that we are talking about in those 20 metric tons of foreign reactor fuel. In my opinion, and I think in the opinion of a lot of people, there are many issues that need to be addressed in resolving what is the best means -- issues of risk, cost, permanence of the solution, and let us underscore that the 10-13 year solution that is mentioned in this DEIS is really, on the scheme of things, a very short-term, band-aid fix to a long-term problem. So a permanent solution ought to be part of the consideration of this DEIS. Timing of the solution, and very importantly, establishing some responsibility and accountability in those countries pursuing the peaceful uses of the atom. We started it, but we need to also encourage some major responsibility and accountability for those receiving the benefit. That has been brought up earlier in one of the questions here tonight. And very importantly, the U.S. can act as a real role model for both the nuclear weapon countries, the countries that have nuclear weapons, and for the countries that have major commercial nuclear power capabilities. We can act as a role model on how to responsibly and, in a financially sound way, go about dealing with this problem. As one speaking to...that knows quite a bit about this whole problem, and one who very definitely supports the nuclear nonproliferation objectives that this policy is seeking to resolve, I really encourage you, on behalf of the port, we encourage you to look very, very hard at all the aspects of Alternative No. 2. Talk to the foreign countries that have the capability. Let's get into the bilateral and trilateral discussions that need to be held, and let's get on with resolving this problem overseas and keeping it out of this country entirely. Thank you. [applause]

Ruth Fisher: Thank you. First of all, I'm not Jack Fabulich. Commissioner Fabulich yielded his time to me. He asked me to inform you that he prefers Alternative No. 2. My name is Ruth Fisher. I represent the 27th District in the State Legislature. The Port of Tacoma is in the 27th district. I was the Chair of the House Transportation Committee and became the Ranking Member after the last general election. I wish to speak to the issue of transportation tonight. Adding truck traffic to the I-5 Corridor North is putting an additional load on the 4th most congested highway system in the United States. Not in Western Washington, not in the State of Washington, not even on the West Coast, the 4th most congested corridor in the United States! If we are addressing rail traffic, you will be adding to another crowded corridor. The State of Washington has invested a good chunk of money in the tracks going north and south. We have been designated a priority corridor by the United States Department of Transportation (DOT). We are struggling with commuter rail, inner city rail, and freight rail on the Burlington Northern tracks in this State. We are also struggling with a political climate that has said:

put herself in the place of you as a citizen in the State of Washington. She was outstanding in her projections. The one thing I do want to suggest to you, though, after we've talked about the dangers of shipping nuclear waste, which we stated in the letter, through the corridors of Washington, I think there is an additional problem here. We think that the DEIS, prepared by the Federal government, is incomplete and inaccurate. Now, this has been stated more clearly and at length by others, but I wanted to re-emphasize this so that the State of Washington recognizes this, also. We believe that it is based on outmoded information about port terminals, and the information is outmoded, and it fails to adequately address critical security and cleanup concepts. So that we not only have the problem, we have also the additional problem of a group from DOE that refuse to listen or prepare a statement that was accurate. And all I want to say, other than that, is that someone sitting next to me as I came in at six o'clock tonight, someone said: "First they take our jobs, now they are shipping us their waste." Thank you very much. [applause]

Mike Fletcher: I've got to put my glasses on to see what I've written here. My name is Mike Fletcher. I'm one of the unanimous voices from the Port of Tacoma Commission that is opposing the shipment of nuclear waste coming through the Port of Tacoma. I want to take you back, Mr. Head, to May 22nd. One of the questions that the Commission posed to your representatives was that of: "What if we had a catastrophic accident?" Your DEIS goes through and basically says it can't happen and it won't happen. The response was promised in writing within three days. I have in front of me, here, your letter of June 16th, which is more than three days by quite a bit. And, one of the other things, just to bring it back to perspective and timing, is that you promised that DOE would respond in case there is an accident in Hanford. And, if it takes the same amount of time to get here, we have a serious problem on our hands. Okay? Just wanted to add a little levity in there, but seriously, you get the point. What I'm saying is, a non-responsiveness, an attitude of -- "Okay, we're doing this and we are not really going to listen to what you have to say." I read through this and the scenarios that you answered didn't really answer the questions that we wanted, that were really posed. Maybe we need to re-do that in writing, again, for you so that we can get the proper response, and it will be: "I'll get to what we really want to get to in a minute." But in your Item 3, you keep using the word "unrealistic case scenario". And, you're right. What I see there, in Item 3, is really a very unrealistic scenario and it's not the most probable scenario at all. I agree with you, it is indeed unrealistic. A worst case credible accident is not the same as a worst case accident. You refer to credible accidents, quite frequently, in your responses and in your DEIS. To give you a little background: I am a graduate of the Navy's nuclear power program. I operated a nuclear power plant. I've lived with this. I've dealt with it for a good part of my life. One of the things that we did in the Navy was we trained for worst case scenarios. We acknowledged that they can happen. You are not acknowledging that it can happen. We didn't sweep them under the rug. We faced them. We learned how to deal with them. We accepted the possibility that it can and could happen. If you are not prepared for it, if you are not willing to accept that they can happen, you can't prepare for it. And if you can't prepare for it, you are doomed for failure. So, I submit to you, that you're doomed for failure! [applause]

The question I would like to re-propose to you is, and let me read what I've written down here. The Port of Tacoma Commissioners and others are interested in knowing what the consequences are of abnormal radioactive releases. One of the things you've brought to us was you've analyzed release fractions for worst-case credible accidents. I am not interested in credible accidents. I'm interested in

the people of Washington State deserve your technical responses. Please give them to us. You've been presented with technical reasons why Alternative No. 2 is a very acceptable alternative. I suggest, as the other Commissioners have, as Dr. Robinson and many other speakers have, that you look hard at Alternative No. 2. I think you'll find that it is a very acceptable means of solving your problem. Thank you. [applause]

Melody Wilhite: My name is Melody Wilhite, and I'm down here from Everett tonight. I'm a private citizen and this whole thing, to me, is ludicrous. I was born and raised in Seattle. I grew up in the fifties, you know. During school, one of the things we did was to practice getting under our desks because Russia might drop the bomb. I never thought that it was going to be the U.S. that was going to be threatening me. You know, I mean, it terrifies me. You know, the fires and the sinking, that has been covered, but an accident by nature is something unforeseen. You talk about not needing security because: "Gee, we can't reprocess" and you can't do anything with this unless you reprocess it. You know, there are lunatics out there that have access to armor piercing shells who wouldn't have a qualm in Hell of shooting something and releasing this stuff. You know, it doesn't have anything to do with sanity. It shouldn't be here. It shouldn't be happening. We don't need to have this conversation because we had a vote. You know, everybody here is against this. You know, I don't understand. The only alternative is number 2. Help the people that are producing the waste find a way to solve the problem. Leave it there! [applause]

LW: We have five more speakers on deck: Jerry Thorpe, Doris Christiansen, Robert Hawes, Darlene Woolery, and Vernon Louie. That will take our next five.

Jerry Thorpe: Good evening, I'm Jerry Thorpe, and I'm one of the Port Commissioners, and I also teach school here in Tacoma, and I teach American Government. And I want you to know that this very type of activity is what I talk with my students about. About people becoming concerned, and coming out and expressing their views for their government officials to hear. I only wish that I could have my students here, right now, to see real government in action. This is the very heart of the democratic process. I get my kids out to some meetings, and this is a great meeting, and I really appreciate what's going on. We've heard some very eloquent comments. I think the comments that have been made are just absolutely outstanding. There are three points that I'd like to make. And I only want to focus on some areas that have not been touched on because I don't want to go over what has already been touched on. Number one is that, and it has been touched on a little bit, but my first comment is that we've been given some figures about what causes cancer or what could cause cancer and, I would submit to our learned gentlemen from DOE, that our doctors are still very unsure of exactly what causes cancer, and how much is too much radiation, and they're constantly mystified by this disease. It's a terrible disease

these that have these reactors, we can see no evidence that any of these nations are about to move from the use of high energy materials to low energy materials. And, if they are not going to move to the low

as it was pointed out tonight, most of this being proposed doesn't fall into this category. Absolutely not! The other part of the thing is that we've had atomic bombs and things flying around for years up in the air, handled on the road, on railroads, and things like that, but usually by very competent people that were very, very, you know, conscious of what they were dealing with. The problem is, from what I'm reading in here, of what is proposed for the way that this thing is to be handled, by ships, by containers and the rest of that, it scares me a great deal. These people are not prepared for this. To them, it's just some other type of cargo. When, in actuality, it is far from that. You haven't done your homework or if you've done your homework, you have blatantly ignored the safety of a lot of people. And I think it boils down to economic expediency because the proper handling of this, and it can be done reasonably safely and properly, costs a lot of money. But they don't want to spend the money like having a complete team travel with every shipment. These containers, that you take and have this stuff being traveled in, are way too large. There should be very, very small quantities, so if there is a rupture in one of them, the actual contamination is very, very small. The other thing, that anybody who knows anything about critical mass knows, is that you don't put a lot of that stuff together in that kind of quantity. No, you just haven't done the job right, plain and simple. Why not fly it in? Why not take it and have military aircraft or contractor aircraft that can handle this stuff for AEC and the rest of it, fly it in to a close place or where you have good road transportation to it. Why bring the thing all the way across the water in ships, in container ships, along with just everything else? Money! The way to handle the thing, to handle safely, takes a crew of trained people; it takes the right equipment, and the right process, none of which I see in anything that has been presented here tonight. Now, you know the feelings. I think I've taken...I didn't come here particularly worked up about it. But, after hearing some the information from other people about some of the things and getting a few of the statistics that probably mean a little more to me than most I feel that you really need to go to work. And, if it is a matter of money, then say so! Thank you. [applause]

Darlene Woolery: I'm Darlene Woolery and I'm a citizen of Tacoma. I have been all of my life. And, I'd like to speak to DOE. I'm disappointed in you people. First of all, this part of the country is extremely spoiled. We are used to having a tape recorder being made of every conversation that we have at a hearing. And upon having that tape recording

over, and over, and over, and over again training. The drivers, are they going to be especially trained to handle this cargo? Right now, they're not! They have to take a DOT test and if they pass the test they get the thing slapped on their wallet and they can drive it. That means they can get out here on the freeway, and most of you that live in this part of the country know what happens on the M Street curve in the winter when it gets to be a little bit icy. We spent four hours waiting to go someplace and we don't get to go, right?

I just want to know, do you really care what we think? I don't think you do! I don't. All I see is a: "Oh, boy, will these people ever stop talking and leave me alone so I can home?" look on your face. Well I'm sorry, we care an awful lot because when this meeting was called very shortly -- this is a meeting where people you see here tonight were called with less than 24 hours of notification that this meeting was going to go on). In the meantime, before these people were notified there was going to be like 20-30 people, mostly our elected officials. It doesn't work that way. I think you recall -- you are on the public payroll -- you are not a private entity. As a public payroll person, you owe more to us than just getting up there and saying: "This is what we are going to do." Thank you. [applause]

Vernon Louie: My name is Vernon Louie. I'm Chairman of the Puyallup Tribe Fish Commission. And when I first heard about this stuff coming [redacted]

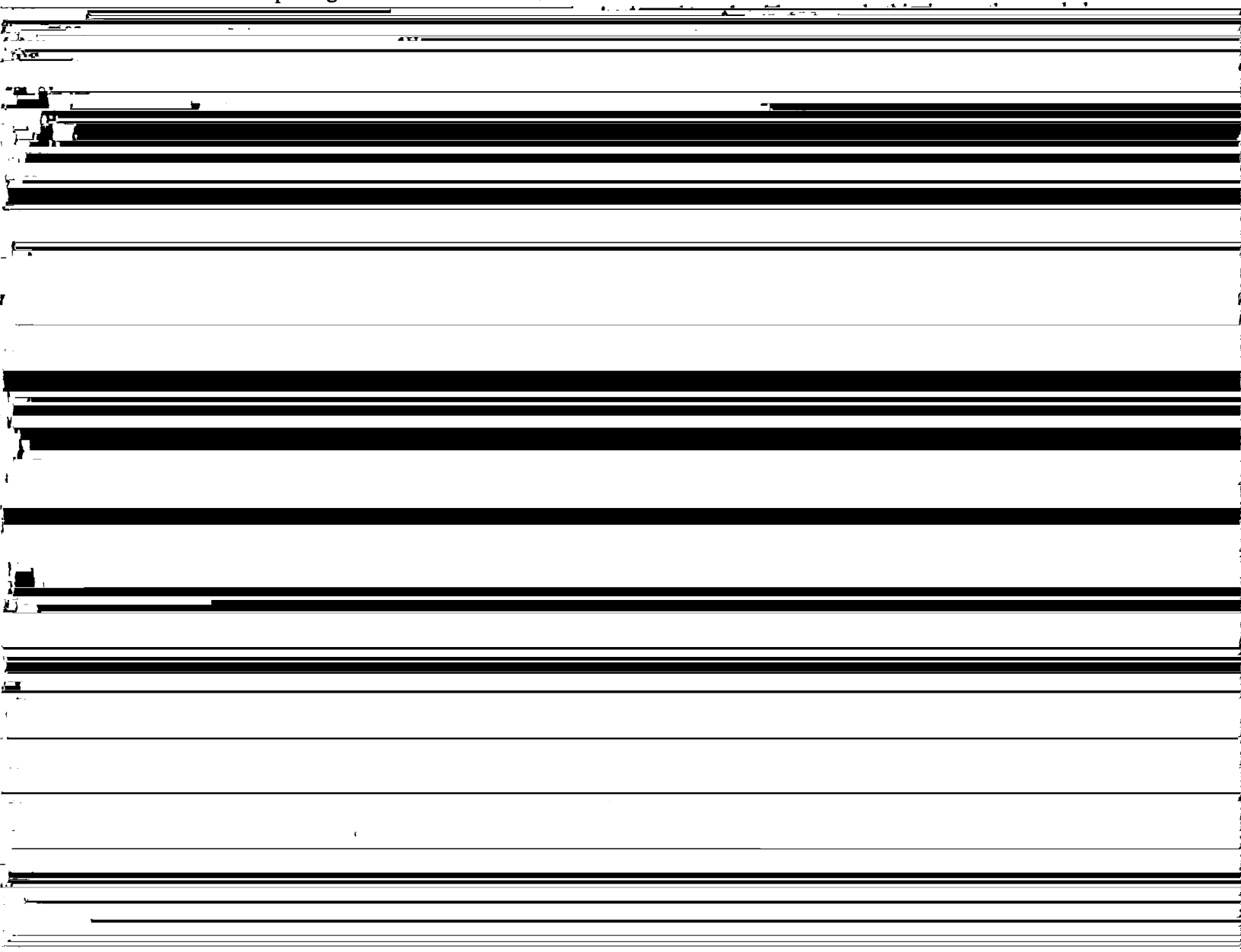
River. And I would like to tell you folks here tonight that the people of Skagit County kept the nuclear power plant out of their county and we can do the same here. I would like to bring up one point that I have not heard mentioned tonight. As I've said, I've been following the nuclear industry and one of the things that I have read over the years is that the DOE and the DOT cannot account 100 percent for all nuclear properties that are transported in the United States by either highway, air, or rail. This may not seem very significant. It's my understanding, that some of these nuclear materials are lost due to theft; they're just lost and sometimes from damage. If that figure were even one-tenth of one percent, when we're talking about 20 million metric tons, that is an incredible amount of material. And, this could be lost, damaged here. When we talk about anything that happens in the Port of Tacoma as a result of a nuclear accident, we are not just talking about our children in our community. We are talking about the world's children and the community of the world. When that material gets into our Puget Sound waters, it is carried all over the globe. The nuclear industry does not have a good safety record. We heard tonight how what happened in Chernobyl affected people in Germany. We heard from a lady who lived in Hanford. What happens here affects the rest of the world. Not only do I not want, nor does my family want, nuclear waste shipped into the Port of Tacoma, we do not want it shipped into the United States. We believe that the United States policy on nuclear energy is ill advised. Rather than supporting and facilitating foreign nations' continued and increasing reliance upon nuclear energy so that their level of consumption can reach our own level of consumption, we should be encouraging the people of our nation to reduce our reliance on nuclear energy. We need to stop it. Forty years from now, if I'm fortunate enough to be alive, I do not want to read how what happens tomorrow in Tacoma is now just coming to light. This has been the history of the nuclear industry. We don't find out about it until after the fact. These things are kept from us, and I believe deliberately are kept from us. We are not children. We do not need to have the facts hidden from us. I do not want this in my community or any community. Thank you. [applause]

Roxie Giddings: It's Roxie Giddings. It's okay. It's a nickname anyhow. I go back a long, long, time. I live out in Pierce County, in Parkland, and I've been around here for a long time. I was born over on Woodby Island and it's an island in the Puget Sound. We have a rotten record of taking care of this stuff. We don't want it here. We can't handle it. We're not willing to handle it. The DOE is us. The port is us. The Tribes are a different nation, but they are also us. The City and the County governments are us and, for once, we are finally trying to tell ourselves that we need to deal with this. I carried around an initiative once, in 1976, trying to get nuclear safeguards, and those of you with grey hair -- you'll remember that one. That was the first initiative I ever carried. I just, I don't think as a people we are willing to pay to clean up this mess. We are talking now about getting rid of DOE. They're the only people working to clean up the mess as far as I can tell. And now, we've got people back in the government that we've elected and put in there that are not willing to clean up Hanford. I'm also a downwinder. I lived in Pasco for eight years. My sister has had a mastectomy now and my brother has a little heart trouble, and we just, I mean you don't put tracers on this stuff, you can't prove anything. I don't really believe, that we would, as DOE, have the will to remove a cask if it did go in the water! And especially if it was imploded, we wouldn't do it. We've got casks all over California, off the coast, which we put out there because we buried them out there. And they imploded when they went underneath the water and we haven't taken care of those. We're not willing to a ..actually we were not willing to have the Atomic Energy Commission, and we changed it to DOE, if you remember that. And, now we are not willing to have the DOE because we can't take care of this stuff. And we tried to tell people, when they put the WPPSS in here and they wined and dined us, we wined and dined ourselves, through, what-is-it, Westinghouse or something, trying to tell ourselves that we could put this stuff into some kind of ceramic cask and it would be okay and, maybe, we would put it on the surface of the ground over at Hanford, and then we would do what with it? Blow air through it at 600 degrees F for

every cask that they had? And then, and then -- they told us they were putting waste in these things and they hadn't even started ..they were just working on the glass, at that time, they hadn't even started putting radioactive materials with it when they took our people from our utilities to Richland, and wined and dined them, and showed them how great it would be to do five nuclear power plants at once in this State, which we couldn't. You can tell I'm a little angry about this. I don't think we are willing to pay to have these ships come in here safely. We're not willing to pay. We just dissolved the Office of Marine Safety in the State of Washington, and their job -- which they never really did -- to start to accomplish their job -- was to prevent oil spills in the Puget Sound area, and that was their total and complete job. It was not connected with any cleanup of this sort of thing. Which brings us to cleanup. We are not willing to clean up a mess. And so for my final statement, I want to say that the people in the United States are not willing to pay for nuclear messes and I don't want to be the next nuclear mess that is sacrificed. [applause]

Linda Smith: Hi, my name is Linda Smith and I'm here tonight on behalf of Bob Trotter who was speaker number 35 and I lucked out because I was supposed to be here for my boss on number 50, so I'll go in and take number 35 instead. Once again, Good Evening, my name is Linda Smith, and I'm here on behalf of Tacoma County Visitor and Convention Bureau. We're an organization that represents Pierce Counties tourism and its interests. We're in the image building business. And the Visitor and Convention Bureau promotes our community to tourists, tour operators, meeting planners, convention delegates, and travel writers. We not only promote our area's attractions, facilities, and visitors services, we promote Pierce County as a safe, friendly, and an attractive to visit. Transporting spent nuclear waste through the Port of Tacoma will harm Pierce County's public image. It will destroy the visitor's image of a safe destination. And it will destroy the recognition that Pierce County has won from travel writers and their readers in the past years. If spent nuclear fuel is transported through the Port of Tacoma, travel writers will have another at-

submit that this fuel that is off-shore that is highly enriched -- I know the enrichment level is very hazardous -- can be easily turned into nuclear materials if it is diverted, or nuclear bomb-grade material. It needs to be put into a safe area. After hearing testimony today, I would say that we should only be looking at the 30 percent, not the 100 percent of the 20 or 21 metric tons to bring back into a safe area. Whether that's in the U.S. or somewhere else to reprocess it, it is, I think, up for negotiations with the U.S. government and the potential hosting States. In regard to utilizing packages for this work, I would submit to the DOE that they only utilize NRC certified packages that have been reviewed, and they do not use Certificates of Competent Authority through DOT for foreign packages, and they do not use DOE-certified packages. In addition to that, if the fuel is not well characterized, and I believe over two-



containment structure that goes inside the transportation packages, which is also leak-tight. And, for example, that I can name off my head that affects the people in the State of Washington, K-basin fuel is in that classification. There are over 2100 metric tons of that fuel sitting over there, so that gives you an idea of the magnitude that we are talking about. One of my last points that I would like to make is that if DOE is going to utilize any ports, whether it is Tacoma, or Portland, or anybody else on the West Coast, they need to provide the funding levels to train the workers that are going to handle these shipments at each port of entry. For people's information, all transportation packages have radiation limits set by Title 10 of CFR 71 and I believe that all DOE packages that they would use for this potential action would fall into that category and meet those limits. Thank you. [applause]

Tacoma is proud of its port and the Longshore Union is equally proud of its accomplishments. 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 world-wide. We believe that to choose the Port of Tacoma as a port of entry for spent nuclear waste would turn that completely around, and that this could make companies take a second look at having their business in the Port of Tacoma. We 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 too high!". Thank you [applause]

LW: As our next speakers are coming up, let me say that I've just been told that we have to vacate this room at eleven. So according to my watch, it's a little after ten and we still have lots of people on the list although several people have traded their time . With your permission, I would like to suggest that those of you who have something that has not yet been said be thinking about how you would say things; and for those of you who have things to say that repeat or amplify something that has already been said, you might think about putting it in writing and submitting it rather than taking some of your neighbors' time here. That's just a suggestion, but keep in mind, we do have to get out of here in a little less than an hour and we've got a lot of speakers to go. So be generous to each other on your time.

Andrew Munro: Thank you. I think we've skipped a couple of people. I'm Andrew Munro with Congressman Norm Dicks' office. I'm pleased to be here. I want to read a statement, briefly, from Congressman Dicks, and I know that Congressman Dicks is following up with Secretary Grumbly regarding this issue and will be interested in hearing Mr. Head's report about this public hearing. I know what my report is going to be to him: It's very clear what the sentiment is. Without further ado, I'll

"As a United States Congressman representing portions of the Tacoma/Pierce County area, I've received numerous communications from constituents and from public officials from this area strongly protesting the use of the Port of Tacoma as one of the points of entry for spent fuel shipments from foreign reactors. Let me take this opportunity to join them in their opposition and to urge DOE to look elsewhere for a more appropriate candidate site. My objections to the use of the Port of Tacoma as a port of entry are related to the nature of the port and to the selection process which I believe was overly biased in favor of bringing these materials into the United States. To begin with, the

States, interested in a similar objective and willing to participate in this program, I believe greater priority should have been given to this international option in the EIS process. I will be discussing this and other related matters with Assistant Secretary Grumbly in the near future. But, I want to express my strong opposition at this time to proceeding with the evaluation of the Port of Tacoma option based upon what I consider to be faulty assumptions in the EIS process. Sincerely, Norm Dicks." [applause]

Phil Watkins: Mr. Head, ladies and gentlemen, my name is Phil Watkins. I am here on behalf of Congressman Randy Tate who represents the Port of Tacoma, the Cities of Fife, Federal Way, and some of the other communities that have been represented here tonight. The Congressman wanted me to be here on his behalf -- he's in Washington, DC -- and to make some brief remarks. Admittedly, briefer than they were going to be at 6:00 pm tonight. First of all, the Congressman wants to thank DOE for holding this hearing tonight. As you'll remember, the original plan was to only have one hearing on this issue in Sea/Tac. And the Congressman thought that it would be better if we had a hearing in Tacoma where the people who are most directly affected could be heard. He would also like to thank DOE for responding to several of his requests with reference to this issue, including his request that this evening's hearing be recorded and that the public comment period, be extended. These events are significant because they are all based on one fundamental principle: That government must be responsive to the people in our community. As we all know, the Port of Tacoma is one of the ten ports of entry under consideration for receiving these hazardous waste shipments. Shipping spent nuclear fuel through the Port of Tacoma, the sixth largest container port in the country and the Tacoma community is not a prudent approach. Hundreds of thousands of our families could be hurt in the event that a tragedy occurs. Our community is not prepared to handle some of the circumstances that could potentially occur. What would happen if the shipping cask or the nuclear waste was breached? What are the possible effects on humans and the environment? What agencies are responsible for putting out the fire, an explosion, or an act of terrorism? What are the plans if a catastrophe takes place? There are also other issues that need to be addressed, such as: Was a full and fair cost-benefit analysis performed? What does the risk assessment study say? Are our allies being asked to share the burden of storing and disposing of this spent nuclear fuel? The second critical issue in this debate is the final destination of any nuclear hazardous waste delivered through the Port of Tacoma. Hanford is struggling with the financial burdens of its cleanup. The Idaho National Engineering Laboratory has also expressed concerns with receiving shipments of the radioactive waste. Congressman Tate looks forward to working with the City of Tacoma, the Port of Tacoma, the surrounding community, Congressman Dicks, and other members of this delegation on this very important issue. Again, thank you for giving us a chance to make our remarks tonight. I have extended written remarks for the written record. [applause]

LW: Would the omission of three speakers mean that those speakers elected not to speak or are they going in a different order? Rick Ryan, Roger Allen, and Anita Preston.

Anita Preston: Thank you. I'm Anita Preston, Anita W. Preston, and I am a lifetime native of Tacoma, and I live in old Tacoma near the Commencement Bay. In fact, it's in about my backyard. So speaking of having something in your back yard, believe me, this is a big thing in my back yard. Especially with the shipping lanes if these ships come in with the nuclear waste. But, the effect of any nuclear accident would be much more extensive than in just my backyard. As we heard tonight, it may cover an area of 900 square miles. That's a pretty big one. Referring to the comments in the EIS, and I refer to Page 9, [redacted] preferred choice. I haven't heard that much tonight. 'No action'.

have it monitored there. Primarily for public health, I strongly oppose the nuclear fuels from being transported through the Port of Tacoma. In addition, I oppose the storage of the fuels at Hanford, Washington. The State of Washington has done more than its share in dealing with nuclear waste. You've heard tonight, many comments, and I'm not going to go into any detail anymore because you've heard so much already. It concerns me also that the DOE has not provided funding for the local implementation of safety training, and monitoring, and providing necessary equipment for emergency personnel - completely omitted. There is also concern of tarnishing the image of Tacoma, and we have been improving this steadily in Tacoma. We've had problems in the past, and we've tackled them, and we've done pretty well with doing things like the odor of Tacoma, etc., and this has changed a lot and we don't want to have anymore problems. So I urge the DOE to not appoint Tacoma for their nuclear port of entry. Thank you. [applause]

LW: Are there other -- Rick Ryan or Roger Allen. Okay, we have five more speakers on the list: Jerry Farm, John Avery, Lynn Healey, Harold Moss, and Whitney DalBalcon.

John Avery: I'm John Avery, I assume that the gentleman before me is not here, so I'll go ahead. I'm with the North-end Neighborhood Council and we're the folks who passed around of these petitions and got the information out. We wanted to make sure that the citizens of Tacoma came to this and I'm just delighted. We've had so many people here tonight. Not only the two hundred and some that this auditorium holds, but I want you to also know that there were 75 to 100 waiting outside that couldn't get in. I want to present Mr. Head and the DOE 858 signatures on a petition against having the waste shipped through Tacoma, and over 130 comment cards that people have taken the time to write -- all of them expressing opposition to having this waste coming through our town. I'm not going to take a lot more time. I think though, to summarize, there are questions of safety, and the handling of this waste, and those answers have not been adequate. I think there are questions of equity, of our allies dealing with this in an equitable way, and those questions have not been answered. And may I say, that as a person who has spent a lot of time in countries in the world, I think that we can trust that we have environmental allies in countries like the United Kingdom, France, Sweden, Japan, Denmark -- I know we do -- and those are good people, and they will help us to come up with solutions. I think if we stigmatize them as using negative [redacted]

how can we safely retrieve what's left from those countries who cannot? The second half of that thing is: 'Us'. That is the political decision that will be made. Remember, when the decision of what port is going to be used it will be a political decision. Political! That is where we come in. The lady who got up and said they wanted to put a nuclear plant in Scagit country and defeated it spoke to the issue that is before all of us. This campaign starts tonight -- doesn't end. I think it was wonderful that we filled the house and that we, in our way, directed our responses and our concerns to Mr. Head, but he alone will not make this decision. This is a political decision. That means that we not only send the message tonight, we must be prepared to send that message repeatedly. You are going to have to write. You're going to have to stay on our political, our legislative bodies. You're going to have to continuously send in those letters to your Congress-people, to your Senators, to the President, and to Mr. Head. If you fail to do that, we all may be looking at the loss of our own identity. We may face the loss of the identity that we have worked so hard to put in place. And that is a decent community, a safe community, one that takes its responsibilities very seriously. We have not come through this far to now turn it over to become somebody's dump. But, the only way we are going to do that is to get the attention, and keep the attention of those who are actually going to do the voting as to where this nuclear dump is located. As a Mayor of the City of Tacoma, it's been such a pleasure to work towards the improvement to our city. I see this as a major threat. Just a major threat. Not so much from the security, not so much from the safety. I see it as a major threat to every effort that we make, to every effort that we make to make this a livable community. I urge you to take it someplace else. I'd like to... well I can't do this... okay. Thank you very much. [applause]

LW: Whitney DalBalcon? Okay. We're getting down to it. The next five are: Nancy Watkins, Rosa Franklin, Claire Petrich, Tom Martee, from the Peninsula Neighborhood Association, and Mike Kriedler, who has already spoken.

Henry Yates: Hello, my name is Henry Yates. I am taking the place of Rosa Franklin. She graciously gave me her time. I'll be brief. I am representing the port to the north, the Port of Seattle. I'm the Director of Public Relations for that port. In 1986, the Port of Seattle passed a Resolution that strongly objected to the presence of high-level nuclear fuel waste within waters of the State of Washington. We stand by that resolution. We support, very strongly, the position that has been taken by the Port of Tacoma in regard to the waste coming to this particular port. There's currently, now well defined and widely understood, a comprehensive, coordinated policy -- a plan -- among Federal, State, local, and other government agencies that will assure the safe shipment of this material. Not only are we concerned about the safe handling of it, but we're also concerned about the commercial impact of bringing this particular waste into the waters of Puget Sound. The Ports of Seattle and Tacoma, as you know, are linked by Puget Sound. They are only 30 minutes away from each other. We have been very successful at building a strong and vibrant business, mostly containers and other types of cargo. We can compete and do compete with other West Coast ports very successfully. As most of you know, our cargo, the

container cargo, go through ports like Vancouver, but the jobs that are so much needed in our community do, as well. We urge you to evaluate other ways of handling this material and we strongly oppose its [redacted] Thank you. [applause]

Claire Petrich: Thank you. I'm Claire Petrich and I'm here tonight as Chair of the Port Industrial Committee which is a Committee of the Tacoma Pierce County Chamber of Commerce. The Chamber of Commerce represents business owners -- small business owners and large business owners, hundreds of them -- and also all of the employees of those businesses within Tacoma and Pierce County. The Chamber of Commerce promotes an environment that's good for business. We promote an environment that is good for manufacturing, for jobs, for development, for services. And with that as our purpose, the Board of the Chamber of Commerce has voted to oppose the importation of spent nuclear fuel through the Port of Tacoma as not in the best interest of the region or of this community. We are opposed to it for a number of reasons many of which have been mentioned tonight. But, I will repeat a couple of them. First, we are opposed because of the health and safety issues that have been mentioned innumerable times this evening. We are also concerned because of the commerce that goes through the Port of Tacoma. It has been mentioned what the impact of the radiation in the spent nuclear fuel rods can be on individuals. What has not been questioned is the impact or the effect, in fact, of those shipments on other cargo that is placed aboard the commercial vessels that will be shipping them into this port. We don't know the answer to that. Our longshoremen have refused to handle the containers, the casks, that will be brought through with spent nuclear fuel. Does that mean, also, that other cargoes aboard other commercial vessels might be impacted? We do not want to see businesses impacted in a negative way in our community. We are concerned also because by identifying such trans-shipment points such as the Port of Tacoma, and also then stating that we have security concerns, we feel that security has been compromised in that way. We are concerned because no provisions have been made to fund or to train nuclear HAZMAT teams locally. We are concerned because transportation routes that travel through high population areas and both road and rail in our Puget Sound area are nearing capacity. Our community, the businesses in our community, our city government, and environmental groups have worked hard to cleanup environmental toxic wastes. We've worked hard to cleanup arsenic, PCPs, lead, [redacted]

wasn't a problem. Most of them aren't with us today; most of them are dead from cancer and related diseases. The downwinders have been here and they've told us a little bit about their story. They continue to suffer and die as a result of an unknown risk. In my private life, I'm a Doctor of Chiropractic and every year I'm updated about exposure to x-ray because that's part of my job, and we're told every year that maybe last year's was a little too high. So what we know today certainly is outdated by tomorrow. And I don't think we can have any confidence, Mr. Head, of being told that these exposures are, in fact, acceptable. I contend that any exposure is an unacceptable amount. This policy, frankly, is ridiculous -- that we have to, once again, be the policemen of the world. Have we learned nothing from the Vietnam experience? Have we got to the point where we have to go out and make moral judgments for everyone else to decide what is best for them? I think from what we heard tonight, that we've got enough problems here. We certainly haven't done a very good job with our own nuclear waste. I would certainly like to see that industry start winding down at the very least. And, I would like to see us take care of what we have, not bring in millions and millions of metric tons of more waste that could definitely cause death and destruction in our country. Again, being a Washington resident and thinking about that nuclear waste flowing into the Columbia River, at the very least causes a great level of discomfort, as well as the unknown of what's going to happen with that. I guess, to really sum this thing up, is do we really trust the Federal Government do the right thing, to tell us what we need to know, and that our community will be safe? I contend, Mr. Head, that we do not trust the Federal Government even close to that. We're tired of being pushed around and being told, frankly, after the fact that we are a site for this ridiculous policy and that we, the people of the State of Washington will have to find a way to deal with it and pay for it. Although, frankly, that is a secondary issue to me, payment of it. I want to let you know that the State of Washington, and I'm speaking now as a State Representative, we'll fight you. We will go forward within the State Legislature, if necessary, as well as the Governor's office -- I will go to the Governor's office, and I'm not alone, there are many of us in the Senate and the House that feel exactly the same way. We feel you are way beyond your authority in doing this, frankly, and I am going to talk about policy and not technical details because it was said so well by our Mayor. It's not a technical matter, it's a people matter. And, we the people say: "No!". We'd ask you to take your nuclear waste and leave. And please, don't take it into the borders of this state. We will not stop. And, if you think that the people in the state of California put up a fight -- look out! We are a nice, easy-going people, but when we're riled, we're right there until the finish line and we won't quit. Thank you. [applause]

Marilyn Rasmussen: Thank you. For the record, I'm Marilyn Rasmussen and I'm a State Senator from the 2nd District which is just south of here, and it does have our beautiful Mt. Rainier. But, I chair the Agriculture Committee; I serve on the Transportation Committee; I also serve on Freight and Rail, and I had the major bill this year to help freight rail, and all their infrastructure across the State. And what I submit to you, is that you're going to leave a paper trail. Not just in Tacoma, but across the State. A paper trail that will go on for generations and generations. I come from rural, rural Pierce County, and we're farmers. We protect our environment, we care about out environment. I'm really embarrassed and ashamed that the bureaucracy hasn't listened from the last meeting they had in our city. I'm really embarrassed and ashamed, as a taxpayer, that the bureaucracy is so far behind that they send out inadequate, not accurate descriptions of what our port is all about. And, I guess I am ashamed and I'm embarrassed, as a legislator that helps fund, helps do the policies that come through to us that this is something we have to deal with. I sent you a letter, I submitted a letter tonight, and I am also part of the letter from the other senators from this area. I think you have heard from the people, and our Mayor Moss said it very well when he said that it is people and it is political. We don't want the paper trail. We don't want this here. Last week we had Secretary Pena come to the Port of Seattle and I sat and listened to him talk about transportation issues. That was on Thursday. On Friday, Secretary Glickman

was here. He is head of the Department of Agriculture. He came to talk about agriculture in this State. Where is our Secretary of Energy? Is he going to listen? If he doesn't, I'm embarrassed and ashamed. But yes, as Representative Campbell said: "We will fight you." It will not happen, and I guarantee it, it won't happen. But, take these words back. Of all the people that came here to speak, take them back, and if they're recorded, as you say they are, have him listen to it. This is a beautiful state and this is a beautiful country. Let's not let the bureaucracy ruin it. Let's let the people say what is best for this country because they do know best. I have to tell you that, as far as being a farmer, I'm very, very, proud of what the Port of Tacoma and the Port of Seattle does for our industry. We export 70 percent of all the agriculture that is produced in this State. We export it, mostly through our ports. And, we don't want our apples alongside of your nuclear waste. It just doesn't sound good. I can't go home to my kids and my grandkids and say: "You didn't listen and you don't care." So please, I implore you, take the message back and let's not waste people's time with more meetings like this because I think that this meeting was very well attended tonight. I think everyone here spoke from their heart and they told you how it's going to affect our beautiful city, our countryside, the paper trail across our State. We have worked hard. We have worked hard to make the best use of our tax dollars in this State, for our wonderful quality of life. A third of the people that live in this state didn't live here 10 years ago, so we're fighting with a lot of growth and we acknowledge that, and we work to make this a better State. So, I implore you. Just say: "No"- okay? It won't work. Thank you. [applause]

Stephanie Smith: Wow, I wasn't expecting to be last! My name is Stephanie Smith. I'm a 21 year old college student; I'm a mother, and a wife, and a voter. I'm a representative of my generation and we're sick and tired of environmental accidents. These accidents have been caused by overworked and [redacted]

David Price: Howdy, I'm David Price. I was born here, raised in the area, and been a resident most of the time since 1971. I am a downwinder. I worked at Puget Sound Naval Shipyard for a number of years around radiation, and I do distrust the DOE. That being said, I would like to ask the audience -- think about this: Ft. Louis, McCord, Bremerton, and Bangor have radioactive elements and weapons and fuel there. How did it get there? Okay. How did it get there? Have we been damaged by that? I think that I've heard in the testimony here that there is probably better alternatives. But, if those alternatives are not viable, shipments, if small enough, could be done safely and it could create a lot of good paying jobs in the area. Thank you.

LW: That completes the list of people who had signed up to speak. Is there anyone who didn't have an opportunity to sign up who has a brief comment?

Audience Member: [barely audible -- away from microphone] I'd like to put in my two bits. I've taught school here in Tacoma for 21 years. To augment my teaching in the classroom, I prevailed upon my wife to part from some of our hard-earned cash and I bought that little [sailboat?] you saw coast through the marine parade a few years ago. I find that teaching youngsters in the out-of-doors with sailboats is the easiest way to give grades. You send them out sailing and you come back (?). This is no place for those nuclear aberrations that will reduce the quality of the students who we have to teach. Heaven knows they're bad enough as it is.

Jack Fabulich: I'm one of the Port Commissioners also. I'm just real pleased that you all showed up. I think that we had to send Mr. Head a message, and I think he got it very well. I do appreciate -- he took a lot of gruff tonight -- that's what he gets paid for. You've got to have a message, and I think the message is clearly loud and clear. Believe me, I was very impressed with some of the comments that I hadn't even thought about, and we studied the issues with Mr. Robinson, who is very knowledgeable, so I just say, I think your letter that I received back from you, the one that we asked about -- you know the night that we had the first meeting. That you had some people here that were representing DOE that couldn't answer the simple question that we asked -- that if there was a cask that did have a leak what would happen to the people who would be exposed to it? And they said: "Well, you know, it has not happened", but the event in Oklahoma did not happened before either. I guess our message is, and my message is, just tell me, if I'm standing 2 feet and that cask happens to get blown up or there is a crack in it, what is my danger? And, they said we'll get you an answer to that in three days. That is when I thought we had a bit of a problem. So, with that, I hope you take that message back to the people, and we are very willing to work with that Alternative 2. I think there are some other things we can add to that -- shipping knowledge. Shipping to these countries that are available to take the fuel and reprocess it. That's our opinion. Thank you.

LW: And thank you all for participating, for coming out. It's been a long evening. You've been very patient. They've got your comments. Thank you so much.

ATTACHMENT 2

ATTACHMENT 2
Port and Transportation Accident Analyses of Additional Military Ports

In response to public comments and concerns that the EIS did not adequately consider the use of military ports, eight additional military ports were considered. The selected additional military ports are: the ports of Bremerton, Everett, and Port Hadlock, WA; Port Hueneme, CA; Kings Bay, GA; Mayport and Pensacola, FL; and Yorktown, VA. Additional evaluations addressing the incident-free and accident impacts associated with the transport of foreign research reactor spent nuclear fuel through these eight military ports to the management sites were performed.

Port Activities Impacts

The incident-free risks associated with both at-sea transport and in-port handling of foreign research reactor spent nuclear fuel, as documented in Appendices C and D of the EIS, are applicable to the eight military ports. If military ports were used, there would be no intermediate stops at other U.S. ports. The at-sea accident analysis and results presented in Appendix C of the EIS are applicable to any ports selected.

Port accident impacts were estimated using the MACCS computer program with site-specific population and meteorology as were done for the 13 port cities modeled in Appendix D of the EIS. A summary of mean consequences and risks for port accident analysis is presented in Tables 1, 2, and 3. These results indicate that the consequences of an accident at any of the eight ports is comparable to the range of consequences for the same accident at the similar (intermediate to low) population density ports analyzed in the EIS. For example, among the

[redacted]

Ground Transportation Impacts

The transportation routes, including accident and incident free risks, were analyzed as described in Appendix E. Truck and rail routes were analyzed, using the HIGHWAY and INTERLINE codes, from the node nearest the port to the DOE management sites. No new rail analysis was done for Mayport, FL because the port facilities are not served by rail. The spent nuclear fuel would have

Table 1 Port Accident Analysis-Total Effective Dose Equivalent Population Dose (person-rem)
for 0-80 kilometers (0-50 miles)

Ports	*BR-2 Spent Nuclear Fuel*			*RHF Spent Nuclear Fuel*			*TRIGA Spent Nuclear Fuel*		
	Accident Severity Category			Accident Severity Category			Accident Severity Category		
	4	5	6	4	5	6	4	5	6
Bremerton	0.084	1200	1300	0.034	450	478	0.010	160	170
Everett	0.051	1300	1400	0.020	510	540	0.006	180	190
Port Hadlock	0.016	740	810	0.0063	280	310	0.002	97	110
Port Hueneme	0.14	2400	2600	0.057	920	1000	0.017	320	350
Kings Bay	0.014	450	480	0.0055	160	180	0.0018	56	61
Mayport	0.048	530	550	0.019	200	200	0.0059	69	70
Pensacola	0.034	420	430	0.014	160	160	0.0041	54	55
Yorktown	0.018	620	650	0.0073	230	240	0.0023	79	84

Table 2 Port Accident Analysis- Consequences (Latent Cancer Fatalities)
for 0-80 kilometers (0-50 miles)

Ports	*BR-2 Spent Nuclear Fuel*			*RHF Spent Nuclear Fuel*			*TRIGA Spent Nuclear Fuel*		
	Accident Severity Category			Accident Severity Category			Accident Severity Category		
	4	5	6	4	5	6	4	5	6
Bremerton	3.2E-05[a]	0.52	0.55	1.3E-05	0.20	0.21	3.8E-06	0.068	0.073
Everett	2.0E-05	0.58	0.62	7.9E-06	0.22	0.24	2.3E-06	0.077	0.081
Port Hadlock	6.5E-06	0.33	0.36	2.6E-06	0.12	0.14	8.1E-07	0.043	0.047
Port Hueneme	5.4E-05	1.0	1.1	2.2E-05	0.39	0.43	6.3E-06	0.14	0.15
Kings Bay	5.9E-06	0.21	0.23	2.3E-06	0.076	0.082	7.6E-07	0.026	0.028
Mayport	1.8E-05	0.24	0.25	7.4E-06	0.089	0.092	2.2E-06	0.031	0.032
Pensacola	1.3E-05	0.19	0.20	5.2E-06	0.071	0.073	1.5E-06	0.024	0.025
Yorktown	7.4E-06	0.28	0.30	2.9E-06	0.10	0.11	9.30-07	0.036	0.038

a 3.2E-5 means 3.2×10^{-5} or 0.000032.

Table 3 Summary of Latent Cancer Fatalities and Population Exposure Risk
per shipment

Ports	*Population Exposure (person-rem per shipment)*			*Latent Cancer Fatalities (LCF per shipment)*		
	Spent Nuclear Fuel Type			Spent Nuclear Fuel Type		
	BR-2	RHF	TRIGA	BR-2	RHF	TRIGA
Bremerton	7.3E-06 [a]	2.6E-06	9.6E-06	3.1E-09	2.2E-08	4.1E-10
Everett	7.7E-06	3.0E-06	1.1E-06	3.4E-09	1.3E-09	4.5E-10
Port Hadlock	4.3E-06	1.6E-06	5.6E-07	1.9E-09	7.0E-10	2.5E-10
Port Hueneme	1.4E-05	5.5E-06	1.9E-06	6.0E-09	2.3E-09	8.3-10
Kings Bay	2.6E-06	9.1E-07	3.3E-07	1.2E-09	4.3E-10	1.5E-10
Mayport	3.3E-06	1.2E-06	4.2E-07	1.5E-09	5.5-10	1.9E-10
Pensacola	2.6E-06	9.8E-07	3.3E-07	1.2E-09	4.3E-10	1.4E-10
Yorktown	3.6E-06	1.3E-06	4.6E-07	1.6E-09	5.8E-10	2.1E-10

a 7.3E-06 means 7.30×10^{-6} or 0.0000073.

Table 4 Port Accident Analysis- Total Effective Dose Equivalent Population Dose and Latent Cancer Fatalities

Ports	Accident Severity Category 5B						Accident Severity Category 6B					
	Probability of Accident = 5.0E-10						Probability of Accident = 6.0E-11					
	Population Dose (person-rem/accident)			Latent Cancer Fatalities (LCF/accident)			Population Dose (person-rem /accident)			Latent Cancer Fatalities (LCF/accident)		
	BR-2	RHF	TRIGA	BR-2	RHF	TRIGA	BR-2	RHF	TRIGA	BR-2	RHF	TRIGA
Bremerton	1.3E4[a]	4900	4900	5.7	2.1	0.88	1.2E5	4.7E4	5.3E4	53	21	23
Everett	1.4E4	5500	5500	6.3	2.4	0.99	1.4E5	5.4E4	6.0E4	61	24	26
Port Hadlock	8100	3000	3000	3.6	1.4	0.55	8.2E4	3.1E4	3.5E4	37	14	15
Port Hueneme	2.6E4	1.0E4	1.0E4	11	4.3	1.8	2.6E5	1.0E5	1.1E5	110	43	48
Kings Bay	4900	1800	1800	2.3	0.82	0.33	4.7E4	1.8E4	2.0E4	22	8.2	8.9
Mayport	5700	2100	2100	2.6	0.96	0.40	5.0E4	2.0E4	2.2E4	23	8.8	9.6
Pensacola	4500	1700	1700	2.0	0.76	0.31	3.6E4	1.6E4	1.7E4	17	7.0	7.7
Yorktown	6700	2500	2500	3.1	1.1	0.46	6.4E4	2.4E4	2.7E4	29	11	12

a 1.3E4 means 1.3×10^4 or 13,000.

Table 5 Summary of Route Distances for Truck and Rail Modes

Shipments to Hanford Site					
Route	Distance km (mi)		Percentage in Zone		
			Rural	Suburban	Urban
From Eastern Ports					
Truck:					
Mayport, FL	4,745	(2,964)	84.3	14.4	1.3
Kings Bay NSB, GA	4,685	(2,926)	85.9	12.8	1.2
Pensacola, FL	4,430	(2,767)	85.1	13.5	1.4
Yorktown, VA	4,665	(2,914)	85.6	13.2	1.3
Rail:					
Kings Bay NSB, GA	4,942	(3,087)	82.6	15.3	2.1
Pensacola, FL	4,430	(2,767)	90.8	8.2	1
Yorktown, VA	4,717	(2,946)	83.1	14.2	2.7
From Western Ports					
Truck:					
Bremerton, WA	451	(282)	68.2	27.2	4.6
Everett, WA	397	(248)	69.5	26	4.5
Port Hueneme, CA	1,952	(1,219)	82.2	14.8	3
Port Townsend, WA	536	(335)	67.8	28.2	3.9
Rail:					
Bremerton, WA	669	(418)	82.3	15.4	2.3
Everett, WA	717	(448)	67.9	23.2	8.8
Port Hueneme, CA	2,030	(1,268)	75.1	17.3	7.7
Port Townsend, WA	666	(416)	72.4	20.4	7.3

Shipments to Idaho National Engineering Laboratory					
Route	Distance km (mi)		Percentage in Zone		
			Rural	Suburban	Urban
From Eastern Ports					
Truck:					
Mayport, FL	4,076	(2,546)	83	15.5	1.4
Kings Bay NSB, GA	4,017	(2,509)	84.9	13.8	1.3
Pensacola, FL	3,762	(2,350)	83.9	14.7	1.5
Yorktown, VA	3,998	(2,497)	84.5	14.1	1.4
Rail:					
Kings Bay NSB, GA	4,063	(2,538)	84.3	14.7	1.1
Pensacola, FL	3,503	(2,188)	90.6	8.4	1
Yorktown, VA	3,982	(2,487)	87	11.6	1.4
From Western Ports					
Truck:					
Bremerton, WA	1,361	(850)	85.8	12.6	1.7
Everett, WA	1,306	(816)	86.9	11.6	1.5
Port Hueneme, CA	1,599	(999)	78.8	14.9	6.3
Port Townsend, WA	1,446	(903)	84.6	13.8	1.6
Rail:					
Bremerton, WA	1,567	(979)	90.7	8.5	0.8
Everett, WA	1,615	(1,009)	84.1	12.2	3.7
Port Hueneme, CA	1,689	(1,055)	82.3	11.8	6
Port Townsend, WA	1,564	(977)	86.5	10.6	2.9

Table 5 Summary of Route Distances for Truck and Rail Modes

Shipments to Nevada Test Site					
Route	Distance km (mi)		Percentage in Zone		
			Rural	Suburban	Urban
From Eastern Ports					
Truck:					
Mayport, FL	4,196	(2,621)	82.3	16	1.7
Kings Bay NSB, GA	4,135	(2,583)	84.1	14.3	1.6
Pensacola, FL	3,721	(2,324)	83.1	14.4	2.5
Yorktown, VA	4,118	(2,572)	83.7	14.7	1.6
Rail:					
Kings Bay NSB, GA	4,761	(2,974)	85.8	13.1	1.1
Pensacola, FL	4,199	(2,623)	91.3	7.7	1
Yorktown, VA	4,678	(2,922)	88.1	10.5	1.4
From Western Ports					
Truck:					
Bremerton, WA	2,208	(1,379)	84.3	13.2	2.5
Everett, WA	2,153	(1,345)	85	12.6	2.4
Port Hueneme, CA	668	(417)	72.5	16.5	11
Port Townsend, WA	2,293	(1,432)	83.7	14	2.4
Rail:					
Bremerton, WA	2,598	(1,623)	92.2	7	0.8
Everett, WA	2,646	(1,653)	88.2	9.3	2.6
Port Hueneme, CA	796	(497)	72.4	16.9	10.8
Port Townsend, WA	2,595	(1,621)	89.7	8.3	2

Shipments to Oak Ridge Reservation					
Route	Distance km (mi)		Percentage in Zone		
			Rural	Suburban	Urban
From Eastern Ports					
Truck:					
Mayport, FL	940	(587)	65.4	32.8	1.9
Kings Bay NSB, GA	879	(549)	72.8	25.8	1.3
Pensacola, FL	897	(560)	79.8	19.1	1.1
Yorktown, VA	866	(541)	70.6	28.6	0.9
Rail:					
Kings Bay NSB, GA	954	(596)	70	28.7	1.3
Pensacola, FL	873	(545)	76.6	22.7	0.7
Yorktown, VA	909	(568)	60.8	37.7	1.5
From Western Ports					
Truck:					
Bremerton, WA	4,315	(2,695)	87.1	11.6	1.3
Everett, WA	4,260	(2,661)	87.5	11.3	1.2
Port Hueneme, CA	3,612	(2,256)	85.4	11.4	3.2
Port Townsend, WA	4,400	(2,748)	86.7	12.1	1.3
Rail:					
Bremerton, WA	4,790	(2,992)	83	14	3.1
Everett, WA	4,400	(2,748)	85.5	12.2	2.2
Port Hueneme, CA	4,267	(2,665)	88.2	8.8	3.1
Port Townsend, WA	4,451	(2,780)	84.7	12.8	2.5

Table 5 Summary of Route Distances for Truck and Rail Modes

Shipments to Savannah River Site					
Route	Distance km (mi)		Percentage in Zone		
			Rural	Suburban	Urban
From Eastern Ports					
Truck:					
Mayport, FL	628	(392)	79.2	20.1	0.8
Kings Bay NSB, GA	559	(349)	80.2	19.1	0.7
Pensacola, FL	882	(551)	73.7	24.4	1.9
Yorktown, VA	804	(502)	71.7	27.2	1.1
Rail:					
Kings Bay NSB, GA	461	(288)	79.2	19.2	1.6
Pensacola, FL	890	(556)	69.9	27.7	2.4
Yorktown, VA	925	(578)	71.5	26.6	1.9
From Western Ports					
Truck:					
Bremerton, WA	4,726	(2,952)	84	14.4	1.6
Everett, WA	4,672	(2,918)	84.3	14.2	1.6
Port Hueneme, CA	3,974	(2,482)	78	18.4	3.6

Table 6 Summary of the Population Distributions Along Routes for Truck and Rail Modes

Shipments to Hanford Site:				
Route	Number of Affected Persons	Average Persons/km^2		
		Rural	Suburban	Urban
From Eastern Ports				
Truck:				
Mayport, FL	624,000	7.2	342	2216
Kings Bay NSB, GA	555,000	7	335.7	2226.7
Pensacola, FL	549,000	6.8	339	2086.6
Yorktown, VA	569,000	7.4	340.1	2186.2
Rail:				
Kings Bay NSB, GA	807,000	7.7	365.7	2053.4
Pensacola, FL	368,000	6.1	324.1	2066.2
Yorktown, VA	866,000	7.8	352.1	2312.1
From Western Ports				
Truck:				
Bremerton, WA	143,000	8.1	366.9	2152.3
Everett, WA	135,000	8.3	449	2168.6
Port Hueneme, CA	386,000	7.8	366.1	2262.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 6 Summary of the Population Distributions Along Routes for Truck and Rail Modes

Shipments to Nevada Test Site:				
Route	Number of Affected Persons	Percentage in Zone		
		Rural	Suburban	Urban
From Eastern Ports				
Truck:				
Mayport, FL	647,000	7	349.9	2211.9
Kings Bay NSB, GA	578,000	6.7	344.6	2220.8
Pensacola, FL	662,000	5.6	393.4	2158.1
Yorktown, VA	593,000	7.2	348.8	2185.5
Rail:				
Kings Bay NSB, GA	549,000	6.5	352.1	2059.3
Pensacola, FL	346,000	5.8	336.4	2145.3
Yorktown, VA	529,000	6.5	347.2	2217.1
From Western Ports				
Truck:				
Bremerton, WA	380,000	4.9	417.2	2112.8
Everett, WA	372,000	4.8	452.3	2117.4
Port Hueneme, CA	388,000	3.3	502.2	2646.5
Port Townsend, WA	395,000	4.9	408.5	2111.8
Rail:				
Bremerton, WA	167,000	4.9	298.6	2117.8
Everett, WA	420,000	4.6	418.5	2331.3
Port Hueneme, CA	471,000	4	510.6	2723.9
Port Townsend, WA	325,000	4.6	385.1	2205.8

Shipments to Oak Ridge Reservation:				
Route	Number of Affected Persons	Percentage in Zone		
		Rural	Suburban	Urban
From Eastern Ports				
Truck:				
Mayport, FL	222,000	15.9	305.4	2258
Kings Bay NSB, GA	153,000	14.1	275.8	2331.5
Pensacola, FL	123,000	14.2	294.5	1910.1
Yorktown, VA	139,000	18.6	254.9	2079.7
Rail:				
Kings Bay NSB, GA	176,000	11.8	297.6	1911.4
Pensacola, FL	112,000	13.4	256.3	2069.7
Yorktown, VA	202,000	17.1	269	2137.8
From Western Ports				
Truck:				
Bremerton, WA	380,000	4.9	417.2	2112.8

Table 6 Summary of the Population Distributions Along Routes for Truck and Rail Modes

Route	Number of Affected Persons	Percentage in Zone		
		Rural	Suburban	Urban
From Eastern Ports				
Truck:				
Mayport, FL	75,900	13.5	251.5	2215.7
Kings Bay NSB, GA	58,300	13.8	211.2	2155
Pensacola, FL	177,000	13.6	333.9	2023.2
Yorktown, VA	134,000	16.9	270.3	1965.3
Rail:				
Kings Bay NSB, GA	71,000	10.9	300.4	2079.7
Pensacola, FL	211,000	11.9	349	1978.9
Yorktown, VA	185,000	13.1	284.7	2371.1
From Western Ports				
Truck:				
Bremerton, WA	669,000	6.9	347.7	2195.1
Everett, WA	661,000	7	359.9	2201.7
Port Hueneme, CA	977,000	7.8	366.1	2396
Port Townsend, WA	685,000	6.9	346.6	2194.2
Rail:				
Bremerton, WA	1,060,000	7.8	370.1	2231.7
Everett, WA	781,000	7.5	355.5	2138.4
Port Hueneme, CA	901,000	7.1	354	2592.8
Port Townsend, WA	875,000	7.5	367.4	2221.7

Table 7 Incident-Free Dose per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

Shipments to Hanford Site						
Route(s)		Crew	General Public			
			Off-Link	On-Link	Stops	Total
From Eastern Ports						
Mayport, FL	Truck	2.62E-01	1.05E-02	4.25E-02	6.14E-01	6.67E-01
Kings Bay NSB, GA	Truck	2.54E-01	9.40E-03	4.05E-02	6.06E-01	6.56E-01
	Rail	6.38E-02	3.17E-02	1.24E-03	1.76E-02	5.06E-02
Pensacola, FL	Truck	2.43E-01	9.28E-03	3.95E-02	5.73E-01	6.22E-01
	Rail	5.84E-02	1.42E-02	7.33E-04	1.44E-02	2.94E-02
Yorktown, VA	Truck	2.54E-01	9.62E-03	4.07E-02	6.03E-01	6.54E-01
	Rail	6.14E-02	3.62E-02	1.21E-03	1.64E-02	5.38E-02
From Western Ports						
Bremerton, WA	Truck	2.99E-02	2.50E-03	6.95E-03	5.84E-02	6.78E-02
	Rail	1.87E-02	4.26E-03	1.72E-04	4.82E-03	9.25E-03
Everett, WA	Truck	2.60E-02	2.35E-03	6.01E-03	5.14E-02	5.97E-02
	Rail	1.92E-02	1.59E-02	3.46E-04	8.27E-03	2.46E-02
Port Hueneme, CA	Truck	1.12E-01	6.79E-03	2.26E-02	2.52E-01	2.82E-01
	Rail	3.30E-02	3.95E-02	8.20E-04	1.12E-02	5.15E-02
Port Townsend, WA	Truck	3.54E-02	2.75E-03	7.75E-03	6.94E-02	7.99E-02
	Rail	1.87E-02	1.16E-02	2.80E-04	7.34E-03	1.93E-02

Shipments to Idaho National Engineering Laboratory						
Route(s)		Crew	General Public			
			Off-Link	On-Link	Stops	Total
From Eastern Ports						
Mayport, FL	Truck	2.28E-01	9.69E-03	3.77E-02	5.27E-01	5.75E-01
Kings Bay NSB, GA	Truck	2.21E-01	8.54E-03	3.57E-02	5.19E-01	5.64E-01
	Rail	5.45E-02	1.77E-02	8.95E-04	1.42E-02	3.27E-02
Pensacola, FL	Truck	2.09E-01	8.43E-03	3.47E-02	4.87E-01	5.30E-01
	Rail	4.86E-02	1.08E-02	5.79E-04	1.16E-02	2.30E-02
Yorktown, VA	Truck	2.21E-01	8.77E-03	3.59E-02	5.17E-01	5.62E-01
	Rail	5.36E-02	1.82E-02	8.08E-04	1.36E-02	3.26E-02
From Western Ports						
Bremerton, WA	Truck	7.44E-02	2.94E-03	1.26E-02	1.76E-01	1.92E-01
	Rail	2.82E-02	4.03E-03	2.54E-04	5.88E-03	1.02E-02
Everett, WA	Truck	7.05E-02	2.79E-03	1.17E-02	1.69E-01	1.83E-01
	Rail	2.87E-02	1.57E-02	4.28E-04	1.00E-02	2.62E-02
Port Hueneme, CA	Truck	9.85E-02	1.05E-02	2.69E-02	2.07E-01	2.44E-01
	Rail	2.95E-02	2.62E-02	5.35E-04	1.20E-02	3.88E-02
Port Townsend, WA	Truck	7.98E-02	3.18E-03	1.34E-02	1.87E-01	2.04E-01
	Rail	2.81E-02	1.14E-02	3.63E-04	8.83E-03	2.06E-02

(Person-Rem/Shipment)

Shipments to Nevada Test Site		
		General Public

Table 7 Incident-Free Dose per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

Shipments to Savannah River Site						
Route(s)		Crew	General Public			
			Off-Link	On-Link	Stops	Total
From Eastern Ports						
Mayport, FL	Truck	3.62E-02	1.24E-03	5.43E-03	8.12E-02	8.78E-02
Kings Bay NSB, GA	Truck	3.19E-02	9.54E-04	4.75E-03	7.22E-02	7.79E-02
	Rail	1.65E-02	2.66E-03	1.25E-04	4.87E-03	7.65E-03
Pensacola, FL	Truck	5.42E-02	2.95E-03	9.56E-03	1.14E-01	1.27E-01
	Rail	2.10E-02	7.90E-03	3.24E-04	6.73E-03	1.49E-02
Yorktown, VA	Truck	4.99E-02	2.19E-03	8.00E-03	1.04E-01	1.14E-01
	Rail	2.14E-02	6.97E-03	3.15E-04	5.56E-03	1.28E-02
From Western Ports						
Bremerton, WA	Truck	2.63E-01	1.14E-02	4.45E-02	6.11E-01	6.67E-01
	Rail	6.75E-02	4.33E-02	1.47E-03	1.88E-02	6.36E-02
Everett, WA	Truck	2.59E-01	1.13E-02	4.35E-02	6.04E-01	6.59E-01
	Rail	6.34E-02	3.08E-02	1.21E-03	1.71E-02	4.91E-02
Port Hueneme, CA	Truck	2.39E-01	1.72E-02	5.11E-02	5.14E-01	5.82E-01
	Rail	6.16E-02	3.78E-02	1.21E-03	1.66E-02	5.56E-02
Port Townsend, WA	Truck	2.68E-01	1.17E-02	4.52E-02	6.22E-01	6.79E-01
	Rail	6.39E-02	3.51E-02	1.28E-03	1.78E-02	5.41E-02

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

Shipments to Hanford Site			
Source/Route		*Truck*	*Rail*
From Eastern Ports			
Oxidized Target Material			
	Mayport, FL	1.28E-01	1.67E-02
	Kings Bay NSB, GA	1.26E-01	2.50E-02
	Pensacola, FL	5.99E-02	1.16E-02
	Yorktown, VA	1.30E-01	2.15E-02
Calcined Target Material			
	Mayport, FL	5.12E-02	6.66E-03
	Kings Bay NSB, GA	5.06E-02	1.00E-02
	Pensacola, FL	2.40E-02	4.64E-03
	Yorktown, VA	5.21E-02	8.61E-03
BR-2 Belgium SNF			
	Mayport, FL	1.65E-04	1.57E-05
	Kings Bay NSB, GA	1.54E-04	2.78E-05
	Pensacola, FL	9.76E-05	8.33E-06
	Yorktown, VA	1.30E-04	2.89E-05
RHF France SNF			
	Mayport, FL	7.13E-05	6.76E-06
	Kings Bay NSB, GA	6.67E-05	1.20E-05
	Pensacola, FL	4.22E-05	3.58E-06
	Yorktown, VA	5.60E-05	1.24E-05
NRU Canada SNF			
	Mayport, FL	2.28E-04	2.18E-05
	Kings Bay NSB, GA	2.13E-04	3.87E-05
	Pensacola, FL	1.35E-04	1.16E-05
	Yorktown, VA	1.79E-04	4.02E-05
PRR-1 TRIGA SNF			
	Mayport, FL	4.89E-04	8.09E-05
	Kings Bay NSB, GA	4.63E-04	1.43E-04
	Pensacola, FL	2.75E-04	4.91E-05
	Yorktown, VA	4.11E-04	1.40E-04
OSIRIS France SNF			
	Mayport, FL	1.53E-04	1.45E-05
	Kings Bay NSB, GA	1.43E-04	2.56E-05
	Pensacola, FL	9.06E-05	7.69E-06
	Yorktown, VA	1.20E-04	2.67E-05
From Western Ports			
Oxidized Target Material			
	Bremerton, WA	5.58E-03	7.57E-04
	Everett, WA	5.23E-03	1.34E-03
	Port Hueneme, CA	1.73E-02	4.59E-03
	Port Townsend, WA	6.61E-03	1.09E-03
Calcined Target Material			
	Bremerton, WA	2.23E-03	3.02E-04
	Everett, WA	2.09E-03	5.33E-04
	Port Hueneme, CA	6.91E-03	1.83E-03
	Port Townsend, WA	2.64E-03	4.34E-04
BR-2 Belgium SNF			

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

	Bremerton, WA	1.24E-05	1.63E-06
	Everett, WA	1.20E-05	5.11E-06

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

	Kings Bay NSB, GA	2.04E-04	1.99E-05
	Pensacola, FL	1.26E-04	1.06E-05
	Yorktown, VA	1.70E-04	1.92E-05
PRR-1 TRIGA SNF			
	Mayport, FL	4.70E-04	N/A
	Kings Bay NSB, GA	4.44E-04	7.69E-05
	Pensacola, FL	2.56E-04	4.39E-05
	Yorktown, VA	3.92E-04	7.74E-05
OSIRIS France SNF			
	Mayport, FL	1.47E-04	N/A
	Kings Bay NSB, GA	1.37E-04	1.32E-05
	Pensacola, FL	8.46E-05	7.05E-06
	Yorktown, VA	1.14E-04	1.27E-05
	From Western Ports		
Oxidized Target Material			
	Bremerton, WA	1.14E-02	1.95E-03
	Everett, WA	1.10E-02	2.53E-03
	Port Hueneme, CA	1.25E-02	2.63E-03
	Port Townsend, WA	1.24E-02	2.28E-03
Calcined Target Material			
	Bremerton, WA	4.54E-03	7.80E-04
	Everett, WA	4.40E-03	1.01E-03
	Port Hueneme, CA	5.00E-03	1.05E-03
	Port Townsend, WA	4.95E-03	9.11E-04
BR-2 Belgium SNF			
	Bremerton, WA	1.71E-05	3.74E-06
	Everett, WA	1.67E-05	7.22E-06
	Port Hueneme, CA	6.61E-05	1.13E-05
	Port Townsend, WA	1.87E-05	5.89E-06
RHF France SNF			
	Bremerton, WA	7.40E-06	1.61E-06
	Everett, WA	7.21E-06	3.12E-06
	Port Hueneme, CA	2.86E-05	4.89E-06
	Port Townsend, WA	8.10E-06	2.54E-06
NRU Canada SNF			
	Bremerton, WA	2.37E-05	5.19E-06
	Everett, WA	2.31E-05	9.99E-06
	Port Hueneme, CA	9.12E-05	1.57E-05
	Port Townsend, WA	2.59E-05	8.15E-06
PRR-1 TRIGA SNF			
	Bremerton, WA	5.03E-05	1.52E-05
	Everett, WA	4.89E-05	2.63E-05
	Port Hueneme, CA	1.66E-04	3.85E-05
	Port Townsend, WA	5.50E-05	2.20E-05
OSIRIS France SNF			
	Bremerton, WA	1.59E-05	3.47E-06
	Everett, WA	1.55E-05	6.69E-06
	Port Hueneme, CA	6.14E-05	1.05E-05
	Port Townsend, WA	1.74E-05	5.46E-06

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

Shipments to Nevada Test Site			
Source/Route		Truck	Rail
From Eastern Ports			
Oxidized Target Material			
	Mayport, FL	1.01E-01	1.67E-02
	Kings Bay NSB, GA	9.91E-02	1.67E-02
	Pensacola, FL	3.47E-02	1.03E-02
	Yorktown, VA	1.03E-01	1.75E-02
Calcined Target Material			
	Mayport, FL	4.03E-02	6.66E-03
	Kings Bay NSB, GA	3.96E-02	6.66E-03
	Pensacola, FL	1.38E-02	4.10E-03
	Yorktown, VA	4.12E-02	6.98E-03
BR-2 Belgium SNF			
	Mayport, FL	1.84E-04	1.57E-05
	Kings Bay NSB, GA	1.73E-04	1.57E-05
	Pensacola, FL	1.07E-04	9.03E-06
	Yorktown, VA	1.49E-04	1.52E-05
RHF France SNF			
	Mayport, FL	7.95E-05	6.76E-06
	Kings Bay NSB, GA	7.49E-05	6.76E-06
	Pensacola, FL	4.63E-05	3.89E-06
	Yorktown, VA	6.42E-05	6.53E-06
NRU Canada SNF			
	Mayport, FL	2.54E-04	2.18E-05
	Kings Bay NSB, GA	2.39E-04	2.18E-05
	Pensacola, FL	1.48E-04	1.26E-05
	Yorktown, VA	2.05E-04	2.11E-05
PRR-1 TRIGA SNF			
	Mayport, FL	5.09E-04	8.09E-05
	Kings Bay NSB, GA	4.83E-04	8.09E-05
	Pensacola, FL	2.78E-04	4.80E-05
	Yorktown, VA	4.31E-04	8.14E-05
OSIRIS France SNF			
	Mayport, FL	1.71E-04	1.45E-05
	Kings Bay NSB, GA	1.61E-04	1.45E-05
	Pensacola, FL	9.95E-05	8.35E-06
	Yorktown, VA	1.38E-04	1.40E-05
From Western Ports			
Oxidized Target Material			
	Bremerton, WA	1.67E-02	2.35E-03
	Everett, WA	1.64E-02	2.93E-03
	Port Hueneme, CA	6.35E-03	1.92E-03
	Port Townsend, WA	1.78E-02	2.68E-03
Calcined Target Material			
	Bremerton, WA	6.68E-03	9.39E-04
	Everett, WA	6.55E-03	1.17E-03
	Port Hueneme, CA	2.54E-03	7.66E-04
	Port Townsend, WA	7.09E-03	1.07E-03
BR-2 Belgium SNF			
	Bremerton, WA	5.34E-05	5.30E-06

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

	Everett, WA	5.29E-05	8.77E-06
	Port Hueneme, CA	3.97E-05	8.85E-06
	Port Townsend, WA	5.50E-05	7.45E-06
RHF France SNF			
	Bremerton, WA	2.31E-05	2.28E-06
	Everett, WA	2.29E-05	3.79E-06
	Port Hueneme, CA	1.72E-05	3.82E-06
	Port Townsend, WA	2.38E-05	3.21E-06
NRU Canada SNF			
	Bremerton, WA	7.36E-05	7.33E-06
	Everett, WA	7.30E-05	1.21E-05
	Port Hueneme, CA	5.47E-05	1.22E-05
	Port Townsend, WA	7.58E-05	1.03E-05
PRR-1 TRIGA SNF			
	Bremerton, WA	1.39E-04	2.05E-05
	Everett, WA	1.37E-04	3.16E-05
	Port Hueneme, CA	9.98E-05	2.99E-05
	Port Townsend, WA	1.43E-04	2.73E-05
OSIRIS France SNF			
	Bremerton, WA	4.95E-05	4.90E-06
	Everett, WA	4.91E-05	8.13E-06
	Port Hueneme, CA	3.69E-05	8.21E-06
	Port Townsend, WA	5.10E-05	6.90E-06

Shipments to Oak Ridge Reservation			
Source/Route		*Truck*	*Rail*
From Eastern Ports			
Oxidized Target Material			
	Mayport, FL	1.57E-02	N/A
	Kings Bay NSB, GA	1.41E-02	2.13E-03
	Pensacola, FL	1.07E-02	1.22E-03
	Yorktown, VA	1.30E-02	1.57E-03
Calcined Target Material			
	Mayport, FL	6.26E-03	N/A
	Kings Bay NSB, GA	5.61E-03	8.52E-04
	Pensacola, FL	4.27E-03	4.88E-04
	Yorktown, VA	5.19E-03	6.26E-04
BR-2 Belgium SNF			
	Mayport, FL	5.56E-05	N/A
	Kings Bay NSB, GA	4.49E-05	5.31E-06
	Pensacola, FL	3.52E-05	2.78E-06
	Yorktown, VA	3.34E-05	4.87E-06
RHF France SNF			
	Mayport, FL	2.40E-05	N/A
	Kings Bay NSB, GA	1.94E-05	2.29E-06
	Pensacola, FL	1.52E-05	1.20E-06
	Yorktown, VA	1.44E-05	2.10E-06
NRU Canada SNF			
	Mayport, FL	7.66E-05	N/A
	Kings Bay NSB, GA	6.19E-05	7.34E-06

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

	Pensacola, FL	4.86E-05	3.84E-06
	Yorktown, VA	4.61E-05	6.73E-06
PRR-1 TRIGA SNF			
	Mayport, FL	1.40E-04	N/A
	[redacted]	1.14E-04	1.96E-05
[redacted]			
[redacted]		5.16E-05	N/A

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

Shipments to Savannah River Site			
Source/Route		*Truck*	*Rail*
From Eastern Ports			
Oxidized Target Material			
	Mayport, FL	6.00E-03	N/A
	Kings Bay NSB, GA	5.18E-03	8.21E-04
	Pensacola, FL	1.20E-02	1.88E-03
	Yorktown, VA	1.15E-02	1.55E-03
Calcined Target Material			
	Mayport, FL	2.40E-03	N/A
	Kings Bay NSB, GA	2.07E-03	3.28E-04
	Pensacola, FL	4.81E-03	7.52E-04
	Yorktown, VA	4.58E-03	6.20E-04
BR-2 Belgium SNF			
	Mayport, FL	1.49E-05	N/A
	Kings Bay NSB, GA	1.25E-05	1.85E-06
	Pensacola, FL	4.34E-05	5.78E-06
	Yorktown, VA	2.84E-05	4.42E-06
RHF France SNF			
	Mayport, FL	6.42E-06	N/A
	Kings Bay NSB, GA	5.40E-06	8.00E-07
	Pensacola, FL	1.87E-05	2.50E-06
	Yorktown, VA	1.23E-05	1.91E-06
NRU Canada SNF			
	Mayport, FL	2.05E-05	N/A
	Kings Bay NSB, GA	1.72E-05	2.56E-06
	Pensacola, FL	5.98E-05	7.99E-06
	Yorktown, VA	3.92E-05	6.11E-06
PRR-1 TRIGA SNF			
	Mayport, FL	3.88E-05	N/A
	Kings Bay NSB, GA	3.27E-05	7.03E-06
	Pensacola, FL	1.09E-04	2.03E-05
	Yorktown, VA	7.43E-05	1.59E-05
OSIRIS France SNF			
	Mayport, FL	1.38E-05	N/A
	Kings Bay NSB, GA	1.16E-05	1.72E-06
	Pensacola, FL	4.03E-05	5.36E-06
	Yorktown, VA	2.64E-05	4.10E-06
From Western Ports			
Oxidized Target Material			
	Bremerton, WA	1.30E-01	2.55E-02
	Everett, WA	1.30E-01	2.46E-02
	Port Hueneme, CA	4.12E-02	1.51E-02
	Port Townsend, WA	1.31E-01	2.49E-02
Calcined Target Material			
	Bremerton, WA	5.21E-02	1.02E-02
	Everett, WA	5.19E-02	9.85E-03
	Port Hueneme, CA	1.64E-02	6.02E-03
	Port Townsend, WA	5.25E-02	9.95E-03
	BR-2 Belgium SNF		

Table 8 Accident Dose Risk per Shipment for all Spent Nuclear Fuel Types (Person-Rem/Shipment)

Bremerton, WA		1.82E-04	3.10E-05
	Everett, WA	1.81E-04	2.70E-05
	Port Hueneme, CA	1.44E-04	2.13E-05
	Port Townsend, WA	1.83E-04	2.83E-05
RHF France SNF			
	Bremerton, WA	7.85E-05	1.33E-05
	Everett, WA	7.83E-05	1.16E-05
	Port Hueneme, CA	6.24E-05	9.18E-06
	Port Townsend, WA	7.92E-05	1.22E-05
NRU Canada SNF			
	Bremerton, WA	2.51E-04	4.31E-05
	Everett, WA	2.50E-04	3.76E-05
	Port Hueneme, CA	1.99E-04	2.95E-05
	Port Townsend, WA	2.53E-04	3.94E-05
PRR-1 TRIGA SNF			
	Bremerton, WA	5.31E-04	1.54E-04
	Everett, WA	5.29E-04	1.40E-04
	Port Hueneme, CA	3.68E-04	9.40E-05
	Port Townsend, WA	5.36E-04	1.45E-04
OSIRIS France SNF			
	Bremerton, WA	1.68E-04	2.86E-05
	Everett, WA	1.68E-04	2.49E-05
	Port Hueneme, CA	1.34E-04	1.97E-05
	Port Townsend, WA	1.70E-04	2.61E-05

Table 9 Vehicle-related (Nonradiological) Risk Factors per Shipment for all Spent Nuclear Fuel Types (Fatalities/Shipment)

Shipments to Hanford Site			
Mode		Emission	Accident
From Eastern Ports			
Truck			
	Mayport, FL	1.27E-05	1.77E-04
	Kings Bay NSB, GA	1.16E-05	1.73E-04
	Pensacola, FL	1.21E-05	1.85E-04
	Yorktown, VA	1.19E-05	1.61E-04
Rail			
	Kings Bay NSB, GA	2.72E-05	6.46E-06
	Pensacola, FL	1.21E-05	5.79E-06
	Yorktown, VA	3.32E-05	6.16E-06
From Western Ports			
Truck			
	Bremerton, WA	4.18E-06	1.14E-05
	Everett, WA	3.60E-06	1.01E-05
	Port Hueneme, CA	1.17E-05	7.74E-05
	Port Townsend, WA	4.25E-06	1.35E-05
Rail			
	Bremerton, WA	4.06E-06	8.75E-07
	Everett, WA	1.65E-05	9.37E-07
	Port Hueneme, CA	4.06E-05	2.65E-06
	Port Townsend, WA	1.27E-05	8.70E-07

Shipments to Idaho National Engineering Laboratory			
Mode		Emission	Accident
From Eastern Ports			
Truck			
	Mayport, FL	1.19E-05	1.58E-04
	Kings Bay NSB, GA	1.07E-05	1.53E-04
	Pensacola, FL	1.12E-05	1.65E-04
	Yorktown, VA	1.10E-05	1.41E-04
Rail			
	Kings Bay NSB, GA	1.13E-05	5.31E-06
	Pensacola, FL	8.70E-06	4.58E-06
	Yorktown, VA	1.44E-05	5.20E-06
From Western Ports			
Truck			
	Bremerton, WA	4.54E-06	4.11E-05
	Everett, WA	3.93E-06	3.98E-05
	Port Hueneme, CA	2.02E-05	6.42E-05
	Port Townsend, WA	4.57E-06	4.32E-05
Rail			
	Bremerton, WA	3.26E-06	2.05E-06
	Everett, WA	1.57E-05	2.11E-06
	Port Hueneme, CA	2.64E-05	2.21E-06
	Port Townsend, WA	1.19E-05	2.04E-06

Table 9 Vehicle-related (Nonradiological) Risk Factors per Shipment for all Spent Nuclear Fuel Types (Fatalities/Shipment)

Shipments to Nevada Test Site			
	Mode	Emission	Accident
From Eastern Ports			
Truck			
	Mayport, FL	1.45E-05	1.89E-04
	Kings Bay NSB, GA	1.33E-05	1.85E-04
	Pensacola, FL	1.86E-05	1.67E-04
	Yorktown, VA	1.36E-05	1.72E-04
Rail			
	Kings Bay NSB, GA	1.38E-05	6.22E-06
	Pensacola, FL	1.13E-05	5.49E-06
	Yorktown, VA	1.70E-05	6.11E-06
From Western Ports			
Truck			
	Bremerton, WA	1.09E-05	7.39E-05
	Everett, WA	1.03E-05	7.26E-05
	Port Hueneme, CA	1.47E-05	2.91E-05
	Port Townsend, WA	1.09E-05	7.60E-05
Rail			
	Bremerton, WA	5.19E-06	3.40E-06
	Everett, WA	1.77E-05	3.46E-06
	Port Hueneme, CA	2.24E-05	1.04E-06
	Port Townsend, WA	1.38E-05	3.39E-06

Shipments to Oak Ridge Reservation			
	Mode	Emission	Accident
From Eastern Ports			
Truck			
	Mayport, FL	3.51E-06	4.31E-05
	Kings Bay NSB, GA	2.35E-06	3.85E-05
	Pensacola, FL	2.00E-06	4.08E-05
	Yorktown, VA	1.48E-06	3.57E-05
Rail			
	Kings Bay NSB, GA	3.31E-06	1.25E-06
	Pensacola, FL	1.59E-06	1.14E-06
	Yorktown, VA	3.56E-06	1.19E-06
From Western Ports			
Truck			
	Bremerton, WA	1.11E-05	1.42E-04
	Everett, WA	1.05E-05	1.41E-04
	Port Hueneme, CA	2.35E-05	1.70E-04
	Port Townsend, WA	1.11E-05	1.44E-04
Rail			
	Bremerton, WA	3.85E-05	6.26E-06
	Everett, WA	2.58E-05	5.75E-06
	Port Hueneme, CA	3.41E-05	5.58E-06
	Port Townsend, WA	2.96E-05	5.82E-06

Table 9 Vehicle-related (Nonradiological) Risk Factors per Shipment for all Spent Nuclear Fuel Types (Fatalities/Shipment)

Shipments to Savannah River Site			
Mode		Emission	Accident
From Eastern Ports			
Truck			
	Mayport, FL	9.66E-07	3.01E-05
	Kings Bay NSB, GA	8.37E-07	2.68E-05
	Pensacola, FL	3.35E-06	3.68E-05
	Yorktown, VA	1.83E-06	4.45E-05
Rail			
	Kings Bay NSB, GA	1.92E-06	6.03E-07
	Pensacola, FL	5.69E-06	1.16E-06
	Yorktown, VA	4.48E-06	1.21E-06
From Western Ports			
Truck			
	Bremerton, WA	1.54E-05	1.61E-04
	Everett, WA	1.47E-05	1.60E-04
	Port Hueneme, CA	2.85E-05	1.71E-04
	Port Townsend, WA	1.54E-05	1.63E-04
Rail			
	Bremerton, WA	3.86E-05	6.92E-06
	Everett, WA	2.59E-05	6.42E-06
	Port Hueneme, CA	3.12E-05	6.19E-06
	Port Townsend, WA	2.97E-05	6.48E-06