State of Idaho

PHILIP E BATT
Governor

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July 18, 1996

Mr. William Knoll
Department of the Navy
Code NAVSEA 08U
2531 Jefferson Davis Highway
Arlington, VA 22242-5160

RE: State of Idaho Comments on the Department of the Navy *Draft Environmental Impact Statement for a Container System for the Management of Naval Spent Nuclear Fuel.*

Dear Mr. Knoll:

Thank you for the opportunity to comment on the above referenced document. Our comments are both general and specific. Attached is a copy of Idaho Governor Phil Batt's testimony from the June 5, 1996 public meeting in Boise.

General Comments

A Of the six canister alternatives evaluated in this EIS, the Dual-Purpose Canister (DPC) and Multi-Purpose Canister (MPC) will have the fewest environmental impacts. For this reason, we encourage the selection of one of these alternatives.

Advantages of these alternatives include measures that will minimize worker exposure and provide additional protection from rupture and subsequent radiological release. Worker exposure will be minimized with DPCs and MPCs because the spent nuclear fuel (SNF) is dry sealed inside the canisters for storage and transport. And, in the case of the MPC, the SNF remains sealed in the same canister for disposal as well. Once sealed, the SNF cannot be directly handled or exposed to the environment. This minimizes worker exposure. The shielding, which includes the canister and an overpack, also protects against rupture and accidental release to the environment.

B The siting alternatives for a dry storage facility at the INEL include the Naval Reactors Facility and the Idaho Chemical Processing Plant. The EIS evaluated two sites off the Snake River Plain Aquifer and determined that there are environmental disadvantages to both of them. The analysis that is referenced as the basis for this conclusion has been reviewed by the INEL Oversight Program.[1] At this time, many questions remain as to the adequacy of the referenced document. Specific comments and concerns in this regard are included in this transmittal.

[1] Paul C. Rizzo Associates, *Siting Feasibility of Locations for Dry Storage Facility on the INEL that are Removed from Over the Snake River Plain Aquifer/*, July 1996

Also from a siting alternative perspective, the question remains as to whether all reasonable alternatives were considered. In other words, are there other locations at the INEL that may be preferable with respect to potential seismic activity, distance to off-site populations, and possible volcanic activity? If so, these locations should be included in the siting evaluation. If not, then the EIS should explain why these other sites are not suitable and therefore rejected from the analysis.

Specific Comments

C Page S-12, First Paragraph

The last sentence mistakenly equates the likelihood of a latent cancer fatality of 0.00004 to "1 in 25,000 years." The word "years" should be deleted.

D Page 3-6, Section 3.1

The MPC alternative uses a permanently welded container that will not be opened. Will this container configuration require that special analysis, arrangements, and provisions be made in the future repository prior to the fuel being accepted for permanent storage?

E Page 5-1, Second Paragraph

Since the M-140 cask cannot be moved by truck, a rail line will need to be laid from NRF to CPP if the M-140 cask options are to be utilized at the ICPP. The potential impacts of building such a line should be discussed in the EIS.

F Page 5-7, Table 5.2 and Page 5-9, Table 5.3

Worker doses based on past history (tab. 5.3; 550 to 1500 person-rem) do not compare well with estimated facility worker doses in tab. 5.3 (maximum of about 127 person-rem, assuming 280 workers for 40 years). Presumably these estimates are different because of their different bases, but the differences should at least be discussed.

G Page 5-13, Paragraph 6

Please identify the "fault segment" near Mackay Dam (i.e. Mackay segment of the Lost River Fault).

H Page 5-17, Table 5.4

At what distances (population areas) are the latent cancer fatalities predicted?

I Page 6-3, Tables 6.1, 6.2

The impacts to the workers from both normal operations and accidents involving unloading are not predicted.

J Page 7-6, Table 7.3

Please explain why the MPC latent cancer fatalities are greater than those in some of the other alternatives. Is the external dose equivalent rate (TI) expected to be higher than commercially available container systems?

K Page A-3, Table A.2

Health effects to both workers and the MEI should be summarized here.

L Page A-11, Second Paragraph

The 100 mrem/yr limit from 10 CFR 20 refers to Total Effective Dose Equivalent not just the contribution from ground surface dose. The dose from the impacted area needs to include the contributions from inhalation, ingestion (if off-site) and cloud gamma if the limit in 10 CFR 20 is to be cited.

M Page A-20, Table A.13

Ingestion data changes in RSAC5 should be justified and referenced.

N Page A-21, Bullet 5

Please provide references for the 1% release of corrosion products from the fuel and the 10% release of corrosion products to the environment with the pool water.

O Page A-28, Second Bullet

Please provide references for the 1% HEPA filter fire release fraction.

P Page A-38, Last Paragraph

An airplane crash could involve an array of dry storage casks. If this were the case, some of the aircraft that have been involved in testing and research at the INEL (including a large military transport) would likely have an effect on more the one cask. The momentum of a large aircraft could conceivably topple several casks to the ground or into one another if it crashed into them. Has this been analyzed?

Q Page B-20, Second Paragraph

Please provide a reference basis for the estimated 10% of the fuel that might be damaged in an accident.

R Page B-22, Section B.6.2

95% meteorological conditions should also be used for accident analysis in order to better portray a range of worst case impacts.

Should you have any questions regarding the State's comments, please contact Alan Merritt of this office at (208) 528-2620.

Sincerely

Robert N. Ferguson
Administrator/Coordinator

cc: Jeff Schrade, Special Assistant to the Governor
Ann Dold, Manager, INEL Oversight
Kathleen Trever, Deputy Attorney General
Delbert Farmer, Chairman, Ft. Hall Business Council
Roger Twitchell, DOE-ID NEPA Compliance Officer

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Comments on "Siting Feasibility of Locations for Dry Storage Facility on the INEL that are Removed from Over the Snake River Plain Aquifer"
(by Paul C. Rizzo Associates, July 1996)

General Comment

1) Please provide copies of the following references:

a) Irving, J.S., 1992, Draft environmental resource document for the INEL, vol. 1; EG&G Idaho, Inc., DE-AC07-761DO1570.

b) Taylor, D.D., and others, 1994, Preliminary siting activities for new waste handling facilities at the INEL; EG&G Idaho, Inc., EGC-WN-1118.

2) The discussion of ground-water flow near the Lemhi range and the Birch Creek valley should include quantitative information (i.e. water table maps, water budgets, etc). A list of references which may provide a more detailed discussion of these areas is attached.

Specific Comments

1) Page 3, paragraph 1 -

Please reference the page number in Orr and Cecil (1991) which discusses the "shallow water table" of the alluvial aquifer.

2) Page 8, paragraph 2 -

The document states that "the aquifer is between 840 and 1,220 feet *thick* (Mann, 1986)" [emphasis added]. This appears to be incorrect. Mann (1986) states on page 21 that "the effective base of the Snake River Plain aquifer near the test hole is somewhere between 850 and 1,220 ft *below land surface*." [emphasis added]

3) Page 8, paragraph 4 -

The text states "Decreases of head with depth in recharge areas were verified in a U.S. Geological Survey test hole at INEL (Garabedian, 1992; p. F24)." In fact, the "test hole" discussed on page F24 (4N-38E-12BBB1,2,3,4,5) is not "at INEL". As shown on plate 4 of Garabedian (1992), the well is near Rigby, Idaho.

At the INEL, water level data from well INEL-1 indicated that the hydraulic head increases with depth. Mann (1986) notes that "The upward vertical movement of water into the Snake River Plain aquifer from underlying rock units could be on the order of 15,000 acre-feet per year at the INEL" (page 1).

4) Page 9, paragraph 4 -

The text states that "Presumably, underflow [from the Little Lost River drainage] reaches the INEL and recharges the SRP Aquifer." In lieu of "presumably", suggest using quantitative estimate of recharge from Garabedian (1992) (i.e. 155,000 acre-feet per year).

5) Page 10, paragraph 1 -

The text states "Further, Garabedian (1992; Plate 8) concludes that recharge from the Alluvial Aquifer associated with the Big Lost River is up to 10 inches (25 mm) per year, which is an order of magnitude greater than that from the surrounding portions of the ESRP. Therefore, the recharge to the SRP Aquifer from the Alluvial Aquifer is significant." The appropriateness of this reference is questionable for several reasons:

a) The title of plate 8 (Garabedian, 1992) is "Maps showing recharge from *surface-water irrigation and precipitation*, eastern Snake River Plain, Idaho" [emphasis added]. Clearly, this reference does not apply to underflow from the "Alluvial Aquifer."

b) The recharge rate of up to 10 inches/year appears to apply to the period of 1926 to 1930. The most recent data on plate 8 would be more appropriate, and the maximum recharge rate near the Big Lost River for 1976 to 1980 is 5 inches/year.

It would appear that more appropriate estimates for underflow from the "Alluvial Aquifer" would be 78,000 acre-feet per year from the Birch Creek drainage and 155,000 acre-feet per year from the Little Lost River drainage (Garabedian, 1992; Table 11).

6) Page 10, paragraph 2 -

The text states that "The surface water run-off from this area as well as groundwater in the Uplifts area recharges the SRP aquifer." However, no quantitative discussion of the amount of recharge from ground water in the uplifts is provided. Page 3 references Irving (1992) as supporting documentation for the recharge from the Uplifts. This comment will be reconsidered pending receipt and review of Irving (1992).

7) Page 10, paragraph 2 -

The text indicates that the low relief sections on the western side of the Lemhi Range are adjacent to farm land and downgradient with respect to ground water flow from the Lemhi Range area. A topographic map showing land ownership and water table elevation should be included as supporting documentation for these statements.

8) Page 11, paragraph 1 -

The document states "The Alluvial Aquifer ... is hydrologically connected to the SRP Aquifer since it is downgradient of the ESRP." This sentence is not clear, and seems to imply that the Alluvial Aquifer receives underflow from the SRP Aquifer, since the former is "downgradient" from the ESRP.

9) Page 11, bullet item 1 -

On what basis is the vertical hydraulic conductivity of the Alluvial Aquifer "inferred" to be higher than that of the SRP Aquifer? Quantitative information should be supplied to support this statement.

10) Page 11, bullet item 2 -

It is not clear how the "estimate" of the depth to the water table at Birch Creek was developed. Again, quantitative data (e.g. water level measurements) would be beneficial.

11) Page 11, paragraph 3 -

The text states that "infiltrating water may be temporarily perched by fine-grained sediment" at the ICPP and the NRF; however, no site-specific information is provided on the presence or absence of "fine-grained sediments" at these facilities. Several boreholes have been drilled at each of these sites, so this information should be available for inclusion in the report.

12) Page 12, footnote -

Please specify the "regulatory agencies" and the applicable regulations which pertain to the siting of nuclear storage facilities and seismic hazards.

13) Page 13, paragraph 2 -

a) Two statements in this paragraph refer to "precedence" for the position taken by the USNRC regarding siting facilities near a fault. Please reference the specific site(s) where the precedent-setting decision was applied.

B) Please provide a reference for the study of the Beaverhead Fault.

14) Page 15, paragraph 1 -

The text makes several references to "inferred" higher vertical conductivity and "potentially higher hydraulic conductivity" which are not supported by the document.

BIRCH CREEK BASIN

List of References

Garabedian, S.P., 1992, Hydrology and digital simulation of the regional aquifer system, eastern Snake River Plain, Idaho: U.S. Geological Survey Professional Paper 1408-F, 102p.

Kjelstrom, L.C., 1986, Flow characteristics of the Snake River and water budgets for the Snake River Plain, Idaho and eastern Oregon: U.S. Geological Survey Hydrologic Investigations Atlas HA-680.

Mundorff, M.J., Crosthwaite, E.G., and Kilburn, C., 1964, Ground water for irrigation in the Snake River basin in Idaho: U.S. Geological Survey Water-Supply Paper 1654, 224p.

Stearns, H.T., Crandall, L., and Steward, W.G., 1938, Geology and ground-water resources of the Snake River Plain in southeastern Idaho: U.S. Geological Survey Water-Supply Paper 774, 268p.

Warnick, C.C., Heitz, L.F., Kirkland, L.A., and Burke, G.G., 1981, User guide for Idaho hydrologic maps: Moscow, University of Idaho, Idaho Water and Energy Resources Research Institute, 46p.

Johnson, G.S., Brockway, C.E., & Luttrell, S.P., 1984, Application of a numerical gw flow model to the Mud Lake area in SE Idaho: U of I, Technical Completion Report, Contract # 14-08-0001-A 0016, 60 p.

List of References

Clebsch, A., Jr., Waite, H.A., and Decker, S.O., 1974, The availability of water in the Little Lost River basin, Idaho: Idaho Department of Water Resources Water Information Bulletin 37, 60p.

Harenberg, W.A., Jones, M.L., O'Dell, I., Brennan, T.S., Lehmann, A.K., and Tungate, A.M., 1993, Water resources data, Idaho, water year 1993: U.S. Geological Survey Water-Data Report ID-93-1.

Kjelstrom, L.C., 1986, Flow characteristics of the Snake River and water budgets for the Snake River Plain, Idaho and eastern Oregon: U.S. Geological Survey Hydrologic Investigations Atlas HA-680.

Mundorff, M.J., Broom, H.C., and Kilburn, C., 1963, Reconnaissance of the hydrology of the Little Lost River basin, Idaho: U.S. Geological Survey Water-Supply Paper 1539-Q, 50p.

Mundorff, M.J., Crosthwaite, E.G., and Kilburn, C., 1964, Ground water for irrigation in the Snake River basin in Idaho: U.S. Geological Survey Water-Supply Paper 1654, 224p.

Stearns, H.T., Crandall, L., and Steward, W.G., 1938, Geology and ground-water resources of the Snake River Plain in southeastern Idaho: U.S. Geological Survey Water-Supply Paper 774, 268p.

Waite, H.A., and Decker, S.O., 1967, A reexamination of water yield in the Little Lost River basin, Idaho: U.S. Geological Survey Open-File Report, 35p.

Warnick, C.C., Heitz, L.F., Kirkland, L.A., and Burke, G.G., 1981, User guide for Idaho hydrologic maps: Moscow, University of Idaho, Idaho Water and Energy Resources Research Institute, 46p.

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Governor Phil Batt

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Testimony
regarding the

Department of Navy
Draft Environmental Impact Statement
for a Container System for the
Management of Naval Spent Fuel

Cooperating Federal Agency
U.S. Department of Energy

Boise Centre on the Grove
June 5, 1996

As Governor of the great state of Idaho, I want you to know that I appreciate the Navy's effort in holding this hearing here in Boise today. I extend my sincere gratitude for the efforts you have made -- both in preparing this document and traveling throughout the state to hold public hearings.

Two days ago you held a similar hearing at Fort Hall, Idaho, on the Sho-Ban Indian Reservation. I appreciate that effort to listen to the concerns of those important citizens. In a few more days you will travel to Salt Lake City to hold another hearing.

Undoubtedly, one of the main reasons why you are holding these hearings is directly due to the settlement agreement I reached with the U.S. Navy and other federal officials last year.[1]

Until that agreement was reached, there was no plan to ship spent Navy fuel out of Idaho. Now, quoting from the settlement agreement, "the naval spent fuel stored at INEL on the date of the opening of a permanent repository or interim storage facility shall be among the early shipments of spent fuel to the first permanent or interim repository."[2]

To help facilitate the shipment of the Navy's fuel out of Idaho, the agreement further requires that the U.S. Department of Energy (DOE) "and the Navy shall employ Multi-Purpose Canisters ('MPCs') or comparable systems to prepare spent fuel located at INEL for shipment and ultimate disposal of such fuel outside Idaho."[3]

In order to determine what kind of canister should be used to get spent nuclear fuel out of Idaho, the Navy must prepare an Environmental Impact Statement. Part of that EIS process requires the soliciting of comments from the public. That is why we are here today.

I am hopeful that those shipments out of Idaho will begin well before the 2010 date outlined in the EIS.[4] Indeed, the Navy should be looking at a deadline closer to the year 2000. I say this because there is legislation currently before Congress that would open an interim repository for spent nuclear fuel by 1999.[5] That legislation allows enough room at the interim facility to accommodate all of the Navy fuel now in Idaho. And as I've noted, the settlement agreement requires Navy fuel to be among the first spent fuel to enter such a repository. Therefore, I urge the Navy to move quickly in selecting a canister system. By so doing, the Navy will be able to meet its agreement obligation to get its

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[1] United States of America v. Batt, Civil No. 91-0054-S-EJL

[2] United States of America v. Batt, Civil No. 91-0054-S-EJL, D.1.e

[3] United States of America v. Batt, Civil No. 91-0054-S-EJL, F.4

[4] Department of the Navy Draft Environmental Impact Statement for a Container System for the Management of Naval Spent Nuclear Fuel, Executive Summary, p. S-2.

[5] The Nuclear Waste Policy Act of 1996, S. 1271 (sponsored by Idaho's U.S. Sens. Larry Craig and Dirk Kempthorne) and H.R. 1020 (co-sponsored by Idaho U.S. Congressman Mike Crapo). While President Clinton has expressed opposition to building an interim facility, the President has signed the Energy and Water Development Appropriations Act of 1996 (H.R. 1905, P.L. 104-46), which contains language directing the Department of Energy to develop an interim storage site. That direction is dependent upon passage of authorizing legislation, such as the Nuclear Waste Policy Act of 1996.

spent nuclear fuel "road-ready" to ship out of Idaho as soon as the interim or permanent repository opens.

That is why this hearing today in Boise is so important. This hearing is another step in the right direction for my state-- an important first step to get nuclear waste out of Idaho. I believe that the hearing here today is a clear indication of the tremendous value of the agreement I reached last year.

This hearing is also a clear indication of the federal government's commitment to live up to its legally binding commitments to get spent nuclear fuel out of Idaho. I must say that it is encouraging to see the Navy making progress to meet the terms of the agreement that we worked so hard to solidify last year.

Frankly, the only reason Idaho was able to reach an agreement was due to the federal government's effort to accommodate the needs of the U.S. Navy. The Navy has always needed Idaho -- and Idaho needed the Navy to get an agreement.

Unfortunately, as many of you in the Navy are aware, there are those who are trying to undo the agreement by getting the "Stop the Shipments" initiative on the ballot in Idaho. Those signature gatherers -- who I've been told are being paid 50 cents a signature -- have failed to appreciate the difficult situation the state faced. Federal courts have consistently ruled that states and localities can't stop the shipment of radioactive materials. It's in the record.

Indeed, in his legal opinion on the "Stop the Shipments" initiative, Idaho Attorney General Al Lance noted that federal courts have "uniformly interpreted federal statues and the U.S. Constitution as preventing state legislatures or citizens initiatives from enacting legislation to prohibit the shipment of radioactive waste into a particular state."[6] Therefore, he concluded that the initiative "is very likely to be ruled unconstitutional" if it passes.

Given that reality, it is no wonder that the settlement agreement between Idaho and the federal government is the envy of other states. Not only does the agreement reduce the number of spent nuclear fuel shipments into Idaho, but it also specifies specific

[6] Idaho Attorney General Alan Lance, "Certificate of Review: Initiative Regarding Radioactive Waste," March 19, 1996, p. 2.

dates by which the waste must leave. And these are only two major highlights of the agreement. Other important achievements include the legally binding commitments that the federal government will accelerate cleanup of radioactive wastes already at INEL -- in some cases by as much as forty years ahead of previously established targets; transuranic waste must begin leaving in the next three years, starting April 31, 1999; and no commercial spent nuclear fuel will ever again be brought into Idaho for storage.

And despite what the critics say, there are teeth in this agreement.

If INEL is not cleaned up as established in the agreement, U.S. Department of Energy shipments into Idaho will cease. If the U.S. Navy fails to meet its commitments, Navy shipments into Idaho will stop. And if spent nuclear fuel is not removed from our state on schedule, the agreement allows for fines of up to $21,900,000 a year. In addition, the court can award additional financial damages to the state and even request that federal officials be thrown in jail for their failure to comply with terms of the agreement.

With all these facts, I must reiterate that the people who are gathering signatures to "Stop the Shipments" are, in my opinion, completely misguided in their efforts.

If the initiative passes, and in the unlikely even that the court allows the initiative to stand, the agreement I reached will then come before a vote of the citizens. If the citizens overturn the agreement, Idaho will have no ability to limit any shipments or stop any waste from coming into the state. There will be no legal requirement to remove spent Navy fuel from Idaho. There will be no legal requirement for *any* waste to leave. In the end, the so-called effort to "Stop the Shipments" will mean "increase the shipments and Idaho keeps the nuclear waste."

That would truly be a sad day for Idaho.

That, in essence, is again why this hearing here today is so important.

I hope the citizens of Idaho take note of this hearing. Again, this hearing is a clear indication of the federal government's commitment to remove nuclear waste from Idaho.

Now when it comes to the containers that are being considered, I understand that the Navy is evaluating six container alternatives in the Environmental Impact Statement. Of those six, only four meet the stated objective outlined in the Executive Summary of the EIS calling for a "container system which allows naval spent nuclear fuel to be loaded and

stored dry at the INEL in the same container that would be used to ship the naval spent nuclear fuel outside the State of Idaho could be advantageous in meeting the Navy's current and future needs."[7] Of the six canisters under consideration, the four that meet the objective of the Executive Summary are: (1) the Multi-Purpose Canister (MPC); (2) the Dual-purpose Canister; (3) the Transportable Storage Cask; and (4) the Small Multi-Purpose Canister Alternative.[8]

It is my understanding that of those four, the preliminary economic estimates indicate that no single container is a clear cost leader. It is also my understanding that the minimal radiation exposure from each of the casks are essentially the same. That being the case, I suggest that the Navy chose a container system that will accommodate the Navy's needs while minimizing the total number of shipments required to remove all Navy spent fuel from Idaho. Such a decision would eliminate at least the Small Multi-Purpose Canister.

The state of Idaho will have more to say about this Environmental Impact Statement. I have directed the state's INEL Oversight Program to evaluate the document in detail. They will provide a technical review as well as check on the adequacy from a NEPA perspective. As you can tell from testimony, it is important to Idaho that this document be prepared properly so that the Navy can proceed expeditiously to carry out its end of the settlement agreement to remove its fuel from Idaho.

Thanks once again for holding this hearing today. I hope the citizens of Idaho will take note of it, and I hope you will take note of my counsel.

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[7] Department of the Navy Draft Environmental Impact Statement for a Container System for the Management of Naval Spent Nuclear Fuel, Executive Summary, p. S-1.

[8] Western Energy Update, May 24, 1996, published by the Western Interstate Energy Board, 600 17th Street, Suite 1704 South Tower, Denver, CO 80202.

Commenter: Robert N. Ferguson - Idaho National Engineering Laboratory Oversight Program, Idaho

Response to Comments:

General Comments

A. In Chapter 3, Section 3.8, Comparison of Alternatives, the EIS states that the impacts for most categories are small or nonexistent for all alternatives. Since 1957, the Navy has safely shipped over 660 containers of spent nuclear fuel from the shipyards and prototype sites to the Naval Reactors Facility. All of the shipments were made safely by rail and without release of radioactivity. Since any container alternative selected for dry storage and transportation (either by rail, heavy-haul truck, or a combination of both) must meet the requirements of 10 CFR Part 71, Packaging and Transportation of Radioactive Material, and 10 CFR Part 72, Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Waste, other containers can also be used safely and reliably.

B. The Programmatic SNF and INEL EIS (DOE 1995) identified that either wet storage or dry storage at the Naval Reactors Facility or the Idaho Chemical Processing Plant was acceptable as locations for storage of naval spent nuclear fuel. The risk of storage of naval spent nuclear fuel at Naval Reactors Facility and Idaho Chemical Processing Plant from natural phenomena hazards has been shown to be small. Also the potential risk to off-site population has been shown to be small in this EIS and the Programmatic SNF and INEL EIS.

Section E.8 of the agreement (U.S. District Court, 1995) between the state of Idaho and the federal government that resolved the law suit relative to the Programmatic Spent Nuclear Fuel and Idaho National Engineering Laboratory EIS required that "Department of Energy shall, after consultation with the state of Idaho, determine the location of the dry storage facilities within the Idaho National Engineering Laboratory, which shall, to the extent technically feasible, be at a point removed from above the Snake River Snake River Plain Aquifer."

This EIS has discussed a reasonable range of alternative sites at Idaho National Engineering Laboratory that include existing industrial sites (Naval Reactors Facility and Idaho Chemical Processing Plant) and two undisturbed sites. Consistent with the agreement between the state of Idaho and the federal government, the Department of Energy has considered, for purposes of consultation with the state of Idaho, undisturbed sites with the potential "to be removed from above the Snake River Plain Aquifer". The environmental impacts of a dry storage facility for spent nuclear at the industrial sites and the undisturbed sites are small. However, the undisturbed locations did not meet the objective of being hydrologically removed from above the Snake River Plain Aquifer and they had seismic disadvantages because of their proximity to known faults.

Development of the undisturbed would result in construction impacts (i.e., additional support buildings, roads and railroads), cultural impacts (i.e., Native American cultural resources), as well as a slight increase in transportation risk (i.e., transport from Naval Reactors Facility and Idaho Chemical Processing Plant to the new site). Development of any other undisturbed sites would also entail these impacts. Because Naval Reactors Facility and Idaho Chemical Processing Plant are developed sites, they will not engender these additional impacts.

Other undisturbed areas on the Idaho National Engineering Laboratory within the Snake River Plain were not evaluated, as they offer no significant environmental advantage over those areas already developed. In addition, all undisturbed sites at the Idaho National Engineering Laboratory would have the additional impacts discussed above. The Navy believes this satisfies the consultation agreement with the State of Idaho.

Commenter: Robert N. Ferguson - Idaho National Engineering Laboratory Oversight Program, Idaho

C. Page S-12

This statement has been revised as noted in the comment.

D. Page 3-6, Section 3.1

Among the criteria that were used to select the alternatives to be assessed for the potential environmental effects of using such containers for disposal of naval spent nuclear fuel, there is the criterion that designs shall meet the technical requirements found in the regulations of the Nuclear Regulatory Commission for disposal of high-level radioactive waste (10 CFR Part 60). Such waste that is emplaced in the underground facility shall be placed in sealed containers (Section 60.135(c)(1). Criteria being developed for acceptance of spent nuclear fuel at a geologic repository include provision for containerized material. Unless the Nuclear Regulatory Commission regulations which require sealed containers are revised, there is no anticipated need for special analysis, arrangements, or provisions to be made in the future repository prior to the fuel being accepted for permanent storage.

E. Page 5-1

As discussed in Appendix B, Section B.4, the M-140 shipping cask could be moved via heavy-haul truck to a centralized interim storage facility or geologic repository. Similarly, use of a heavy-haul truck, if needed, would be practical for the short distance between the Idaho Chemical Processing Plant and the rail loading locations available at the Idaho National Engineering Laboratory. However, a rail line between the Naval Reactors Facility and the Idaho Chemical Processing Plant would not be required under the No-Action or Current Technology/Rail Alternatives. As described in Chapter 3, Sections 3.2 and 3.3, under these two alternatives commercially available dry storage containers would be used for the Idaho National Engineering Laboratory storage. Reloading into M-140 casks would most likely take place at Naval Reactors Facility under these two options. Therefore, only the commercial dry storage container would need to be moved from the storage area to the loading area.

F. Pages 5-7 and 5-9

The differences between the data in these two tables are presented in Chapter 5, Sections 5.3.2.1 and 5.3.2.2. The first section, titled "Occupational Health and Safety," presents estimates of occupational radiation exposure (Table 5.2) while the second section, titled "Public Health and Safety," presents estimates of radiation exposure to people surrounding the facility (Table 5.3). The "Facility Worker," as defined in Appendix A.2.3, is an individual located 100 meters from the radioactive material release point. This individual is not involved in radioactive material work and does not receive occupational radiation exposure. Therefore, a comparison of the exposures in these two tables cannot be made.

G. Page 5-13

This fault has been identified in Chapter 5, Section 5.6.2 as the Mackay Dam segment of the Lost River Fault.

H. Page 5-17

As described in Appendix A, Section A.2.3, the radiation exposure to the general population in a 50-mile radius of the facility is evaluated for normal operations and hypothetical accident scenarios. The analyses consider actual population distributions around the site in 16 compass

directions, site specific meteorological history, and all of the potential pathways for the radioactive materials to reach the general population.

I. Page 6-3

This information was not included in Chapter 6, Tables 6.1 and 6.2 of the Draft EIS; however, it is presented in Tables A.12, A.27, and A.28 of Appendix A. This information has been added to Tables 6.1 and 6.2 of the Final EIS for completeness.

J. Page 7-6

Chapter 7, Section 7.3.3 of the EIS states that the conservative calculation of the transportation impacts results in the conclusion that as a group all of the alternatives are about the same. It also explains that "The latent cancer fatalities associated with incident-free transportation are noticeably lower for both the No-Action Alternative and the Current Technology/Rail Alternative because the calculations are based on the actual historic measured dose rates for the M-140 casks." For all other alternatives the regulatory limit of 10 millirem per hour at 2 meters has been used (TI=10). In many cases the external dose rates of commercially available containers are lower than the regulatory limit by as much as an order of magnitude.

K. Page A-3

Section A.1 of Appendix A was prepared as a summary of the analyses. By nature, summary sections cannot contain all of the detailed information; thus, decisions are required by the preparers as to the content of the summary section. In preparing this section, it was decided to limit the summary statements and tabular information to the health effects to the general population, since most members of the public are interested in this information. The information on facility workers and maximally exposed off-site individuals, hypothetical individuals, is presented in Section A.2.5 of the EIS for those people interested in this level of information.

L. Page A-11

The statement made in the comment, that the 100 mrem/yr limit from 10 CFR Part 20 refers to the Total Effective Dose Equivalent, is correct for dose limits for individual members of the public due to licensee operations. In the EIS, the purpose of the "Evaluation of Impacted Area" section is to determine the impact on land use due to fallout of a radioactive plume resulting from hypothetical accident scenarios. As discussed in Appendix A, Section A.2.3, the impacted area was defined and estimated to be the area in which the plume deposited radioactive material to such a degree that an individual standing on the boundary of the fallout area would receive approximately 0.01 mrem/hour of exposure. The evaluation in this section does not purport to calculate the total dose to an individual spending time in what would be a restricted area. Rather, the evaluation was performed to estimate the amount of land which might require restricted access while cleanup operations were completed after a hypothetical accident scenario.

M. Page A-20

The ingestion data values used in the RSAC 5 program for the accident analyses were the same as those used in the GENII program for the normal operations analyses. The reference for the ingestion values has been added to the Final EIS.

Commenter: Robert N. Ferguson - Idaho National Engineering Laboratory Oversight Program, Idaho

N. Page A-21

Since the source terms used in the accident analyses are typically for accidents which have never occurred, there is some uncertainty in the values selected. All of the accidents analyzed in this EIS are intended to be accidents which produce consequences which are unlikely to be exceeded by any reasonably foreseeable accident. As a result, the accidents themselves and the sequences of events during the accidents have been chosen to maximize the source term.

In this particular scenario, a drained water pool, the source term includes airborne corrosion products due to thermal drafts that are generated by the hot fuel and water borne corrosion products which could be shaken loose from the fuel cladding during the postulated earthquake. When this total corrosion product release percentage is combined with the maximum number of fuel units that the water pool could possibly store, the source term developed is one that is not expected to be exceeded.

The estimate of the amount of radioactivity that might be released from naval spent nuclear fuel as a result of a severe accident was developed by experts familiar with the design and characteristics of naval fuel. They used their knowledge, experience, and results of available tests and measurements and considered the forces and conditions which might occur during a severe accident.

As stated in Section A.2.7, Analysis of Uncertainties, the risks presented in the EIS are believed to be at least 10 to 100 times larger than what would actually occur.

O. Page A-28

The reference for the measurements from experiments which show that one one-hundredth of 1 percent of the material in high-efficiency particulate air (HEPA) filters could be released during a fire is DOE-STD-0013-93, Department of Energy Handbook, Recommended Values and Technical Bases for Airborne Release Fractions, Airborne Release Rates, and Respirable Fractions at Department of Energy Non-Reactor Nuclear Facilities, July 1993. Despite this data, 1 percent (that is; 100 times higher than the actual data) was used in the analyses to allow for uncertainties. This reference has been added to the Final EIS.

P. Page A-38

An airplane crash into an array of dry storage casks was analyzed. The probability of occurrence for this accident was calculated assuming an array of almost 600 storage casks. A target area this large is not expected, but was used to conservatively bound the probability of the event. Such an array would only be possible if naval spent nuclear fuel was stored at one location and was never transported to a repository or interim storage location during the 40-year period evaluated in the EIS. In addition to assuming a very large storage array, the annual accident probability calculation used flight statistics from the peak activity year of National Oceanographic and Atmospheric Administration testing, 1990, the last year of testing at the Idaho National Engineering Laboratory tower. Despite current National Oceanographic and Atmospheric Administration plans to never use the Idaho National Engineering Laboratory tower for any future testing, the statistics from the peak year of testing were used.

From analyses of existing naval spent nuclear fuel container designs, the rotor of a large jet engine, including those from the largest aircraft such as a Boeing 777, Russian Antonov An-225, or a Lockheed C-5, would not penetrate a container during an airplane crash but, for the

purposes of evaluation, calculations were performed for one container, damaged to the extent that fission products and corrosion products might be released.

Q. Page B-20

The estimate of the percentage of fuel that could be damaged in a shipment following a severe accident is the result of Naval Nuclear Propulsion Program knowledge based on the results of years of examination, laboratory testing, and transportation analysis of naval nuclear fuel. The transportation risk analysis of the Type B package in the Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement of April 1995 assumed that 10 percent of the fuel could be damaged following a severe accident. This assumption is considered to be conservative based on the rugged nature of Navy fuel described in Chapter 2, Section 2.3 of the EIS and the robust design of the shipping container described in Appendix B, Section B.2.2 of the EIS.

R. Page B-22, Section B.6.2

The 50 percent and 95 percent meteorological conditions were both used in the transportation analyses.

The EIS provides detailed discussion of the meteorological conditions used in the transportation accident analyses in Appendix B, Section B.3.2. To estimate the probability of the meteorological conditions, Pasquill Class D was considered to be equivalent to the 50 percent meteorology; that is, 50 percent of the time, conditions are expected to be more severe, and 50 percent of the time, conditions are expected to be less severe. Pasquill Class F was considered to be equivalent to 95 percent meteorology; that is, 5 percent of the time, conditions might be more severe, and 95 percent of the time, conditions would be less severe. Analyses performed by the National Oceanic and Atmospheric Administration (Doty et al. 1976) confirm that this assumption is reasonable.

General population exposure under accident conditions is estimated to increase by a factor of 2 if the 95 percent or worst case meteorological condition is employed. The 50 percent or average meteorological condition was used to estimate the general population exposure in accident conditions because it is impossible to predict the specific location of a transportation accident (Section B.6.2) and the average meteorology would most likely exist.

Estimates of the effects on the maximally exposed individual under accident conditions, if the overall probability of an accident meets the criteria for a 95 percent meteorological condition as described in Section B.3.2, then the maximum individual exposure is based on the use of the 95 percent meteorological condition.

S. Rizzo

The State of Idaho Comments on this EIS also transmitted comments on the Paul C. Rizzo Associates document titled "Siting Feasibility of Location for Dry Storage Facility on the Idaho National Engineering Laboratory that are Removed from Over the Snake River Plain Aquifer" which is referenced in Appendix F of this EIS. The responses to the comments on the Paul C. Rizzo Associates document have not been included in Chapter 11 of this EIS since the Paul C. Rizzo Associates document is only a reference in the EIS. The responses to the comments on the Paul C. Rizzo Associates document have been made in consultation with the State of Idaho

and have been included in Revision 1 of the Paul C. Rizzo Associates document dated August 1996.

T. Governor Philip Batt's Testimony

Responses to comments made by Governor Batt in his testimony at the June 5, 1996 public meeting in Boise can be found following Document 21, earlier in this section.