7/16/96

Department of the Navy
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LETTER SENT BY FAX

Comment of Dr. David B. McCoy re: Naval Spent Nuclear Fuel, INEL, IDAHO. Draft EIS

A The Draft EIS is based on the false premise that there can be "disposal" of nuclear waste. This continues the five decades long fraud upon the public that there can be a disposal system or repository. The shell game includes the concepts of salt mine repositories, rocket ships, deep level geologic deposit, deposit at the discontinuity of oceanic + continental plates. The longevity + hazards associated with the transuranics argue against all alternatives suggested to date.

B For example, the geologic repository suitability was criticized by the General Accounting Office as early as 1979 because, even if the perfect underground site could be located, the entry into that site by drilling & emplacement of nuclear waste, would breach the integrity of the site. One need only look at the example of travertine deposits in Yellowstone National Park to realize how ground water can reach a hot source (such as nuclear waste or volcanic heat) and then resurface bearing the underlying strata to the surface of the earth.

C The EIS fails to examine the possibility that all wastes at INEL may remain in place, despite existing court orders to the contrary. Container technology for dry storage beyond the 40-year period is not analyzed.

D The EIS fails to give the cladding failure rate of SNF prior to its shipping to INEL for examination. The potential for accidents involving SNF prior to INEL delivery has not been adequately analyzed, nor alternatives presented.

E The EIS fails to consider the rail routes for SNF shipments and the number of trestles or bridges which may exceed the 30 foot drop design of the containers used + the maximum credible accidents which could occur at those locations.

F The EIS has inadequate discussion of the radioactivity increase of the containers themselves over their period of use & the plans for disposal of the containers themselves.

G The dr EIS fails to discuss possibilities of accidents & public exposure for possible terrorist caused events, which certainly have an increasing rate of occurrence in the U.S.A.

H The EIS discussion of tribal resources to deal with possible accidents is laughable in its brevity.

I The EIS fails to examine total breach of the different canisters in the midst of the most heavily populated regions through which transportation will take place.

J The EIS fails to consider what actions will be necessary in the event SNF remains at INEL past the 40-year period & which container systems would offer the most integrity. Corrosion of containers in light of cladding failure and/or other factors has not been discussed with respect to storage for periods past 40 years or even for less than 40 years.

K The EIS makes no mention of what the current levels of radioactive contamination are at the INEL site, including land and facilities. There is no opportunity for the public thus to determine whether any additional contamination of the INEL site would be acceptable.

L While the potential for releases of radiation to air and water are mentioned as potential, the nature of those releases are not described with any particularity nor are the specifics described as to how these releases could be prevented or minimized.

M Overall, the draft EIS is vague and does not discuss risks in a fashion which the public can evaluate & make determinations as to whether proposals are reasonable or safe for the most toxic products on the earth.

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Commenter: David B. McCoy, Idaho

Response to Comment:

A.&B. The location and feasibility of a geologic repository is beyond the scope of this EIS. As discussed in Chapter 3, the Nuclear Waste Policy Amendments Act of 1987 designates Yucca Mountian at the Department of Energy's Nevada Test Site as the only site currently authorized by legislation to be characterized as a geologic repository, and its suitability has not yet been determined. The analysis in this EIS covers transportation from Idaho National Engineering Laboratory to the Yucca Mountain location as a representative or notional destination to allow comparison of the container systems. This EIS does not make presumptions concerning the Yucca Mountain site's suitability for a geologic repository or designation for use as a centralized storage site. If the Yucca Mountain site is found suitable for a repository and Department of Energy recommends its development to the President, the Nuclear Waste Policy Act requires that development of the Yucca Mountain site as a geologic repository must be supported by an EIS. The scope of a repository EIS is discussed in a Notice of Intent that Department of Energy issued in the Federal Register on August 7, 1995.

Naval spent nuclear fuel already exists at Idaho National Engineering Laboratory and must be managed safely. In Chapter 1, Section 1.0 of the EIS, the proposed action is stated as: "The proposed action of this Environmental Impact Statement is to select a container system for the management of naval spent nuclear fuel after it has been examined at the Idaho National Engineering Laboratory. In addition, this EIS includes several actions which are related to the container system choice:

- manufacturing the container system,
- handling and transportation associated with the container system,
- modifications at the Expended Core Facility and the Idaho Chemical Processing Plant to support loading naval spent nuclear fuel into containers for dry storage,
- the location of the dry storage at the Idaho National Engineering Laboratory, and
- the storage, handling and transportation of special case waste associated with naval spent nuclear fuel."

C.&J. As stated in the EIS, the Navy is committed to removing all naval spent nuclear fuel from Idaho by Calendar Year 2035, consistent with the agreement with the state of Idaho. This time period is also consistent with that used for the Programmatic Spent Nuclear Fuel and Idaho National Engineering Laboratory EIS. Volume 1, page 2, of that EIS, states that the year 2035 was selected since "This amount of time may be required to make and implement a decision on the ultimate disposition of spent nuclear fuel." Therefore, the cumulative impacts presented in this EIS are considered to be reasonable and bounding for the actions currently foreseeable.

Council on Environmental Quality regulations, (40 CFR 1502.9(c)) require agencies to prepare supplements to environmental impact statements if the agency makes substantial changes in the proposed action that are relevant to environmental concerns or there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. Dry storage beyond 40 years would fall into this category and would require a supplemental EIS which would also include an evaluation of the dry storage container system.

D. This statement is incorrect. Chapter 2, Section 2.3 of the EIS provides a complete discussion of the characteristics of naval spent nuclear fuel. Results of measurements and testing have shown that naval fuel fully meets design requirements for containing fission products within the fuel precluding fission product release from the fuel in normal operation or when the fuel is removed, transported, or stored.

Transportation accidents during shipping to the Idaho National Engineering Laboratory are beyond the scope of this EIS. The Programmatic Spent Nuclear Fuel and Idaho National Engineering Laboratory EIS presented the environmental impacts of transporting naval spent nuclear fuel to Idaho National Engineering Laboratory.

E. The Draft EIS presents the regulatory design requirements for Type B shipping containers in Appendix B, Section B.2.2. The 30-foot drop tests are part of the design criteria for the certification of shipping containers for spent nuclear fuel, and other high level radiological materials. The tests are not performed for specific route conditions.

The casks are tested in accordance with applicable regulations, including a 30-foot drop onto an unyielding surface (which is equivalent to a 60 foot drop onto reinforced concrete), in order to provide assurance that they will adequately perform their function of containment in reasonably foreseeable accidents of the type envisioned by the commenter.

For the analyses in this EIS, general routes were selected from the Idaho National Engineering Laboratory to a notional repository. The specific routes are not known at this time. However, the INTERLINE computer program and routing analysis are presented in Appendix B, Section B.4 of the EIS. INTERLINE simulates the route selection used by railroad companies and includes the current track conditions for shipments of this classification of radiological hazardous materials.

In the comparison of alternative container systems, the conditions are the same for all alternatives. The DOE's Notice of Intent for Preparation of an Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (60 FR 40164), states that "The potential impacts associated with national and regional shipments of spent nuclear fuel and high-level radioactive waste from reactor sites and DOE facilities will be assessed. Regional transportation issues include: (a) technical feasibility, (b) socioeconomic impacts, (c) land use and access impacts, and (d) impacts of constructing and operating a rail spur, a heavy haul route, and/or a transfer facility...". The Navy will work with the Department of Energy to ensure naval spent nuclear fuel is properly addressed in the Repository EIS analyses.

F. This statement is incorrect. Chapter 4, Section 4.5.2 of the EIS presents the results of an evaluation concerning recycling and management of end-of-life equipment. In addition, Chapter 4, Section 4.6 of the EIS presents the impacts on waste generation.

Container system components not disposed of with the naval spent nuclear fuel, including the storage and transportation containers, overpacks or casks and dual-purpose canisters would be reused and, after service, would be recycled. Some pieces of equipment may need to be decontaminated prior to recycling. It is possible that some low-level radioactive waste may result but it is not expected that large pieces of equipment would need to be disposed of as radioactive waste.

G. As stated in Appendix A, Section A.2.2 of the EIS, human-induced events such as terrorism were considered in selecting accidents to include in the detailed analyses. Acts of terrorism are expected to result in consequences which are bounded by the results of accidents which are evaluated. Naval spent nuclear fuel is not considered to be attractive to terrorists due to the bulk of the fuel containers and due to high radiation fields involved with unshielded spent nuclear fuel. However, terrorist attacks on naval fuel during shipment were evaluated. The massive structure of the containers used for naval spent nuclear fuel makes them an unlikely target of a terrorist attack. No such attacks have occurred in the nearly 40 years of rail shipments which have now traveled about 2 million container kilometers. Thus, the probability of a terrorist attack on a shipment is no higher than the probability of a rail accident which is listed in Appendix B, Section B.5.2 of this EIS. Even if an attack were to occur, the likelihood of it causing a breach in a container is not high owing to the rugged nature of the containers (high explosives by themselves would be insufficient to breach a container). The consequences of a terrorist attack are also no more severe than those listed for the transportation accidents for reasons explained below. Therefore, the same conclusions reached for transportation accidents apply to the risk to the extremely rugged shipping containers from terrorist attack during a shipment. In addition, during shipment, all naval spent nuclear fuel containers are accompanied by escorts who remain in contact with headquarters, such that a failure to regularly check in with headquarters due to their incapacitation would result in a response. In the event of an emergency, state and federal resources would be quickly summoned. The issue of acts of terrorism was also addressed in the Programmatic SNF and INEL EIS and the same conclusions were reached.

For an act of war, sabotage, or terrorist attack, it is likely the risk would be lower than calculated for an airplane crash because it should be less probable that a force would exist to disperse radioactive products into the atmosphere from a weapon as compared to the motive force of the fire assumed in the case of an airplane crash. For example, attacks on containers using anti-tank weapons would be less severe than the accidents analyzed because: (a) anti-tank weapons would cause a self-sealing penetration in the metal of a container, unlike that which is assumed from the airplane crash (impact from a 50-inch diameter engine rotor); (b) there is no explosive material inside the container, so it will not "blow-up" as a tank would if hit by such a weapon (in an attack on a tank, the tank shells inside the turret detonate); and, (c) there would be no fire to disperse the radioactivity that is released when the container is breached, unlike an aircraft crash where the jet fuel will burn creating such a fire. The rugged design of containers reduces the effects of other types of explosive charges. It is not credible that a terrorist attack would result in a criticality or meltdown of spent nuclear fuel; however, in Appendix A, Section A.2.5, the consequences of a hypothetical criticality accident are presented. The risks associated with an accidental criticality are less than those associated with a drained water pool or an airplane crash into dry storage containers.

The effect of a terrorist attack or an act of sabotage is expected to be conservatively bounded by the limiting accident discussed at each facility under each alternative. For example, the most limiting accident involving naval spent nuclear fuel is described in this EIS to be an airplane crash into a 125 ton multi-purpose canister at the Idaho Chemical Processing Plant. This accident could lead to 2.6 latent fatal cancers over the next 50 years in the population within 50 miles of the site. Since the probability of the event is one chance in 2,500,000 per year, the risk would be 0.00000104 latent fatal cancer fatalities per year or, in other words, about one chance in 960,000 of a single fatal cancer fatality over a year. This risk is shared among the approximately 120,000 people residing within 50 miles of the site, who would be expected to have over 300 cancer fatalities from all other causes every year. For an act of war, sabotage, or terrorist attack, it is likely the risk would be lower than calculated because it should be less probable that a force would exist to disperse radioactive products into the atmosphere from a weapon as compared to the motive force of the fire assumed in the case of an airplane crash.

This information has been added to Appendix A, Section A.2.2 of the EIS.

H. The Department of Energy has provided both resources and training to the Shoshone-Bannock Tribes to ensure that local response to a transportation accident is handled properly. If an accident did occur, federal, state, local, and tribal authorities are trained in emergency response. The Shoshone-Bannock Tribes have been actively participating in comprehensive, cooperative transportation accident exercises held in Idaho.

I. Appendix B information provides the details of the transportation analysis used in the EIS including the analytical codes (Section B.3) and the input parameters (Section B.5) that determine the results presented in the document. The EIS looks at design basis and beyond design basis accidents to compare the alternative container types. These accidents are not examined in this EIS for the purpose of evaluating transportation routes. However, low probability events, including those with a probability greater than 10^{-7} per year, i.e., greater than one chance in ten million per year, are included. The EIS provides in Appendix B the detailed description of input values used in the RISKIND analysis requested by the commenter. Uncertainties associated with the analysis of impacts of accidents are discussed in Section B.3.4. Appendix B provides in Table B.13 the maximum health consequences of a severe accident in a rural area and in a major urban area. The urban scenarios analyzed include population densities which are large enough to encompass rush hour traffic and major events.

J. See the response to Comment C above.

K. Throughout Chapter 5 of the EIS, references are made to the Programmatic SNF and INEL EIS (Volume 2, Part A, Chapter 4, various sections). This chapter provides the detailed descriptions of the existing environment at Idaho National Engineering Laboratory that the commenter is looking for. This action is consistent with the Council on Environmental Quality regulations (40 CFR 1502.21) which state that agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action.

L. For the facility analyses, this information is contained in Appendix A, Section A.2.4 for normal operations and in Section A.2.5 for hypothetical accident scenarios. In Section A.2.4, the development of the source terms for loading, storage, and unloading are presented. In Section A.2.5, the source terms for each hypothetical accident scenario are provided prior to the presentation of the analysis results.

For the transportation analyses, this information is contained in Appendix B, Section B.5.1 for incident-free transportation analyses and Section B.5.2 for accident analyses.

M. The level of information in the Container System EIS is sufficient. Although the detailed design of Navy fuel is classified, the EIS contains significant information concerning its performance characteristics and the contents of the loaded container systems such that the environmental impacts from its shipment, storage, and management can be assessed and independent analyses can be performed to verify the results presented in this EIS. A similar level of detail was used successfully in the Programmatic Spent Nuclear Fuel and Idaho National Engineering Laboratory EIS. Chapter 2, Section 2.3 of the EIS presents the general characteristics of naval nuclear fuel, including design description, U-235 enrichment range, the amount of U-235 in a loaded container, criticality control measures, and the results of decay heat calculations. Appendices A and B contain detailed numerical data on the source terms and on corrosion product and fission product releases expected for each container system for each hypothetical accident scenario analyzed. The Appendices also identify the computer programs which were used, along with the specific assumptions for each accident scenario. For facility and transportation accidents, the analysis results presented in the EIS are bounding since the larger the container, the more spent nuclear fuel would be inside. Any reduction in container size would result in a smaller source term, and thus, lower consequences and lower risk.

For example, Table B.8 provides a list of the radioactive nuclides which might be released in a shipping accident involving naval spent nuclear fuel. The data on the amount of radioactivity are divided into the amounts released from the fission products in the fuel and the amount in the activated corrosion products attached to the surface of the fuel. The data are provided for typical spent fuel in nuclear-powered submarine and surface ship fuel assemblies to demonstrate the range of radioactivity. Using the information in this table, along with the other detailed information on the calculations provided in Appendix B, allows independent reviewers to evaluate the adequacy of the calculation of impacts of a hypothetical accident on human health and the environment. It also permits an independent reviewer to perform analyses using alternate methods, such as other computer programs, or utilizing other conditions, such as different weather or accident conditions. The information in Appendix A, including the amount of radioactivity released and the fraction of the total activity in naval spent nuclear fuel it represents, is provided in similar detail to permit independent analyses for normal and accident conditions.

For facility and transportation accidents, the analysis results presented in the EIS are bounding since the larger the container, the more spent nuclear fuel would be inside. Any reduction in container size would result in a smaller source term, and thus, lower consequences and lower risk.

The Navy has provided in this EIS, and in documents referenced in the EIS, a substantial amount of information on the handling, storage, and shipment of naval spent nuclear fuel and the types and amounts of radiation or radioactive material involved in releases from normal operations and postulated accidents in this EIS. The Navy has attempted to provide enough information on radiation, radioactivity, and other aspects of operations or hypothetical accidents to allow independent calculation and verification of all estimates of environmental impacts.