5. TECHNICAL ISSUES

5.1 Aesthetic and Scenic Resources

05.01 (001) Aesthetic and Scenic Resources

COMMENT
The commentor states that the EIS ignores the presence of unusually aesthetically p particularly the buttes, on and adjacent to the Idaho National Engineering Laborato notes that the Middle Butte and other sites on the Idaho National Engineering Labor the Shoshone-Bannock Tribes. The commentor also states that visual impacts should based on what could be seen from the Idaho National Engineering Laboratory boundary the EIS should also analyze visual impacts for tribal members who have been granted access to the site.
RESPONSE
Volume 2, section 4.2 identifies that portion of the Idaho National Engineering Lab the Big Butte Resource Area, which is administered by the Bureau of Land Management section 4.5 has been revised to acknowledge that features of the natural landscape to the Shoshone-Bannock Tribes.
Volume 2, section 5.5 discusses the impacts of proposed projects on aesthetic and s for the various EIS alternatives. Most of the proposed projects would be confined areas and be in size and shape to adjacent structures. The locations of some new f determined for the Ten-Year Plan alternative; however, such facilities probably wou existing facilities and at least 1/2 mile from public roads. Although no final sit expected to occur on or near the buttes, the final siting determination will consid aesthetically pleasing landforms.
Volume 2, section 5.4 has been revised to state that the Shoshone-Bannock Tribes wo before any project is developed that could impact resources of importance to the Tr

05.01 (002) Aesthetic and Scenic Resources

COMMENT
The commentor states that impacts to visibility and enjoyment of view at the Fort H as effects on tourism, are not considered in the EIS.
RESPONSE
The Fort Hall Reservation is approximately 27 miles southeast of the southern bound Although a specific analysis was not performed for the Fort Hall Reservation, the a the EIS concluded that the potential for impairment of the visual resource at Crate Monument, which is approximately 12 miles west of INEL's western boundary, could no The analysis used very conservative methods, including assumptions that many of th sources of emissions would not incorporate emissions controls, and that pristine co at Craters of the Moon. However, DOE would not be able to obtain an air permit for sources unless it could be shown to the satisfaction of the Idaho Division of Envir there would be no perceptible impacts on visibility at the Craters of the Moon Nati is the nearest Class I area to INEL. The control measures that would be required t Craters of the Moon would also serve to prevent impairment of visibility or enjoyme Fort Hall Reservation.
In addition, the Fort Hall Reservation lies outside the path of prevailing winds fl site. As noted in Volume 1, Appendix B, section 4.7, the mountain ranges bordering channel the prevailing westerlies into a southwest wind, away from the reservation.

05.01 (003) Aesthetic and Scenic Resources

COMMENT
Commentors urge that the beauty of Idaho be preserved.
RESPONSE
DOE agrees. In developing the alternatives for management of spent nuclear fuel (S restoration and waste management at INEL, DOE was sensitive to the impacts that cou disturbance of the natural landscape. Thus, for new facilities, DOE would use land disturbed or land that is adjacent to developed land. The amount of land required also be minimized. Even for the case in which all SNF would be shipped to INEL, on percent of the site land area) would be devoted to new facilities. In developing t efforts to prevent degradation of views and prevent environmental damage that might natural flora and fauna.

5.2 Air Quality

05.02 (001) Air Quality

COMMENT
The commentor wonders about the effects on air quality of releases of polluting che materials to the air.
RESPONSE
DOE's policy is to comply with all applicable Federal, state, and local regulations protect human health and the environment. Where possible, potential concentrations the various alternatives have been estimated, considering appropriate local meteoro each site. DOE employs pollution reduction techniques to minimize air releases whe constructing, and operating facilities.
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme including impacts to air quality, for all the alternatives considered in this EIS. impacts for all alternatives would be small.

05.02 (003) Air Quality

COMMENT
The commentor states that the radiological risks of the various alternatives in the and are consistent with other studies that have concluded that the risks of handlin defense high-level waste or commercial fuel are not large.
RESPONSE
The comment is consistent with the EIS, which shows that the radiological risks ass alternatives would be low, including the risks of interim storage of high-level was The risks of handling commercial SNF, with the exception of certain special-case fu are beyond the scope of this EIS.

05.02 (004) Air Quality

COMMENT
The commentor questions the appropriateness of the units of measure (picocuries per Volume 1, Appendix C, Table 4-18 to describe tritium activity in air moisture.
RESPONSE
The title of Table 4-18 has been revised to "Tritium measured in air at the Savanna more clearly reflect that a volume of air rather than water (or precipitation) was

05.02 (005) Air Quality

COMMENT
The commentor indicates that the Hanford Site is in a noncompliant area for particu

RESPONSE
The commentor is correct. According to Volume 1, Appendix A, Table 4.7-2, the maxi average particulate concentration exceeds State of Washington standards. The EIS h reflect this fact.

II 05.02 (006) Air Quality

COMMENT
The commentor states that a definition of 95 percent meteorology should be provided 5.14 or Appendix F-5. The commentor also notes that the definition given in Volume section 5.3 is incorrect and should be replaced.
RESPONSE
The commentor is correct. The following definition of 95 percent meteorology has b 2, section 5.14 and has replaced the incorrect definition in Volume 2, Appendix F: meteorology is defined as stable weather conditions, unfavorable to atmospheric dis contaminants, which are not exceeded more than 5 percent of the time."

II 05.02 (007) Air Quality

COMMENT
The commentor cannot tell from the EIS analysis if susceptible populations, such as homes, have been considered, or whether pollutant deposition on local food crops ha
RESPONSE
DOE can determine no cases where susceptible subgroups, such as nursing home occupa specific evaluation. The basis for this statement is (1) air quality impacts at al are well below health-based standards for all pollutants considered, and (2) the ap based on dose-response data, which have already accounted for susceptible subgroups Pollutant deposition on local food crops has been directly assessed in the case of indirectly assessed in the case of criteria pollutants. In the latter case, all of pollutants are below the secondary air quality standards, which have been establish effects to vegetation, property, or other elements of the environment.
DOE has added a better explanation of source terms and a description of the indirec and secondary pathways that were evaluated and included in the EIS. (See Volumes 1

II 05.02 (008) Air Quality

COMMENT
The commentor considers the EIS presumptuous to claim that levels of all nonradiolo the possible exception of hydrochloric acid, which results from the incineration at mixed low-level waste, are below applicable standards. The commentor states that o confirm this, and it is impossible to be so positive about any proposed incinerator asks if this incinerator is being evaluated under the Environmental Protection Agen Strategy."
RESPONSE
With respect to hydrochloric acid, the incinerator in question is the Waste Experim Facility. This facility is included in Volume 2 for the Ten-Year Plan and Maximum and Disposal alternatives for processing low-level and mixed low-level waste. Howe "proposed incinerator," but rather an existing facility that has had several trial low-level waste and limited amounts of mixed wastes. Thus, a considerable amount o operating experience exists. The Waste Experimental Reduction Facility has an air specific limitations for various pollutants. The facility can continue to operate reviewing agency will evaluate all data under applicable standards and guidelines, Environmental Protection Agency's (EPA's) new "Combustion Strategy," and will apply restrictions and emissions standards designed to ensure compliance.
Other incinerators proposed under these alternatives (e.g., the Idaho Waste Process Low-Level Waste Treatment Facility, and the private-sector Alpha-Mixed Low-level Wa Facility) are early in the conceptual design stage of development, and the projects certain. Annual average increment levels, exclusive of baseline levels, should be

promulgated State of Idaho standards for noncarcinogenic toxics, including hydrochl analyses presented in the EIS used maximum 8-hour concentrations in accordance with Idaho guidelines. Due to the conservative approach used in these analyses, and the conditions that will be applied by the State of Idaho Division of Environmental Qua review function, DOE can state with confidence that all pollutant levels would be w standards.

II 05.02 (009) Air Quality

COMMENT
The commentor objects to any promise of adding combustion controls to mitigate impa cites the case in which DOE received a permit for nitrogen oxide emissions from the Processing Plant in 1989, and although the permit contained a requirement to instal for those emissions, the equipment has yet to be installed.
RESPONSE
The activity in question was the Fuel Processing Restoration (FPR) Project. The pe operation of the FPR project and was not independently applicable. The FPR project the increases in nitrogen oxide emissions did not materialize. With regard to this promise to add combustion controls to mitigate impacts. Rather, each new project w determine whether controls are required or warranted. In some cases, combustion co required by the State of Idaho Division of Environmental Quality before a facility construction permit.

II 05.02 (010) Air Quality

COMMENT
The commentor states that Idaho air quality rules should be specified as "Rules for Pollution in Idaho," and references to the Air Quality Bureau should be updated.
RESPONSE
The commentor is correct. References to Idaho air quality rules and the Air Qualit updated in Volume 2.

II 05.02 (011) Air Quality

COMMENT
The commentor states that ambient air concentrations at the Idaho National Engineer be modeled at the inner boundary of the grazing area on the site, because the publi that area.
RESPONSE
As defined in Rules for the Control of Air Pollution in Idaho, "ambient air" refers atmosphere to which the general public has access. This is not the case with grazi site. Access to these areas is controlled and is restricted to certain individuals does not have access. DOE's position is that these grazing areas do not meet the contain "ambient air." Therefore, ambient air quality standards do not apply, and required for these areas.

II 05.02 (012) Air Quality

COMMENT
The commentor asked DOE to explain why the latest version of the SCREEN air quality SCREEN2) was not used.
RESPONSE
The EIS used air quality baseline data for some toxic air pollutants that had been modeling efforts, which used the SCREEN model. Rather than repeat these analyses u approach was taken whereby: (a) for any screening level, baseline toxic results th were run to

determine if there were significant differences in
the results obtained using SCREEN versus SCREEN2. For the manner in which the SCRE
applied, test runs indicated that no difference would be obtained by reassessing th
previously been performed. There is no requirement in Rules for the Control of Air
perform the analyses that were done using SCREEN. The analyses to determine compli
increment standards were performed using ISCST-2.

II 05.02 (013) Air Quality

COMMENT
The commentor disagrees with the statement about krypton-85 being "by far, the radi
highest emission rate." The commentor also states that since reprocessing has been
the radionuclide with the highest emission rate.
RESPONSE
The statement cited by the commentor is from Volume 1, Appendix B. Volume 2 makes
krypton-85 has historically been the radionuclide with the highest emission rate, b
the activity primarily responsible for krypton-85 emissions, ceased in 1992. The w
Appendix B, section 4.7 has been changed to correspond to that in Volume 2, section

II 05.02 (014) Air Quality

COMMENT
The commentor questions why Volume 1, Table 4.7-3 and Volume 2, Table 4.7-1 list no
from Argonne National Laboratory-West that are higher than those listed in the 1991
Management Information System and the 1991 Idaho National Engineering Laboratory Na
Emission Standard for Hazardous Air Pollutants, Annual Report.
RESPONSE
As indicated in footnotes on the tables cited by the commentor, the emissions estim
existing facilities and reasonably foreseeable increases to the baseline. Included
Fuel Cycle Facility at Argonne National Laboratory-West. This facility has signifi
krypton-85 (11,500 curies) and xenon-131m (127 curies), which account for the diffe
values listed in the tables and the values reported in the Radioactive Waste Manage
System and 1991 Idaho National Engineering Laboratory National Emission Standard fo
Air Pollutants, Annual Report.

II 05.02 (015) Air Quality

COMMENT
The commentor states that emissions and visibility impacts should be evaluated for
equipment associated with plant services that would be needed to support the Region
Centralization alternatives at Idaho National Engineering Laboratory.
RESPONSE
The specific projects associated with the alternatives for Regionalization or Centr
would not require additional fossil-fuel-burning equipment beyond that which is alr
exception of one minor source, a diesel generator associated with the Fort St. Vrai
Project. The emissions from this source would be very low, and the statement that
not add a measurable increment to emissions at INEL is accurate. Visibility impact
would be small. A visibility impact analysis was also performed for the closest Cl
Moon National Monument) for the cumulative emissions of all applicable sources comp
2 alternative.

II 05.02 (016) Air Quality

COMMENT
The commentor states that mercury is shown to slightly exceed the State of Idaho cr
alternatives. The commentor states that given the uncertainty known to exist in th

Complex model, it is not possible to judge the health implications of this informat
RESPONSE
The mercury levels reported in the Draft EIS are the maximum 8-hour levels that wou
EIS reflects State of Idaho standards effective May 1, 1994, for calculating the ef
on air quality. The State of Idaho now requires that state annual average levels s
discussed in Volume 2, section 5.7, revised calculations show that mercury levels a
Idaho standard. The revised mercury level is less than 3 percent of the state stan
levels are predicted if mercury-bearing waste were processed at a very high rate.
engineering controls could be employed to minimize and ensure that levels approachi
would not result.
The EIS has been changed from an 8-hour reporting level to a 24-hour reporting leve

II 05.02 (018) Air Quality

COMMENT
The commentor makes the following recommendations: (a) use the same baseline year
criteria pollutants, and toxic air pollutants, (b) clarify the distinction between
projected emissions for some cases, and (c) present air emissions for 1990, 1991,
analysis for each of these years.
RESPONSE
The rationale for using different baseline years for radionuclides, criteria pollut
pollutants follows: Generally, the most representative baseline year is the most r
the time the analyses were performed, the availability of data varied for the three
emissions. For radionuclides and criteria pollutants, 1991 was the most recent yea
available when the baseline studies were conducted, and these were the data that we
some SNF processing took place that year at the Idaho Chemical Processing Facility.
longer performed at this facility and radionuclide emissions for this activity are
of baseline conditions. Moreover, processing is an activity assessed in associatio
alternatives, and inclusion of these emissions in both the baseline and alternative
cause double counting. That is why the 1993 radionuclide emissions were used for t
respect to toxic air pollutant emissions, only 1989 data were and currently are ava
The only distinction made between existing emissions and a future baseline involves
specific projects that are expected to become operational before June 1, 1995 (that
period covered by the EIS alternatives). These projects are identified in Volume 2
Appendix F-3. The analysis is conservative in that no credit is taken for future r
DOE does not agree that 3 years of emissions should be analyzed. Conservative emis
used for the baseline year, and all impacts based on these estimates represent an u
impacts that would actually occur. For example, the maximum emissions scenario use
toxic air pollutants exceeds actual emissions by a substantial margin (as illustrat
4.7-4) and bounds the baseline conditions.

II 05.02 (019) Air Quality

COMMENT
The commentor states that the only Air Quality Related Value considered was visibil
justification was given for not including other Air Quality Related Values, such as
plants.
RESPONSE
Air Quality Related Values other than visibility were assessed. Volume 2, section
to soils and vegetation and impacts due to secondary growth. All off-site concentr
pollutants are below the secondary air quality standards, which have been establish
effects on vegetation, property, or other elements of the environment. Standards f
vegetation have also been established for fluorides, although impacts of fluoride e
only for comparison to the Toxic Air Pollutant Increments. Fluoride emissions asso
alternatives would be very low and would not be expected to result in any impact.
deposition on local food crops has been directly assessed for radionuclides; the r
from ingestion of contaminated food products. With respect to other Air Quality Re
evaluations were performed and described for ozone formation, stratospheric ozone d
deposition, and global warming.

II 05.02 (020) Air Quality

COMMENT
The commentor points out that the statement "emissions of volatile organic compound to have a negligible effect on ozone formation" is incorrect. The commentor states inventory indicates emissions of more than 600 tons per year of volatile organic co commentor recommends that the amount of ozone formation be estimated.
RESPONSE
The 1990 emissions inventory for INEL quantifies the maximum potential emissions of compounds (VOCs) as more than 600 tons per year. VOC emissions from actual operati 100 tons per year. VOC emissions from the proposed projects would be less than 10 applicable State of Idaho standards' significant level of 40 tons per year that wou formation analysis. From Volume 2, Table 5.7-2 it can be seen that volatile organi range from 5,583 kilograms (6.1 tons) per year for the No Action alternative to 8,8 per year for the Maximum Treatment, Storage, and Disposal alternative. The low pot formation from the proposed projects precludes the need for a detailed assessment. requiring air quality permits, analyses for impacts resulting from specific polluta would be performed, contingent on regulatory requirements.

II 05.02 (021) Air Quality

COMMENT
The commentor states that releases of carbon tetrachloride, freon, and greenhouse g extremely small compared with global loading, and considers this an unreasonable co
RESPONSE
The statement in question attempts to characterize emissions associated with the al potential for stratospheric ozone depletion (carbon tetrachloride and freon) and gl (greenhouse gases, including carbon dioxide, methane, nitrous oxides, and chloroflu are global (not regional) effects, which are associated with global emissions. Th alternatives represent an extremely small fraction of global levels, and it is reas these emissions would have small impacts with respect to global effects. INEL has reduce or eliminate the use of chlorofluorocarbon compounds

II 05.02 (022) Air Quality

COMMENT
The commentor requests that DOE demonstrate how the emission rates and concentratio pollutants summarized in Volume 2, section 4.7 were calculated.
RESPONSE
The methods used to calculate emission rates and concentrations are described in Vo Resources, which is referenced in Appendix F-3. For radiological releases and asse details are provided in Estimated Radiological Doses Resulting from Airborne Radion Facilities at the Idaho National Engineering Laboratory, and Maximum Individual, Co and Population Doses from INEL Proposed Action and No Action Sources, which are als Appendix F-3. The referenced reports are available for review in the reading rooms locations listed in the EIS.

II 05.02 (023) Air Quality

COMMENT
The commentor points out that previous documents have established that adequate upp height) data are not available for the Idaho National Engineering Laboratory vicini describe the upper air meteorological data used for modeling.
RESPONSE
Verified measurements of on-site mixing height for the INEL vicinity are not availa original nonradiological analyses (modeling of the baseline concentrations and impa

conservatively assumed a mixing height of 100 meters for modeling of both short- an average) concentrations. The radiological modeling (which only involves annual ave height of 800 meters. Additional nonradiological modeling, which has since been pe compliance with Prevention of Significant Deterioration (PSD) increment limits, use for 3-hour and 24-hour averaging periods, and 800 meters for annual average assessm considered more reasonable estimates for short- and long-term mixing heights. The value is that 150 meters is reportedly the lowest mixing height ever observed at IN Handbook, Page 4-48). The 800-meter value is recommended by the National Oceanic a Administration as appropriate for long-term modeling (Sangendorf, J., U.S. Departme National Oceanic and Atmospheric Administration, Averaging INEL Mixing Depths, Memo EG&G-Idaho, Inc., February 11, 1991). For short-term calculations, the same result 100 or 150 meters is used; this is because the highest short-term concentrations ar during conditions of slight-to-moderate atmospheric stability (that is, stability c cases mixing height data are not used by the Industrial Source Complex Short Term-2

II 05.02 (024) Air Quality

COMMENT
The commentor points out that the toxic standards are now listed as increments and Review Toxic Policy was eliminated.
RESPONSE
Volume 2, Figure 4.7-2 has been revised to reflect recent updates to the Idaho Toxi Standards. The New Source Review Toxic Policy was incorporated into the Rules for Pollution in Idaho.

II 05.02 (025) Air Quality

COMMENT
The commentor points out that the power of 10 is missing in the value of foreseeabl tetrachloride emissions in Volume 2, Table 4.7-2.
RESPONSE
Volume 2, Table 4.7-2 has been corrected to show the value for foreseeable increase tetrachloride emissions as 4.5 x 10-5 kilograms per year.

II 05.02 (026) Air Quality

COMMENT
The commentor notes that the correct characterization for the area around the Idaho Laboratory site is "in attainment or unclassified" for all National Ambient Air Qua
RESPONSE
The commentor is correct. Volume 2, section 4.7.4 has been revised to read: "The National Engineering Laboratory site is in attainment or unclassified for all Natio Standards."

II 05.02 (027) Air Quality

COMMENT
The commentor states that the estimated impacts on air quality, especially on visua presented for operation of the New Waste Calcining Facility and questions whether t are included in Volume 2, Figure 5.7-4. The commentor states that NOx reduction in Calcining Facility plume should be evaluated.
RESPONSE
The impacts on air quality have been assessed for emissions associated with the New Facility. These impact assessments included comparison with ambient air quality st include potential impacts on visibility. Visibility impacts were indirectly assess visual range used for the visibility analysis of alternative projects reflects cond

Waste Calcining Facility was operating. Volume 2, section 5.7 discusses impacts to Immobilization Facility, which would eventually replace the New Waste Calcining Fac has similar projected NOx emissions), has been evaluated for visibility impacts. T requirement to evaluate the New Waste Calcining Facility for NOx reduction. Visibi evaluated in conjunction with obtaining necessary permits.

II 05.02 (028) Air Quality

COMMENT
The commentor notes that: (a) the discussion of cumulative effects of airborne emi National Engineering Laboratory omits discussion of visibility impacts and does not effects of exposure to multiple pollutants or long-term dose or risk from historic operational accident scenarios do not seem reasonable.
RESPONSE
Visibility impacts from airborne emissions are discussed in the Volume 2, section 5 assessed for the alternatives are cumulative because the analysis determines the po visual resource over the existing background, which is representative of conditions emissions.
Potential synergistic effects from multiple chemical exposures are extremely diffic quantitatively because there is insufficient data to indicate synergistic effects. synergistic effects is small where the concentrations for each individual compound for the alternatives evaluated in this EIS. To ensure that potential impacts are b high releases and exposure conditions were assumed. Further, the point of highest chemical occurs at different times and places. It is unlikely that any one individ more than one chemical species at the concentrations reported in this EIS.
Radiation doses from historic operations are discussed in Volume 2, section 5.15.8. available in referenced technical support documents, which are available for review rooms that received copies of this EIS. DOE is not aware of any generally accepted that has been developed to evaluate synergistic effects due to several airborne che is aware that research into this area is continuing.
The evaluation of cumulative effects considers historic accidents only. The implem the National Environmental Policy Act (NEPA) at 40 CFR Paragraph 1508.7 specifies " impacts result from past, present, and reasonably foreseeable future actions..." F DOE has consistently interpreted "reasonably foreseeable" to include construction, maintenance, and other planned activities, but not to include future hypothetical a spills, and other unplanned activities. Potential chemical exposure resulting from in Volume 2, Appendix F-5.

II 05.02 (029) Air Quality

COMMENT
Referring to Volume 2, section 5.18.2, the commentor points out that application of methods is not a mitigation measure.
RESPONSE
The commentor is correct. While the information derived from the application of re methods may eliminate the need for mitigation measures, the process is technically measure. The sentence in question has been revised. It clarifies what measures wo results of refined modeling confirm the findings of the screening-level analysis; t I area of Craters of the Moon would be perceptibly impaired as a result of projecte

II 05.02 (030) Air Quality

COMMENT
The commentor points out that the key word "net" is missing from the description of Significant Deterioration analysis must be performed.
RESPONSE
Volume 2, Appendix F, section F-3.3.1 has been revised to clarify that a Prevention Deterioration (PSD) review is required whenever any modification would result in a

of any air pollutant.

II 05.02 (031) Air Quality

COMMENT
The commentor states that trace elements such as nickel may also be emitted by comb generators and boilers) associated with the Pit 9 waste retrieval project.
RESPONSE
At the time the Draft EIS was prepared, no generators or boilers were proposed for Project. Since that time, however, the project has been expanded to include two bo modeling now includes the projected emissions from these boilers, which include the nickel, lead, and chromium. Emissions tables and dispersion modeling results in th updated.

II 05.02 (032) Air Quality

COMMENT
The commentor notes that radiological assessment methodology for air impacts treats results as constants with no uncertainty or variability, which is not consistent wi environmental risk assessment. The commentor recommends that confidence statements estimates of the true, but unknown, value being calculated or the true, but unknown
RESPONSE
The radiological assessment of air impacts used the GENII code to perform calculati results represent best estimates for dose to an off-site individual, on-site indivi population. They are based on conservative release estimates, representative meteo conservative assumptions regarding the location and habits of the receptors (especi exposed off-site individual). The dispersion model algorithms are generally accept type of assessment (as opposed to research applications, in which a quantitative un be appropriate), and the computer code has been benchmarked as defined by the Inter Energy Agency. It can be said with confidence that the dose results, especially th exposed off-site individual, overstate the doses that would actually occur, yet the below the most restrictive limit. Using a computer code that has been extensively quality assurance requirements is considered sufficient for an assessment of this t

II 05.02 (033) Air Quality

COMMENT
The commentor recommends that the EIS clarify that a segment of past meteorological been chosen for the radiological assessments to be representative of average condit the 10-year period covered by the EIS.
RESPONSE
Volume 2, Appendix F-3.4.2 states that the meteorological data used for the radiolo obtained at the various facility monitoring stations over the 5-year period 1987 th was not explicitly stated that these conditions are assumed to be representative of EIS. Volume 2, Appendix F-3.4.2 has been revised to clarify this assumption.

II 05.02 (034) Air Quality

COMMENT
The commentor states that when comparing predicted concentrations of toxic air poll increment standards contained in the May 1, 1994, Idaho rules, the concentrations s annual averages.
RESPONSE
The analyses in Volume 2, sections 4.7 and 5.7 compare predicted 8-hour concentrati noncarcinogenic increments. The analyses for noncarcinogenic emissions have been r annual average concentrations.

II 05.02 (035) Air Quality

COMMENT
The commentor questions the basis for 1.0 x 10+04 curies of noble gases from the Id Processing Plant listed in Volume 1, Appendix B, Table 4.7-3 ,and Volume 2, Table 4
RESPONSE
The value of 1.0 x 10+4 curies represents an upper bound to the annual emissions of Idaho Chemical Processing Plant for a recent 1-year period. The actual releases fo classified. Actual baseline krypton-85 emissions from this facility are very much The value of 1.0 x 10+4 curies was used in the radiological dose assessment. Becau from krypton-85 at these levels is not a large fraction of the overall dose, this r for evaluation and comparison of alternatives required for a programmatic EIS.

II 05.02 (036) Air Quality

COMMENT
The commentor points out that Volume 1, Appendix B, Table 5.7-1 lists ammonium hydr hydrofluoric acid as toxic air pollutants (carcinogens), yet these substances are n Air Pollutants Increments.
RESPONSE
The commentor is correct. Ammonium hydroxide and hydrofluoric acid are not carcino listed in Idaho's Toxic Air Pollutants Increments. Hydrofluoric acid emissions wer because total fluoride emissions are listed in Idaho's Toxic Air Pollutants Increme hydroxide emissions were assessed conservatively as ammonia, a substance that is li Pollutants Increments. DOE has clarified that these pollutants are not carcinogens inclusion (as stated above) in the EIS.

II 05.02 (037) Air Quality

COMMENT
The commentor states that current emissions and projected increases should be liste 2, and the basis for projected increases in baseline emissions should be explained.
RESPONSE
The comment concerns the listing of radionuclide emissions for potential projects. considered reasonably foreseeable increases to the baseline. These increases curre data in Volume 2, Table 4.7-1, but are not listed separately. They are listed sepa Support Document for Air Resources, which is included as a reference for Volume 2. these projects were estimated in the same manner as described for alternative proje Appendix F-3.4.1.

II 05.02 (038) Air Quality

COMMENT
The commentor states that analyses of air impacts should be compared with Preventio Deterioration limits, which are typically two to four times more stringent than Nat Quality Standards. The commentor points out that the Idaho National Engineering La triggered the Prevention of Significant Deterioration baseline dates for nitrogen o particulates and that the baseline conditions in Volume 2, section 4.7 are not Prev Deterioration baseline conditions.
RESPONSE
The baseline date for a criteria pollutant establishes the date to start tracking c Additional analyses have been performed to characterize the existing baseline condi alternatives in terms of the amount of PSD increment consumed. The methodology use with the Idaho Division of Environmental Quality, and a report documenting the meth been completed and included as a reference in Volume 2. The results indicate that

conditions are within allowable increment consumption limits. When the contributio the alternatives are added, the amount of increment consumption remains below the a each of the alternatives. The PSD baseline analysis have been incorporated into Vo Volume 2, Appendix F-3 has been revised to reflect the methods used to calculate PS consumption.

II 05.02 (039) Air Quality

COMMENT
Commentors state that DOE should analyze the existing and potential air quality imp Reservation using all wind roses that indicate possible contributions from the Idah Laboratory site.
RESPONSE
The air quality analyses in the EIS were based on meteorological data appropriate t at INEL. The analyses used the hourly meteorological data obtained from three on- stations for 1991 and 1992 and are graphically presented as wind roses in Volume 2, stations are in the southeast, central, and northern sections of INEL. Similar ana each facility. Maximum emissions concentrations from each facility were summed at locations to determine the maximum baseline air quality impacts from present operat cumulative impacts from proposed actions. Additional analyses were performed to e at points beyond the site boundary were less than those at the boundary (such as mi with a tall stack were located in close proximity to the boundary). Similar analys to determine the air quality impacts to various locations on the Fort Hall Reservat impacts to the Fort Hall Reservation can be found in Volume 2, sections 4.7 and 5.7 impacts would be small for the alternatives considered in this EIS.

II 05.02 (040) Air Quality

COMMENT
The commentor states that the Tribes object to any attempt to locate projects to av the Moon Class I area if such relocation results in impacts to the Tribes, especial have not been evaluated.
RESPONSE
There are no specific proposals to relocate projects to avoid impacts at the Class Moon National Monument. However, in cases where visibility impacts to the pristine of the Moon are shown to be a potential problem, all options, including changing or in question, would be evaluated. Potential visual impacts must be further defined projects can proceed. Additional emissions controls and relocation of projects may potential impacts below acceptable criteria. As changes in visual setting, particu area located in the southern portion of the INEL site, are seen by the Shoshone-Ban adverse effect on an important Native American resource, the Shoshone-Bannock Tribe consulted before any project is developed that could have impacts to resources of i

II 05.02 (041) Air Quality

COMMENT
The commentor suggests that the impacts from fugitive dust emission modeling should between fugitive emissions from temporary and permanent sources.
RESPONSE
The text in Volume 2, Appendix F-3.4.3 has been revised to more clearly distinguish sources that are temporary (such as construction and demolition projects) and those permanent (such as unpaved roads and landfill operations). The specific fugitive s been identified.

II 05.02 (043) Air Quality

COMMENT
The commentor notes there seem to be variations in the application of models from o another, virtually no information regarding source terms is given, and it is diffic emissions have been considered and what emissions data were used.
RESPONSE
In general, models were applied consistently between sites. However, site-specific required a unique application. For example, the commentor mentions that site bound assessed at some sites, but in other cases, off-site locations are considered. The identified the ambient air location of highest predicted impact to the public and t maximum pollutant concentrations at that location for comparison with applicable st of INEL, the maximum impacted ambient air locations tend to be along public roads t At other sites, the nearest ambient air location may be the site boundary, because traverse the site.
Temporary fugitive dust activities such as construction and demolition are exempt f quality standards; nevertheless, fugitive dust impacts from construction activities reported in Volume 1, and Appendices A through F.
For the other DOE sites evaluated in Volume 1, source emission rates are provided, characteristics (e.g., elevations, velocity, temperatures) are not provided in all more appropriate for a site-specific EIS. A discussion of the modeling and emissio Appendices A through F.

II 05.02 (044) Air Quality

COMMENT
Commentors assert that DOE cannot avoid responsibility for its past practices of co categorizing its past activities as irreversible commitments of resources. Comment put forward no compelling argument for further degrading the air of both the occupi land surrounding the Idaho National Engineering Laboratory and object to any irreve air quality resources that could affect the Tribes' air quality, and also tourism. that DOE provides no assurances that controls would be installed to avoid adverse i quality and visibility.
RESPONSE
The air quality impact analyses have detailed the potential for air quality impacts The analyses, for the most part, have been conducted for the site boundary and road Additional analyses have been conducted for the Craters of the Moon National Monume Hall Reservation. The analyses for criteria pollutant impacts have shown that impa applicable ambient air quality standards. PSD standards, which have been establish prevent the degradation of air quality, would be met. Toxic pollutant impacts woul applicable criteria. Impacts to air quality and visual resources at the Fort Hall operations will be even less, and this should not impact tourism.
Visual resource screening analyses were conducted at Craters of the Moon National M analyses used a screening methodology to determine the potential for worst-case imp maximum operating scenarios and adverse meteorological conditions). These analyses conservative assumptions, including that many of the important proposed sources of incorporate no or minimal emission controls. In many cases, projects are in concep adequate design of emission controls is not yet available. However, impacts are no underestimated when conservative assumptions are used. A key aspect of the screeni from the source to the potential impact area. The analysis showed some potential f during the worst-case conditions. Methods to decrease the impact have not been det discussed in the EIS, they will likely include controls to further reduce emissions visibility. Siting factors will also be considered, as will refined modeling analy screening analyses). Through the Idaho Division of Environmental Quality's Permit proposed projects are required to demonstrate that there will be no adverse impacts quality and on visibility at Craters of the Moon. Any controls needed to avoid adv quality and visibility would be specified in permits.
Impacts to visibility, as well as criteria and toxic pollutant loading, should not and irretrievable commitments of resources, but rather short-term impacts over the Volume 2, section 5.18 has been revised to state that impacts to air quality and vi and irretrievable commitments of resources.

II 05.02 (047) Air Quality

COMMENT
The commentor points out that the model receptor grid spacing is very large, and th spacing is necessary in areas of maximum predicted impact.
RESPONSE
After the Draft EIS was completed, DOE performed additional analyses, primarily for consumption. As part of this analysis, a finely spaced receptor array was develope receptor points spaced at approximately 100-meter intervals in those areas where th predicted to occur. This dense array has since been used in the PSD analyses for e been incorporated into the appropriate sections of the EIS.

II 05.02 (048) Air Quality

COMMENT
The commentor notes that statements in Volume 2 that ozone levels are "not recogniz the region" and that the Idaho Division of Environmental Quality has determined tha the state are well below the standard" inaccurately describe ozone levels. The com correct situation is that the Idaho Division of Environmental Quality has no ozone the vicinity and is not aware of problematic ozone levels in the area.
RESPONSE
The statements cited by the commentor reflect verbal comments that were obtained by Idaho Division of Environmental Quality. The authors acknowledge, however, that th the statements could be misinterpreted to mean that ozone levels are not a problem to substantiate this claim may not be available. The statements in Volume 2 have b following: "The Division of Environmental Quality has no ozone monitoring data fro not aware of problem ozone levels in the area."

II 05.02 (049) Air Quality

COMMENT
The commentor considers the statement that "no previous projects have consumed incr of the Moon National Monument) to be unreasonable.
RESPONSE
The commentor raises a valid question. Increment consumption is established by ass submitted with PSD permit applications, and accepted by the Division of Environment Although two PSD permit applications have been previously submitted for the INEL pr of increment consumption at Craters of the Moon National Monument, if any, had not One of the two (the Fuel Processing Restoration Project at Idaho Chemical Processin been withdrawn and currently is being modified. The other application (for the Spe Capability at Test Area North) had not been formally "closed out" at the time the D As a result of discussions with the Division of Environmental Quality, it was decid required to firmly establish the amount of increment consumption at the time that t Manufacturing Capability permit application was submitted and accepted, as of May 1 Additionally, it was decided that further analyses showing increment consumption by with the EIS alternatives was also required. These analyses have been completed. the commentor refers has been revised to reflect the updated results.

II 05.02 (050) Air Quality

COMMENT
The commentor points out that the assumption of Gaussian dispersion tends to break distances, or where flow direction changes. The commentor further states that Gaus seriously underpredict impacts in these scenarios, and predictions for the Idaho Na Laboratory boundary locations may be low.
RESPONSE

While it is true that Gaussian models used to estimate upper bound levels of toxic be subject to the shortcomings noted by the commentor, the Industrial Source Comple (ISCST-2) model is generally regarded as appropriate for the type of modeling perfo virtually every nonradiological case modeled, the highest ambient air impact occurr locations. In these cases, the transport distances are not long and are well withi the ISCST-2 model is considered appropriate. Results of calculations indicate 80 t occurs in the first 20 miles. Calculational assumptions selected by DOE were conse uncertainties in calculational models.

II 05.02 (051) Air Quality

COMMENT
The commentor notes that there is a lack of any recent or reliable data about the e filtering and ventilation systems in the building where the Fort St. Vrain spent fu Idaho National Engineering Laboratory. The commentor further states that the lack uncertainty about the degree to which radionuclides emitted from the spent fuel mig environment through the storage facility's stack.
RESPONSE
There is no lack of recent reliable data about the effectiveness of the filtering a the Irradiated Fuels Storage Facility where Fort St. Vrain spent nuclear fuel is st is equipped with high efficiency particulate air (HEPA) filters having a verified f percent. Filter efficiency has been verified annually using standard Dioctyl Phtha Records of these filter tests are available from 1979 to the present.
Regarding the commentor's statement about releases to the environment, stack releas monitored and records show that nearly all radioactivity has been below detectable accurately assess historical releases to the environment, samples were obtained fro have been in place since the facility was constructed. From the analysis of the fi annual radionuclide emission rate and annual dose to a maximally exposed individual 4.8 x 10-6 millirem, which is significantly less than 1 percent of the limit of 10 for DOE facilities by the Federal National Emission Standards for Hazardous Air Pol

II 05.02 (052) Air Quality

COMMENT
The commentor asserts that it is incorrect to state that the GENII code tends to ov The commentor further asserts that neither the GENII code nor CAP-88 (with which it undergone a comprehensive validation study in the Idaho National Engineering Labora
RESPONSE
The commentor refers to a statement in Volume 2, Appendix F-3 to the effect that th baseline assessment are not likely to underestimate actual baseline or future doses statement is that baseline results in the EIS (which were modeled with GENII) were contained in the 1991 and 1992 National Emission Standards for Hazardous Air Pollut were modeled with CAP-88). A study benchmarking these models in INEL settings has recently (Radioactive Waste Management Complex Low-Level Waste Radiological Perform Assessment) and is discussed in Volume 2, Appendix F-3. The point of the study is the model, including source-term and receptor-related assumptions, produces results conservative. The EIS has been revised to clarify this.

II 05.02 (053) Air Quality

COMMENT
The commentor notes that Volume 1, Appendix A, Table 5.7-1 does not show tritium re
RESPONSE
Tritium emissions from the K-basins have not been monitored because the emissions h to contribute a very small amount to the dose received by the maximally exposed ind airborne releases at the Hanford Site. In 1993, the average measured tritium conce Site boundary was 0.90 picocurie per cubic meter and the maximum concentration was cubic meter. In 1993, the dose to the hypothetical maximally exposed individual fr

emissions to the atmosphere was estimated to be 0.01 millirem. Volume 1, Appendix been revised to reflect these data.

II 05.02 (054) Air Quality

COMMENT
The commentor suggests that releases from four thermal treatment facilities at the Engineering Laboratory should be included in the EIS.
RESPONSE
The four facilities identified by the commentor are the Waste Experimental Reductio Experimental Pilot Plant, the Idaho Chemical Processing Plant Denitration Facility, Calcining Facility. These facilities exist at INEL and are included in the baselin site. The Idaho Chemical Processing Plant Denitration Facility uses the main stack Processing Plant and is included in that source. Other thermal treatment facilitie Volume 2, Appendix C. The sources of emissions from site facilities appear in Volu 5.8, and are discussed in Volume 2, section 7.3.

II 05.02 (055) Air Quality

COMMENT
The commentor suggests that there is a lack of information concerning model use and hinders review and verification of the EIS.
RESPONSE
Volume 2, Appendix F-3 discusses air dispersion modeling data and assumptions and h each INEL facility. Actual and foreseeable doses are a very small fraction of esta and are well below the National Emission Standards for Hazardous Air Pollutants (40 limit of 10 millirem per year.

II 05.02 (056) Air Quality

COMMENT
The commentor asks about the purpose of the comparison of hazard indices contained Appendix B.
RESPONSE
Hazard indexes are compared to show that the data indicate no change from the basel hazard indexes under any of the alternatives. Volume 2, section 4.7 discusses the emissions. DOE has expanded the language in Volume 1, Appendix B, section 5.12 to relationship between hazard indexes and reference concentrations or doses.

II 5.3 Cultural Resources

II COMMENT

Commentors suggest that requirements under Section 106 of the National Historic Pre implemented early in the project planning process at the Idaho National Engineering
RESPONSE
DOE agrees that this evaluation should be done early enough to allow historic prope fully during site selection and facility design. Requirements of the National Hist implemented during conceptual design if DOE proceeds with a proposed project.

II COMMENT

Commentors assert that the EIS does not adequately address impacts on cultural reso

alternatives affecting the Idaho National Engineering Laboratory.
RESPONSE
The EIS identifies the number of known sites (approximately 1,500) on and percentag surveyed only to indicate the magnitude of potential sites at INEL. Volume 2, sect of predictive models and discusses the National Historic Preservation Act inventori completed prior to any actions. Volume 2, section 5.19 further discusses the Natio Preservation Act Section 106 requirements concerning the evaluation of sites and mi A comprehensive inventory of prehistoric cultural resources within the boundaries o To date, surveys to identify these resources have been focused on areas where adver likely to occur (i.e., facility perimeters, along major roadways and utility corrid addition, a preliminary predictive model has been developed to identify zones of pr resource density across the entire 890-square-mile facility. This model can be use managers during the initial stages of project planning to avoid areas where prehist be particularly dense, thus reducing the impact of INEL activities on sensitive cul Refinement and testing of this model are also under way through the INEL Cultural R Office. This office also maintains a complete record of all cultural resource inve INEL, as well as a database of all known cultural resources. Prior to conducting a activities, INEL project managers are directed to consult with the INEL Cultural Re Office to avoid damage to any sensitive materials. Under the 1992 Working Agreemen Shoshone-Bannock Tribes of the Fort Hall Indian Reservation and the Idaho Field Off Concerning Environment, Safety, Health, Cultural Resources and Economic Self-Suffic are consulted and are given the opportunity to comment on any INEL project that has impact any cultural resource.
Based on public comments, DOE has expanded the EIS definition of cultural resources Volume 2, section 4.9 now includes a list of plants and vegetation important to the

II COMMENT

The commentor expresses the opinion that there are not adequate agreements in place Shoshone-Bannock Tribes' archaeological artifacts and that options for removal of t and study should be considered, including executing a curation agreement.
RESPONSE
DOE has initiated the Working Agreement, Policy on Native American Consultation to communication with the Shoshone-Bannock Tribe relating to treatment of archaeologic excavation, as mandated by the Archaeological Resources Protection Act, and protect remains, as required under the Native American Graves Protection and Repatriation A DOE's Native American Policy (Memorandum EH-1: Management of Cultural Resources at of Energy Facilities, U.S. Department of Energy, Washington, DC, February 23, 1990) with Native Americans during the planning and implementation of all proposed altern remains are discovered, DOE notifies all tribes that have expressed an interest in as required under the Native American Graves Protection and Repatriation Act. The opportunity to claim the remains and associated artifacts. Also, the DOE Idaho Ope preparing a curation agreement pursuant to the Archaeological Resources Protection drafting a programmatic agreement for the protection of historic properties pursuan Historic Preservation Act. The handling of Native American cultural resource items American Graves Protection and Repatriation Act will be addressed by both of these Mitigation measures will be developed after these agreements are implemented. Volu been changed to reflect these agreements.

II COMMENT

The commentor suggests that the EIS include mitigation measures in case cultural re inadvertently discovered during construction.
RESPONSE
This EIS is a programmatic document, based on current information and designed to p decisionmakers a broad base of knowledge about the affected environment, any forese any potential mitigation measures for an identified environmental impact associated of action. Providing specific, detailed mitigation measures, especially in areas w impact is foreseen, is beyond the scope of this document. Each DOE operations offi developing mitigation agreements, including actions to be taken in the event of dis

resources or human remains during construction. Such agreements will be negotiated tribes and State Historic Preservation Officers. These agreements would be referen this information.

II COMMENT

The commentor asserts that contamination resulting from transporting or storing SNF hunting and gathering, which is as an irreplaceable part of the food supply and an economic activity for the residents of the Fort Hall Reservation.
RESPONSE
There is a comprehensive environmental monitoring program at INEL, and the results in the INEL Site Environmental Report. The monitoring conducted to date has not sh in game species or food stuffs that would preclude or limit hunting and gathering. monitoring programs gather game species and food stuffs from a wide area in southea well beyond the boundaries of INEL in all directions.
Volume 1, Appendices D and I discuss impacts from both incident-free transportatio accidents. The analysis shows that impacts from transportation activities for all small.

II COMMENT

The commentor objects to DOE's cultural resource impact analysis, because it minimi fragmenting them and focuses solely on material culture.
RESPONSE
DOE performs an analysis first by looking at the individual parts. This approach a ecology, water use, land use, air quality, etc., to evaluate impacts specific to th impacts are evaluated, the overall impacts to the resources are evaluated, thereby approach. DOE agrees that impacts to the Shoshone-Bannock Tribes include all disci in the EIS; however, it is not feasible to include all these areas under cultural i DOE does not presume to know the locations, absence or occurrence of items, sites, to the Tribes over the whole INEL site. Nor would it be more protective of the ite conduct a site-wide survey than to conduct a complete site-specific analysis in con project prior to any surface- or subsurface-disturbing activities. Broadly, DOE's suitable site, conduct an initial survey, consult with the Tribes, and develop appr that consultation. The actions may include mitigation of impacts up to or includin alternative site.
Volume 2, section 4.3 has been changed to discuss the Tribes' broad view of cultura the response to comment 05.03 (002).

II COMMENT

Commentors assert that the EIS does not adequately address impacts on cultural reso alternatives affecting the Idaho National Engineering Laboratory and that the EIS r for DOE to continue consultations with the Tribes.
RESPONSE
The number of known sites (approximately 1,500) and the portion (4 percent) of the been surveyed are identified in the EIS only to suggest the large number of potenti 2, section 4.4 discusses the use of predictive models and discusses the National Hi inventories that must be completed prior to any actions. Volume 2, section 5.19 fu National Historic Preservation Act Section 106 requirements concerning the evaluati mitigation of impacts.
A comprehensive inventory of prehistoric cultural resources within the boundaries o To date, surveys to identify these resources have been focused on areas where adver likely to occur (i.e., facility perimeters, along major roadways and utility corrid addition, a preliminary predictive model has been developed to identify zones of pr resource density across the entire 890-square-mile facility. This model can be use managers during the initial stages of project planning to avoid areas where prehist be particularly dense, thus reducing the impact of INEL activities on sensitive cul

Refinement and testing of this model are also under way through the INEL Cultural R Office. This office also maintains a complete record of all cultural resource inve INEL, as well as a data base of all known cultural resources. Prior to conducting activities, INEL project managers are directed to consult with the INEL Cultural Re Office to avoid damage to any sensitive materials. Under the 1992 Working Agreemen Shoshone-Bannock Tribes of the Fort Hall Indian Reservation and the Idaho Field Off Concerning Environment, Safety, Health, Cultural Resources and Economic Self-Suffic are consulted and are given the opportunity to comment on any INEL project that has impact any cultural resource.
Based on public comments, DOE has expanded the EIS definition of cultural resources Volume 2, section 4.9 now includes a list of plants and vegetation important to the DOE has increased its consultation with the Shoshone-Bannock Tribes. A series of c management and technical personnel from the Tribes and DOE have resulted in a bette resolution of mutual concerns. DOE continues to meet with the Tribes and plans to implementing the actions proposed in the EIS.

II 5.4 Biological Resources

II COMMENT

The commentor notes that many studies have been conducted by biologists, botanists, Hanford Site and Idaho National Engineering Laboratory areas with intriguing result
RESPONSE
Every effort has been made to review all pertinent studies for inclusion in the EIS moderator requested that the speaker identify any pertinent additional studies so t evaluated. None was provided by the commentor.

II COMMENT

The commentor suggests that the EIS considers the Arco desert to be a wasteland sui spent nuclear fuel, which the commentor believes is a gross misunderstanding of the surrounding geography.
RESPONSE
DOE and the Navy consider sensitive ecosystems and habitats when designing and siti comply with the laws and regulations protecting wildlife resources, including those and endangered species, to ensure the impacts of proposed activities are minimal.
1 and 2, Chapter 5, measures for protecting ecological resources would be developed the appropriate agencies if any sensitive ecosystems or habitats are identified on Preconstruction surveys would be conducted to determine the presence of these resou designated INEL a National Environmental Research Park.

II COMMENT

The commentor states that Idaho National Engineering Laboratory operations have cau animals and endangered species.
RESPONSE
DOE agrees with the commentor and notes that it has designated INEL a National Envi Park. DOE considers threatened and endangered species and sensitive habitats when its programs. It complies with the laws and regulations protecting wildlife resour protecting threatened and endangered species, to ensure that the impacts of DOE act described in Volume 1, section 5.7.7, measures to avoid or mitigate impacts to ecological resources would be developed in consultation with the appropriate agenci endangered species or sensitive habitats are identified on a project site. Precons conducted to determine the presence of these resources.

II COMMENT

The commentor asks about risks to the fragile ecosystem of marine waters near Seatt
RESPONSE
Volume 1, Chapter 5, Appendices D and K, and Volume 2, Chapter 5 summarize the envi impacts of all the alternatives considered in this EIS. The analyses show that the would be small. While there are differences in the impacts among the alternatives, themselves are not sufficient to distinguish between alternatives.

II COMMENT

The commentor states that the EIS must address wildlife management practices at the Engineering Laboratory as well as the impacts to wildlife that could result from th the Tribes should be afforded hunting rights on the site.
RESPONSE
While DOE manages the game habitat at INEL, the State of Idaho manages wildlife and over hunting rights within the INEL boundary. Issues relating to wildlife manageme hunting rights must be addressed to the state.
Impacts to wildlife that could occur as a result of the various alternatives, and s measures, are discussed in Volume 2, Chapter 5, sections 5.9 and 5.19.

II COMMENT

The commentor states that Idaho National Engineering Laboratory impacts cannot be e specific sites selected for certain new construction projects, and that DOE should wildlife habitat by clustering new facilities near currently disturbed areas.
RESPONSE
Volume 2, Appendix C specifies the location of potential disturbances. DOE has att proposed activities in the most environmentally benign locations that will meet hea requirements. Siting was considered in the following order of preference: (1) loc (2) locate in existing industrial areas on previously disturbed areas, (3) locate i undisturbed areas, (4) locate outside, but immediately adjacent to, industrial area and away from existing industrial areas.
The three projects that would cause most of the disturbance outside and separate fr industrial areas are the Idaho Waste Processing Facility, the Alpha-Mixed Low-Level Facility, and the Alpha-Mixed Low-Level Waste Disposal Facility. All three project conceptual design phase and would require project-specific NEPA documentation befor committed. Because it is still in the design phase, the specific location for the Facility is not well defined. The EIS states that it may be located near the Radio Complex (RWMC) or at other existing industrial locations on the INEL site. For pur the ecological consequences section of the EIS, the Idaho Waste Processing Facility kilometers (2.5 miles) east of the RWMC. This is the most conservative siting meth result in the largest impact to ecological resources. Similarly, the Alpha-Mixed L Treatment Facility and the Alpha-Mixed Low-Level Waste Disposal Facility may be loc existing INEL facilities. The most conservative assumption was used for the analysi would be built 4 kilometers (2.5 miles) west of the RWMC.
As stated in the EIS, DOE would perform site-specific preactivity surveys to identi resources on the site to ensure that impacts from the proposed actions are identifi measures can be developed and integrated into the project.

II COMMENT

The commentor states that Volume 1, Appendix F should include language to ensure th preserve wetland resources, if such resources exist. The commentor also states tha wetlands on a proposed construction site is not addressed.
RESPONSE

As discussed in Volume 1, Appendix F, Part Two, sections 4.9.2 and 5.9.1, there are proposed SNF site at the Nevada Test Site (NTS); thus, no special preservation effo Oak Ridge Reservation (ORR) wetlands are discussed in Volume 1, Appendix F, Part Th and 5.9.1. It is DOE policy to comply with Executive Order 11990, Protection of We government agencies to avoid any short- and long-term adverse impacts on wetlands w practicable alternative. If ORR is chosen as a site for SNF management, the potent wetland resources on the site would be specifically analyzed, along with potential otherwise mitigate impacts. Unavoidable impacts to wetlands would be mitigated ac policy.

II COMMENT

The commentor states that mitigation measures, including those for the desert torto addressed in Volume 1, Appendix F.
RESPONSE
A biological opinion concerning the desert tortoise has been issued by the U.S. Fis covering current projects at the NTS. (See Volume 1, Appendix F, Part Two, section in Volume 1, Appendix F, Part Two, section 5.9, recommended mitigation measures inc surveys for the tortoises and their removal from affected areas, as well as periodi backfilling, covering, or installation of tortoise-proof fencing around open constr excavations, and reducing speed limits on site roadways. After consulting with the Service and the Nevada Division of Wildlife, similar recommendations would be imple appropriate, if NTS were selected as the location for a SNF facility. Providing sp measures is beyond the scope of this EIS and will be addressed in tiering NEPA docu appropriate.

II COMMENT

Commentors state that the EIS failed to consider potential impacts on fish and wild of spent nuclear fuel and other hazardous materials. This includes accidents, alte threat reduction, and mitigation of impacts to wildlife from transportation acciden
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small, including the impacts to fish and wildlife. While there would be difference the alternatives, these differences by themselves are not sufficient to distinguish Volume 2, section 5.19 addresses mitigation for both operations and accident condit section 5.11 covers all transportation impacts, including incident-free transportat accidents. Regional traffic impacts are also covered. As noted in Volume 2, secti movements of materials and people due to all alternatives would result in no change of U.S. Highway 20, the regional highway with the highest use around INEL.
An accident with a release of radionuclides or hazardous material into the environm temporary exposures of biota. The impact would likely be localized and of short du Fish and Wildlife Departments and Natural Resource Trustees would be consulted to r most appropriate response for the specific accident and current conditions. The em would focus on cleaning the site and removing contaminants as completely and as rap While radiological impacts from accidents could result in loss of individual animal losses or large-area losses would not be anticipated. Impacts to fish would depend quantity spilled into the aquatic environment, and must be evaluated on a case-by-c Volume 2, Chapters 4 and 5 have been modified to include information on threat redu of the impacts of collision accidents wildlife.

II COMMENT

The commentor states big game kills by trains are not reported in the EIS, and incr kills by train transport are not addressed in the EIS.
RESPONSE
Information was obtained from the State of Idaho Division of Wildlife Management co

involving trains killing large numbers of pronghorn antelope. This information has Volume 2, section 4.11. See also the response to comment 05.04 (011) regarding chan evaluate impacts of transportation accidents.

II COMMENT

The commentor asks about depredation problems associated with antelope and elk in t Engineering Laboratory area.
RESPONSE
The alternatives would disturb up to 726 acres of land outside of current facility While depredation may increase, the increase is likely to be low because most of th located about 5 kilometers (3 miles) from the RWMC, which is located within the INE far from any croplands. Policies concerning restrictions on hunting at INEL are no EIS.

II COMMENT

The commentor notes that a statement that no Federally listed species are expected construction and operation of the spent nuclear fuel management facility is in conf Appendix F, Part 3, Table 4.9-1.
RESPONSE
Volume 1, Appendix F, Part 3, Table 4.9-1 lists species that "potentially occur on Oak Ridge Reservation" but not necessarily on the project site. Volume 1, Appendix 4.9.4 describes the expectation of species occurrence on the proposed project site most likely to occur on the project site, none of which is Federally listed. None Table 4.9-1 has been observed on the proposed project site. No species listed as t by the U.S. Fish and Wildlife Service, in accordance with the Endangered Species Ac occur on the site and, thus, they would not be impacted. Impacts to state-listed a species are described in Volume 1, Appendix F, Part Three, section 5.9.1. There ma impacts on other special-status species, which consist of two plant and five raptor effect to wildlife habitats is discussed in Volume 1, Appendix F, Part Three, secti forested habitat would be a small percentage of the total forested area on or in th

II COMMENT

The commentor expresses the opinion that storing spent nuclear fuel at the Savannah potential ecological problem.
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small. While there are differences in the impacts among the alternatives, these di are not sufficient to distinguish between alternatives.
For the Savannah River Site (SRS), potential effects from operations conditions wou disturbance of habitat, rather than effects from radionuclides. Potential effects result in exposures to biota. However, emergency response would limit the potentia localized area.

II COMMENT

The commentor suggests that terrestrial biota may be subject to more radiation expo because human exposure can be limited by special clothing and protective equipment.
RESPONSE
Terrestrial biota are not subject to exposure under conditions that would require s protective equipment for humans. Work areas where potential radiation exposure is monitored site workers use protective equipment have controlled access measures tha So long as exposure limits protective of humans are not exceeded, no substantial ra

biota would be expected as a result of waste management activities at the proposed facility.
Volume 1, Appendix F, Part Two, section 5.9 has been modified to clarify that most activities take place in enclosed environments and that outdoor radiation exposures regulatory requirements.

II COMMENT

The commentor states that until surveys are conducted at the Oak Ridge Reservation sensitive flora, fauna, and habitat is in question and could be a factor in selecti plan.
RESPONSE
The commentor is accurate in stating that until site surveys are completed, the sta and habitat remain in question and could be a factor in the selection of the specif selected. The analyses in the EIS are based on existing documentation.

II COMMENT

The commentor suggests that animals near proposed new or expanded facilities in Ida relocated to a similar environment.
RESPONSE
Generally, it is not feasible to relocate all animals disturbed by construction act that would be displaced include insects, reptiles, and small mammals. Preactivity conducted to determine if any endangered species or sensitive habitats are in the a practical, proposed facilities are clustered near existing facilities to minimize i Measures to minimize impacts to wildlife at INEL are discussed in Volume 2, sectio

II COMMENT

One commentor states that DOE and the Navy have failed to study the possibility tha Columbia and Snake Rivers to Idaho could pick up radioactive particles, contaminate wilderness areas, and impact endangered species. Another commentor states that the be a poor storage area unless the already "depleted salmon" are protected.
RESPONSE
Volume 1, Appendix A, sections 4.8 and 4.9 have been modified to address potential life in the Columbia River. Volume 1, Chapter 5 and Appendix K, and Volume 2, Chap the environmental impacts of all the alternatives considered in the EIS. The analy of all alternatives would be small.
All liquid effluents from Hanford Site facilities are monitored to ensure that aqua protected. Fish populations are safe for human consumption. Radionuclide levels i Reach are not significantly higher than those of fish found upstream. Fish migrati River up the Snake River to Idaho would not pass through the Hanford area, because two rivers is downstream from the Hanford Site. Fish inhabiting or moving through would also not be expected to have elevated radionuclide levels.
Any new facility would be built using technologies to protect these resources, incl water-balance monitoring equipment. Excess process water from the proposed facilit before it is released to surface water or groundwater.
In some accident scenarios, such as a seismic event at Hanford with a frequency of every 1,000 years, contamination could reach the Columbia River. Individual fish i the river could become contaminated. However, contamination spread by the fish, an would be small compared with the environmental risk posed by more direct pathways i scenario. Monitoring at DOE facilities indicates the most critical pathways for en contamination are generally through direct airborne and waterborne releases, rather spread through animals or fish.

II COMMENT

The commentor states that impacts of transport, storage, and accidental releases on and sensitive species should be considered.
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS, including those to threatened and enda analyses show that the impacts of all the alternatives would be small.
Threatened and endangered species and habitats are considered in the design and sit facilities. Volumes 1 and 2, section 7.2.1 identify all Federal environmental stat including the Endangered Species Act, that may apply to the programmatic alternativ management. DOE and the Navy comply with all applicable laws and regulations desig wildlife resources to ensure impacts are minimal. These regulations include U.S. D Transportation (DOT) regulations on transport of hazardous and/or radioactive mater minimizing impacts to sensitive species are described in Volumes 1 and 2, Chapter 5

II COMMENT

The commentor states that there are virtually no data or literature references to s Engineering Laboratory ecological analyses and conclusions.
RESPONSE
The Environmental Resource Document for the Idaho National Engineering Laboratory the EIS provides an extensive compendium of documentation concerning the Idaho Nati Laboratory (INEL) environment and ecology. Additionally, Radioecology of the Idaho Engineering Laboratory (Draft) provides a literature search and an evaluation of r current INEL operations. Both of these documents are referenced in the EIS and are rooms and information locations listed in the EIS.

II COMMENT

The commentor questions the effects on endangered species in the Twin Falls Thousan result of impacts to the Snake River aquifer.
RESPONSE
Under all alternatives considered, possible future sources of aquifer contamination quality in the aquifer would be expected to improve under current waste management alternatives. Increased water use at INEL would range from 1.3 percent under the N 4.0 percent for the Ten-Year Plan alternative; or approximately 0.43 to 1.3 percent beneath INEL. Currently, a substantial portion of water pumped from the aquifer at the surface and eventually returned to the aquifer. The current water withdrawal r percent of a typical irrigation well pumped 365 days per year. Because of the smal consumed, there would be a small impact to water levels or quantities in the aquife endangered species in the Thousand Springs area. A discussion and evaluation of pr impacts to water quality and quantity under the alternatives analyzed is provided i and 5.8.

II COMMENT

The commentor states that it would be inappropriate to ship spent nuclear fuel thro great natural area.
RESPONSE
The EIS evaluates potential environmental impacts of transporting SNF in the Puget Nuclear Propulsion Program shipments of Naval SNF are made in accordance with all a regulations. Shipments of radioactive materials associated with Naval SNF have nev measurable release of radioactivity to the environment, nor has there ever been an release of radioactive material during shipment since the Naval Nuclear Propulsion potential impacts to the local environment at Puget Sound from transportation of Na in Volume 1, Appendix D, Chapter 5 and Attachment A.

II COMMENT

The commentor states that the EIS neither describes ongoing activities nor analyzes association with past and future activities and is therefore not comprehensive.
RESPONSE
Volume 2, Chapter 4 describes the existing environment at INEL. Volume 2, Chapter current activities, facilities, and missions at INEL. Site-specific impacts, inclu presented in Volume 2, Chapter 5 and Appendix F. Volume 1, Chapter 5 and Appendix Chapter 5 summarize all of the alternatives considered in this EIS. The analysis s all alternatives would be small.

II COMMENT

The commentor states that the Draft EIS should address loss of habitat at the Oak R the effects on the regions ecosystems by a change in land use.
RESPONSE
Both land use and habitat loss are considered in Volume 1, Appendix F. ORR occupie square kilometers (54 square miles). In 1980, DOE designated 54 square kilometers undeveloped ORR land to a National Environmental Research Park. Approximately 58 p on ORR [80 square kilometers (31 square miles)] can be classified as undeveloped du designation. By comparison, the SNF program would require about 0.36 square kilome miles). Volume 1, Appendix F, Part Three, section 5.9 assesses impacts to ecologic the Centralization and Regionalization alternatives. Neither alternative would pre impacts to ecological resources through alterations or loss of habitat.

II 5.5 Geology

II COMMENT

The commentor notes that no geologists from the Oak Ridge area were used to help pr Appendix F, Part Three.
RESPONSE
The document was prepared using existing references and currently published informa cited for the Volume 1, Appendix F, Part Three discussion of ORR include current in in that area.

II COMMENT

The commentor is of the opinion that the EIS is a coverup, especially regarding sei geologic events.
RESPONSE
The best available information relative to seismic hazards and geologic events is p 2, section 4.6, the site-specific appendices to Volume 1, and associated reference sufficient information to allow independent evaluation of the seismic hazards and g

II COMMENT

The commentor notes that the Knox Group is divided into five formations, not four.

are the Copper Ridge Dolomite, the Chepultepec Dolomite, the Longview Dolomite, the Formation, and the Mascot Dolomite.
RESPONSE
The EIS has been revised to incorporate the information.

II COMMENT

The commentor states that the EIS does not address correcting current seismic defic National Engineering Laboratory facilities.
RESPONSE
DOE Order 5480.28, National Phenomena Hazards Mitigation, specifically requires fac reevaluated when there is any change in design and construction standards. Existin undergone continual safety analysis and seismic design review. Several of the proj Volume 2, Appendix C are proposed by DOE to replace or upgrade facilities at INEL. such as the transfer of fuels from potentially vulnerable facilities to modern faci the ongoing safety analysis and seismic design reviews. Volume 2, Table 2.2.1 addr seismic deficiencies identified with fuel storage facilities at INEL.

II COMMENT

The commentor states that storing radioactive material in a seismically active area Engineering Laboratory could result in catastrophic consequences.
RESPONSE
Seismic hazards and geologic analyses can be found in Volume 1, section 4.2 and App and Volume 2, section 4.6 and Appendix F-2. Seismically induced accidents are dis section 5.14 and Appendix F-5. The results of accident analyses (including seismic indicate that the risk to the public from INEL operations is small. DOE takes seis seriously, and INEL uses independently and extensively reviewed analyses to support implementation of DOE Orders and standards. An INEL seismic hazard assessment was 1990. A more recent seismic hazard assessment for INEL is referenced in the EIS as Probabilistic Seismic Hazard Analysis for the Idaho National Engineering Laboratory the response to comment 05.05.01 (040).

II COMMENT

Several commentors state that geologic conditions at the Idaho National Engineering result in a sequence of events that would cause contamination of the Snake River Pl
RESPONSE
An accident scenario resulting in maximum potential for groundwater contamination a in the EIS in Volume 2, section 5.14 and Appendix F to determine the effects of suc Snake River Plain aquifer. The hypothetical accident involves the instant failure due to an earthquake. The groundwater analysis assumed failure of the containment measures to minimize flow from the waste tank into the soil immediately following t hypothetical scenario represents the situation with the maximum reasonably foreseea aquifer. Maximum radionuclide concentrations would be predicted to reach the INEL after the hypothetical accident in concentrations less than EPA maximum contaminant DOE derived concentration guidelines (DCGs). See also the response to comment 05.0

II COMMENT

Commentors express opinions that the selection of the Oak Ridge Reservation as an performed in haste, and/or did not adequately consider the geology of the West Bear
RESPONSE
The selection of ORR and NTS as alternative sites resulted from public comments rec scoping process for this EIS. Information about the site-selection process at ORR for Support in Preparing the Spent Nuclear Fuel and Idaho National Engineering Labo

Environmental Restoration and Waste Management Environmental Impact Statement, and Selection Decision Process Report.
The West Bear Creek Valley site was selected for evaluation and comparison in this geologic information was considered in making this selection. Adequate informatio programmatic decisions and evaluate alternatives in this EIS.

II COMMENT

The commentor states that significant adverse geologic events could cause radioacti
RESPONSE
The general geological features of the alternative sites are described in Volume 1, impacts associated with geologic events are summarized in Volume 1, Chapter 5, sect the geological features and potential dangers associated with those features are in through F for the alternative sites. DOE recognizes the potential adverse effects have on facilities, and the EIS includes analysis of accidents and the potential co with geologic events, such as earthquakes. The accidents evaluated included those probability ranging from once in 1 million years to once in 10 million years. As d section 5.1.6, the probabilities of accidents with the potential for significant im small. The risks to the public from radioactive releases would be small for all of See also the response to comment 05.05.01 (016).

II COMMENT

The commentor states that it is appropriate to acknowledge the zinc and fluorspar d northeast of Knoxville, Tennessee, and southwest of the Oak Ridge Reservation, resp commentor also notes that zinc prospects and sulfide mineralization may occur in th
RESPONSE
As required by Council on Environmental Quality (CEQ) regulations, the description environment is no longer than is necessary to understand the effects of the alterna geologic resources are expected from any of the alternatives; therefore, impacts to are not expected. If ORR is chosen as a site for new SNF management facilities, s studies would be performed as necessary to determine the full extent of geologic re site.
A discussion of the geologic resources at ORR is presented in the EIS in Volume 1, Three, section 4.6.

II II COMMENT

The commentor questions the adequacy and conservatism of seismic hazard studies at Engineering Laboratory.
RESPONSE
Seismic hazards and geologic analyses for INEL can be found in Volume 1, section 4. Appendix B, section 4.6; and Volume 2, section 4.6 and Appendix F-2. Seismically i discussed in Volume 2, section 5.14 and Appendix F-5, and Volume 1, Appendix B, sec accident analyses (including seismically induced accidents) indicate that the risk operations is small. DOE takes seismic hazards very seriously, and INEL uses indep analyses to support the enforcement and implementation of DOE Orders and standards. Major DOE Idaho Operations Office-managed nuclear facilities currently in use at IN been evaluated to design basis accelerations that exceed accelerations that would r magnitude earthquake at the southern end of the Lemhi fault zone. There has been a the past several years to upgrade DOE Orders and standards related to natural pheno DOE Order 5480.28, Natural Phenomena Hazards Mitigation, sets forth DOE procedures assess, and operate DOE facilities so that workers, the general public, and the env from the impacts of natural phenomena hazards on DOE facilities. This Order specif facilities to be reevaluated when there is any change in design and construction st facilities have undergone substantial safety analysis and seismic design review. S described in Volume 2, Appendix C of the EIS are proposed by DOE to replace or upgr site. Likewise, actions such as the transfer of fuels from potentially vulnerable

have resulted from the ongoing safety analysis and seismic design reviews.
The data and methods used in the seismic hazard report referenced in Volume 2, sect were extensively and independently reviewed. This report includes graphs showing r versus acceleration for seismic events for each major facility at INEL. The seismic Idaho Chemical Processing Plant was included as an example of the information conta seismic hazard analysis [Site-Specific Probabilistic Seismic Hazard Analysis for th Engineering Laboratory (Draft)]. The final versions of this report may be incorpor architectural and engineering standards after review by the INEL Natural Phenomena
The previous INEL seismic analysis (Earthquake Strong Ground Motion Estimates for t National Engineering Laboratory: Final Report) was also extensively reviewed and i INEL standards after review by the Natural Phenomena Committee in 1992.
This report is referenced in Volume 2, section 4.6 and Volume 2, Appendix F-2 and c location-specific seismic hazard information.
The EIS summarizes current scientific evidence relevant to understanding the existi identifying reasonably foreseeable impacts, and evaluating potential consequences. impacts is based on methods generally accepted by the scientific community.
See also the response to comment 05.05.01 (007).

II COMMENT

The commentor states that the Basin and Range Province north of the Idaho National Laboratory lacks adequate seismic monitoring.
RESPONSE
During 1991 and 1992, DOE increased its network of seismic monitoring stations from including stations in the Basin and Range Province. This network supplements measu by U.S. Geological Survey (USGS) facilities. INEL regularly exchanges data with ot networks around the region, including data for earthquakes that occur between netwo currently are supporting studies of the 1994 Raney Peak earthquake sequence and hav the 1983 Borah Peak earthquake studies.

II COMMENT

The commentor questions why the overall level of seismic hazard calculated in the E Engineering laboratory is lower than the seismic hazard curves for either the Hanfo River Site.
RESPONSE
The possible reasons for the relatively low seismicity, with respect to the more se Province, for the Eastern Snake River Plain (ESRP) are discussed in Volume 2, secti differences noted by the commentor result from the site-specific data used to asses particular, INEL has modeled ground motions based on site-specific analyses. Groun characteristics result from using source parameters for Basin and Range Province ea drops, lower recurrence intervals for the southern segments of the Basin and Range Lost River, and Beaverhead), and the unique subsurface geology (interbeds of basalt tend to deamplify ground motions.
Additional factors contributing to the relatively low seismic hazard for INEL are t facilities to Basin and Range Province faults, INEL-specific attenuation characteri seismicity of the ESRP.
The Hanford Site models use empirical data derived from California earthquakes and 9 subduction zone earthquake. SRS has a thicker layer of soil and subsurface geolo scattering during transmission of seismic waves. Both of these conditions tend to at SRS.

II COMMENT

The commentor notes that within 125 miles of the Idaho National Engineering Laborat active fault segments, including 20 with proven late Quaternary or younger displace commentor suggests that this observation is inconsistent with the relatively low se Idaho National Engineering Laboratory presented in the EIS.

RESPONSE
In the Probabilistic Seismic Hazard Assessment studies [Site-Specific Probabilistic Analysis for the Idaho National Engineering Laboratory (Draft)] referenced in the E and determined the major seismic sources in the vicinity of INEL. Because most of noted by the commentor are some distance from INEL, they are not significant contri hazard. The closest and most significant seismic sources, the Beaverhead, Lost Riv considered in INEL seismic hazard assessments. The Probabilistic Seismic Hazard As INEL have been independently reviewed and are developed consistent with the require 5480.28, Natural Phenomena Hazards Mitigation. The details of the characterization seismogenic sources, and how they are incorporated into seismic hazard assessments Volume 2, section 4.6 or its references.
The possible reasons for the relatively low seismicity, with respect to the more se Province, for the ESRP are discussed in Volume 2, section 4.6. The differences not result from the site-specific data used to assess seismic hazards. In particular, motions based on site-specific analyses instead of empirical data. These curves re parameters for Basin and Range Province earthquakes with lower stress drops, lower for the southern segments of the Basin and Range Province faults, including the Lem Beaverhead faults, and the unique subsurface geology of interbeds of basalt and sed deamplify ground motions. Additional factors contributing to the low seismic hazar other DOE sites) are the distance from the facilities to Basin and Range Province f attenuation characteristics, and the low seismicity of the ESRP. See also the resp 05.05.01 (003).

II COMMENT

The commentor states that the coastal plain of South Carolina and Georgia is earthq faults in multiple directions" and is a poor site for temporary or long-term storag
RESPONSE
The general geologic features of the alternative sites are described in Volume 1, C potential impacts associated with geologic events are summarized in Chapter 5, sect the geologic features and potential dangerous events associated with those features geologic events can have on facilities, and the EIS includes analysis of accidents consequences associated with geologic events, such as earthquakes. The accidents e with an estimated probability ranging from once in 1 million years to once in 10 mi described in Volume 1, section 5.1.6, the probabilities of accidents occurring with significant impacts would be small. The accident analyses (including seismically i indicate that the risk to the public from DOE operations would be small. Because D procedures and engineering design practices that minimize the effects of hazardous coupled with emergency response measures, the risks to the public from radioactive reduced.
The site-specific response can be found in Volume 1, Appendix C, section 4.6.3, whi region's geology, including fault systems and seismic history; section 5.8, which d of analyzed seismic events on both surface water and groundwater resources; and Vol Attachment A-2.1.3, which describes estimates of risk that consider both the probab consequences from a wider range of seismic events, ranging from local and regional documented earthquakes to postulated lower probability events with potentially grea

II COMMENT

The commentor quotes a Woodward-Clyde study, commissioned by DOE, as having more re measures of likely ground motions and suggests that DOE adopt these standards as an
RESPONSE
DOE has adopted this study (Earthquake Strong Ground Motion Estimates for the Idaho Engineering Laboratory: Final Report) and has incorporated the resulting seismic g the architectural and engineering standards for INEL.

II COMMENT

The commentor states that a great deal more research, both onsite and in the surrou necessary before the Snake River Plain can be declared "aseismic."
RESPONSE
Seismic hazards and geologic analyses can be found in Volume 1, section 4.2; Volume section 4.6; and Volume 2, section 4.6 and Appendix F-2. Seismically induced accid Volume 2, section 5.14 and Appendix F-5. The accident analyses, including seismica accidents, indicate the risk to the public from INEL operations would be small.
The assertion that the Snake River Plain has a low rate of seismicity is supported Volume 2, Figure 4.6-3, which represents a summary of the best available data at t EIS was compiled, and states the years over which the data were collected. The add seismic events in the region would not change the conclusion that the Snake River P in the EIS to eliminate confusion.
Empirical evidence does not support the commentor's assertion that a major seismic in the future on the ESRP. Studies of fault scarps on the ESRP indicate that a sei moment magnitude of 5.3 is the maximum event recorded in the rocks at the surface, from 1.2 million to 2,100 years old. Thus, there is long-term geologic evidence wi geologic record with which to assess its magnitude of seismicity. The moment magni conservative with respect to earthquake magnitudes observed in similar tectonic env assumed instantaneous stress release. Further conservatism in the seismic hazard a EIS [Site-Specific Probabilistic Seismic Hazard Analysis for the Idaho National Eng Laboratory (Draft)] is introduced through the use of a random ESRP earthquake, whic a moment magnitude of 5.5 to 6.0. The methods and data used in this study have bee reviewed. The random earthquake is used to analyze the potential effects of potent related to structures that do not have a surface expression.
Stress indicators show that the ESRP is subject to the same extensional stress as t Range Province. There is geologic evidence to support the hypothesis that the ESRP same rate as the Basin and Range Province but by the different, less seismically in basaltic dike injection. The rate and magnitude assumed for the random earthquake conservative with respect to these observations. These observations also indicate being stored for release in a major seismic event. Other possible explanations for ESRP can be found in Volume 2, section 4.6. The hypothesis that stored elastic ene catastrophic brittle failure of the crust below INEL is not supported by published earth science literature or the local geology of INEL. Despite mapping of INEL and catastrophic faulting event has not been observed in surface basalt flows that are old.
The EIS summarizes existing credible scientific evidence relevant to understanding environment, identifying reasonably foreseeable impacts, and evaluating potential c evaluation of impacts is based on methods generally accepted by the scientific comm reported in the EIS evaluate the potential consequences of reasonably foreseeable e

II COMMENT

The commentor states the potential for major earthquakes on the Plain exists, and t earthquakes on the plain do not provide the clear threat to Idaho National Engineer earthquakes on the fault systems north of the plain provide, the possibility of eve the plain cannot be discarded.
RESPONSE
DOE assumes the commentor is referring to the ESRP. Empirical evidence does not su commentor's assertion that a major seismic event is likely to occur in the future o fault scarps on the ESRP indicate that a seismic event with a moment magnitude of 5 event recorded in the rocks at the surface, which range in age from 1.2 million to there is long-term geologic evidence with which to assess the magnitude of seismici moment magnitude 5.3 estimate is conservative with respect to earthquake magnitudes tectonic environments and the assumed instantaneous stress release. The possibilit earthquake on the ESRP was not discarded and has been considered in the seismic haz in the EIS [Site-Specific Probabilistic Seismic Hazard Analysis for the Idaho Natio Laboratory (Draft)] through the use of a random ESRP earthquake, which has been ass magnitude 5.5 to 6.0. The data and methods used in this study have been independen random earthquake is used to analyze the effects of seismic events related to struc surface expression.

II COMMENT

The commentor states that earthquake magnitudes used for seismic analysis in the EI more research, both onsite and in the surrounding region, is required to adequately seismic shaking possible on the INEL site.
RESPONSE
The methods and data used in the Site-Specific Probabilistic Seismic Hazard Analysi National Engineering Laboratory (Draft) have been independently reviewed, and the a therein, including the analysis and earthquake magnitude estimates that resulted in scientifically defensible. The important parameters for the seismic hazard assessm Volume 2, section 4.6. More detailed discussions on INEL seismic hazard assessment Volume 2, Appendix F-2. Additional detail on parameter selection and the incorpora into the seismic hazard assessment can be found in the Site-Specific Probabilistic Analysis for the Idaho National Engineering Laboratory (Draft). In keeping with th of CEQ, the EIS contains only enough information to support decisions required by t To reduce the bulk of the document, references are cited that contain the relevant Empirical evidence does not support the commentor's assertion that a moment magnitu on the ESRP is too low for adequate seismic hazard analysis of ESRP earthquake sour scarps on the ESRP indicate that a seismic event with a moment magnitude 5.3 is the recorded in the rocks at the surface, which range in age from 1.2 million to 2,100 long-term geologic evidence with respect to the ESRP geologic record with which to of seismicity of the ESRP. The moment magnitude 5.3 estimate is mildly conservativ earthquake magnitudes observed in similar tectonic environments and the assumed ins release. Further conservatism in the seismic hazard assessment cited in the EIS [S Probabilistic Seismic Hazard Analysis for the Idaho National Engineering Laboratory introduced through the use of a random ESRP earthquake, which has been assigned a m 5.5 to 6.0. The methods and data used in this study have been extensively reviewed earthquake is used to analyze the effects of seismic events related to structures t expression. Seismic hazards and geologic analyses can be found in Volume 1, sectio Appendix B, section 4.6; and Volume 2, section 4.6 and Appendix F-2. Seismically i discussed in Volume 2, section 5.14 and Appendix F-5. DOE takes seismic hazards ve INEL uses independently reviewed analyses to support the implementation of DOE Orde The accident analyses (including beyond reasonably foreseeable accidents with poten than seismically induced accidents) indicate that the risk to the public from INEL small. Therefore, additional information on reasonably foreseeable seismic events impact would have no effect on the decision-making process.
No new analyses are required because, in accordance with NEPA (40 CFR 1502.22), the current credible scientific information relevant to understanding the existing envi reasonably foreseeable impacts, and evaluating potential consequences. The EIS use reviewed analyses available, and the evaluation of impacts is based on methods gene scientific community.
See also the response to comment 05.05.01 (001).

II COMMENT

The commentor expresses the opinion that the discussion of the Nevada Test Site is magnitude 5.6 earthquake that occurred near Little Skull Mountain on June 28, 1992, factored into the analysis.
RESPONSE
The information in Volume 1 is an overview of the more detailed discussions contain 1 appendices. In Volume 1, Appendix F, Part Two, section 4.6.3, the discussion on includes the Little Skull Mountain earthquake and the problems associated with recu

II The commentor states that the New Madrid Seismic Zone is close enough to the reactor at the University of

Missouri to potentially cause damage should there be a large earthquake over magnit

seismic assessment for Missouri is based on outdated information.
RESPONSE
Research reactors are typically built to Uniform Building Code (UBC) requirements a meet Nuclear Regulatory Commission (NRC) requirements for power reactors. Because detailed seismic analysis is not likely to affect the assessment of impacts of the no more seismic data are required in the EIS.
The data source for the research reactor at the University of Missouri was the docu licensing of the research reactor in 1961. In 1974, a thorough evaluation of the s vicinity was conducted for siting the Callaway commercial power reactor. The 1961 is more appropriate than an analysis done specifically for another facility. The a which demonstrates a low potential for seismic activity.

II COMMENT

The commentor states that the seismic wave attenuation characteristics of the easte adequately represented.
RESPONSE
The fact that strong-motion earthquakes are felt over wider regions of the eastern counterparts in the western United States is considered in DOE site-specific seismi eastern United States sites. Any new DOE construction required by a decision suppo would meet the stringent seismic hazard characterization requirements and design cr which would include a detailed assessment of seismic attenuation characteristics.

II COMMENT

The commentor states that the EIS Glossary definition of seismicity is incorrect.
RESPONSE
A new definition of seismicity, which relates to the location, size, and rate of oc has been included in the EIS Glossary.

II COMMENT

The commentor questions Volume 2, Figure 4.6-4 with respect to the relative magnitu the seismic hazard curves describing ground motions at Idaho National Engineering L Savannah River Site.
RESPONSE
The reasons for a seemingly inconsistent seismic hazard at SRS with respect to INEL low attenuation characteristics of eastern bedrock, which makes sites in the easter susceptible to larger ground motions resulting from low-to-moderate magnitude earth sediments of Quaternary age, which are appropriate for recording surface faulting e widespread in the east. Typically, Precambrian to Mesozoic rocks are overlain only Therefore, the number of late Quaternary surface faulting earthquakes in the easter uncertainty, which results in conservative seismic hazard estimates. Accident anal reasonably foreseeable accidents with potential impacts greater than seismically in indicate that the risk to the public from DOE operations would be small. Therefore on reasonably foreseeable seismic events with lesser potential impact would have no

II COMMENT

The commentor maintains that the seismic hazards at the Nevada Test Site are severe EIS. The commentor states that the Nevada Test Site is in a high hazard area near m has experienced earthquakes triggered by other regional seismic events. Additional that nuclear testing at the Nevada Test Site could have caused surface and subsurfa failure levels.
RESPONSE
The discussion of seismicity at NTS (Volume 1, section 5.2.4, and Volume 1, Appendi

section 4.6) will be revised to indicate that a moderate seismic potential exists a management site. As stated in the 1993 Nevada Test Site Technical Site Information DOE, the southern Nevada region is generally characterized as an area of moderate s including the proposed SNF management site, is located in Seismic Zone 2B, as defin Building Code of the International Conference of Building Officials. Zone 2B signi moderate damage potential. Areas further to the west (western Nevada and Californi Zones 3 and 4. Seismic Zone 3 signifies areas with a major damage potential. Seism western edge of NTS. Seismic Zone 4 signifies areas with a major damage potential faults. Zone 4 areas are well to the west of the site.
NTS has probably experienced earthquakes associated with regional seismic events. S region are oriented favorably for site seismicity to be influenced by other regiona determining exact relationships between regional seismic events is difficult.
Nuclear testing has produced fresh fault scarps and surface cracks, generally local nuclear tests. Recent geologic mapping of NTS shows faults that have ruptured in t presumably as a result of testing. However, wave propagation from nuclear testing relieve tectonic stress. The hypothesis regarding the triggering of local earthquak events is still being evaluated and tested in the scientific community and is best hypothesis. Any new DOE facilities required by decisions supported by this EIS wil with the requirements of DOE Order 5480.28, Natural Phenomena Hazards Mitigation, w rigorous, quantitative assessment and mitigation of natural phenomena hazards.

II COMMENT

One commentor notes that the high seismic hazard in the vicinity of Idaho National demands that DOE commit to an ongoing program of geologic hazards studies. Comment basalt flows will interact with nuclear waste and how the risks will be minimized.
RESPONSE
Seismic hazards and geologic analyses can be found in Volume 1, section 4.2; Volume section 4.6; and Volume 2, section 4.6 and Appendix F-2. Seismically induced accid Volume 2, section 5.14 and Appendix F-5. DOE takes seismic hazards very seriously, independently reviewed analyses to support appropriate implementation of DOE Orders There has been an extensive effort over the past several years to upgrade DOE Order to natural phenomena hazards. Studies have been under way for many years and are c ensure that seismic hazard characterization is based on up-to-date information and methods. New geologic information on seismic hazard characterization is reviewed t additional geologic studies are needed.
DOE has analyzed the effects of a hypothetical lava flow event at INEL. The geolog flow is discussed in Volume 2, section 4.6.4, and the estimated consequences of suc various alternatives are shown in Volume 2, section 5.14, Tables 5.14-3, -5, -6, -8 methodology used for performing these analyses is documented in Volume 2, Appendix Accident Assessments for the Idaho National Engineering Laboratory Facilities. As analyses, DOE used conservative assumptions to account for the uncertainty in model accident involving molten lava coming into contact with radioactive materials. The public would be small and well below DOE's Nuclear Safety Policy .
DOE has considered the potential for a volcanic ashfall event at INEL in Volume 2, Appendix F-2.1.2. As stated in section 4.6.4, potential ashfall events are not exp The risk associated with an ashfall event is bounded by the accidents evaluated in The impacts on the Hanford Site resulting from the Mount St. Helens eruption and as Assessment of Potential Volcanic Hazards for New Production Reactor Site at the Ida Engineering Laboratory determined that hazards from volcanic events would be small Therefore, a silicic ash-flow hazard at INEL does not represent a reasonably forese impact on the human environment.
A hypothetical accident involving the instantaneous release of the contents of a hi represents the situation with the maximum reasonably foreseeable impact on the Snak resulting from geologic conditions at INEL and is discussed in Volume 2, section 5. Under this scenario, maximum radionuclide concentrations are predicted to reach the years after the accident and predicted concentrations will be less than EPA MCLs or DOE Order 5480.28, Natural Phenomena Hazards Mitigation, sets forth DOE procedures assess, and operate DOE facilities so that workers, the general public, and the env from the impacts of natural phenomena hazards on DOE facilities. This Order specifi to be reevaluated when there is any change in design and construction standards. E INEL have undergone substantial safety analysis and seismic design review. Several

described in Volume 2, Appendix C of the EIS are proposed by DOE to replace or upgr INEL. Likewise, actions such as the transfer of fuels from potentially vulnerable facilities have resulted from the ongoing safety analysis and seismic design review No new analyses are required for INEL facilities because the EIS summarizes existin evidence relevant to understanding the existing environment, identifying reasonably and evaluating potential consequences. The evaluation of impacts is based on metho by the scientific community.
See also the responses to comments 05.08.01 (014) and 05.08.01 (030).

II COMMENT

Commentors note that the Idaho National Engineering Laboratory is designated a Unif Seismic Zone 2B and suggest that this area is not of low seismic potential as indic
RESPONSE
The UBC seismic hazard zones range from 0 to 4, with 0 being designated the lowest The Snake River Plain of Eastern Idaho is currently classified as Zone 2B, based on meetings of the professional engineering community. A small portion of the INEL s No INEL facilities are located in Zone 3. The characterization of DOE sites as hav seismic potential is correct when taken in the context of UBC Zone 4, which include intense seismic activity. In fact, the UBC accelerations are up to twice those sho Earthquake Hazard Reduction Program Maps for most of INEL. Likewise, United State Service ground motion maps (1982 and 1990) show accelerations lower than UBC values comparisons point out that the UBC maps are extremely conservative for INEL and tha hazard is less than shown on the UBC map.
DOE Order 5480.28, Natural Phenomena Hazards Mitigation, requires that DOE faciliti natural phenomena hazards mitigation requirements. The UBC design basis accelerati 0.2g (the acceleration due to gravity is 1g). Most INEL moderate- or high-hazard f are designed to a design basis acceleration of 0.24g or higher. Low-to-moderate se for INEL is further supported by the accelerations recorded at the site from the Bo which ranged from 0.078g to 0.017g. This earthquake had a moment magnitude of 6.9 magnitude of 7.3).
Regardless of the adjectival characterization of the seismic hazard at the DOE site DOE Orders require a systematic quantification of the seismic hazard for its facili probabilistic estimates of seismic hazards at other DOE sites have been used in the DOE has prepared, and INEL uses, an independently reviewed probabilistic seismic ha This study estimates earthquake ground motions and how often they might occur. Thi independently reviewed and will be incorporated into the INEL architectural and eng after review by the site Natural Phenomena Committee per DOE Order 6130.1A, General Included in this study is an estimate of ground motions at INEL facilities from a m earthquake occurring at the southern end of the Lemhi fault zone near the site boun motions exceed those that would occur as a result of moment magnitude 7.0 earthquak ends of the Lost River and Beaverhead fault zones. The 1983 Borah Peak earthquake magnitude 6.9. A study has also been performed for the Navy's Expended Core Facili presents detailed data and comparable results. See also the response to comment 05 Quantitative estimates of seismic hazards at INEL sites are in or referenced in sec Volume 1 appendices; Volume 1, Appendix D, section 4.2 ; and Volume 2, Appendix B, These estimates are more useful than adjectival or UBC characterizations for the de

II COMMENT

The commentor indicates that the EIS is inadequate because no seismic hazard zone m Specific reference was made to Volume 1, Appendix D, Part B.5.2 referring to seismi "zone maps" and that three of four waste water pits are not up to current earthquak the commentor states that facilities should be reconstructed to meet current codes of the Idaho National Engineering Laboratory with facility locations should be adde
RESPONSE
Seismic hazards and geologic analyses for INEL can be found in Volume 1, section 4. Appendix B, section 4.6; and Volume 2, section 4.6 and Appendix F-2. Seismically i discussed in Volume 2, section 5.14 and Appendix F-5. DOE takes seismic hazards ve INEL uses reviewed analyses to support the implementation of DOE Orders and standar

Volume 1, Appendix D, Chapter 4 contains sections that describe possible seismic ha site, provide general background information regarding the seismicity at these site references for more detailed information. In addition, the current UBC seismic cla provided as a means for comparing the potential for seismic hazards among sites.
The effects of seismic failure of Naval SNF management facilities have been evaluat 1, Appendix D, Chapter 5 and Attachment F provide summary and detailed discussions were performed and the public health risks that might result from a seismic event a SNF would be stored. The seismic events considered in the analyses included both an magnitude used as the basis for the design of the facility (design basis earthquake magnitude, which is more severe than that for which the facility must be designed (earthquake). These analyses show that the risks associated with seismic events inv be small for all of the alternatives and sites considered.
The three water pits that the commentor refers to were built to standards that were at the time they were built. These water pits have been reevaluated under current and found to be structurally adequate. An existing facility's seismic strength and on the building's specific characteristics as well as the seismic acceleration. Al bounds any seismically induced failure.
The information on seismic hazards used in this EIS was obtained from the available site. Because this information is specific to each site, it is more useful in unde seismic hazards than the classifications provided for large regions in the UBC maps evaluation was completed for all of the water pools at the Expended Core Facility a show that they all can withstand earthquakes for both design basis events (peak gro 0.24 g) and for beyond design basis events (peak ground acceleration of 0.4 g). Th 1, Appendix D, Attachment B that three of the water pools were designed to the seis classification in effect at the time they were built is correct, but does not mean withstand or that they do not comply with current building codes or other applicabl DOE Order 5480.28, Natural Phenomena Hazards Mitigation, sets forth DOE policy to d and operate DOE facilities so that workers, the general public and the environment impacts of natural phenomena hazards on DOE facilities. This Order specifically re reevaluated when there is any change in design and construction standards. Existin undergone continual safety analysis and seismic design review. Several of the proj Volume 2, Appendix C of the EIS are proposed by DOE to replace or upgrade facilitie Likewise, actions such as the transfer of fuels from potentially vulnerable facilit resulted from the ongoing safety analysis and seismic design reviews.
The data and methods used in the seismic hazard report referenced in Volume 2, sect Site-Specific Probabilistic Seismic Hazard Analysis for the Idaho National Engineer (Draft) were extensively and independently reviewed. This report includes graphs occurrence versus acceleration for seismic events for each major facility at INEL. incorporated into the INEL architectural and engineering standards after review by Phenomena Committee. The previous INEL seismic analysis (Earthquake Strong Ground Estimates for the Idaho National Engineering Laboratory: Final Report) was review incorporated into the site architectural and engineering standards after review by Phenomena Committee in 1992 and is referenced in Volume 2, sections 4.6 and F-2 and and location-specific seismic hazard information.
Most facilities currently in use at INEL are designed to withstand an earthquake ac higher. All of the facilities at the site lie in UBC Zone 2B, which requires that earthquake accelerations of up to 0.2g. A small portion of the INEL site lies in U no facilities in that portion of the site. DOE seismic design standards for modera facilities exceed the UBC seismic Zone 2B design criteria.
The EIS was prepared using existing references and currently published information. EIS in a layered fashion and placed much of the technical details in appendices and documentation. The references cited for Volume 1 and for Volume 2 include current existing environment and applicable environmental consequences for all sites evalua studies are referenced in Chapter 9 of both volumes and are available in reading r locations for review by the commentor and other interested members of the public.
Low-to-moderate seismic potential for INEL is further supported by the acceleration from the Borah Peak earthquake, which ranged from 0.078g to 0.017g. This earthquak magnitude of 6.9 (surface magnitude of 7.3).
The EIS summarizes all known credible scientific evidence relevant to understanding identifying reasonably foreseeable impacts, and evaluating potential consequences. up-to-date reviewed analyses when available, and the evaluation of impacts is based accepted by the scientific community. The analyses reported in the EIS evaluate th consequences, including direct, indirect, cumulative, irreversible and irretrievabl productivity losses.

II COMMENT

The commentor states that the description of the Snake River Plain as having low se by the Idaho National Engineering Laboratory's 1979 to 1981 Quarterly Seismic Repor summarize data on earthquakes "registered on or originated on the Snake River Plain
RESPONSE
The INEL Quarterly Seismic Reports cited by the commentor, available at the INEL Te show far fewer earthquakes originating on the Plain than recorded by INEL seismogra Plain. For example, the January 1982 report shows 470 earthquakes recorded by INEL the Plain for the months October through December 1981 with magnitudes ranging from Out of 470 earthquakes, only one event, with a magnitude of 1.1, was possibly locat River Plain. These reports typically show one to two events per quarter originating with magnitudes ranging from 0.1 to 1.3. When this data is compared with Figure 4. describe the Snake River Plain as having a low-level of seismic activity with respe Province. The term "aseismic" has been avoided in the EIS to eliminate confusion. Seismic hazards and geologic analyses for INEL can be found in Volume 1, section 4. Appendix B, section 4.6; and Volume 2, section 4.6 and Appendix F-2. Seismically i discussed in Volume 2, section 5.14 and Appendix F-5.
The assertion that the Snake River Plain has a low rate of seismicity is supported Volume 2, Figure 4.6-3, which represents a summary of the best available data at th EIS was compiled. The addition of subsequent seismic events in the region would no conclusion that the Snake River Plain has a low rate of seismicity with respect to Province.
See also the response to comment 05.05.01 (007).

II COMMENT

The commentor notes that the Borah Peak earthquake was a magnitude 7.3 and not a ma stated in an EIS reference.
RESPONSE
The Borah Peak earthquake, as stated in Volume 2, section 4.6.1, had a surface wave The moment magnitude for this earthquake was 6.9. Seismologists prefer to calculat earthquake energy in terms of moment magnitude because it is based on the physical and repeatable measurements (such as surface rupture length) as opposed to a surfac which is a one-time measure of a seismograph's response to an earthquake. Other me (such as Richter) cannot be determined for close, large events due to instrument sa

II COMMENT

The commentor asserts that the EIS statement that the Hanford Site is historically incorrect.
RESPONSE
The seismic hazards at the Hanford Site are described in Volume 1, section 4.1, an provided in Volume 1, Appendix A, section 4.6.3. The area of the Hanford Site has experienced several moderate-sized earthquakes. The largest earthquakes near the H approximate magnitude 4.5 event in 1918 near the town of Corfu, 35 kilometers (22 m Hanford Site, and a second event with the same approximate magnitude and location i earthquake within the Hanford Site occurred in 1971 near the location of N-Reactor River and had a magnitude of 3.8.
DOE Orders require rigorous quantification of seismic hazards. Seismic hazard stud conducted at the Hanford Site to incorporate geologic estimates for the frequency o earthquakes associated with geologic faults and tectonic zones, as reported in Volu Hanford Site is in a UBC Zone 2B (Zone 0 represents low risk and Zone 4 represents leads to design requirements to withstand moderate earthquakes.

II COMMENT

The commentor states that the Idaho National Engineering Laboratory is subject to m hazard and that other facilities at Puget Sound Naval Shipyard, the Hanford Site, L Laboratory, and Sandia National Laboratories have moderate-to-high seismic potentia
RESPONSE
Estimates of seismic hazards at the sites considered are in or are referenced in Vo through F, and Volume 2, Appendix F-2. Quantitative estimates are more useful than characterizations for the decision-making process. However, the comment is acknowl rephrased the description of seismic hazard at DOE sites.
DOE Order 5480.28, Natural Phenomena Hazards Mitigation, requires that DOE facilit natural phenomena hazards mitigation requirements. The UBC design basis accelerati 0.2g (the acceleration due to gravity is 1g). Most INEL moderate- or high-hazard n currently in use are designed or have been evaluated to a design basis acceleration Low-to-moderate seismic hazard potential for INEL is further supported by the accel INEL from the Borah Peak earthquake, which ranged from 0.078g to 0.017g. This eart moment magnitude 6.9 (surface wave magnitude 7.3).
Regardless of the adjectival characterization of the seismic hazard at DOE sites as Orders require a systematic quantification of the seismic hazard for its facilities estimates of seismic hazards at other DOE sites have been used in the EIS when avai preparing and the EIS uses a probabilistic seismic hazard assessment for facilities Operations Office. This study estimates earthquake ground motions and how often th study has been extensively and independently reviewed and will be incorporated into and engineering standards after review by INEL Natural Phenomena Committee per DOE General Design Criteria. A similar process was used in 1992 to incorporate a scien seismic analysis of INEL into INEL architectural and engineering standards. Includ estimates of accelerations at INEL facilities that would result from a moment magni occurring at the southern end of the Lemhi fault zone near the INEL boundary. Thes INEL facilities exceed those that would occur as a result of moment magnitude 7.0 e southern ends of the Lost River and Beaverhead fault zones. The 1983 Borah Peak e moment magnitude 6.9.
The Lemhi Fault and other seismic sources are discussed in Volume 1, Appendix B, se Volume 2, section 4.6 and Appendix F-2. Seismically induced accidents are discusse section 5.14 and Appendix F-5. These accident analyses indicate that the risks to small from seismic initiated events.
Existing facilities at INEL have undergone substantial safety analysis and seismic the projects described in Volume 2, Appendix C are proposed by DOE to replace or up INEL. Likewise, actions such as the transfer of fuels from potentially vulnerable facilities have resulted from the ongoing safety analysis and seismic design review All other major, moderate- and high-hazard facilities currently in use at INEL were withstand accelerations from a moment magnitude 7.0 earthquake at the southern end zone. This level of seismic safety is consistent with requirements contained in DO The accident analyses (including beyond reasonably foreseeable accidents with poten than seismically induced accidents) indicate that the risk to the public from alter EIS would be small. Therefore, additional information or characterization of reaso seismic events with lesser potential impact would have no effect on the decision-ma of detail and characterization for seismic issues is appropriate for the programmat made based on this document.

II COMMENT

The commentor questions why the overall level of seismic hazard calculated in the E National Engineering Laboratory is lower than the seismic hazard curves for either Savannah River Site, and why U.S. Geological Survey data are not used.
RESPONSE
The differences perceived by the commentor result from the site-specific data and m seismic hazards. Each site used data and models judged to be appropriate to comply standards for that location. Regardless of differences in modeling approaches, ste the professional and scientific integrity of these discussions and analyses for the adequate for evaluation and consideration of alternatives required for the programm

response to comment 05.05.01 (003).
DOE Order 5480.28, Natural Phenomena Hazard Mitigation, sets forth DOE procedures t assess, and operate DOE facilities so that workers, the general public, and the env from the impacts of natural phenomena hazards on DOE facilities. INEL uses analyse implementation of DOE Orders and standards.
U.S. Geological Survey (USGS) data are regional in scope and do not provide suffici analysis of the programmatic alternatives discussed in this EIS.

II COMMENT

The commentor states that a design basis earthquake using a two-segment rupture and 7.0 earthquake on the Lemhi fault is not conservative enough.
RESPONSE
The Lemhi fault and other seismic sources are discussed in Volume 1, Appendix B, se Volume 2, section 4.6 and Appendix F-2. Seismically induced accidents are discusse section 5.14 and Appendix F-5. These accident analyses indicate that risks to the from seismic-initiated events.
Existing facilities at INEL have undergone substantial safety analysis and seismic the projects described in Volume 2, Appendix C of the EIS are proposed by DOE to re facilities at the site. Likewise, actions such as the transfer of fuels from pote modern facilities have resulted from the ongoing safety analysis and seismic design All other major, moderate- and high-hazard facilities currently in use at INEL were accelerations that would result from a moment magnitude 7.0 earthquake at the south fault zone.
The probabilistic seismic hazard assessment is intended to capture the effects of t high-intensity seismic events. Seismic events were the only identified common-caus potential to initiate radioactive and toxic material releases to the environment. releases and impacts from individual facilities were considered in the identificati accident scenarios analyzed in this EIS. These results are conservative and ensure The two-segment rupture model is consistent with observations to date on Basin and general and paleoseismic indicators near INEL in particular.
See also the response to comment 05.05.01 (001).

II COMMENT

The commentor states that seismicity at the Idaho National Engineering Laboratory i EIS analysis.
RESPONSE
Volume 1, Appendix B, section 4.6 and Volume 2, section 4.6 discuss seismicity in r Volume 2, section 5.14 discusses how seismic events were used in the accident analy accident analyses, including seismicity assumptions, are found in Accident Assessme the Idaho National Engineering Laboratory.

II COMMENT

The commentor suggests that the seismic study in Volume 2, section 4.6 is incomple ground acceleration curves for facilities other than the Idaho Chemical Processing included.
RESPONSE
The data and methods used in the seismic hazard report referenced in Volume 2, sect includes graphs showing rate of occurrence versus ground motion for seismic events at INEL. The seismic hazard curve for the Idaho Chemical Processing Plant was incl the information contained in the INEL seismic hazard analysis [Site-Specific Probab Hazard Analysis for the Idaho National Engineering Laboratory (Draft)]. This repor incorporated into the INEL architectural and engineering standards after it is fini INEL Natural Phenomena Committee. The previous INEL seismic analysis (Earthquake S Motion Estimates for the Idaho National Engineering Laboratory: Final Report) was reviewed and incorporated into the INEL architectural and engineering standards aft

Natural Phenomena Committee in 1992. Earthquake Strong Ground Motion Estimates for National Engineering Laboratory: Final Report is referenced in Volume 2, section

II COMMENT

The commentor notes that the Idaho National Engineering Laboratory is in an area of specifically referred to the Beaverhead, Lemhi, and Lost River fault zones.
RESPONSE
Seismic hazards and geologic analyses can be found in Volume 1, section 4.6; Volume section 4.6; and Volume 2, section 4.6 and Appendix F-2. Seismically induced accid in Volume 2, section 5.14 and Appendix F-5. DOE takes seismic hazards very serious independently reviewed analyses to support the enforcement and implementation of DO standards.
DOE Order 5480.28, National Phenomena Hazards Mitigation, sets forth DOE procedures assess, and operate DOE facilities so that workers, the general public, and the env from the impacts of natural phenomena hazards on DOE facilities. This Order specif facilities to be reevaluated when there is any change in design and construction st facilities at INEL have undergone continual safety analysis and seismic design revi projects described in Volume 2, Appendix C of the EIS are proposed by DOE to replac facilities at the site. Likewise, actions such as the transfer of fuels from poten modern facilities have resulted from the ongoing safety analysis and seismic design INEL has prepared a probabilistic seismic hazard assessment for facilities at the s estimates earthquake accelerations and how often they might occur at facilities at been independently reviewed and will be incorporated into the INEL architectural an standards after it is finalized and reviewed by the site Natural Phenomena Committe conjunction with DOE Orders to design and build new facilities. Included in this s ground motions at INEL facilities that would result from a magnitude 7.0 earthquake southern end of the Lemhi fault zone near the site boundary. These ground motions that would occur as a result of magnitude 7.0 earthquakes at the southern ends of t Beaverhead fault zones.
Accident analysis results (including seismically induced accidents) indicate that t INEL operations would be small.
Major facilities currently in use at INEL were built to withstand accelerations tha earthquake at the southern end of the Lemhi fault zone.

II COMMENT

The commentor notes that the West Valley Demonstration Project facility is only abo the probable causative structure for the 1929 Attica, New York, magnitude 5.8 earth
RESPONSE
Volume 1, Appendix E, section 3.3.1 of the EIS has been revised to include seismic significance of seismic activity in the West Valley region.

II COMMENT

The commentor expresses the opinion that the geologic map in Volume 2, section 4.6 because it does not define certain major geologic features; specifically, the Arco Lava Ridge-Hell's Half Acre Volcanic Rift Zone, and the Axial Volcanic Zone.
RESPONSE
Rift zones at INEL, as discussed in the EIS, refer to volcanic rift zones in the re suggested by the commentor concerns continental or oceanic constructive tectonic pl while correct, is not appropriate with respect to local conditions.
Important regional geologic features are included in Volume 2, section 4.6. A map significant volcanic rift zones in and near INEL can be found in the Engineering De Water Resources Supporting Document for the INEL Environmental Restoration and Wast Management EIS (Draft) in Volume 2, Appendix F. Many geologic maps of INEL and ad available in the open literature. Some of this literature is cited and referenced i including USGS reports and maps.

DOE added a more detailed geologic map of INEL to the EIS.

II COMMENT

The commentor suggests that analysis of seismic and volcanic hazards be fully revie
Geologic Survey and other qualified experts.
RESPONSE
Consistent with DOE Orders and standards, INEL seismic hazards assessments and meth
independently reviewed by many expert seismologists and geologists. These include
Events Review Group, a panel of seismic, geologic and structural engineering expert
seismic siting and design of high-hazard facilities; the Lawrence Livermore Volcani
Defense Nuclear Facilities Safety Board; Woodward-Clyde, Inc.; Risk Engineering, In
University; University of Utah; State University of New York at Binghamton; Souther
University; Idaho State University; the U.S. Geological Survey; and Boise State Uni
extensive nature of this review, DOE believes additional review is not necessary.
See also the response to comment 05.05 (015).

II COMMENT

The commentor points out that the Uniform Building Code contains four Seismic Risk
RESPONSE
The EIS has been revised to reflect that there are more than three Uniform Building

II 5.6 Land Use

II COMMENT

The commentor notes that the list of Federal outdoor recreation facilities in Volum
Three, section 4.2 should be expanded, and Figure 4.2-2 should be updated.
RESPONSE
The list of Federal outdoor recreation facilities identified in the text and figure
Part Three, section 4.2 is not intended to be all inclusive. However, the list of
recreation facilities has been revised to include other major facilities.

II COMMENT

The commentor, referring to Volume 1, Appendix F, notes that the acreage needed for
whether 90 or 120 acres, is unclear.
RESPONSE
Construction of SNF management facilities would require 90 acres. Under the Centra
an Expended Core Facility would also need to be constructed; this would require an
The data in Volume 1, Appendix F, Parts Two and Three, Table 3.2-1 for the Centrali
include the requirements of the Expended Core Facility, which are discussed in Volu
To clarify the acreage requirements, a footnote has been added to Volume 1, Appendi
Three, Table 3.2-1, and the text of Volume 1, Appendix F, section 3.2 has been revi

II COMMENT

The commentor supports the banning of grazing on Idaho National Engineering Laborat
re-establishment of natural vegetation.
RESPONSE
Grazing policies are not within the scope of this EIS. The U.S. Department of the
Management is responsible for those policies.

II COMMENT

The commentor states that the EIS land-use analysis does not identify policies or t process, or provide an opportunity for public input on specific projects.
RESPONSE
The EIS identifies DOE land-use plans and policies applicable to INEL in Volume 2, land-use policies are also identified in Volume 2, section 4.2. For details of the commentor is encouraged to consult the specific documents referenced in the EIS, wh reading rooms and information locations listed in the EIS. Also, DOE has establish Office, which is identifying stakeholder-preferred future use options at the 25 DOE 1995. Future use options are defined as a select range of preferred uses forged wi stakeholder desires and DOE missions, and tempered by technical, and legal constrai

II COMMENT

The commentor requests an explanation of how percentages were calculated for acres National Engineering Laboratory under each alternative.
RESPONSE
Calculations of the acreage that would be disturbed by proposed projects under each based on figures contained in individual project data sheets found in Volume 2, App section 3.3 has been changed to show how the acreages disturbed were calculated.

II COMMENT

The commentor states that the EIS fails to consider impacts of the alternatives on Idaho National Engineering Laboratory land such as hunting, grazing, and tribal cer purposes.
RESPONSE
Volume 2, section 4.2 identifies the portions of INEL that are used for hunting and section 4.4 discusses traditional resources that are of cultural or religious impor Americans. All of these land uses are outside of the facility areas where the prop various EIS alternatives would be implemented. Consequently, no impacts to hunting nor to tribal ceremonial or religious uses, are expected. The future use of land w local Native Americans to assess any potential impacts of future proposed activitie

II COMMENT

The commentor requests that the EIS describe and identify the locations of specific making land-use decisions under the Federal Facilities Agreement and Consent Order, identify the role of regulatory agencies in making future land-use decisions under Agreement and Consent Order for Idaho National Engineering Laboratory.
RESPONSE
The specific location of proposed actions at INEL are identified in the project sum Appendix C. The number of acres disturbed for each project is also provided in thi The locations of projects not covered by this EIS will be identified in subsequent Environmental Response, Compensation, and Liability Act (CERCLA) documents.
The Federal Facilities Agreement and Consent Order (FFA/CO) process does not entail "decisions." Rather, assumptions for future land uses at INEL will be made for the the appropriate level of cleanup at each operable unit. In August, 1994, the DOE I issued for public comment the Idaho National Engineering Laboratory Long-Term Land Scenarios . This document set forth various land-use scenarios that could be assum long-term activities at INEL. Public comments on the document were received, and c reviewed and addressed as appropriate.
In accordance with CERCLA and the FFA/CO, the Idaho Department of Health and Welfar Region X will be part of the decision-making process on the appropriate level of cl

requested comments on the Idaho National Engineering Laboratory Long-Term Land Use Scenarios from the State of Idaho and EPA Region X.

II COMMENT

The commentor states that the EIS needs to address whether the impacts from land us National Engineering Laboratory are permanent or temporary.
RESPONSE
Volume 2, section 5.18 states that disposal of radioactive or hazardous wastes woul irretrievable (i.e., permanent) commitments of land resources under the Ten-Year Pl Treatment, Storage, and Disposal alternatives. The affected acreage is also identi waste treatment, storage, and disposal activities would be reserved for those purpo this land would be precluded during the time period addressed by the EIS.

II COMMENT

The commentor states that the proposed placement of spent nuclear fuel facilities a would be inconsistent with the DOE 1994 draft future land use plan for the Nevada T designates that portion of Area 5 as a "nonnuclear test area."
RESPONSE
The NTS future land use plan has three area designations: underground nuclear weap proposed high-level radioactive waste repository area, and nonnuclear test area. T broad, providing general guidance for future activities. The underground nuclear w general characteristics suitable for nuclear weapons tests, although some localized suitable because of terrain, previous uses, local geologic features, or other reaso purposes. The proposed high-level radioactive waste area has been reserved to supp site characterization at Yucca Mountain, and is not available for other uses at thi test area is an area where weapons testing is not conducted and is available for ot appropriate by DOE, such as siting SNF management facilities.

II COMMENT

The commentor states that DOE has summarily dismissed the alternative of restoring Engineering Laboratory to pristine conditions as unreasonable and that DOE is ignor Additionally, the commentor states that the presence of cultural resources on the I Engineering Laboratory should qualify the Idaho National Engineering Laboratory as resource, thereby requiring restoration of the site.
RESPONSE
Environmental restoration activities at INEL are being conducted in accordance with December 4, 1991. Restoration activities will comply with the requirements of CERC not require restoration to pristine conditions, but are designed to assure protecti environment in a cost-effective manner.

II COMMENT

The commentor states that the analysis of land-use impacts is fundamentally flawed "there are no Native American treaty rights that would affect any future land use o commentor states that the Fort Bridger Treaty expressly reserves the rights of the Tribes to use unoccupied lands of the U.S., and the Tribes will exercise these righ National Engineering Laboratory goes away or releases portions of land.
RESPONSE
The commentor is correct that the Fort Bridger Treaty of 1869 reserves certain futu Shoshone-Bannock Tribes to use lands on the INEL site to the extent that those land future become unoccupied. The analysis of land-use impacts in the EIS is limited t scope of the EIS. The time period for Volume 2 analysis is the 10 years from June 2005; the time period for Volume 1 analysis is 40 years, with detailed impact analy

actions occurring from June 1, 1995 to June 1, 2005. During the time periods cover does not plan to relinquish ownership and control of the INEL site. Discussions of of 1869 in Volume 1, Appendix B and Volume 2 of the EIS have been changed to more c this issue.

II COMMENT

The commentor requests information be included in the EIS on the approach related t that would be used to transfer Idaho National Engineering Laboratory land to other sector and DOE's and other agencies' responsibilities in the land transfer process
RESPONSE
The lands and facilities that are evaluated under the alternatives in this EIS are over to other government agencies or the private sector within the time considered Consequently, the subject of transfer of government lands to other government agenc sector is outside the scope of this EIS.

II COMMENT

The commentor objects to a land-use scenario projected by a draft DOE Idaho Operati and states that Idaho National Engineering Laboratory lands should remain as wildli not be returned to the public for uses such as housing.
RESPONSE
This is in reference to a draft document entitled Long-Term Land Use Future Scenari National Engineering Laboratory. The purpose of the land use scenarios document is decisions regarding environmental restoration activities at INEL by projecting reas scenarios for the next 100 years. The current land use status, that is, Federal Go INEL, would not change under any of the alternatives analyzed in the EIS.

II 5.7 Utilities and Infrastructure

II COMMENT

The commentor asks whether recycling and the use of lined evaporation ponds have re increase or decrease in net consumptive water use at the Idaho National Engineering
RESPONSE
Currently, there are no major water recycling projects at INEL. Consumptive water probably increased since the use of lined evaporation ponds because water no longer No studies have quantitatively evaluated the magnitude of increase since switching However, it is likely that the increase is small with respect to total water use at

II COMMENT

The commentor questions why the electrical usage rate at the Idaho National Enginee expected to decline.
RESPONSE
Volume 1, Appendix B, section 4.13 describes the 1995 baseline electrical usage at at INEL is expected to decline when Navy prototype training at the Naval Reactors F

II COMMENT

The commentor notes that only sanitary waste water discharges are reported in Volum section 4.13.4, and that additional waste water discharges from specific projects w River Plain aquifer. The commentor asserts that the EIS seriously underestimates t

water discharge from 1989 through 1991, based on a comparison of discharges reporte (537 million liters per year) with those reported in INEL Nonradiological Waste Man Information System (6.8 billion liters/year). The commentor asks how this differen whether this will impact the analysis of impacts on the aquifer.
RESPONSE
As used in Volume 1, Appendix B, section 4.13.4, the term "waste water" refers prim wastes. DOE has clarified this in the EIS. As noted in Volume 1, Appendix B, secti withdrawal from the aquifer by INEL is approximately 1.9 x E+9 gallons per year. O substantial portion is discharged to the surface and is eventually returned to the are presented in the EIS. Because of the small percentage of water consumed with r rights, and volume of water in the aquifer under INEL, there would be a small impac the aquifer under all alternatives considered.

II COMMENT

The commentor identifies a discrepancy in terminology between sections regarding th Laboratory water rights.
RESPONSE
Volume 2, section 4.13 has been changed to refer to INEL water rights as a Federal

II COMMENT

The commentor would like Volume 2, section 5.1.3 to clarify whether projected waste limited to sewage.
RESPONSE
This discussion in section 5.13 has been modified as requested.

II 5.8 Water Resources

II COMMENT

The commentor states that the discussion in Volume 2 concentrates on radioactive wa nonradioactive effluents.
RESPONSE
Contaminants, including nonradioactive contaminants, are discussed in Volume 2, sec Nonradioactive contaminants at INEL were included in the analysis process performed (Predicted Consequences on the Snake River Plain Aquifer of Alternative Actions 1 a screening identified just three analytes, all radionuclides, with plumes above curr contaminants were selected for detailed analysis of potential consequences on the S aquifer and are the main constituents within the contaminant plumes. In addition, including nonradioactive contaminants, are discussed in Volume 2, section 5.8.

II COMMENT

The commentor suggests that there be more information on expected constituents and waste streams for proposed actions at the Idaho National Engineering Laboratory in of the EIS. The commentor expresses the opinion that a decision of "no impact" can inadequately characterized waste streams or source terms.
RESPONSE
Anticipated projects have been included in the EIS to present readers with as compr forthcoming projects as is currently possible. These anticipated projects have bee evaluated to attempt to bound reasonably foreseeable environmental impacts from suc review is performed on such activities when applicable, prior to initiation. At su information on secondary waste generation would be available for an assessment of i management. NEPA status of environmental restoration and waste management projects

INEL is discussed in the Summary (see box titled Projects Related to Alternatives i of the Summary, and in Volume 2, Table 3.1-1.)

II COMMENT

The commentor notes that data exist that indicate other contaminants in perched wat Waste Management Complex, Test Reactor Area, Idaho Chemical Processing Plant, and T have been detected in perched water zones, and that these data should have been inc Appendix B, section 4.8.2.
RESPONSE
The EIS has been changed to address the comment by indicating the presence of other have been identified in the perched water at INEL.

II COMMENT

The commentor states that in the Oak Ridge Reservation discussion, 914 meters (3,00 is inappropriately represented as being close to the source.
RESPONSE
The discussion of water resources for ORR in Volume 1, Appendix F, Part Three, sect revised.

II COMMENT

Commentors suggest addition of the location where Las Vegas currently gets its wate to the discussion on the Nevada Test Site in Volume 1 of the EIS.
RESPONSE
Water use at NTS will not impact Las Vegas water use because NTS obtains its water groundwater basin that is separate from the Las Vegas groundwater basin. Additiona 70 to 80 percent of its water from the Colorado River. Volume 1, Appendix F, Part to more accurately reflect where Las Vegas gets its water.

II COMMENT

A commentor states there is a need to clarify the assumption regarding the spent nu supply from the Area 5 wells and distribution system at the Nevada Test Site. A co that the increased use of an aquifer currently in overdraft should constitute a sig effect, regardless of the user's right to that water.
RESPONSE
As indicated in Volume 1, Appendix F, Part Two, section 5.13, the water wells and p Area 5 of the NTS have sufficient capacity to meet the requirements for the propose proposed facility location is in the vicinity of the Area 5 water lines. Therefore infrastructure would be adequate to supply SNF facility water.
The commentor correctly states that water rights should not be a factor in the dete significance of groundwater use impacts, and in fact, those water rights given to t the area of NTS were not considered in the impact determination made in the EIS. T Federal water rights was included in the EIS for information purposes only.
The discussion of groundwater quantity issues in Volume 1, Appendix F, Part Two, se revised to include a more comprehensive analysis of potential impacts on groundwate the estimated perennial yield of the Frenchman Flat subbasin has been exceeded for with no decline in static water levels, it is likely that increased water use for S sustained. The overall impact of any groundwater withdrawal in Frenchman Flats is discharge in the deserts to the southwest of NTS. SNF operations would decrease th by 0.04 percent of the approximated 1992 discharge; therefore, impacts to groundwa be small from SNF operations. More detailed analysis, such as that proposed by th be done if the NTS were chosen as a site for SNF management activities.

II II COMMENT

Commentors state that a summary table of water used and water consumed be provided alternative, as well as a discussion of impacts in Volume 1, Appendix B, section 5.
RESPONSE
Volume 1, Appendix B, section 5.8 discusses the alternative that would represent th use/consumption and provides water consumption in both gallons and cubic meters. I the greatest projected water use is shown to have a small impact on the aquifer, th likewise be small. There is additional detail in Volume 2, section 5.8.

II COMMENT

The commentor states that reference should be made to the increased consumption of National Engineering Laboratory as a result of the alternatives analyzed.
RESPONSE
The use of groundwater by the alternatives analyzed in the EIS for INEL is discusse section 5.8 and Appendix C. In general, increased construction activity and new fa a net increase in consumptive water use. The maximum increase in net consumptive w alternative is expected to be less than 5 percent of current water use at INEL. Th to reflect more accurate water use estimates.

II COMMENT

The commentor discusses the use of the term "aquitard" in Volume 1, Appendix F, Par describe certain geologic units on the Oak Ridge Reservation. The commentor notes published reports by State of Tennessee geologists, all the geologic units underlyi Reservation were referred to as "aquifers" and it was stated that sufficient water usually obtained from wells at depths of 18 meters (60 feet) or less in the Conasau notably the Pumpkin Valley shale unit of the Conasauga Group, were noted to be poor
RESPONSE
An aquifer is a body of rock or sediment in a formation, group of formations, or pa saturated and sufficiently permeable to transmit economic quantities of water to we aquitard, on the other hand is a confining bed that will tend to retard, but does n water to or from an adjacent aquifer. It may serve as a storage unit, but will not or springs. The Geology Resources and Water Resources sections of the EIS were pre recently published material. No site-specific field study was conducted. Recent l there are several formations beneath ORR with varying ability to store and transmit springs. It is agreed that the Pumpkin Valley Shale could very well be referred to it has been shown to have poor transmissivity capabilities. Recently published re Report: A Hydrologic Framework for the Oak Ridge Reservation, and Status Report on the Oak Ridge Reservation have all used the term "aquitard" to describe the Pumpkin number of the other geologic units beneath the ORR.
Pumpkin Valley Shale is the oldest of six formations within the Conasauga Group and group. No site-specific data are available to determine at what depth Pumpkin Vall at the West Bear Creek Valley site. It is logical, however, to think that at depth less on the site, the water- bearing unit most likely to be encountered would be an Conasauga Group. If the ORR is chosen as a site for new SNF management facilities, water and groundwater studies would be performed to identify and characterize the s The level of detail desired by the commentor for the data analysis is not appropria will be based on this programmatic document, and would not provide any information decisionmakers. This broad environmental review document has been prepared in acco provisions of NEPA and CEQ implementing regulations, which allow for a broad focus the subject of the decision. Additional, more specific data, such as that proposed would be provided, if necessary, in further site-specific environmental documents. Geology and water resources for ORR are discussed in the EIS in Volume 1, Appendix sections 4.6 and 4.8.

II COMMENT

Commentors state that the EIS treats the complex fracture flow system in the clasti system of carbonate rocks of the Oak Ridge Reservation simplistically, that the sys modeled, and that the system is not well enough understood to support the broad con groundwater in the "aquitards" is essentially static or that these units are able t
RESPONSE
DOE agrees that the ORR groundwater system is complex. It is difficult to characte highly fractured and folded complex geologic settings. However, a full and detaile complex fracture-contaminated flow processes on the ORR is beyond the scope of this The EIS description and analysis of hydrologic conditions at ORR was developed from hydrologic literature, including Status Report: A Hydrologic Framework for the Oak Based on these sources, the EIS analysis of potential groundwater impacts of SNF st assume that the aquitards "contain contaminants," but rather that these units are c short-flow paths and that solute residence times increase sharply with depth. In t intervals, estimates of residence times from carbon 14 measurements and modeling ar thousands of years as stated in Status Report: A Hydrologic Framework for the Oak Volume 1, Appendix F, Part Three, section 5.8.4 has been revised to more accurately the EIS discussion of potential groundwater quality impacts.
Very little potential exists for contamination of the Knox aquifer from the operati management facilities. These facilities would be constructed using technologies th containment, leak detection, and water-balance monitoring equipment. Therefore, no environmental consequences related to water resources are anticipated from the oper management facilities.
A detailed description of groundwater flow would require an in-depth site-specific hydrogeology study. If ORR is selected as a site for new SNF management facilitie be performed.
Geology and water resources for ORR are discussed in the EIS in Volume 1, Appendix sections 4.6 and 4.8.

II COMMENT

The commentor states that karst features at the Oak Ridge Reservation (e.g., sinkho etc.), exist in certain geologic units within the Conasauga and Chickamauga Groups, aquifers within those units.
RESPONSE
This comment is addressed by statements included in the EIS, Volume 1, Appendix F, 4.6. The EIS states that karst development is present to varying degrees in the ca Conasauga Group, most notably in the Maynardville Limestone, part of the Knox aquif states that "Although no site-specific geologic characterization has been conducted Valley site, it appears the proposed Spent Nuclear Fuel Management Facility is loca Conasauga Group strata not normally characterized by karst development." Site-spec hydrogeologic investigations would be necessary to verify this if ORR is chosen as management facilities.

II COMMENT

Commentors state they are concerned with the high cost to owners/operators of priva systems to conduct water quality testing due to the potential impact of past, prese management activities on the Snake River Plain aquifer.
RESPONSE
Independent assessments of the Snake River Plain aquifer water quality at INEL conf environmental monitoring results that indicate that no contaminants in concentratio DOE DCGs exist beyond the INEL boundary. With improved management practices and re efforts planned or under way, it is likely that water quality in the Snake River Pl will continue to improve. Therefore, there is no INEL-related cost to local water groundwater outside the INEL boundary, because independent assessments indicate tha aquifer contamination outside the INEL boundary is small with respect to EPA MCLs o

II COMMENT

The commentor states that the potential exists for a deeper, more active flow regim Reservation.
The commentor states that it is erroneous to dismiss the possibility of deep contam groundwater at the Oak Ridge Reservation, suggesting that the reason there is littl contaminant transfer is that there is little data on the deep aquifer.
RESPONSE
Information provided in Volume 1, Appendix F, Part Three, section 4.8 was developed published hydrologic literature on the ORR including Status Report: A Hydrologic Fr Oak Ridge Reservation and recent site environmental reports. For the purpose of th information was beyond that which would be necessary to understand the effects of t ORR is chosen as a site for new SNF management facilities, site-specific groundwate performed.
The EIS discussion of groundwater conditions at ORR and the EIS analysis of potenti impacts, including the statement that there is little deep groundwater flow in the aquitards, were based on information and analysis in published hydrologic literatur Volume 1, Appendix F, Part Three, section 4.8 and references cited there.) These s dismiss the possibility of deep flow, but state that water budget analyses and obse groundwater flow and near-surface conditions indicate that almost all groundwater f ground surface.
Geology and water resources for ORR are discussed in the EIS in Volume 1, Appendix sections 4.6 and 4.8.

II COMMENT

The commentor notes that vadose zone conductivity values derived from slug tests at Reservation may be understated in the EIS.
RESPONSE
It is true that smearing of clays by the drill bit during well installations, and o testing, could reveal conductivity values less than what actually exist in nature. quoted in the Water Resources section of the EIS were obtained from Status Report: Framework for the Oak Ridge Reservation. This reference cites that saturated hydra measurements were in fact conducted using infiltration tests as well as packer test Geology and water resources for the Oak Ridge Reservation are discussed in the EIS Appendix F, Part Three, sections 4.6 and 4.8.

II COMMENT

The commentor states that the discussion in Volume 1, Appendix B, section 4.8 on pe aquifer is incorrect. Perching layers are impermeable, not impervious, and so down occur and impact the aquifer.
RESPONSE
Perching layers are relatively impermeable. While some small amount of water may p impermeable layer, the main flow is lateral until the edges of the impermeable bed continues downward. The section of the EIS cited by the commentor accurately descr of water around and through these impermeable layers in the Snake River Plain aquif

II COMMENT

The commentor notes that the likely source of nitrates detected in springs that flo limestone is the Conasauga Shales at the Oak Ridge Reservation. This contamination inability of the shales to keep contaminants from migrating to the Knox aquifer.
RESPONSE
Most of the Y-12 Plant is underlain by units included in the Conasauga aquitard. H

Maynardville limestone (Knox aquifer) also underlies a portion of the Y-12 Plant. properties of these rock units, proposed SNF management facilities are designed to of waste water with hazardous chemical or radiological characteristics. These faci constructed using technologies that include secondary containment, leak detection, monitoring equipment. Therefore, no significant environmental consequences related are anticipated from the operation of SNF management facilities.
Detailed analyses of existing contaminant sources and transport pathways are beyond If ORR is selected for new SNF management facilities, site-specific groundwater st performed. The level of detail desired by the commentor for the data analysis is n decisions that will be made based on this programmatic document, and would not prov that would assist decisionmakers. This broad environmental review document has bee accordance with the provisions of NEPA and CEQ implementing regulations that allow broad focus on issues related to the subject of the decision. More specific data, the commentor, would be provided, if necessary, in further site-specific environmen Geology and water resources for ORR are discussed in Volume 1, Appendix F, Part Thr 4.8.

II COMMENT

Commentors discuss the porous nature of the Eastern Snake River Plain and the poten present, or future DOE activities related to spent nuclear fuel management at the I Engineering Laboratory on water quality of the Snake River Plain aquifer.
RESPONSE
Water resources at INEL and impacts resulting from SNF alternatives are described i B, sections 4.8 and 5.8. There would be no significant impacts to the aquifer unde Environmental monitoring shows that INEL operations have not contaminated the Snake aquifer above EPA limits beyond the INEL boundaries. Liquid effluent monitoring an containment construction would limit operational releases from a new facility to ne modeling using assumptions, including scientifically defensible assumptions regardi increase the potential impacts to the aquifer from past, present, and future activi show that groundwater quality will not be significantly impacted, because radioacti contaminant discharges to the soil or aquifer would not occur in concentrations abo DCGs. Furthermore, it is likely that overall aquifer water quality will continue t regardless of the EIS alternative chosen for SNF management.
Water resources and impacts from all waste management and environmental restoration alternatives, considered for the INEL are described in Volume 2, sections 4.8 and 5 all the alternatives considered, the possible future sources of contamination would previous practices. This would be a result of waste management practices that incl discharge monitoring, as well as natural contaminant attenuation and radioactive de releases. Computer groundwater modeling using conservative parameters (discussed i Appendix F) indicates that existing contaminant plumes within the INEL boundary wou decrease at least through 2035. The modeling further indicates that overall aquife would actually improve in that period and probably continue to improve after 2035.
A hypothetical accident involving the instantaneous release of the contents of a hi to a once-every-50,000-years seismic event represents the situation with the most p Snake River Plain aquifer and is discussed in Volume 2, section 5.14 and Appendix F scenario, maximum radionuclide concentrations are predicted to reach the INEL bound concentrations less than EPA MCLs or DOE DCGs 300 years after the accident.
Independent assessments of the Snake River Plain aquifer water quality at INEL conf environmental monitoring results that indicate that no contaminants in concentratio DOE DCGs exist beyond the INEL boundary. With improved management practices and re efforts planned or under way, it is likely that overall water quality in the Snake the INEL will continue to improve.
As stated in Volume 2 Appendix F-2, the effects of porosity have been accounted for described. The analysis shows that for all alternatives considered, impacts would

II COMMENT

The commentor states the need for accuracy in modeling impacts of Idaho National En waste management activities on the Snake River Plain aquifer.

RESPONSE
A description of water resources and potential environmental consequences to water including the Snake River Plain aquifer, is discussed in Volumes 1 and 2, sections analysis performed for the EIS integrated available data and technical information to evaluate contaminant transport and predict future trends in aquifer water qualit was completed through 2035 to add assurance to the conclusions reached in the docum concludes that overall aquifer water quality would actually improve over this perio methodology and assumptions used for the computer modeling effort is in Volume 2, A

II COMMENT

The commentor suggests that the reburial of plutonium in Pit 9 will pose a threat t aquifer.
RESPONSE
According to page 13 of the Pit 9 Demonstration Record of Decision (ROD), plutonium Subsurface Disposal Area, but not in interbeds 9 meters (30 feet) or 73 meters (240 surface. The presence of plutonium in the 34-meter (110-foot) sediment layer has b attributed to flooding of the Subsurface Disposal Area in 1969 from rapid thawing o flooding is now prevented by a 5-meter (15-foot) dike around the Subsurface Disposa Transport modeling was conducted for the less than 10 nanocuries per gram transuran be left in or returned to Pit 9 to evaluate potential contaminant migration to the Modeling results indicated that the Safe Drinking Water Act standard of 15 picocuri alpha radioactivity will not be exceeded anywhere in the Snake River Plain aquifer layer of clean soil with a linear absorption coefficient of at least 500 milliliter bottom of the pit and if the pit is backfilled to grade with clean soil. The Pit R the Pit 9 Administrative Record evaluated human health risks from 10 nanocuries per residuals left in the pit after cleanup. Modeling of radionuclide transport to the indicates that no migration to the aquifer is expected within 1,000 years. Residua will be reevaluated in the baseline risk assessment to be performed as part of the

II COMMENT

The commentor states that Volume 1, Appendix B, Table 4.8-1 should include actual d background levels and asks if groundwater includes the vadose zone, perched water, aquifer.
RESPONSE
Table 4.8-1 did not include the detection limits and background values because this complicate the table. The point being made by the table is that recent conditions a within background levels and detection limits. Detection limits and background lev references in Volume 1, Appendix B, Table 4.8-1 and references in section 4.8. Gro water, and the vadose zone are discussed separately in the EIS.
Volume 1, Appendix B, Table 4.8-1 specifically refers to groundwater quality in the aquifer. As discussed and defined in the EIS, locally saturated conditions above t perched water, while groundwater refers to usable quantities of water within an aqu in the vadose zone is referred to as vadose water. Because perched water occurs wi is vadose water.

II COMMENT

The commentor notes that discussions in Volume 1, Appendix B, section 4.8 should co aquifer conditions with both Environmental Protection Agency existing and proposed standards, and that proposed maximum contaminant levels are not appropriate for the quality in Volume 1, section 4.2 of the EIS.
RESPONSE
A comparison of each contaminant with existing EPA MCLs with proposed MCLs is in Vo Appendix B, Table 4.8-1. The summary material in Volume 1 has been enhanced to com contaminant levels, where established, with existing EPA MCLs.
For americium-241, plutonium-238, plutonium-239, and plutonium-240, comparisons hav

gross alpha particle activity contaminant levels for drinking water.
The EIS includes comparisons with proposed EPA MCLs because the proposed standards comparative benchmark for comparison of radionuclide concentrations than do the exi

II COMMENT

The commentor states he would like to see a single data base for Snake River Plain the development of a new model to analyze groundwater contaminant dispersion at the Engineering Laboratory.
RESPONSE
Most of the Snake River Plain aquifer data collected historically at INEL is retain INEL became involved in environmental restoration, a significant quantity of additi has been collected. Efforts have been made to integrate this data, with maintenanc within each contractor organization. With the realization that contractors would b recognizing the advantage to both the public and INEL, the integration of data base repository is being evaluated by DOE and the new INEL contractor.
The modeling efforts conducted for the EIS used the latest information and developm INEL personnel. Details regarding this modeling effort are discussed in Volume 2, Additional efforts are under way to model contaminant transport and dispersion in s environmental restoration activities associated with Waste Area Group 10 for the Co River Plain Aquifer Remedial Investigation/Feasibility Study. This modeling effort continue to be reviewed by EPA, the State of Idaho, and DOE in accordance with the

II COMMENT

The commentor recommends further discussion of the extent to which contaminant migr groundwater at the Idaho National Engineering Laboratory would differ as a result o remediation under each alternative.
RESPONSE
Remedial Action activities at INEL would not differ between the Ten-Year Plan; Mini Storage, and Disposal; and Maximum Treatment, Storage, and Disposal alternatives, a Volume 2, section 3.1.2. The only change in remediation activities occurs with the Only ongoing remediation efforts would be continued under the No Action alternative with this alternative have been analyzed and are discussed in the EIS.
The differences in groundwater contamination are minimal for each of the alternativ modeling conducted for this EIS indicates that under all alternatives, overall grou continues to improve. Volume 2, section 5.8 and Appendix C describe groundwater re and indicate that groundwater quality is likely to improve under each of the altern

II COMMENT

The commentor states that increased water use at the Idaho National Engineering Lab surface subsidence and collapse.
RESPONSE
High transmissivity (ability to transmit water) and productivity (ability to produc drawdown or water level decline in or near the well) of the Snake River Plain aquif collapse of the surface above a producing well will not occur. Historically, groun pumping has not been observed at INEL. Any potential increase to aquifer pumping u alternatives is less than a 5 percent maximum increase in current production at the Additional discussion and references on INEL groundwater can be found in Volume 1, section 4.8, and Volume 2, section 4.8 and Appendix F-2.

II COMMENT

The commentor asks that DOE specify the degree of certainty and scientific basis fo in Idaho National Engineering Laboratory groundwater modeling predictions.

RESPONSE
High confidence in predicting future movement of existing contaminant plumes in the decades of monitoring by the USGS and others that have provided good estimates of p kilometers (1 to 6 miles)] contaminant transport parameters and the importance of r precisely known parameter) in contaminant reduction. For example, the tritium plum frequent samples in numerous wells has been receding in recent years. The position plume relative to the INEL boundary has been relatively stationary from 1980 to 199 the rock and radioactive decay. The measured iodine-129 plume movement has been sl of the plume is shrinking. Predictive modeling of future contaminant movement is a quantitatively and independently measured trends. Parameters used in predictive mo discharge monitoring and control (as discussed below) ensures that there is a high these trends will continue.
INEL's decreasing impact on groundwater resources is verified by the results of gro conducted by independent agencies such as the USGS and the State of Idaho INEL Over These independent assessments confirm DOE environmental monitoring results that no concentrations above EPA MCLs or DOE DCGs exist beyond the INEL boundary. Together improved management practices and remediation efforts planned or under way, it is l water quality in the Snake River Plain aquifer below INEL will continue to improve plumes (areas in the aquifer with contaminant concentrations above EPA MCLs or DOE continue to recede.

II COMMENT

Commentors discuss cleanup of the aquifer at the Idaho National Engineering Laborat commentors state that cleanup of contaminated groundwater is not addressed in the E rationale is presented for eliminating this alternative from further consideration, will result from failure to conduct complete cleanup. In addition, a commentor sta nothing about radioactive contamination of the Snake River Plain aquifer.
RESPONSE
Volume 2, section 3.1.2 of the EIS describes the alternatives for SNF management an and environmental restoration at INEL within the 10 years covered by the EIS. All No Action alternative) include the completion of all remedial investigations/feasib under the INEL FFA/CO. The draft ROD for the Waste Area Group 10 Comprehensive/Sna Aquifer Remedial Investigation/Feasibility Study, scheduled for May 2001, will make the level of cleanup for the Snake River Plain aquifer.
Volume 2, Appendix C describes subsurface remediation projects at INEL. The evalua bounds environmental impacts from environmental restoration (or cleanup) activities specific decisions related to cleanup at INEL generally are addressed under an enfo executed by DOE, EPA Region X, and the State of Idaho on December 9, 1991, the FFA/ FFA/CO establishes a comprehensive process integrating the remediation requirements the corrective action requirements of the Resource Conservation and Recovery Act (R of Idaho's Hazardous Waste Management Act. Cleanup activities are conducted under schedule established in the FFA/CO. RODs under the FFA/CO process are signed by al and represent a joint determination that protectiveness will be achieved through im selected remedy.
DOE is committed to implementing RODs that result from this process. The EIS does alternatives for specific remedial projects because these are inherently project-sp because it is DOE policy to use the CERCLA process to consider the environmental im actions.

II COMMENT

Commentors state that measurable effects on the Snake River Plain aquifer have occu Idaho National Engineering Laboratory activities and these effects should be discus in excess of any water quality standard. Additionally, one commentor notes that wa compared with existing, rather than proposed, standards.
RESPONSE
Volume 1, Appendix B and Volume 2 of the EIS discuss natural water chemistry, past practices, resulting contamination levels in groundwater on the INEL site, at the s the boundary. Contamination levels are presented even when they are below existing

standards. Because contamination levels are shown to be declining, and concentrati
been above levels that would prohibit any water uses, the subject was given appropr
Volume 1, Appendix B, DOE compares the water quality with both the current and the
standards.

II COMMENT

The commentor states that an explanation of the reasons that increasing subsurface
attenuation and migration of localized contaminants is needed.
RESPONSE
The commentor is correct, and the text has been changed to address the comment. Th
subsurface attenuation has been deleted from the text of Volume 2, section 4.8.

II COMMENT

Commentors state they are concerned that geologic conditions and past practices at
Engineering Laboratory could contaminate the Snake River Plain aquifer.
RESPONSE
An accident scenario resulting in maximum groundwater contamination at INEL was ana
results are presented in Volume 2, section 5.14 and Appendix F. The analysis was p
the effects of such an accident on the Snake River Plain aquifer. The hypothetical
instant failure of a high-level waste tank due to an earthquake with a probability
of once every 50,000 years. For comparison, DOE and commercial reactors are design
seismic events that might occur once every 5,000 to 10,000 years.
The groundwater analysis assumed total failure of the containment and no mitigating
flow from the waste tank into the soil immediately following the failure. This hyp
represents the situation with the most potential impact on the aquifer. Maximum r
concentrations would be predicted to reach the INEL boundary 300 years after the hy
concentrations less than EPA MCLs or DOE DCGs.
DOE is committed to operating INEL in compliance with all applicable Federal, state
regulations and standards pertaining to protecting surface and groundwater resource
that previous waste discharges to unlined ponds and deep wells have resulted in the
contaminants to the subsurface at INEL; however, because of improved waste manageme
discharges have been reduced or eliminated and regional groundwater quality continu
Volume 2, section 5.8.6, the water resource impacts associated with the alternative
The conclusions are that implementation of any of the alternatives would result in
quality of water leaving INEL.
The protection of water resources is verified by the results of groundwater monitor
independent agencies such as the USGS and State of Idaho INEL Oversight Program. T
assessments confirm DOE environmental monitoring results, which indicate that no co
concentrations above EPA MCLs or DOE DCGs exist beyond the INEL boundary and that t
concentrations of contaminants that would cause impacts exceeding those impacts ass
accidents analyzed in Volume 2, section 5.14. With improved management practices a
efforts planned or under way, it is likely that water quality in the Snake River Pl
will continue to improve.

II COMMENT

The commentor asks what value defined the plume boundary in Volume 1, Appendix B, s
RESPONSE
The plume boundary is defined by concentrations greater than or equal to 0.5 picocu
discussion in this section has been changed to incorporate this information.

II COMMENT

The commentor states that the EIS does not address perched water associated with in

Idaho National Engineering Laboratory.
RESPONSE
The EIS in Volume 2, section 4.8, states that the occurrence of perched water bodie related to the presence of disposal ponds and other man-made surface-water features perched water bodies and are the ones of most concern. However, the EIS was modifi zone disposal wells to the discussion.

II COMMENT

The commentor suggests that the EIS incorrectly states that only tritium and nitrat Environmental Protection Agency drinking water standards at the Hanford Site. Ther contaminants that exceed EPA numeric standards or risk-based thresholds used when e standards.
RESPONSE
The commentor is correct. The discussion in the document has been modified to addr

II COMMENT

The commentor suggests evidence of long subsurface flow paths beneath the Oak Ridge found by reviewing data from Martin Marietta Energy System's Offsite Well Monitorin has reported tritium levels in excess of background in wells south of the Oak Ridge
RESPONSE
Adequate information is provided in Volume 1, Appendix F, Part Three, section 4.8, primarily from published hydrologic literature on the ORR, including Status Report: Framework for the Oak Ridge Reservation, and other recent site environmental report states that no evidence of contaminant migration along deep, long subsurface flow p Interpretation of ORR off-site groundwater monitoring results is beyond the scope o The commentor also suggests that elevated concentrations of tritium would not neces subsurface transport, but might be due to atmospheric or surface water transport of past ORR operations. Additional information on the off-site monitoring program has groundwater discussion in Volume 1, Appendix F, Part Three, section 4.8.2. However schedule of environmental monitoring at ORR and the amount of data produced by the the scope of this EIS. See also the response to comment 05.08.01 (003).

II COMMENT

The commentor notes that the EIS states the existence of one instance of a groundwa crossing the Oak Ridge Reservation boundary and then cites two. The commentor also references in the paragraph.
RESPONSE
Discussion of the solvent plume east of the Y-12 Plant is included in Volume 1, App section 4.8.2 as additional supporting evidence of the one strongly suspected insta across the ORR boundary. This reference is not intended as a second instance of gr the ORR boundary. The discussion in the document has been modified to clarify the Geology and water resources for the ORR are discussed in the EIS in Volume 1, Appen sections 4.6, 4.8, and 5.8.

II COMMENT

Comments were received concerning DOE making a decision on the proposed alternative information on the effect of aquifer heterogeneities on modeling to assess the exte Snake River Plain aquifer is not complete.
RESPONSE
The heterogeneities referred to in the comment are important locally, on the scale to 330 feet) with respect to calculating the distribution of contaminants from a po contamination. Local heterogeneities in contaminant distribution are averaged out

1,000 meters (330 to 3,300 feet) and regional, 100 to 1,000 meters (330 to 3,300 fe point source. Intermediate and regional scale parameters were used to calibrate fl transport models. The model parameter values chosen were calibrated with contamina distribution time and space and data from INEL. This data is equivalent to long-te serves as the best empirical data for intermediate and regional parameter estimatio INEL water resources and potential impacts resulting from the alternatives consider described in Volume 2, sections 4.8 and 5.8 and Appendix F. In accordance with the at 40 CFR 1502.22, the EIS summarizes all known existing credible scientific eviden understanding the existing environment, identifies reasonably foreseeable impacts, consequences. Assumptions and limitations in the groundwater analysis are identifi Appendix F. As stated in the analyses, DOE used conservative assumptions to accoun in modeling the effects of proposed actions on groundwater quality. Results indica contaminants above EPA MCLs at the INEL site boundary as a result of operations und proposed alternatives.

II COMMENT

The commentor states that groundwater contamination should be stated in absolute te year) and concentration differences from background for activities at Idaho Nationa Laboratory, and that perched water quality data should be included in the EIS.
RESPONSE
The effects of INEL operations on the Snake River Plain aquifer within the INEL bo terms of concentration, picocuries per liter for radionuclides, and milligrams per contaminants. Absolute values of contaminant mass (metric tons per year, for exam comparison with regulatory guidelines, such as the Safe Drinking Water Act, which c standards in terms of concentration. Because the concentrations of contaminants re operations detected in the Snake River Plain aquifer outside the INEL boundary are DOE DCGs, regional groundwater quality is compared with background levels for those occur naturally and detection limits for those that do not.
In accordance with the provisions of NEPA and CEQ implementing regulations at 40 CF EIS summarizes existing credible scientific evidence relevant to understanding the identifies reasonably foreseeable impacts, and evaluates potential consequences.
The net effects of INEL operations on groundwater resources are reflected in Snake monitoring results. Snake River Plain aquifer monitoring well data from wells in t and other areas where contaminated perched aquifers may exist was included in the a in Table 4.8-1. The data indicate that no significant impacts at the INEL boundary RWMC or other contaminated perched aquifer releases to the Snake River Plain aquife not independently discussed in this EIS because Snake River Plain aquifer water qua INEL discharges are adequately evaluated in Snake River Plain aquifer monitoring co independent agencies. Evaluating additional perched water information would not be evaluating reasonably foreseeable adverse impacts. This conclusion is further supp modeling conducted for this EIS, which included analyses for the most likely initia contaminated water in perched water zones (percolation ponds and injection wells) o Plain aquifer. Furthermore, the CERCLA ROD for the perched aquifer at the Test Rea that no remedial action will be required because the perched water contaminants wil unacceptable risks or consequences to the Snake River Plain aquifer. Characterizat contaminated perched water is proceeding under CERCLA. The regional effects of con water on the Snake River Plain aquifer are bounded by the high-level waste tank fai in the Accident Analysis section. This analysis indicates that there will be no si INEL boundary from the failure of containment of a high-level waste tank.
The curie content, volume, and rate of release of the source term used in this anal source term parameters that could be reasonably used to characterize contaminated p INEL. Independent groundwater monitoring results, groundwater modeling results, an discharge control and monitoring suggest that contaminants in the Snake River Plain decrease with time. Snake River Plain aquifer monitoring results are discussed in section 4.8 and shown in Table 4.8-1. Additional detail on subsurface water monito be found in Volume 2, Appendix F-2.
No discernible water quality impacts are expected, since under normal operating con no discharges of contaminants to the soil or directly to the aquifer above EPA MCLs the hypothetical release due to an accident is discussed in Volume 2, Appendix F-5 release amounts and modeled impacts in absolute terms and bounds any impacts from n releases. Additional detail for the INEL is in Volume 2, section 5.8.

II COMMENT

The commentor suggests that certain perched aquifer groundwater monitoring data be and that groundwater quality comparisons with proposed maximum concentration levels
RESPONSE
The data on water quality are provided in Volume 2, section 4.8. Data presented in with EPA MCLs, although MCLs are drinking water standards, not groundwater standard requirement to report contaminants in the Snake River Plain aquifer relative to MCL although this is usually done. The EIS used proposed MCLs because, for comparison best available tool for individual radionuclides not having current MCLs. Other MC are either adjusted gross alpha, or a calculated 4 millirem-per-year dose, with the strontium-90, and radium-226/228, which have specific MCLs. Volume 2, section 4.8 clarify that while the proposed MCLs may change, they are used for groundwater qual purposes.
The net effects of INEL operations on groundwater resources are reflected in ground results presented in the EIS. Monitoring well data were included in the analysis t contaminant releases to the Snake River Plain aquifer. Independent groundwater mon suggest that contaminants in the Snake River Plain aquifer are likely to decrease w are discussed in Volume 1, Appendix B, section 4.8 and are shown in Table 4.8-1.
A description of water resources and potential environmental consequences to water including the Snake River Plain aquifer, are discussed in Volumes 1 and 2, sections analysis performed for the EIS integrated available data and technical information to evaluate contaminant transport and predict future trends in aquifer water qualit using conservative assumptions was completed through 2035 to add assurance to the c in the document. Section 5.8 concludes that overall aquifer water quality would ac this period. A discussion of the methodology and assumptions used for the computer Volume 2, Appendix F .
Key contaminants were selected by comparing the contaminant data with the current 4 proposed EPA 1991 MCLs and contamination guidelines found in DOE Order 5400.5, Radi Protection of the Public and the Environment, derived concentration guides, radionu Contaminants with concentrations 50 percent of either of the regulatory limits were contaminants. More detailed data on the results of groundwater monitoring at INEL reading rooms and the INEL Technical Library.
The data indicate that no significant impacts at the INEL boundary have resulted fr releases to the Snake River Plain aquifer. Current independent groundwater monitor contaminants in the Snake River Plain aquifer are generally decreasing with time. cited by the commentor, which are reported to be thousands of times above the MCLs, found in any reference such as gross alpha at Test Area North, or apply only to per Reactor Area. The EIS did not attempt to assess perched water, but rather concentr River Plain aquifer. The CERCLA ROD for Test Reactor Area indicates that no remedi required, because the perched water contaminants will not result in unacceptable ri the aquifer.
Other perched water is not independently evaluated, because Snake River Plain aquif impacts from INEL discharges are adequately evaluated in Snake River Plain aquifer by DOE and independent agencies. Evaluation of additional perched water informatio relevant to evaluating reasonably foreseeable adverse impacts. This conclusion is results of modeling conducted for this EIS that included analyses for the most like contaminated water in perched water zones (percolation ponds and injection wells) o Plain aquifer .

II COMMENT

The commentor states that the discussion in Volume 1, Appendix B, section 4.8 on ex contaminant levels in groundwater at Test Area North is misleading because the EIS contaminants first exceeded standards at a time when the commentor says they should
RESPONSE
The discussion in Volume 1, Appendix B, section 4.8 has been changed for clarificat on showing recent trends in groundwater quality at INEL. Any long-term accumulatio from these trends. Contaminant concentration data were reviewed for the period 198

modeling and sampling data have indicated that Snake River Plain aquifer contaminat INEL is decreasing with time.

II COMMENT

Comments were received asking if any radioactively contaminated water has been foun National Engineering Laboratory boundaries.
RESPONSE
Extremely low concentrations of iodine-129 and tritium have migrated outside the IN In 1992, iodine-129 concentrations were measured in two wells south of the INEL sit EPA MCLs, as follows: (a) 1.0 x 1E-5 picocuries per liter in Well No. 11, located kilometers (4 miles) beyond the boundary, and (b) 3.0 x 1E-5 picocuries per liter i kilometers (8 miles) beyond the boundary (Mann, L.J., U.S. Geological Survey, perso with A.L. Lundahl, Science Applications International Corporation). Tritium concen observed much below MCLs just south of the INEL site boundary in 1985. By 1988, th had receded to within the INEL site boundary, and its size has continued to decreas Conditions and Distribution of Selected Chemical Constituents in Water, Snake River Idaho National Engineering Laboratory). Cobalt-60, strontium-90, cesium-139, plut plutonium-240/241, and americium-241 have not been detected outside the INEL site b

II COMMENT

The commentor notes that the geology of the Oak Ridge Reservation would result in s a leak were to occur.
RESPONSE
A conservative analysis of the potential effects of a leak from an SNF storage faci Volume 1, Appendix F, section 5.8.2. The analysis found that exposures would be sm There is very little potential for contamination of the Knox aquifer from the opera facilities. The proposed SNF facilities are designed to have no liquid release of chemical or radiological characteristics through the use of modern technologies, in containment, leak detection, and water-balance monitoring equipment.

II COMMENT

The commentor states concern that vadose zone contaminants and other buried waste c Idaho National Engineering Laboratory Radioactive Waste Management Complex were not the EIS groundwater model and may constitute a significant source of future contami River Plain aquifer.
RESPONSE
Vadose zone contaminants at the INEL RWMC were not included in the groundwater mode zone contaminants and other buried waste constituents at the INEL RWMC were include FFA/CO. Characterization of these constituents is in progress as part of ongoing o investigations.
The net effects of INEL operations on groundwater resources are reflected in ground results. Snake River Plain aquifer monitoring well data from wells in the vicinity included in the analysis that resulted in Table 4.8-1. These data indicate that, t impacts to the Snake River Plain aquifer at the INEL boundary have resulted from RW releases to the Snake River Plain aquifer. Independent groundwater monitoring resu contaminants in the Snake River Plain aquifer are likely to decrease with time. Th in Volume 1, Appendix B, section 4.8 and shown in Table 4.8-1.
Recently completed flood and erosion control construction at the RWMC will reduce t through the unsaturated zone by minimizing surface flooding at the RWMC. This redu effectively increases natural contaminant attenuation processes that occur in the s impacts on aquifer water quality.
It is likely that the effects of RWMC contaminants on the Snake River Plain aquifer hypothetical accident scenario referenced in the EIS in Volume 1, Appendix B, secti hypothetical accident, representing a reasonably foreseeable accident, includes gro major contaminant release to the subsurface. The analysis indicates that the hypot

cause small impacts to the aquifer, with no contaminants above MCLs at the INEL bou

II COMMENT

The commentor requests additional information on impacts from groundwater contamina
RESPONSE
The purpose of this EIS is to evaluate the potential environmental impacts from pro this reason, assumptions were made to ensure that estimated doses are conservativel upper bound of potential impacts. The EIS is not intended to substitute for the as regulations. Any facilities constructed or operated under the chosen alternative w applicable regulatory requirements. In the example cited by the commentor, further chromium concentrations in groundwater at INEL is in Volume 1, Appendix B and in th sections of Volume 2.
Volume 2, section 5.12 discusses the potential health effects for on-site workers a analyses show that impacts would be small. The major impacts have been from past p impacts are projected to decrease because of changes in facility procedures. Subsu contaminant distribution are discussed in Volume 2, Appendix F-2.

II COMMENT

The commentor states the Brookhaven National Laboratory is in the Long Island Nassa System, and the West Valley Demonstration Project is in the Cattaraugus Creek Aquif commentor also states that these have been designated as sole-source aquifers pursu Drinking Water Act and asks that the sensitivity and importance of these sole-sourc considered in the selection of the interim alternative. Specifically, that Nationa documentation should include a detailed assessment of the potential groundwater imp
RESPONSE
Volume 1, Appendix E, sections 3.1.1 and 3.3.1 have been revised to acknowledge sol designations for aquifers underlying these sites. More detailed aquifer characteri will be incorporated by reference. Detailed sole-source aquifer characterization d because this is a programmatic EIS. Potential impacts from alternatives considered quality are expected to be small. Subsequent actions that may result from this EIS project-specific NEPA reviews and compliance, but impacts from previous activities scope of this EIS.

II COMMENT

The commentor states that the discussions of groundwater occurrence, movement, use, are not consistent between all sites. Without consistent information, there is lit The commentor also states that consistent data probably does exist through investig CERCLA and RCRA, state and Federal permitting, and engineering design studies for b
RESPONSE
For the analysis of impacts at a programmatic level, the hydrological information and its site-specific appendices is sufficient for purposes of the EIS. Additional or project level will provide more specific information as needed. While it appear inconsistency among the various sites on hydrologic information summarized in Volum is largely a reflection of the differences in water uses, availability, water sourc that are important at each site. The appendices do, with minor exceptions, include information on lithology, water use, contamination, well yields, and consumption. exception, a reference for further detail is provided, and additional information f included in Volume 1 to balance the discussion.

II COMMENT

The commentor suggests that the elevated nitrate, chloride, and sulfate levels foun vicinity of the Idaho Chemical Processing Plant are not the result of agricultural

might be attributable to the Naval Reactors Facility.
RESPONSE
The discussion in Volume 1, Appendix B, section 4.8 has been revised to state that nitrates, chlorides, and sulfates are the result of the disposal well and infiltrat Chemical Processing Plant. The related sections of Volume 2 of the EIS have also b no evidence to substantiate the suggestion that the contaminant levels at the Idaho Plant are caused by the Naval Reactors Facility.

II COMMENT

The commentor states that in Volume 2, Appendix F-2.2.2 of the EIS, source terms fo from SNF storage uses Idaho Chemical Processing Plant Building 666 as the generic e commentor states that the facility is not generic or typical for the Idaho National Rather, the Idaho Chemical Processing Plant is atypical because it is the only faci standards. The commentor also states that because the other storage facilities wil near future and pose the greatest risk of discharge, the EIS must use one of these generic case.
RESPONSE
Volume 2, Appendix F-2.2.2 referenced by the commentor states that Idaho Chemical P discharge and a hypothetical discharge from a generic facility were used to generat bounding postulated leak scenario is greater than releases from any facilities at I Expended Core Facility. Results indicate that there will be no contaminants above boundary resulting from a postulated operational leak.

II COMMENT

The commentor points out that contamination of the Dublin-Midville aquifer (a regio water) underlying the Savannah River Site is more widespread than the text of the D is, the text notes that evidence of contamination has been found in only one produc commentor also notes that there may be an inconsistency in the discussion of contam aquifer.
RESPONSE
The text in Volume 1, Appendix C, section 4.8 has been revised to indicate that con trichloroethylene and tetrachloroethylene) have been detected above Primary Drinkin another well completed in the Dublin-Midville aquifer system.
Regarding contamination of the Gordon aquifer, there are several plumes of contamin none has moved offsite and none is available to off-site users of this aquifer. Cu efforts are intended to prevent off-site movement of this contaminated groundwater.

II COMMENT

The commentor suggests DOE sum the pumping rates for all production/potable wells o National Engineering Laboratory to produce an estimate of maximum pumping capacity.
RESPONSE
While it is true that the capacities of all pumps could be summed to produce a maxi rate, the likelihood of all pumps operating at one time is very small. Even during extended power outage, it is unlikely that all pumps would be operating simultaneou maximum pumping capacity would not be reached. Maximum pumping capacities are ther relevant to assessing potential impacts from pumping.

II COMMENT

The commentor states that contaminants released to the subsurface from the West Bea location at the Oak Ridge Reservation could reach the Knox aquifer, either directly that could rapidly transmit contaminants to areas underlain by carbonates, or indir macropores to Grassy Creek and entering the aquifer through losing reaches of the c

RESPONSE
Full resolution of these concerns would require detailed investigation of site cond pathways. If ORR were chosen as a site for new SNF management facilities, site-spe hydrologic studies would be performed. Available information provides a sufficient assessment that no significant environmental consequences related to water resource from the operation of SNF management facilities.
As discussed in the EIS, proposed SNF management facilities are designed to have no waste water with hazardous chemical or radiological characteristics. Facilities wo to prevent and minimize the impacts of leaks, including secondary containment, leak undetected subsurface release are, however, analyzed in the EIS (see Volume 1, Appe section 5.8.2). The analysis indicates that most radiological constituents would b standards at the point of release, and that additional substantial reductions in th constituents would occur as a result of dilution with groundwater and the receiving The worst-case undetected release is estimated to constitute less than 0.0003 perce average discharge of Grassy Creek at its confluence with the Clinch River. Any con Knox aquifer via the losing reaches of Grassy Creek would undergo a similar degree there would be little, if any, impact on water quality in the aquifer.
It is not likely that macropores would provide a direct connection to the Knox aqui proposed SNF management facility, because available information indicates that the Conasauga Group strata that are not normally characterized by karst development or well-connected to the Knox aquifer. (The only Conasauga Group information included aquifer is the uppermost formation in the group, the Maynardville Limestone). If a connection did exist and allowed an undetected release to reach the aquifer, diluti and in the aquifer would significantly reduce the potential for impacts on water qu Appendix F, Part Three, sections 4.6 and 4.8 for further discussion of site geology

II II COMMENT

The commentor states that past waste management activities have resulted in contami Clinch River and lakes near the Oak Ridge Reservation.
RESPONSE
Natural resources and impacts associated with the SNF management alternatives at OR discussed in Volume 1, Appendix F, Part Three. Current waste management problems, releases, and environmental restoration activities for cleanup of contaminated site the scope of this EIS. Contact public affairs personnel at ORR for information on upcoming opportunities for public comment.

II COMMENT

The commentor states that the EIS did not mention storm water runoff and storm wate National Engineering Laboratory wells as a source of waste water.
RESPONSE
The EIS does address the use of storm water injection wells used at INEL. This di in Volume 1, Appendix B, section 4.8; Volume 2, section 4.8; and Volume 2, Appendix discussion of this subject also can be found in the Water Resources Supporting Docu Environmental Restoration and Waste Management EIS, a reference used for the EIS, a rooms and information locations listed in the EIS.

II COMMENT

The commentor discusses the production of toxic materials upstream from the town of the South Carolina coast, particularly impacts to watersheds, such as the Savannah local and regional aquifers.
RESPONSE
Potential impacts to surface water and groundwater of the various SNF management al for SRS are evaluated in Volume 1, Appendix C, section 5.8. Cumulative impacts to presented in Volume 1, Appendix C, section 5.16.4. DOE expects the impact on water implementation of any of the alternatives under consideration to be small. Each of

contribute to the very small releases of radionuclides that normal SRS operations d water through Federally permitted waste-water outfalls. In the unlikely event of a contaminants to either the ground or directly into the subsurface, DOE does not exp impacts to surface water or drinking water aquifers under SRS.
Cleanup of groundwater resources from past waste management practices at SRS are no of this EIS. However, environmental restoration activities at DOE sites are perfor agreements negotiated with the appropriate regulatory agencies and in compliance wi guidance and environmental regulations.

II COMMENT

The commentor states that Volume 1, Appendix B of the EIS erroneously assumes that at the Idaho National Engineering Laboratory over the last 8 years is indicative of the future.
RESPONSE
Volume 1, Appendix B, section 4.8.1 has been changed to address this concern. The very dry years at INEL, which may not be indicative of the future. The new discuss dry years, surface water in the Big Lost River does not usually reach the western b because INEL is in a closed drainage basin, surface water never flows offsite.

II COMMENT

The commentor expresses concern that, following the December 1991 tritium leak into individuals in Savannah received a high dose of radiation from drinking the water.
RESPONSE
The maximum dose to the public resulted from individuals who drink Savannah River w public drinking water supplies that use Savannah River water are at Port Wentworth, Beaufort-Jasper, South Carolina, both near Savannah, Georgia, the residence of the maximum dose to an individual consuming 2 liters of water per day from the Port Wen 0.030 millirem. The maximum dose from the Beaufort-Jasper system was 0.0096 millir are 0.8 percent and 0.2 percent, respectively, of the EPA drinking water standard f millirem per year). The maximum dose from this release to a hypothetical individu 301 bridge just downstream of SRS was 0.035 millirem. There are no known consumers Savannah River water at that location. The City of Savannah does not use the Savan of drinking water.
The low dose received by individuals consuming water from the two public systems me result in adverse health effects. The values are very much less than the variation that normally results from day to day and from place to place within any city. Rad from both normal and off-normal occurrences from storage of SNF at SRS are projecte that from the December 1991 tritium release.

II COMMENT

The commentor notes that Volume 1, Appendix B of the Draft EIS does not address loc the Idaho National Engineering Laboratory.
RESPONSE
Local basin flooding at INEL is discussed in Volume 2, section 4.8.1 and Appendix F Appendix B has been changed to discuss local basin flooding at INEL.
The DOE Idaho Operations Office recently completed constructing new flood and erosi at the RWMC, which will reduce the potential of localized flooding at the complex.
The INEL accident assessment summarized in Volume 2, section 5.14 considers floodin phenomena as potential initiators of facility accidents. Some potential accident i detailed analysis because they were considered reasonably foreseeable, and some ini for detailed analysis because of their large potential consequences. The consequen of the high-level waste tanks were selected for detailed analysis over a flooding s radioactive inventory in the high-level waste tanks could have a larger potential f resources than a flood. The impact evaluations show that the risk to workers and t operations would be small for all alternatives.

II COMMENT

The commentor notes that past waste management activities have resulted in contamin and Columbia Rivers.
RESPONSE
No significant impacts to the Snake River and the Columbia River have resulted from Surface water drains internally into natural sinks at or near INEL. No surface wat INEL into the Snake River. The protection of water resources is verified by the re monitoring conducted by independent agencies such as the USGS and State of Idaho IN Program. These independent assessments confirm DOE environmental monitoring result that no contaminants in concentrations above EPA MCLs or DOE DCGs exist beyond the With improved management practices and remediation efforts planned or under way, it water quality in the Snake River Plain aquifer under the INEL will continue to impr future impacts to the Snake and Columbia Rivers resulting from INEL past, present, are likely to occur.
As discussed in Volume 1, Appendix A, section 4.8, tritium, iodine-129, and uranium higher concentrations downstream of the Hanford Site than upstream, but well below guidelines established by DOE and EPA drinking water standards. Cobalt-60 and iodi consistently found in measurable quantities during 1989 in samples of Columbia Rive Rapids Dam, the 300-Area water intake, or the Richland city pumphouse. In 1989, th strontium-90 concentrations were essentially the same at Priest Rapids Dam (upstrea and the Richland pumphouse.

II COMMENT

Commentors express concern about existing contamination of the Clinch River and man East Fork Poplar Creek.
RESPONSE
Existing contamination of the local surface-water bodies is acknowledged in the EIS and other surface waters have been affected by activities at ORR as well as by othe from ORR. Water quality in the Clinch River is routinely monitored by the Tennesse the USGS, and the Tennessee Department of Environment and Conservation.
The Oak Ridge Reservation Environmental Report for 1992 summarizes 1992 Clinch Riv results at the Gallaher and Kingston water treatment plants. While radionuclides e significantly greater than zero in the treated water for a number of radioactive an concentrations are not greater than the EPA primary drinking water standards for an plant. The environment affected by water resources at ORR is discussed in Volume 1 Three, section 4.8.
The addition of Clinch River water to East Fork Poplar Creek is required by the Ten Environment and Conservation in order to guarantee a minimum base flow as the limit Plant discharge permit are based on flow management in the creek. The purpose of t Project is to maintain a consistent flow in the creek of 7 million gallons per day intended uses.
It is DOE policy to consider the protection of water resources in the design, const its facilities, and to comply with Federal, state, and local regulations and standa of water resources. The proposed SNF management facilities are designed to have no waste water with hazardous chemical technologies, which include secondary containm detection and water-balance monitoring equipment. Therefore, no significant enviro related to water resources are anticipated from the operation of SNF management fac water resources at ORR are discussed in Volume 1, Appendix F, Part Three, section 5

II COMMENT

The commentor notes that the EIS should include a discussion of the impacts to the Sound.
RESPONSE
The environmental consequences associated with storage of Naval SNF at Puget Sound

discussed in Volume 1, Appendix D, section 5.1.1. The environmental consequences f analyzed are based on estimates of the amount of SNF that would be stored at the sh and current knowledge of the design features associated with SNF storage systems. consequences for foreign fuel shipments are bounded by the analyses included in thi ports for shipment of Hanford N-Reactor fuel for overseas processing are discussed example for evaluation of reasonably foreseeable impacts. The review of the enviro associated with the alternatives shows that impacts on the environment from these a small. Foreign research reactor (FRR) fuel shipments and their impacts to the Port covered in the EIS entitled Proposed Nuclear Weapons Nonproliferation Policy Conce Research Reactor Spent Nuclear Fuel (Draft).

II COMMENT

The commentor states that DOE would be required to apply for water rights to withdr water for new spent nuclear fuel storage and management activities at the Hanford S
RESPONSE
As discussed in Volume 1, Appendix A, section 4.8.2, DOE withdraws water from the C under DOE's Federally reserved water rights. From a programmatic impact standpoint alternative would use approximately 1 percent of the baseline of total Hanford usag K). In general, new SNF facilities, if any, would use less water than existing faci analysis for any new SNF storage or treatment facilities would address water usage

II II COMMENT

The commentor asserts that the EIS assumes no surface water flow onsite and that th affects the evaluation of Snake River Plain aquifer recharge at Idaho National Engi
RESPONSE
The EIS does not make this assumption. Volume 1, Appendix B, section 4.8.2 discuss hydrogeology, which includes summary text regarding recharge of the Snake River Pla Infiltration along stretches of the Big Lost River, Little Lost River, and Birch Cr discussed in greater detail in Volume 2, section 4.8.1 and Volume 2, Appendix F-2.2 reference (Streamflow Losses and Groundwater Level Changes Along the Big Lost River National Engineering Laboratory) referred to by the commentor.

II COMMENT

The commentor states that water tables at the Idaho National Engineering Laboratory and Nevada Test Site are contaminated with radioactive waste and that the Columbia contaminated by Idaho National Engineering Laboratory and Hanford Site waste.
RESPONSE
DOE evaluated the impacts to groundwater quality of proposed actions, where appropr past practices have been analyzed to determine cumulative impacts. These analyses Volume 2, Appendix K and Volume 1, Chapter 5, Appendices A, B, and F.

II COMMENT

The commentor suggests clarification of the discussion of the depth of excavation i Nevada Test Site.
RESPONSE
As indicated in the preliminary design (Description of a Generic Spent Nuclear Fuel the Programmatic Environmental Impact Statement), the cask loading and unloading po receiving and canning building are the deepest structures in the facility and are 1 Allowing another 2 meters (6 feet) for secondary containment, leak detection system needs results in an estimated excavation depth of 15 meters (50 feet). As indicate F, Part Two, section 4.8.2, the depth to the water table in Area 5 is 244 meters (8 perched water tables have been reported at 21 meters (70 feet) in some locations of

programmatic nature of the EIS and the preliminary status of the facility design, t demonstrate that the excavation is expected to occur within the vadose zone at NTS.

II COMMENT

The commentor has concerns about seismic safety and the contamination of water reso Site.
RESPONSE
Volume 1, Appendix A, sections 4.8 and 5.8 discuss water resources at the Hanford S site, including seismic hazards, is discussed in Volume 1, Appendix A, section 4.6. Volume 1, section 5.2.6, the proposed alternatives for SNF management would have sm water resources. Impacts of management SNF at K-basin at the Hanford Site will be EIS.

II COMMENT

The commentor suggests that tougher water quality standards from the Clean Water Ac in the EIS, rather than limits based on the Safe Drinking Water Act.
RESPONSE
The Clean Water Act (CWA), 33 USC Section 1251 et sec., protects surface waters by discharge of pollutants to surface waters of the United States be controlled or pre EPA sets nationwide, industry-by-industry effluent standards. The CWA standards ar (SDWA), 42 USC Section 300(f) et seq., ensures that water out of the tap is fit to SDWA, EPA is responsible for setting national standards that must be met by the per water to the tap. The drinking water standards under the SDWA are specifically set adverse health effects to persons from the consumption of drinking water. Drinking become the key Federal reference point for prevention and cleanup decisions under b CERCLA.
For a number of reasons, it is difficult to conduct a simple comparison of SDWA sta standards. First, for any one contaminant, CWA standards vary greatly from state t industry. The quality of the "receiving waters" for any given facility also affect imposed under a CWA permit. Whether the facility analyzed in the EIS is a new faci facility also impacts the CWA permit standards. For some constituents, from some i states, with a new facility, the CWA permit standards might be more stringent than under the SDWA. But it is definitely not a correct generalization that CWA standar than SDWA standards, and in fact in many instances, the opposite is true.
Because the national standards set under the SDWA are more uniformly applicable to analyzed in this EIS, and more important, because the SDWA standards are consistent human-health based, rather than technology based, they were used in this EIS as a c point.

II COMMENT

The commentor states that DOE's activities at Idaho National Engineering Laboratory irretrievably impact water resources.
RESPONSE
Irreversible and irretrievable effects on resources are discussed in Volume 2, sect INEL have resulted in chemical and radioactive contaminant plumes in the Snake Rive discussed in Volume 2, section 5.8.6. Water use and liquid effluent discharges at minimal effect on Snake River Plain aquifer water quality and quantity.
Water resources and impacts resulting from all waste management and environmental r SNF) alternatives considered for INEL are described in Volume 2, sections 4.8 and 5 alternatives considered, the possible future sources of contamination would be smal previous practices. This would be a result of waste management practices, includin monitoring, as well as natural contaminant attenuation and radioactive decay for hi Computer groundwater modeling using conservative parameters (discussed in Volume 2, indicates that existing contaminant plumes within the INEL boundary would continue through 2035. The modeling further indicates that overall aquifer groundwater qual

improve in that period and probably continue to improve after 2035.
INEL's commitment to DOE policy regarding the protection of water resources is veri groundwater monitoring conducted by independent agencies such as the USGS and State Oversight Program. These independent assessments confirm DOE environmental monitor results that indicate that no contaminants in concentrations above EPA MCLs or DOE the INEL boundary. With improved management practices and remediation efforts plan it is likely that overall water quality in the Snake River Plain aquifer below the improve.
Recent improvement in groundwater quality at INEL is documented in report (e.g., Hy and Distribution of Selected Chemical Constituents in Water of the U.S. Geological Review of the Production, Use, and Disposal of Groundwater and the Generation, Stor Processing of Radioactive Liquid Waste at the Idaho Chemical Processing Plant of th Program) as referenced in the EIS. Although small irretrievable impacts to groundw possible, recent sampling results, computer modeling using mildly conservative assu liquid effluent discharge management ensure that impacts from current and future ac and future effects of past practices have a decreasing effect on aquifer water qual

II COMMENT

The commentor states that a full mass balance of water pumped from the aquifer and volume analysis must be conducted for the entire history of the Idaho National Engi
RESPONSE
The net effects of INEL operations on groundwater resources are reflected in groun results. Monitoring-well data were included in the analysis that resulted in Volum 4.8, Table 4.8-1. This data indicates that to date no significant impacts at the I resulted from INEL contaminant releases to the Snake River Plain aquifer. Independ monitoring results and groundwater modeling conducted for this EIS indicate that co Snake River Plain aquifer are likely to decrease with time. These results are disc Appendix B, section 4.8 and shown in Table 4.8-1. Additional evaluation would not evaluating reasonably foreseeable adverse impacts. Water usage is described in Vol A description of water resources and potential environmental consequences to water including the Snake River Plain aquifer, are discussed in Volumes 1 and 2, sections analysis performed for the EIS integrated available data and technical information to evaluate contaminant transport and predict future trends in aquifer water qualit was completed through 2035 to add assurance to the conclusions reached in the docum section 5.8 concludes that overall aquifer water quality would actually improve ove discussion of the methodology and assumptions used for the computer modeling effort Appendix F of the EIS.
In accordance with NEPA regulations at 40 CFR 1502.22, the EIS summarizes all known scientific evidence relevant to understanding the existing environment, identifies impacts, and evaluates potential consequences.
A full mass balance and waste discharge volume analysis conducted for the entire hi not change the conclusions reached in the EIS.

II COMMENT

The commentor states that the EIS de-emphasizes impacts on water resources by categ resources as an "Issue Not Discussed in Detail" and ignoring water resources in the analysis. The commentor further states there is an overemphasis on water usage, ra groundwater contamination, in addressing water resources in Volume 1.
RESPONSE
In response to public comments, section 5.3.2.6 has been added to Volume 1 to addre impacts on water resources. Based on the site-specific analysis in appendices to V addressing water resources under "Issues Not Discussed in Detail" has been enhanced radiological impact to water resources at each candidate site is small.

II COMMENT

The commentor states that site-specific discussions on water resources and hydrolog should be compared, rather than just scattered throughout six appendices.
RESPONSE
Volume 1, Chapter 4 summarizes the pertinent characteristics of the affected enviro sites under consideration in the EIS. Detailed water resource and hydrological cha alternative sites under consideration are in Volume 1, Appendices A, B, C, D and F, Although not specifically provided in discussion or tabular form, a side-by-side co between the information in the site-specific appendices. Due to the complexity and hydrogeologic characteristics between sites, such comparisons are subjective and de interests of the reviewer, as well as decisionmakers.

II COMMENT

The commentor states that water resources, and in the context of the comment perhap resources, would be unavoidably adversely impacted because only limited remediation
RESPONSE
The environmental restoration actions under the alternatives considered in this EIS provisions of the CERCLA. CERCLA procedures provide for ecological risk assessment of injury or potential injury to natural resources resulting from past releases of alternatives include projects for protecting the vadose zone and cleaning groundwat and/or retrieving buried wastes. In keeping with DOE's Native American Policy (Mem Management of Cultural Resources at Department of Energy Facilities, U.S. DOE, Wash February 23, 1990), DOE will consult with the Tribes during the planning and implem proposed alternatives. Additionally, DOE has implemented the Working Agreement, Po American Consultation to ensure communication with the Shoshone-Bannock Tribes con treatment of archaeological sites as mandated by the National Historic Preservation Resources Protection Act, and the protection of human remains under the Native Amer Protection and Repatriation Act.
The prediction of unavoidable adverse impacts to groundwater was based on analyses extent of known contamination and potential effectiveness of existing and reasonabl technologies. Note that the impacts will not be caused in the future but will be r actions and operations. CERCLA and the National Contingency Plan contain provision residual injury to natural resources and natural resource damage assessment. In a the DOE Idaho Operations Office notified the State of Idaho, the Shoshone-Bannock T Department of the Interior of potential injury to trust resources caused by past re

II COMMENT

The commentor states that the spent nuclear fuel portion of the EIS does not discus restoration at Oak Ridge Reservation, and the adverse impacts for the Y-12 Plant ha
RESPONSE
Detailed analysis of existing contaminant sources and transport pathways are beyond If ORR is selected for new SNF management facilities, site-specific groundwater st performed.
Geology and water resources for ORR are discussed in Volume 1, Appendix F, Part Thr 4.8, and 5.8.

II 5.9 Cumulative Impacts

II COMMENT

The commentor states the EIS does not adequately discuss the direct, indirect, or c transporting spent nuclear fuel and other radioactive and hazardous materials.
RESPONSE
DOE believes the EIS and reference documents contain an adequate discussion of dire cumulative impacts of transporting SNF and other radioactive materials. Incident-f

hazardous materials results in essentially no impacts, as discussed in Volume 1, se
of highway, railway, and barge transportation impacts and potential accident impact
section 5.1.
The cumulative impacts analyses are discussed in Volume 1, section 5.3 and Volume 2
Cumulative impacts of radioactive and hazardous materials transportation have been
1, section 5.3.2.
DOE conducted a comprehensive transportation cumulative impacts analysis, evaluatin
future shipments of radioactive material, which include radioactive waste and SNF.
cumulative impacts analysis include past transportation activities, transportation
in this EIS, reasonably foreseeable future transportation activities, and general t
The analyses described in Volume 1, section 5.3 and Volume 2, section 5.15 show tha
exposing the public to radiation hazards is low, and the overall impacts under all
analyzed in this EIS would be small.

II COMMENT

The commentor expresses an opinion that DOE hides behind a claim of national securi
information from the public, and thus prevents an accurate assessment of impacts.
RESPONSE
In recent years, DOE has released a significant amount of previously classified dat
release additional information as it is declassified. Most environmental monitorin
and significant amounts of information are available to the public, such as the ann
published for each site. Some data on DOE activities remains classified until rele
Energy. Volumes of publicly available data were used in the preparation of this EI
list of references for each volume and the associated appendices. This EIS contain
for members of the public to interpret and evaluate impacts.

II COMMENT

The commentor is of the opinion that the EIS should evaluate the impacts and condit
generations from now.
RESPONSE
The time periods being considered in this EIS are 40 years for the programmatic man
ultimate disposition, and 10 years for environmental management and waste managemen
INEL. The EIS evaluates reasonably foreseeable impacts associated with the propose
alternatives analyzed in the EIS. Volume 1, Chapter 5 and Appendix K, and Volume 2
summarize the environmental impacts of all the alternatives considered in this EIS.
the impacts of all alternatives would be small. Because of the speculative nature
associated with projecting actions and impacts many years in the future, meaningfu
horizon is not possible. Whereas this EIS addresses interim actions until ultimate
analysis of disposition options such a geologic disposal will entail analysis of po
into the future. Such analysis will likely be part of a future EIS.

II COMMENT

The commentor states that the EIS does not address the environmental impacts of bri
fuel into Idaho.
RESPONSE
The environmental consequences of all SNF alternatives, including those that involv
SNF to INEL, are extensively discussed in Volume 1, Chapter 5. This discussion is
1, Appendices B and D. Volume 2, Chapters 4 and 5 further discuss environmental im
relative to waste management and environmental restoration projects.

II COMMENT

The commentor states that specified matters are not adequately addressed as require

Environmental Policy Act and pursuant to Council on Environmental Quality regulatio Act. The matters specified by the commentor are the different types of SNF storage the need for potential SNF processing; cumulative impacts, similar impacts, and res future permanent disposal; a monitoring and safety program that provides independen conditions; and activities and past problems associated with SNF management.
RESPONSE
Decisions regarding wet or dry storage and processing will be based on future NEPA Cumulative impacts, including impacts from connected or similar actions are address section 5.3 and Volume 2, section 5.15; residual impacts, assuming this term applie cannot be avoided, are addressed in Volume 1, section 5.4 and Volume 2, section 5.1 monitoring and safety programs that are open to public review. Activities includin associated with SNF management are discussed throughout Volume 1 and its appendices issues being considered.

II COMMENT

The commentor objects to DOE making a decision on the proposed alternatives when in extent of impacts to the Snake River Plain aquifer is not complete.
RESPONSE
The commentor refers to Volume 2, section 5.8.1. A sentence specifically refers to analysis for the impacts of a hypothetical leak to the soil from an SNF storage fac Volume 2, section 5.8.1 states that based on the bounding accident scenario for imp Plain aquifer discussed in Volume 2, section 5.14, the impacts to the Snake River P expected to be small. These hypothetical impacts are assessed with respect to EPA Subsequent analysis of the hypothetical SNF storage facility leak and documentation groundwater modeling for the EIS have been referenced in and are available with the are consistent with conclusions stated in the EIS regarding the impacts of alternat Water resources at INEL and potential impacts from the alternatives considered in t Volume 2, sections 4.8, 5.8, and Appendix F. In accordance with NEPA regulations a the EIS summarizes all known existing credible scientific evidence relevant to unde environment, identifies reasonably foreseeable impacts, and evaluates potential con Assumptions and limitations in the groundwater analysis are identified in Volume 2, used conservative assumptions to account for the uncertainty in modeling the effect on groundwater quality. Results indicate that under all the alternatives considere contaminants above EPA MCLs at the INEL site boundary as a result of operations und proposed alternatives. This would be a result of waste management practices, inclu discharge monitoring, as well as natural contaminant attenuation and radioactive de releases.
Independent assessments of the Snake River Plain aquifer water quality at INEL conf environmental monitoring results that no contaminants in concentrations above EPA M exist beyond the INEL boundary. With improved management practices and remediation or under way, it is likely that overall water quality in the Snake River Plain aqui continue to improve.

II COMMENT

The commentor asserts that the conclusions on potential impacts are flawed and that on these conclusions, fails to pick the best solution.
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small. While there are differences in the impacts among the alternatives, these di are not sufficient to distinguish between alternatives.
Volume 1, section 3.1 and Volume 2, section 3.4 describe DOE's preferred alternativ SNF management, and SNF management, environmental restoration, and waste management

II COMMENT

Many commentors state that the EIS needs to provide cumulative impact assessments f activities at the Idaho National Engineering Laboratory.
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme including cumulative impacts, of all the alternatives considered in this EIS. The impacts of all alternatives would be small. Each alternative includes the appropri Volume 2, including decontamination and decommissioning
Volume 2, Chapter 4 discusses the current environment at INEL, including impacts fr Waste streams and emissions from INEL facilities, including characterization data a inventories, are referenced in Volume 2, Appendix F.
Volume 2, Appendix C discusses 49 proposed projects and ongoing activities at INEL. analyzed under each of the alternatives discussed in Volume 2, section 3.1 and incl foreseeable actions. These actions are subject to the outcome of negotiations with the FFA/CO.
Mitigation measures are discussed in Volume 1, section 5.7 and in Volume 2, section See also the response to comment 04.01 (001).

II COMMENT

The commentor states that while measuring small quantities, DOE loses sight of ove geology, and the national budget.
RESPONSE
DOE used the process described in regulations to ensure that the procedural require satisfied. The scope of Volume 1 of this EIS is to evaluate impacts directly relat activities across the United States. The scope of Volume 2 is to evaluate impacts management, environmental restoration, and waste management activities at INEL. La from the activities associated with the proposed action, plus past, current, and ot activities are evaluated in Volume 1, section 5.3 and Volume 2, section 5.15. The includes an evaluation of the overall impacts to the human and natural environment, geological resources. Costs of the alternatives are summarized in Volume 1, sectio

II COMMENT

The commentor states that the EIS violates the National Environmental Policy Act be impacts do not include an evaluation of supply and demand; for example, the demand waste will increase.
RESPONSE
Volume 2 considers the potential consequences of a range of levels of waste and SNF Under the Maximum Treatment, Storage, and Disposal alternative, INEL would respond increased demand for management of waste and SNF. The assessment found that the im other alternatives would be small. Cumulative impacts are included in the assessme these impacts in Volume 2, section 5.1.5.

II COMMENT

The commentor states that the EIS does not provide historical data on radioactive r National Environmental Policy Act requirements must be met in the EIS by providing evaluation of cumulative impacts for past and proposed activities at the Idaho Nati Laboratory.
RESPONSE
Waste streams and emissions from INEL facilities, including characterization data a inventories, are included as references in Volume 2, Appendix F. Volume 2, Chapter current environment at INEL, including impacts from past activities. The effects o INEL, as discussed in Volume 2, Chapters 2 and 4, and potential effects of the prop reasonably foreseeable actions not associated with the proposed action, have been e Chapter 5.

II COMMENT

The commentor takes the position that all projects included in the Nevada Test Site considered in the cumulative impact analysis for that site.
RESPONSE
A site's master plan identifies all the projects desired to fulfill the current sit without regard to budgetary constraints, priorities, or current direction. It repr planning process, and remains relatively static. Projects are not well defined in contrast, the site 5-year plan presents more thorough development and definition of master plan that might be initiated or implemented over a 5-year period. In the 5- updated annually, projects are prioritized in light of the current site needs, budg current policy and direction. Because the 5-year plan identifies the mission-crit most likely to be funded and completed, it is a better indicator of planned activit master plan. Due to the nature of the planning and budget cycle, the 5-year plan i that are likely to be implemented in a 5-year period, but provides a longer perspec the 5-year plan is considered to be an appropriate basis for identifying projects f impacts. Additional discussion of the site master plan and relation to the 5-year impacts were added to Volume 1, Appendix F, Part Two.
Due to the nature of the planning and budget cycle, the 5-year plan is not limited to be implemented in a 5-year period, but provides a longer perspective. For these is considered to be an appropriate basis for identifying projects for analysis of c

Appropriate sections of the Nevada Test Site's Master Plan Projects are summarized Appendix F, Part Two.

II COMMENT

The commentor asks that the EIS address the cumulative impacts from existing waste over the next 40 years at the Idaho National Engineering Laboratory. In addition, the EIS address the cumulative impacts from the waste at the Hanford Site and the p waste from the Trojan Nuclear Power Plant in the Columbia River basin.
RESPONSE
Volume 1, Chapter 5 Appendix K, and Volume 2, Chapter 5 summarize the environmental the alternatives considered in this EIS. The analyses show the impacts of all alte The EIS addresses the cumulative impacts from current and future waste at INEL in V 5.15.
The EIS addresses the cumulative impacts from waste at the Hanford Site on the Colu Volume 1, Appendix A, section 5.8. The Trojan Nuclear Power Plant has operated wit accordance with 10 CFR 20. Operation ceased on November 9, 1992. On January 4, 19 General Electric Company announced that the plant would not restart, and the plant January 27, 1993. The decommissioning plan was submitted to NRC on January 26, 199 spent fuel management for the Trojan plant. This is outside the scope of this EIS.

II COMMENT

In supporting the preference for the Planning Basis alternative, the commentor stat fully address the cumulative impacts (specifically to public health and safety) of many different proposed sites under the various alternatives, and states that addin duplicating them at several sites may negatively impact safety.
RESPONSE
This EIS evaluates 10 sites as reasonable siting alternatives for some level of SNF The analysis in the EIS includes environmental considerations, socioeconomic impact the public from operations and reasonably foreseeable accident conditions, site-spe and other environmental factors for a number of options for managing SNF. Cumulati site-specific projects or missions that are planned to occur simultaneously with SN are discussed in Volume 1, Appendices A through F. The EIS concludes that the alte environmentally suitable for management of SNF, and that risks to the public or the

managing SNF at any of the 10 sites under consideration would be small even when ne involved. Discussions on public health and safety can be found in Volume 1, section site-specific Appendices A through F, and in Volume 2, section 5.12.

II COMMENT

The commentor states that socioeconomic impacts are not fully addressed from a cumu therefore, socioeconomic impacts are underestimated. The commentor suggests that, point be included under "cumulative effects" that there are large socioeconomic imp before the project starts. Further, the commentor suggests that the EIS not assume mitigation measure of payments in lieu of property taxes unless a specific plan is commentor states that DOE does not pay property taxes and rarely makes payments in taxes.

RESPONSE

The commentor is correct that DOE facilities generally do not pay local or state pr various mechanisms exist for DOE to compensate state or local governments in the fo lieu of taxes or "special burden" payments. Special burden payments help offset in and population caused by DOE facility construction and/or operation (which may put on local services, utilities, and infrastructures). Each situation requires an ind determine whether such payments would be authorized to the appropriate state or loc assessing socioeconomic impacts, the EIS does not presume that payments in lieu of states or local communities, but only discusses the possibility of such payments as adverse impacts.

Volume 1, Appendix F, Parts Two and Three, section 5.16 discuss potential socioecon cumulative perspective. These sections do not explicitly "identify large socioecon occurred before the start of the proposed project." Rather, potential cumulative are discussed in terms of "the impact on the environment that results from the inc action when added to other past, present, and reasonably foreseeable future actions socioeconomic impacts from the SNF management alternatives are compared with baseli demographic forecasts. The effects on these regional economic growth rates from pr management are relatively insignificant. DOE would evaluate the need to implement adverse socioeconomic impacts on a site-specific basis.

Impact avoidance measures discussed in Volume 1, section 5.7.2 of the EIS could be site-specific basis when more detailed socioeconomic analyses are conducted. Altho pay property taxes to local jurisdictions, Federal and civilian employees working a employed by sites, do. Infrastructure projects such as roads and other capital exp are financed by the Federal Government, reducing the fiscal impact on public financ jurisdictions.

II COMMENT

The commentor states that the EIS is defective because Volume 2 does not adequately cumulative effects of shipping, receiving, processing, and storing nuclear waste at Engineering Laboratory; nor does it address the cumulative impacts of past disposal present management actions, and reasonably foreseeable actions regarding spent nucl commentor expresses concerns about the cumulative impacts to the Snake River Plain the Idaho National Engineering Laboratory and the level of detail in project summar cumulative impacts, and cites an example.

RESPONSE

Volumes 1 and 2 of the EIS comply with CEQ regulations regarding assessing the cumu programmatic SNF management and SNF management, environmental restoration, and wast at INEL, respectively. The regulations at 40 CFR 1508.7 define "cumulative impacts from the incremental impact of the action when added to other past, present, and re future actions. Cumulative impacts of SNF management activities at INEL are discus Appendix B, section 5.16. Impacts of past practices and present conditions at INEL Volume 2, Chapter 4. This serves as a baseline to add incremental cumulative impac actions, as in Volume 2, Chapter 5. The projects described in Volume 2, Appendix C one or more of the alternatives considered in Volume 2; their combined impacts are, the analyses of environmental consequences in Volume 2, Chapter 5. Volume 2, secti

comprehensive discussion of cumulative impacts (including the Snake River Plain aqu past, present, and future actions of DOE and others. Topics addressed include land cultural resources, air, water, transportation, health and safety, waste management resources. To aid in readability, many of these impacts have also been described i The detail in Volume 2, section 5.15 is commensurate with the current state of plan development of such potential activities, including the example cited by the commen presented only to the extent known or reasonably foreseeable. Table 5.15-1 describ both onsite and offsite, that are not part of the proposed action but that have bee cumulative impact analysis. Volume 2, presents nonhealth-related transportation an cumulative impacts from the proposed, connected, and similar actions. See also the 05.09 (011).
See also the response to comment 05.09 (006) regarding impacts to the Snake River P

II COMMENT

The commentor states that the EIS is inadequate because it fails to address the cum fuel shipments as they pertain to Idaho National Engineering Laboratory-specific pr
RESPONSE
The impacts due to SNF shipments are described in Volume 1, Appendices D and I. Cu from SNF shipments are described in Appendices D and I for both radiological impact accident impacts. Cumulative impacts due to past activities are presented for each the start of operations at a site to 1993. Impacts through 2035 are in a range for alternative as an upper bound, which lends conservatism to the evaluation for alter transportation. No other cumulative impacts are related to transportation; thus, t

II COMMENT

The commentor states that longshoremen, sailors, and the general public will receiv commercial shipping lanes are used and waste casks are off loaded in Portland, Oreg Washington, and trucked to the Hanford Site or Idaho National Engineering Laborator traffic in cars alongside or behind these waste shipments could receive a significa
RESPONSE
DOE believes the EIS and reference documents contain an adequate discussion of dire cumulative impacts of transporting SNF and other radioactive materials. Incident-f hazardous materials results in essentially no impacts as discussed in Volume 1, sec of highway, railway, and barge transportation impacts and potential accident impact Environmental Consequences of Key Disciplines and Offsite Transportation of SNF sec The cumulative impacts analyses are discussed in Volume 1, section 5.3 and Volume 2 DOE conducted a comprehensive transportation cumulative impacts analysis, evaluatin future shipments of radioactive material, which include radioactive waste and SNF. cumulative impacts analysis includes past transportation activities, transportation actions in this EIS, reasonably foreseeable future transportation activities, and g activities.
The analyses described in Volume 1, section 5.3 and Volume 2, section 5.15.7 show t exposing the public to radiation hazards is extremely low and the overall impacts u alternatives analyzed in this EIS would be small.

II COMMENT

The commentor notes that the second sentence in Volume 2, section 5.7.4.3.2 incorre cumulative impacts from all major sources after the baseline date must be below Pre Deterioration increment limits. Increases from minor sources also consume incremen
RESPONSE
The commentor is correct in that it should be clarified that increases from both ma after the baseline date consume increment. In fact, the increment consumption anal performed considered all applicable sources that became operational (or will become baseline dates. The sentence has been revised to clarify that the PSD analysis con applicable major and minor source emissions that occur after the baseline dates.

II COMMENT

The commentor states that all alternatives except the No Action alternative have a releases to the environment, which will exacerbate existing contamination by both c radiological materials.
RESPONSE
The proposed SNF facilities are designed to have no liquid release of waste water w or radiological characteristics through the use of modern technologies, including s leak detection, and water-balance monitoring equipment. The analysis in the EIS in considerations, potential risks to the public from operations and reasonably forese conditions, site-specific cumulative effects, and other environmental factors for a managing SNF. Cumulative effect, involving existing site problems and site-specifi that are planned to occur simultaneously with SNF management activities are discuss Appendix F. The EIS concludes that the alternative sites are environmentally suita SNF, and that risks to the public or the environment due to SNF management would be new missions are involved.
Discussions on public health and safety are in Volume 1, sections 5.1 and 5.3 and s F.

II 5.10 Safety and Health Effects

II COMMENT

One commentor questions the use of legal limit radiation levels for DOE spent nucle and measured radiation levels for U.S. Navy spent nuclear fuel shipping casks.
RESPONSE
Using legal limit radiation levels will overestimate potential impacts from DOE SNF assumption was necessary to maintain flexibility in the specific choice of shipping used by DOE. Even with this assumption, the risks are still small. The Navy inten shipping casks, which have been in use and for which there are measured radiation l required; therefore, these realistic measured data were used, and it was not necess assumptions to bound potential impacts.

II COMMENT

The commentor states that transportation of radioactive materials involves minimal
RESPONSE
The comment accurately reflects the analyses of impacts provided in Volumes 1 and 2 Volume 1, Appendices D and I. Volume 1, Appendix I summarizes the methodologies, k assumptions, and results of calculations for the transportation analyses. These an associated with the transportation of radioactive material would be small for all a The conclusion that such risks would be small is borne out by past experience with

II COMMENT

The commentor states that traffic fatality risks are somewhat higher for Naval than The commentor states that the analysis uses the same documents for both Naval and n estimates and does not consider the increased non-Naval shipments.
RESPONSE
Off-site shipments of non-Naval fuel are discussed in Volume 1, Appendix 1, while o non-Naval fuel are discussed in Volume 1, Appendices A, B, C, and F, for Hanford, I NTS/ORR, respectively. Off-site and on-site shipments of Naval fuel are discussed D.
DOE and the Navy reviewed their analyses of traffic fatality risks and did not iden

impacts would be small for both radiological and nonradiological risks. The differ between Naval and non-Naval SNF was considered in the analyses.
When comparing Naval and non-Naval transportation impacts, some differences other t shipments are important. For example, all off-site Naval SNF shipments from shipya whereas all off-site test specimen shipments are by truck. The results are present number of each of these types of shipments. DOE shipments assume that all off-site by rail or by truck, and results are presented for both cases. Another example is shipments from Pearl Harbor have a portion of the trip on ocean transport vessels. for accident rates (Longitudinal Review of State-Level Accident Statistics for Carr Freight) lists a significantly higher nonradiological casualty rate for ocean trans nonradiological fatality rate listed for rail or truck transport.

II COMMENT

The commentor states that the probabilities for transportation accidents represent single shipment. The commentor states that probabilities should be determined on t shipments, not individual shipments.
RESPONSE
The results of the transportation accident risk assessment are cumulative risks tha shipments over the entire campaign (1995 to 2035). Probabilities for the maximum r transportation accidents are annual probabilities based on the total annual shipmen

II COMMENT

Commentors identify issues regarding public and worker safety and risks, and the ef due to accidents caused by extreme weather and natural disasters at the facilities.
RESPONSE
Volume 1, Chapters 3 and 5 and Appendices A through F, and Volume 2, Chapters 3 and F discuss risks to the public, workers, and the environment due to facility acciden by extreme weather and natural disasters, such as high winds, floods, earthquakes, discussions include extensive evaluations and analyses of accidents. Protecting me public and workers from accidents is considered by DOE in the design, location, con operation of facilities. The analyses and other information in the EIS demonstrate and the public from all accidents, including those caused by extreme weather or nat small for all of the alternatives considered.

II COMMENT

The commentor suggests that the EIS fails account for the long-term risks to the pu liability costs from damage scenarios under various options.
RESPONSE
Even for INEL accidents with the maximum reasonably foreseeable consequences, and w unfavorable meteorological conditions, no long-term risks to the public are expecte 2, section 5.14, there is a potential for limited economic impacts associated with to public lands or up to a 1-year agricultural land withdrawal for land on and imme INEL. Relative to potential liability costs, DOE will use the statutory indemnity Price-Anderson Act (42 USC 2210) to ensure ready and prompt availability of funds t public for injuries and damages resulting from a nuclear incident arising from acti indemnified DOE contractors. Compensation provided under the Act would cover nucle arising at INEL, as well as nuclear incidents arising during the transportation of site.
Although the Price-Anderson Act is the primary means for compensating the public fo nuclear incidents, other remedies exist for claims not falling within the purview o claims against DOE or its employees may be cognizable under the Federal Tort Claims for environmental damage may fall within CERCLA. These and other laws afford any i mechanisms for seeking recovery for damages relating to operation of DOE facilities

II COMMENT

The commentor suggests that DOE is not going to study ingestion of radioactive mate National Engineering Laboratory because contaminated food and water would be impoun commentor also states that DOE's assumed cleanup of accidents does not account for particles by wind.
RESPONSE
For INEL facility accidents with the maximum reasonably foreseeable consequences an unfavorable meteorological conditions, some restrictions on uses of agricultural pr implemented in accordance with established Protective Action Guides. However, this ingestion of radioactive material has not been analyzed in the EIS. There has been potential for health effects through ingestion, as well as other pathways, and is d Appendices A and F-4. The accidents assessments summarized in Volume 2, section 5. ingestion of radioactive materials. Resuspension of radioactive materials from the potential dispersion path. Wind-borne resuspension generally reduces the amount of distance from the point of release, but increases the area in which exposure might analyses generally did not take credit for mitigative measures. Nevertheless, the workers from all accidents analyzed in the EIS would be small.

II COMMENT

The commentor states that agency officials should be able to answer over the teleph such as what is the longevity of radioactive spent fuel.
RESPONSE
Because agency officials are accountable for answers to technical information given is unreasonable to expect all technical information to be immediately available to the telephone. In addition, agency officials consider it prudent to check answers, answers, against available references or with technical experts before providing th public. Whenever possible, questioners were intentionally referred to specific loc would answer their questions in detail, in language agreed to by a wide range of re

II COMMENT

The commentor would like DOE to minimize worker and public exposure to radiation du operation, and maintenance activities, using the principle of the "as low as reason approach.
RESPONSE
Maintaining occupational exposure to radiation and radioactive materials as low as (ALARA) is an integral part of all site radiological control programs. In addition implement legally applicable radiation protection standards and to consider and ado recommendations by authoritative organizations. Examples of such standards and org DOE Order 5400.5, Radiation Protection of the Public and the Environment, the Natio Radiation Protection and Measurements, and the International Commission on Radiolog See also the response to comment 05.10 (029).

II COMMENT

Commentors express the opinion that all facets of DOE's nuclear program are lethal protection of bureaucrats.
RESPONSE
Hazardous material resulting from DOE's past, present, and future nuclear programs disposed of in a safe manner. This EIS addresses the programmatic management of SN ultimate disposition, as well as environmental management activities at INEL over t concludes that there would be no significant environmental impacts under any of the alternatives being considered for implementation. Although vulnerabilities exist, skill, scientific capability, and Secretarial mandate to safely manage SNF and INEL

environmental restoration activities in the period covered by this EIS.

II COMMENT

The commentor notes a typographical error on the first line of the last paragraph o Summary.
RESPONSE
The commentor is correct that the word "facilities" should be "fatalities." DOE ha the Summary and in Volume 1.

II COMMENT

One commentor refers to the degraded conditions in the Idaho National Engineering L as assessed by the Spent Fuel Working Group. This individual states that the known storage of spent nuclear fuel lead to the risk of radioactive contamination, health criticalities, meltdown, and explosions. Another commentor wants DOE to "address e problems that are a danger to us all."
RESPONSE
Volume 2, section 2.2 discusses the vulnerability of SNF storage at INEL. Actions vulnerabilities are identified in Volume 2, section 2.2, Table 2.2-1. Because of identified in Volume 2, section 2.2, a criticality at Building 603 at the Idaho Che was considered 10 times more likely than at a modern facility such as Building 666. such a criticality are reported in Volume 2, section 5.14. The impacts to the publ would be small; impacts to workers at the scene could vary depending on the circums of shielding by water and concrete, it is not likely that radiation exposure would Workers could have an increased risk of developing cancer over their lifetimes.

II COMMENT

The commentor requests clarification of the phrases "high, though not fatal, dose" likely" in Volume 1, Chapter 5.
RESPONSE
The phrases were used in reference to an estimated worker dose of 120 rem resulting accident. A dose of 120 rem is considered to be a dose with large potential health population that receives short-term exposures may have individuals who die from a r nominal dose level for death to an individual with no medical intervention is 300 t individuals could die with no medical intervention at lower doses. Thus, a short-t no medical intervention could result in death in part of a population. A short-ter not be considered a fatal dose for typical individuals. Occupational doses to work 2 rems.

DOE has modified the EIS to clarify the phrases.

II COMMENT

The commentor questions what number of latent cancer fatalities per year DOE consid
RESPONSE
DOE considers seriously the relationship between radiation exposure and the potenti fatalities. Rather than a "number" of fatalities that is considered significant, D likelihood of a latent cancer fatality to a member of the public or in its work for Nuclear Safety Policy states that "the general public be protected such that no in additional risk to health and safety from the operation of a DOE nuclear facility a members of the general population are exposed." Quantitatively, the goal translate chance of a fatal cancer to a member of the public of one chance in 500,000 per yea operations.

II COMMENT

The commentor suggests that consistent definitions of maximally exposed individual exposed off-site individual (MOI) are needed. The comment cites the definitions in and text in Volume 2, Appendix F-3.
RESPONSE
The definitions in Volume 1, Appendix H agree with the text in Volume 2, Appendix F Volume 2 contains an expanded discussion of the details involved in evaluating the individual, appropriate for a site-specific NEPA document. The less-detailed techn Volume 1, Appendix H is appropriate for a programmatic analysis.

II COMMENT

The commentor suggests that duplication of facilities and missions at several sites safety" and, in fact, can degrade the safety posture of those facilities.
RESPONSE
Volume 1, Chapter 5 summarizes the radiological and health and safety impacts assoc alternatives considered in this EIS, including using existing facilities and constr 1, section 3.3.6 summarizes the cost evaluation. The health and safety of workers considered in the evaluation of these alternatives and the identification of a pref information provided on radiological and health and safety impacts, including facil adequate for evaluating and comparing the impacts of all the alternatives. Volume been revised to indicate that there are no widely accepted equivalence values betwe radiological exposures or other health effects or environmental impacts.
See also the response to comment 04.04 (008) for management of SNF under DOE's pref

II COMMENT

The commentor states that a sentence in the Summary on public and worker health eff some connection between spent nuclear fuel and natural background radiation. The c deleting the sentence.
RESPONSE
The sentence states that radiation exposures also occur from natural sources. DOE for the reader to understand that natural radiation also contributes to the exposur The EIS has been changed to clarify the intent of the discussion.

II COMMENT

The commentor suggests that atmospheric testing be added to a discussion about unde releases.
RESPONSE
Volume 1, section 4.4 has been changed to include discussion of atmospheric testing

II COMMENT

Commentors suggest that adequate baseline health studies need to be conducted at al along transportation routes, and at proposed DOE sites to support risk factors used commentors request that all epidemiological studies be included in this EIS, or if performed, explain why and what other public involvement activities were conducted.
RESPONSE
In March 1990, DOE announced that it will turn over responsibility for research on effects to workers at DOE facilities and the public in surrounding communities to t Health and Human Services. DOE directed that all worker health and exposure data a releases of radioactive and toxic materials be released. Baseline health effects s

workers and for members of the surrounding public are either under way or planned a facilities. Results of all studies are available to the public.
Some persons have proposed performing epidemiological studies of the people living vicinity of installations performing work associated with atomic energy. However, studies that have been attempted, such as those in Great Britain, the level of radi communities from man-made radionuclides is very low with respect to the variations radiation and other factors introduced by individual lifestyles. This, plus other nature and other industries in the communities, has made it impossible to perform c develop definitive conclusions. Efforts in this area are expected to continue, but study, the standards of the International Commission on Radiological Protection rep data available.
The epidemiological studies of baseline health effects at all existing DOE sites ar decisionmakers to discriminate between the alternatives discussed in this programma are not relevant to any reasonably foreseeable adverse impacts.
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in the EIS. The analyses show that none of the alt adverse impacts.

II COMMENT

The commentor notes that cancer fatalities are in the Summary as "one" for all alte
RESPONSE
The values in the Summary were chosen for simplicity of presentation. The analyses appendices of the EIS provide health effects estimates for each site and alternativ over a wide range and depend on a variety of factors. However, in all cases, the a than one fatal cancer would result from the activities under each alternative.

II COMMENT

The commentor questions whether radiation from past practices may be the cause of c health effects in the area and discusses previous releases and accidents at DOE sit
RESPONSE
Analysis of impacts from past releases and accidents at DOE sites is not within the however, it is DOE policy to identify and correct any inadequate practices concerni arising from operation of its facilities. In this regard, accidents and accidental reported, and accidents resulting in significant releases from DOE facilities are i monitoring reports that are publicly available. Detailed descriptions of the event accidents or releases are outside the scope of the EIS. The Hanford Environmental project currently is evaluating past releases from the Hanford Site.
Analyses in the Health and Safety sections of both volumes of the EIS evaluated pot off-site public from both radiological and nonradiological hazards for actions resu in this EIS. For all alternatives, impacts were estimated to be small, hypothetica one additional fatal cancer in the surrounding population over that which would occ presence of these DOE activities.

II COMMENT

The commentor notes that insufficient information is provided on dose assessment me verification of the accuracy and representativeness of the predicted impacts and do
RESPONSE
Methods for estimating releases to water are described in Volume 2, Appendix F-2. estimating releases to air are described in Volume 2, Appendix F-3. Exposure and r methodology is described in Volume 2, Appendix F-4. Additional information is avai reference material available in public reading rooms and information locations list

II COMMENT

The commentor suggests that nonradiation workers, visitors, and motorists at Idaho Laboratory should be defined as the maximally exposed individuals, rather than a si
RESPONSE
Potential exposure to nonradiation workers, visitors, and motorists at INEL has bee radioactive and nonradioactive releases from site facilities. Descriptions of the situations are contained in Volume 2, sections 5.7 and 5.12. Further information o in Volume 2, Appendix F-4. Although such individuals may be closer to some site fa workers spend only about 2,000 hours each year at the site; visitors and motorists additional pathways for exposure are included for site-boundary residents that do n visitors, and motorists. In particular, the potential for ingestion of radioactivi is included in the evaluation for site-boundary residents.

II COMMENT

The commentor points out that risk estimates for all alternatives are higher for th for other sites.
RESPONSE
The estimates of risk from releases of radioactive and nonradioactive materials and on many factors. These include characteristics of the local population distributio groundwater, and surface water. They also include the characteristics of the facil addressed under each alternative. The assessment methods used for each site are de Appendices A through F.
Specific information on the risks associated with the alternatives considered for S 1, Appendices C and D, Chapter 5. The analyses in this EIS show that the risks for considered would be small.

II COMMENT

Commentors question the effects from exposure to radiation and the methods for repo and suggest that the EIS may not have used the most up-to-date or most accepted rad effects dose response factors, particularly as related to induction of cancers.
RESPONSE
The potential health effects from exposure to radiation are the subject of research the world. Some published results have been subjected to enough review and confirm community to become well accepted. Others have not stood up to careful scrutiny. interesting, but unproven, hypotheses. None of these individual studies provides a risk factors necessary to support the type of analysis required for the EIS. These by themselves, a technically sound basis for setting radiation standards or making The dose response factors for cancer induction used in the EIS were taken from the International Commission on Radiological Protection recommendations (1990 Recommend International Commission of Radiological Protection), which reflect the most recent accepted analysis of all currently available data. The authors of ICRP 60 reviewed Volume 1, Appendix D and Volume 2, Appendix F-4 provide useful primers on radioacti dose, and resulting health impacts. Volume 2, Appendix F-4 provides a discussion o were calculated and how cancer risks were estimated.

II COMMENT

The commentor questions how tritium could be present in urine after 400 days if its half-life is roughly 12 days.
RESPONSE
The biological or retention half-life does not refer to the period of time required eliminated from the body. It is an estimate of the time for half the material to b remaining tritium will be eliminated in another 12 days, leaving one fourth of the this amount will be eliminated in the next 12 days, and so on. If the original int possible that detectable amounts would be eliminated 400 days later. Additional ba

radiation and its effects can be found in Volume 2, Appendix A.

II COMMENT

Commentors suggest that the discussions of radiation and the term "latent cancer fa
or insensitive.
RESPONSE
The terms used in the EIS are not intended to be misleading or insensitive. They a
used to describe the impacts being evaluated. A glossary is provided in the EIS to
technical terms. With regard to the effects of radiation exposure, basic informati
Volume 2, Appendix A. More detailed information is in Volume 2, Appendix F-4.

II COMMENT

The commentor identifies specific inconsistencies within the EIS.
RESPONSE
The section on Public and Worker Health Effects in the Summary has been modified to
estimated health effects to the public include both operation activities and routin
collective dose estimate provided in Volume 1, section 5.3.2 is to the worker, whic
to the public.

II COMMENT

The commentor asks whether the Advanced Neutron Source Facility and the Expended Co
should be included in the assessment of potential impacts for the Oak Ridge Reserva
RESPONSE
The Expended Core Facility was included in the analysis of potential SNF facilities
Advanced Neutron Source Facility was evaluated separately. Both were included in e
the maximally exposed individual. These assessments are in Volume 1, Appendix D an
Appendix F, Part Three.

II COMMENT

The commentor states that preservation of life and protection of property should be
what government-sponsored activities are allowed.
RESPONSE
The health and safety of people and the protection of property are accorded appropr
deciding what activities could be implemented by the government (e.g., DOE Order 5
Environmental, Safety and Health Program for DOE Operations, Section 7, and EIS Vol
Summary).

II COMMENT

The commentor states that cancer morbidity, not just cancer fatality, should be use
impact of radiation exposures.
RESPONSE
The analyses of the potential effects of radiation exposure in this EIS do consider
cancer fatalities and are based on the standards of the International Commission on
Protection. Volume 1, Appendix D, Attachment F, section F-1.3.3 and Volume 2, Appe
the terminology and risk factors used by the International Commission on Radiologic
these factors were applied in calculating the effects on human health in this EIS.
The International Commission on Radiological Protection defines "health detriments"
of all fatal cancers, nonfatal cancers, and genetic effects. The health detriments
radiation are calculated by summing all of these effects after multiplying each eff

intended to represent the severity of the impact of each type of effect on human he
EIS, the total health effects (deaths, nonfatal cancers, genetic effects, and other
may be obtained for the public by multiplying the latent cancer fatalities by the f
the International Commission on Radiological Protection.
Cancer fatalities were used to summarize and compare the results in the EIS because
to be of the greatest interest to most people.

II COMMENT

The commentor questions the accuracy of information in Volume 1, Appendix A on Hanf
nuclear fuel management.
RESPONSE
The information has been updated and the text clarified.

II COMMENT

The commentor notes that the Summary presents numbers of fatal cancers in the popul
each site for each alternative but does not give the sizes of the populations so th
estimated.
RESPONSE
Several factors in each site analysis affect the estimate of cancer fatalities, inc
which are different for each site. These data are provided in Volume 1, Chapter 5.
changed to reference Chapter 5 to identify the source of this information. The EIS
fashion with respect to technical depth of information. The Summary was intended t
information so that it would be generally understandable to nontechnical persons.
of each volume present expanded information with more technical detail, but are sti
The remaining chapters in each volume provide the technical information needed to s
conclusions. The appendices are the most technically detailed and provide sufficie
thorough technical review by specialists. The appendices also provide references t
information on the methods and results of technical analyses.

II COMMENT

The commentor asks why the computer code used to estimate health risks associated w
not site-specific.
RESPONSE
Because the purpose of the analysis was to allow comparison among the alternatives,
use of the same source input is appropriate. The computer codes used to estimate h
with releases from DOE facilities allow the input of site-specific data. Wherever
was used for such input parameters as source terms, hydrology, and demographics. A
generic meteorology classes D, E, and F were used in modeling, no credit was taken
height.

II COMMENT

The commentor refers to Volume 1, Appendix B, section 5.12 and raises an issue that
chemical impact focuses on cancer health effects. Some chemicals cause adverse non
at exposure levels below those predicted to cause unacceptable increases in cancer
the commentor states that the potential for synergistic effects from hazardous chem
considered whenever possible.
RESPONSE
Potential synergistic effects from multiple chemical exposures are extremely diffic
quantitatively because there is insufficient data to indicate synergistic effects.
synergistic effects is small where the concentrations for each individual compound
for the alternatives evaluated in this EIS. To ensure that potential impacts are b
high releases and exposure conditions were assumed. Further, the point of highest

chemical occurs at different times and places. It is unlikely that any one individ more than one chemical species at the concentrations reported in this EIS.
Radiation doses from historic operations are discussed in Volume 2, section 5.15.8. available in referenced technical documents, which are available for review in read information locations listed in the EIS. DOE is not aware of any generally accepte methodology that has been developed to evaluate synergistic effects due to several constituents. DOE is aware that research into this area is continuing.
The evaluation of cumulative effects considers historic accidents only. The implem NEPA at 40 CFR, Paragraph 1508.7 specifies "that cumulative impacts result from pas reasonably foreseeable future actions..." For cumulative impacts, DOE has consiste "reasonably foreseeable" to include construction, operation, maintenance, and other not to include future hypothetical accidents, inadvertent spills, and other unplann chemical exposure resulting from an accident is evaluated in Volume 2, Appendix F-5 response to comment 05.10 (021).

II COMMENT

The commentor points out an apparent inconsistency between the dose reported in the waste disposal operations and the dose given in the Radioactive Waste Management Co Waste Radiological Performance Assessment.
RESPONSE
The commentor is correct that the doses reported in the cited reference for the pos period exceed those cited in the EIS for the operational period. However, the dose directly comparable because the assumptions used in each analysis are significantly cited in the EIS are evaluated at the site boundary and represent an upper bound fo during the time period addressed in the EIS. The doses cited in the RWMC performan the post-institutional control doses evaluated for a location very near the waste d meters away) and represent an estimate of doses more than 100 years outside the tim the EIS. During this post-institutional time period, it is assumed that no control individual from approaching the waste disposal complex. Therefore, it is reasonabl post-institutional control period could exceed those cited in the EIS for the opera Further, the doses reported in the RWMC performance assessment do not account for p of the RWMC under the CERCLA process. These remediation activities could significa radiation doses expected from the RWMC over the long term.
The evaluation in Volume 2 of this EIS bounds environmental impacts from environmen cleanup) activities at INEL. However, specific decisions related to cleanup at INE addressed under an enforceable agreement executed by DOE, EPA Region X, and the Sta December 9, 1991, the FFA/CO. The FFA/CO establishes a comprehensive process that remediation requirements of CERCLA and the corrective action requirements of RCRA a Idaho's Hazardous Waste Management Act. Cleanup activities are conducted under the schedule established in the FFA/CO. RODs under the FFA/CO process are signed by a and represent a joint determination that protectiveness will be achieved through im selected remedy.

II COMMENT

The commentor asks why the GENII-S computer code was not used for Hanford Site asse the GENII used in the EIS.
RESPONSE
GENII-S incorporates the same models and data inputs for dose parameters used. The codes yield the same results when used in the deterministic mode. However, GENII-S capability to calculate the uncertainty in the atmospheric dispersion factors or th receptor. These calculations are important particularly where short-lived radionuc contributors and distances are long. The model does not allow for any decay on the and thus, overestimates releases. Considering these limitations, the use of GENII

II COMMENTS

The commentor requests that radiation doses, expressed in effective dose equivalent Brookhaven National Laboratory, as well as for other sites considered in the EIS.
RESPONSE
Radiation doses, expressed in effective dose equivalent, are provided for current a National Laboratory in Volume 1, Appendix E, Chapter 3. The evaluation of potentia alternative is in Appendix E, Chapter 4. No additional quantitative estimates of r presented in Chapter 4, because none of the alternatives would result in an increas Brookhaven National Laboratory.

II COMMENT

The commentor asks whether the dose factors in Volume 2, Appendix F-4, Table F-4-5 by inhalation or ingestion.
RESPONSE
The values in Volume 2, Appendix F-4, Table F-4-5 are for unit intakes by ingestion referenced in the text under a discussion of dose evaluation for consumption of con

II COMMENT

The commentor suggests that the high efficiency particulate air filter efficiency d not applicable to failed filters and cites a past occurrence at which a facility wa break.
RESPONSE
The EIS contains evaluations of atmospheric emissions for both intact and failed hi air (HEPA) filters. Several of the accident scenarios address situations in which assumed. These assessments provide an upper bound for the potential consequences o are discussed in Volume 2, section 5.14. Releases to the atmosphere from operating filtration systems are discussed in the Volume 2, section 5.7. The health and safe operational releases appear in Volume 2, section 5.12. The filtration systems are atmospheric emissions. Other systems, including emission monitoring and administra to ensure that filter efficiency is maintained.
To minimize airborne releases, projects involving radioactive particulates at INEL a double-confinement structure. Conservative assumptions normally are used to esti atmosphere, such as modeling only two filters in series when at least three are pla operations. Also, although HEPA filters have established particulate removal effic (down to diameters of 0.3 micrometers), a conservative efficiency factor of only 99 for operational safety and accident analyses. These filters are capable of removin 0.001 micrometers from an airstream, but the manufacturer performs the rating calib micrometers using a standard aerosol-generating device. The filters are tested ann to ensure that their efficiency is maintained.
Safety analyses for forthcoming INEL facility operations will not presume perfect H Additional precautions will be taken to minimize airborne releases. The pressure d filter is measured continuously to detect formation of any holes or insecure filter temperature will be measured to promptly detect a filter fire. Finally, radiation downstream of the filters to continuously monitor atmospheric releases. Detection particulates above the natural background levels would result in a prompt shutdown See also the response to comment 05.11.03 (009)

II COMMENT

The commentor notes that data mentioned in the text of the EIS on off-site radiatio provided.
RESPONSE
References have been added to Volume 2, section 4.7.3 that contain the data. Spec yearly environmental reports for INEL for 1987 through 1991 (The Idaho National Eng Laboratory Site Environmental Report for Calendar Year 1991). These references are

rooms and information locations listed in the EIS.

II COMMENT

The commentor suggests that the statistical presentation of risks is misleading.
RESPONSE
The terms used to describe risk are not intended to suggest that individuals can ha cancer. Risks applied to individuals reflect the lifetime probability of fatal can populations reflect the number of additional cancers expected in that population. EIS are the standard used to describe the impacts being evaluated. With regard to exposure, additional basic information is provided in Volume 2, Appendix A. More d in Volume 2, Appendix F-4.

II COMMENT

The commentor suggests that other locations or extraordinary circumstances could re exposures and require a redefinition of the maximally exposed individual.
RESPONSE
Every reasonable effort was made to ensure that the doses estimated for the maximal provide an upper bound for potential doses from site operations. For example, the evaluation correspond to the highest air and ground concentrations where any member reside. The dose pathways include conservatively high values for parameters such a and dietary intakes of locally grown produce. The scenario definition is "generic" includes a set of standard pathways for radiation exposure. However, site-specific evaluate these pathways.
The suggested approach of conducting personal field interviews to determine the pot receiving doses in excess of the maximum individual doses is not warranted. This i relevant to estimating foreseeable significant adverse impacts essential to reasone alternatives.

II COMMENT

The commentor questions the statement that less than 1 percent of the average radia member of the United States population comes from the nuclear fuel cycle and asks f
RESPONSE
For the average member of the U.S. population, about 82 percent of total radiation natural background, including radon (55 percent), cosmic radiation (8 percent), rad percent), and natural radioactivity in the body (11 percent). About 18 percent com sources including medical diagnosis and treatment (15 percent) and various consumer Less than 1 percent results from the nuclear fuel cycle and global fallout. There these facts. One of the most authoritative is the 1990 Recommendations of the Inte of Radiological Protection.

II COMMENT

The commentor suggests that DOE adopt an informal de minimis criterion to avoid unn expenditure of resources in protecting and reassuring the public.
RESPONSE
DOE has not adopted a de minimis dose level for members of the public. Balancing o level versus cost to further reduce the dose to the public is accomplished at DOE f context of state and Federal regulations applicable to exposure of the public to ra Balancing of public dose versus cost is effective in preventing the expenditure of the already-low public exposures from radionuclide releases at DOE facilities. It this EIS to establish de minimis goals for DOE facilities.

II COMMENT

The commentor asks if the term "health effects" in Volume 1, Appendix B, section 4 should be interpreted as "latent cancer fatalities."
RESPONSE
There is no page 4.11-7 in Volume 1, Appendix B. DOE assumes that the commentor is on page 4.12-1 of the Draft EIS. The commentor is correct. The text has been chan cancer fatalities" instead of "health effects."

II COMMENT

The commentor suggests that health risk-based standards be used to develop chemical
RESPONSE
Health risk-based standards were used to develop chemical hazard indices where poss are not available for all chemicals. Where risk-based standards were not available were used. This methodology is described in Volume 2, Appendix F-4.

II COMMENT

The commentor states that, contrary to statements in the EIS, measurable increments emissions could result from spent fuel alternatives and suggests that the cited sta
RESPONSE
The statement in Volume 1 cited by the commentor has been clarified.

II COMMENT

The commentor suggests that actual risk values be given and that the bullets in the of the Draft EIS Summary be used as a summary.
RESPONSE
The EIS Summary is intended to summarize the information in a manner that would be understandable by nontechnical persons. The first three chapters of each volume ex more technical detail, but are still summary in form. Remaining chapters in each v technical information needed to support the conclusions. The appendices are techni provide sufficient information for a thorough technical review by specialists. The references that provide even more information on the methods and results of the tec The Summary has been revised as suggested.

II COMMENT

The commentor notes that the Idaho National Engineering Laboratory has kept radiati that it is a safe area.
RESPONSE
The comment is noted.

II COMMENT

The commentor expresses doubt that there are no significant adverse health effects exposures typical of those received by populations surrounding commercial nuclear r facilities, and does not believe that the Centers for Disease Control and Preventio
RESPONSE
The effects of radiation exposure on human populations has been studied by many dif

in addition to the Centers for Disease Control and Prevention. The International C Radiological Protection (ICRP) has reviewed the state of knowledge of the effects 1990 Recommendations of the International Commission of Radiological Protection. T concluded that the effects of low-level radiation exposure were adequately represen derived for high-dose exposures (B142, Page 142 of ICRP Publications). These high- used in the EIS to estimate the health impacts for radiation exposures. The health exposure to the public associated with the various alternatives would be less than occupational-accident caused fatalities. (See Volume 1, section 5.3 and Volume 2,

II COMMENT

The commentor states that the latent cancer fatalities appear to be high (1.6 laten years, centralization at the Savannah River Site) and asks that these numbers be ch Additionally, the commentor asks if there are ways, such as more shielding, to redu
RESPONSE
DOE believes that the analytical approaches and technical information used in the E and accurate information. Every attempt was made to ensure the data are accurate. approaches used in the analyses supporting this EIS were reviewed and evaluated by contractors. The information in the EIS also underwent internal DOE review, and al provided were considered in preparing the EIS.
More shielding will not be added, as designs comply with NRC regulations applicable materials transportation. These regulations are found in 10 CFR Part 71, which inc packaging design requirements and package certification testing requirements. Comp design and safety analyses and results of the required testing are submitted to NRC for use. This certification testing involves the following components: heat, phys unyielding surface, water submersion, puncture by dropping package onto a rigid spi Some of the required tests simulate maximum reasonably foreseeable accident conditi

II COMMENT

The commentor raises questions regarding complete reliance on high efficiency parti preventing emissions of radioactive particulates, especially those less than 0.3 mi
RESPONSE
To minimize airborne releases, projects involving radioactive particulates at INEL a double-confinement structure. Conservative assumptions normally are used to esti atmosphere, such as modeling only two filters in series when at least three are pla operations. Also, although HEPA filters have established particulate removal effic (down to diameters of 0.3 micrometers), a conservative efficiency factor of only 99 for operational safety and accident analyses. These filters are capable of removin 0.001 micrometers from an airstream, but the manufacturer performs the rating calib micrometers using a standard aerosol-generating device. The filters are tested ann to ensure that their efficiency is maintained.
Safety analyses for forthcoming INEL facility operations will not presume perfect H Additional precautions will be taken to minimize airborne releases. The pressure d filter is measured continuously to detect formation of any holes or insecure filter temperature will be measured to promptly detect a filter fire. Finally, radiation downstream of the filters to continuously monitor atmospheric releases. Detection particulates above the natural background levels would result in a prompt shutdown

II COMMENT

The commentor raises the issue that the most recent numbers on radiation were not u EIS.
RESPONSE
Volume 1, Appendix F, Figure 4.7-2 provides information on natural background radia radon, in homes (inhaled). The information referenced is from the 1987 publication Council on Radiation Protection and Measurement, Ionizing Radiation Exposure to the United States. This reference provides a number that is recognized nationally. Th

indicative of the natural background radiation found in the Oak Ridge area. Values areas within the country are still being studied and may differ; they may be smalle larger in others. This information does not affect the analysis, and there have be A brief discussion of occupational and public health and safety for ORR is included 1, Appendix F, Part Three, section 4.12.

II COMMENT

The commentor observes that health and safety impacts from the Idaho National Engin have apparently been minimal.
RESPONSE
The cumulative impacts analyzed in Volume 2, Chapter 5 for all of the alternatives agree with this observation.

II COMMENT

The commentor does not want any additional spent nuclear fuel or activities at the RESPONSE
The analysis in Volume 1, Chapter 5 and Volume 1, Appendix F, Chapter 5 indicates t environmental consequences of the alternatives considered in the EIS would be small including ORR. Therefore, bringing in additional SNF is not likely to add to envir hazardous that may already exist at this site. See also the response to comment 01

II COMMENT

The commentor asks whether a quantitative uncertainty analysis should be done for t
RESPONSE
Volume 2, section 5.1 and Volume 1, Appendix D, section F.1.5 have been revised to of uncertainty analysis. In general, however, environmental impact analyses are de reasonable projection of the upper bound for potential environmental consequences. of appropriately conservative assumptions and analytical approaches. In this conte that an assumption or analysis would tend to overproduced, rather than underpredict However, overly conservative analyses do not provide a useful basis for comparing a the aim has been to avoid overconservatism and base the environmental impact analys levels of conservatism so that the relative impacts of alternatives can be accurate The analysis of the impacts of normal operations and hypothetical accidents are bas require input data and a model or analytical method for projecting potential impact input data for each analysis is slightly different. Socioeconomic analyses are bas for example, while air resources analyses are based on estimated releases of pollut models are also fundamentally different for similar reasons. For all analyses wher assumptions have been required, generally accepted engineering and scientific appro to ensure that these assumptions are not outside the range of uncertainty usually a Detailed uncertainty analyses can sometimes be useful to evaluate environmental imp particularly valuable when projected impacts are large and it is important to know projections are. However, quantitative estimates of uncertainty in impacts for hyp are difficult to determine. When appropriately conservative estimates of impacts a exact degree of uncertainty diminishes in importance. The estimates of impacts in enough that detailed quantitative uncertainty analyses are not necessary to meet th

II COMMENT

The commentor suggests that professional engineers review Idaho National Engineerin facilities and questions the accountability of personnel who sign off DOE safety do
RESPONSE
All DOE facilities are reviewed for hazard classifications per DOE Order 5481.1B, S Review System. Higher-hazard facilities require extensive safety analysis and revi

includes independent reviews of these analysis summarized in safety evaluation repo the safety basis of the facility are approved by the Program Senior Official at DOE Office of Environmental Safety and Health Oversight (EH) conducts independent revie documents and must agree with all assumptions, conservatisms, and analyses. This i parameters and hazard classification of the facilities personnel conducting these r professional engineers. See also the response to comment 06.02 (019).

II COMMENT

The commentor is concerned that the EIS underestimates the tritium release from the an accident. The commentor estimates that the tritium release to the environment w higher than estimated by the EIS.
RESPONSE
Volume 1, Appendix A, section 1.1.2 has been revised to show that the amount of tri approximately 134 curies.

II COMMENT

The commentor claims that past court cases have rejected shipments of nuclear waste Sound's ports and that current government procedures do not adequately guarantee th this fuel.
RESPONSE
DOE complies with the DOT regulations for the transport of radioactive material. T designed to protect workers and the public by minimizing the risks associated with radioactive material. The EIS analyzes a full range of alternatives, from no actio extremely limited transport of radioactive material, to centralization, which invol radioactive material. For all alternatives, the potential risks from transportatio includes the risks associated with maximum reasonably foreseeable accidents. The p consequences of maximum reasonably foreseeable transportation accidents are discuss Volume 1, Appendices D and I. Although the consequences of an accident of this typ probability of such an accident having high consequences is on the order of one cha the consequences of most accidents, including those with a probability of occurring would be less than those of the accidents analyzed.
With more than 50 years of radioactive material transportation in the commercial an there have been few transportation accidents involving radioactive materials, and t little or no release of radioactivity. Nonetheless, emergency response teams are t throughout the United States to respond quickly in the event of a transportation ac the importance of preparedness for potential accidents involving transportation of the Federal Emergency Management Agency (FEMA) provide training and materials to lo responders to prepare them to handle accidents properly. DOE provides for Radiolog Program teams, which consist of trained experts equipped and prepared to quickly re and assist local emergency response personnel if requested. This response network, preventive safety measures, such as shipping container design and testing, and adhe regulations, supports the continued safe shipping of SNF.
SNF shipping containers that could be handled by longshore workers are designed to international standards for safety, including radiation levels at the outside of th This EIS analyzes transportation from ports of entry. The potential for radiologic workers is within the scope of the EIS entitled Proposed Nuclear Weapons Nonprolife Concerning Foreign Research Reactor Spent Nuclear Fuel (Draft).
As stated in this EIS, the Atomic Energy Act of 1954 authorizes DOE to establish st health and minimize dangers to life and property. Radiation protection standards a radioactive releases to as low as reasonably achievable (ALARA) levels in recogniti health risk associated with exposure to radiation. In addition, DOE adopted and en safety, and health protection requirements that are equivalent to those issued by t Safety and Health Administration (OSHA). DOE designs, locates, constructs, and ope way that provides a level of safety that is within the safety requirements for work all comparable job categories, including high-hazard occupations such as constructi discussed in Volume 1, section 5.1.1; Volume 1, Appendices A through D, Chapter 4; section 5.12. Health and Safety sections of both volumes of the EIS evaluate both nonradiological impacts to the health of workers at DOE facilities. For all altern

small. The Navy complies with OSHA regulations in the nonradiological occupational occupational medicine area.

II COMMENT

The commentor suggests that a caveat be added to Appendix F to show that exposure f reasonable foreseeable accident is in addition to exposure from natural background
RESPONSE
Volume 1, Appendix F has been changed to reflect the commentor's suggestion.

II II 05.10.01 (001) Worker

COMMENT
The commentor states that chemical exposure risks are not included in the analysis impacts for hazardous chemicals at the Nevada Test Site.
RESPONSE
Chemical exposure risks associated with on-site transportation are associated only accidents, because, during normal transportation, the chemicals are in sealed conta Appendix F, Part Two, section 5.11.1 states that the transportation accident risk i evaluated for the chemical spill accident at the Expended Core Facility in Volume 1

II 05.10.01 (002) Worker

COMMENT
The commentor, quoting a passage from Volume 2, which states that "industrial hygie hearing protection for all workers," asks whether Idaho National Engineering Labora all site employees. The commentor suggests that if they do, no effort has been mad of all site workers.
RESPONSE
INEL procedures cover all workers for all operations. DOE Orders are used to enfor sites. DOE Order 5480.4, Environmental Protection, Safety, and Health Protection S mandatory compliance with Title 29 CFR 1910, Occupational Safety and Health. DOE Occupational Safety and Health Program for DOE Contractor Employees at Government-O Contractor-Operated Facilities, provides additional guidance for DOE contractor emp government-owned, contractor-operated facilities and specifically requires complian protection requirements.

II 05.10.01 (003) Worker

COMMENT
The commentor suggests that workers may not be safe near leaking radioactive contai leaking tanks at the Hanford Site, while an effort is made to stop the source of th
RESPONSE
DOE considers worker safety in its planning before performing any work in a radiati DOE policy regarding worker exposure to radioactivity is to minimize the exposure t is reasonably achievable. Radiation workers are intensively trained and follow rig procedures to ensure safety. Also, workers have the authority to stop any work if are unsafe. Work is not resumed until conditions are declared safe.

II 05.10.01 (004) Worker

COMMENT
Commentors raise issues about the health and safety of the workers at DOE and Navy
RESPONSE

As stated in the EIS, the Atomic Energy Act of 1954 authorizes DOE to establish sta health and minimize dangers to life and property. Radiation protection standards a radioactive releases to as low as reasonably achievable (ALARA) levels in recogniti health risk associated with exposure to radiation. In addition, DOE adopted and en safety, and health protection requirements that are equivalent to those issued by O locates, constructs, and operates its facilities in a way that provides a level of requirements for workers in private industry for all comparable job categories, inc occupations such as construction. Analyses are discussed in Volume 1, section 5.1. Appendices A through D, Chapter 4; and Volume 2, section 5.12. Health and Safety s volumes of the EIS evaluate radiological and nonradiological impacts to the health facilities. For all alternatives, impacts would be small. In the nonradiological and occupational medicine area, the Navy complies with OSHA regulations.

II 05.10.01 (005) Worker

COMMENT
Commentors raise the issue of potential radiation exposure to longshore workers in
RESPONSE
SNF shipping containers that could be handled by longshore workers are designed to international standards for safety, including radiation levels at the outside of th This EIS analyses transportation from ports of entry. The potential for radiologic workers is within the scope of the EIS entitled Proposed Nuclear Weapons Nonprolife Concerning Foreign Research Reactor Spent Nuclear Fuel.

II 05.10.01 (006) Worker

COMMENT
The commentor states that not all adverse properties of toxic and radioactive mater may be exposed are addressed in the EIS.
RESPONSE
The risk of contracting fatal cancers from exposure to radiation was used as a meas health throughout the EIS to provide a consistent document and to allow ready compa health impacts, such as those from exposure to chemical carcinogens. When nonfatal genetic effects from radiation are included in the analysis, the lifetime risk incr exposure for fatal cancers to 7.3E-4 per rem of exposure for all health effects com for these health effects are provided in Volume 2, Appendix F-4.
The risk factors for cancer induction used in the EIS have been taken from the most Commission on Radiological Protection recommendations (1990 Recommendations of the Commission of Radiological Protection), which reflect the most recent and most wide of all currently available data. The authors reviewed all available studies. Volu EIS provides a useful primer on radioactivity and radiation dose. Volume 2, Append discussion of how radiation doses were calculated and how cancer risks were estimat Analysis of exposure of workers to toxic materials is addressed in Volume 2, sectio inventory of potential chemical releases at INEL was reviewed and all potentially t included in the analysis, even those that are only suspected of having adverse heal the records of all reported occupational injuries and illnesses, regardless of caus potential future health impacts to workers.

II 05.10.01 (007) Worker

COMMENT
The commentor notes that Volume 1, section 4.12.1 does not mention anything about w safety beyond radiation exposure and that there have been quite a number of off no occurrences at the 100-K area fuel storage basins and spent nuclear fuel storage ar commentor suggests that occurrences for the last 5 years at the Hanford Site be sum
RESPONSE
The EIS has been changed to provide additional worker safety and health information

II 05.10.01 (008) Worker

COMMENT
The commentor indicates that Idaho National Engineering Laboratory workers would no risks just to have a job.
RESPONSE
DOE is formally committed to protecting the safety and health of its workers, the p environment. See the response to comment 05.10.01 (004).

II 05.10.01 (009) Worker

COMMENT
Commentors suggest that potential impacts to workers are deemphasized because they various sections of the document rather than in one place, and noted that the EIS d names and affiliations of those who prepared the various sections.
RESPONSE
EIS preparers, their affiliations, their education, and their years of experience a and 2, Chapter 6. DOE is solely responsible for the preparation and content of the final form. Although various consultants assisted DOE in preparing this document, technical review and approval of the document.

II 05.10.01 (028) Worker

COMMENT
The commentor suggests that the national average value for radiation doses from rad value to use in describing the Oak Ridge Reservation area.
RESPONSE
Radon doses were included as part of the description of natural background radiatio vary widely at individual locations, as well as across the nation. Results from in specific locations, change with time due to a variety of factors. Therefore, natio most useful for describing natural background from radon under most circumstances.

II 05.10.01 (029) Worker

COMMENT
The commentor notes that estimated radiation doses for one alternative appear to ex occupational administrative control level, and suggests a lower standard be applied
RESPONSE
The purpose of the EIS is to evaluate the potential impacts from proposed activitie assumptions were made to ensure that estimated doses are conservatively high and re bound of potential impacts. Although conservatively high, the analysis shows poten the alternative in question would remain within legal limits for occupational expos intended to substitute for the assessments required by regulations or by DOE Orders constructed or operated under the chosen alternative will comply with applicable re

II 05.10.01 (030) Worker

COMMENT
The commentor states that the EIS does not adequately address worker fatalities fro accident conditions as a basis for comparing alternatives.
RESPONSE
Volume 1, Chapter 5 discusses the disciplines studied that result in potential impa general interest, or may help discriminate among sites. The impacts from radiation from operations and accident conditions were analyzed for all alternatives containe

are summarized in Volume 1, Appendix K, Table K-2.

II 05.10.01 (031)Worker

COMMENT
The commentor states that contamination as a result of past nuclear weapons activit potential health and safety threats to many defense workers and surrounding communi
RESPONSE
DOE's policy is to identify and correct and inadequate practices concerning safety past or present operation of its facilities. DOE, with the assistance of other age initiated many in-depth investigations into these potential health and safety conce corrective actions as soon as possible in cooperation with the respective stakehold within existing budgetary constituents. Detailed descriptions of the events concer releases are outside the scope of the EIS.

II II COMMENT

The commentor states the source term inventories in Volume 1, Appendix I-20 to I-23 that no explanation was found to account for how the list was reduced. The comment spent nuclear fuel typically contains a large number of fission products and their modeling purposes, the list is often truncated by combining certain parent-daughter eliminating the minor contributors to dose.
RESPONSE
In some cases to facilitate modeling, the radionuclide distributions for representa truncated to eliminate minor contributors to dose. The radionuclides eliminated ac percent of the total dose. Volume 1, Appendix I has been revised to clarify this p information is contained in documents referenced in Volume 1, Appendix I.

II COMMENT

Commentors express a lack of confidence in the transportation analyses because ther in the EIS to explain how the numbers were obtained. For example, one commentor wan centralization at the Idaho National Engineering Laboratory requires fewer shipment the Hanford Site, when 80 percent of DOE spent nuclear fuel is already at the Hanfo arise regarding the verification and testing of computer codes used in the EIS. Se question the transportation accident probabilities used and are concerned about the transportation accidents caused by substance abusers. Additionally, commentors que effects of individuals in Idaho transportation corridor cities have been evaluated.
RESPONSE
Volume 1, Appendix I summarizes the methodologies, key data, assumptions, and resul for the transportation analyses. Details on the methodology, computer programs, mo and calculations are contained in supporting technical documents that are reference example, in Volume 1, Appendix I, DOE Complex Wide Spent Nuclear Fuel Shipment Esti DOE Programmatic Spent Nuclear Fuel Management Environmental Impact Statement, is r details on fuel transportation. Therein it is noted that the Hanford fuel shipping fuel, whereas most of the INEL fuel is shipped in casks holding only 25 kilograms o fewer shipments of fuel required to move fuel from INEL to Hanford than from Hanfor supporting technical detail is so extensive that it could not physically accompany supporting technical documents are available in the in the reading rooms and inform identified in the EIS.
The computer codes used in the transportation analyses included the generally accep impact assessment programs RADTRAN 4 and RISKIND, and the generally accepted transp routing computer codes HIGHWAY and INTERLINE. These computer codes have been used agencies in numerous EISs, environmental assessments, and other analyses. The comp undergone rigorous independent review and were determined to be adequate for use in analyses. The computer codes were also chosen to be complementary in order to bala potential consequences with risks of transportation.
The derivation of the transportation accident probabilities is described in Volume

accident probabilities used in the EIS are based on historical statistics observed industries and account for many phenomena, such as weather, road conditions, and su The transportation analysis evaluated shipments from their point of origin to their incident-free and accident risk transportation analyses are presented for the entir Idaho, if a shipment happened to travel through, originate, or terminate in Idaho. The accident consequence analyses are presented for transportation accidents with p occurrence exceeding 1E-7 per year. The results are for various combinations of po (i.e., rural, urban, and suburban) and meteorology. Results were not given for spe because of the large number of towns and cities along a transportation route in whi occur. Instead, the results were presented for accidents in various population den suburban, and urban. To determine which accident corresponds to their town or city match their particular population density zone to a population zone analyzed in the find the consequences of a transportation accident in a suburban area such as Idaho reviewer would look up the consequences of an accident in a suburban area; these co representative of the consequences in Idaho Falls or Pocatello.

II COMMENT

The commentor notes that transportation impacts are underestimated and that transpo been trivialized by the comparison with traffic fatalities.
RESPONSE
Analyses in the transportation sections of both volumes of the EIS evaluated potent and the public from the transportation of radioactive material using models, data, were chosen to overestimate the actual impacts of transportation. For all alternat from transportation would be small.
The comparison of transportation risks with traffic fatalities is appropriate becau from vehicular transportation accidents is from traffic fatalities that are not ass radioactive material or exposure to radionuclides released during a transportation comparison is needed to provide some point of reference or perspective for the risk management. There was no intention to trivialize transportation risks.

II COMMENT

The commentor states that the transportation assessment for the waste being sent of not identified and may present cumulative impacts and waste management concerns for are not analyzed in the EIS.
RESPONSE
The comment refers to Volume 2, section 2.2.7, which discusses off-site incineratio residuals to INEL as one of the existing options for treating low-level waste gener section does not discuss the transportation assessment for shipping waste offsite f transportation assessment is included in Volume 2, section 5.11. Volume 2, Table 5 anticipated waste shipments associated with each alternative, including shipments f unspecified private-sector facility. To bound the transportation assessment, the p assumed to be located in the southeastern United States, which maximizes the shippi incident-free and transportation accident analyses include the assessment of waste treatment. These were also included in the cumulative impact analyses.

II COMMENT

The commentor questions the use of average annual risk for transportation impacts w large difference in the number of yearly shipments.
RESPONSE
The total cumulative risks from transportation for the period 1995 through 2035 are 1, Chapter 5 of the EIS. The total cumulative risk accounts for all years, includi of shipments is low and years when the number of shipments is high; however, the an shipping rates is not expected to be large, so the average annual rate was consider The EIS Summary has been changed to add clarifying words as agreed with EPA.

II COMMENT

The commentor expresses an opinion that contractors at the Hanford Site are in a co situation and their assessment of contamination of the Columbia River lacks credibi
RESPONSE
This specific issue discussed is not within the scope of this EIS; however it is th other Federal agencies to ensure that their contractors are not placed in or allowe interest situations. This EIS was thoroughly reviewed by DOE technical experts to and accurate. See also the response to comment 03.03 (008) regarding DOE credibili

II COMMENT

Commentors express general fears about the "dangers" of nuclear power; about residi spent nuclear fuel, and/or radioactivity; and what they breathe, drink, and eat. S recent health concerns with their families or neighbors, or the effect on property should occur.
RESPONSE
DOE is aware of general public fears regarding radiation and radioactivity. The EI cumulative effect of DOE and Navy operations at the 10 candidate sites for SNF man The EIS concludes that there is no significant risk due to operations or reasonably involving SNF management, including transportation at any of the candidate sites. comment 05.15 (005) regarding property values.

II COMMENT

The commentor states that public exposures from past releases such as the accidenta unknown.
RESPONSE
Radiation exposures resulting from past accidents, including the 1978 accidental cr assessed as cited in Idaho National Engineering Laboratory Historical Dose Evaluati cited as a reference in Volume 2, section 5.14.1.
The 1978 accident involved an unplanned nuclear chain reaction at the Idaho Chemica shielded hot cell. The incident lead to an estimated release of 620 curies, result dose of less than 0.1 millirem to the general public. There were no on-site or off

II COMMENT

The commentor states that while sodium does not have a maximum contaminant level, i recommended level and does have an effect on humans.
RESPONSE
Although sodium levels exceed the recommended levels in isolated groundwater areas disposal has decreased in recent years. Sodium levels are shown on Table 2-4 in th Engineering Design File, available in reading rooms and information locations liste concentrations in the Snake River Plain aquifer are at or below background concentr boundary. There are no increased effects on off-site populations from sodium in gr On-site groundwater used for human consumption complies with drinking water quality established in the Safe Drinking Water Act.

II COMMENT

The commentor does not want to receive indirect exposure from radioactive contamina chain.
RESPONSE
The EIS evaluates the potential indirect exposure from contamination in the food ch

the risks of radiation exposure to the public and to workers would be small for all based on evaluations of operations and analyses of potential facility and transport sections in the EIS that cover public safety include Volume 1, Summary, Public and Effects; Volume 1, sections 5.7.10 and 5.7.12; Volume 1, Appendices A through F, se Occupational and Public Health and Safety, and Facility and Transportation Accident Summary, Accident section; and Volume 2, sections 3.3.11, 3.3.13, and 4.11.4.

II COMMENT

The commentor states that probabilistic risk assessments are unreliable and should radiological risks to the public or as the basis for decisions.
RESPONSE
The accident analyses in the EIS used combinations of deterministic and probabilist Deterministic assessments are based on inductive reasoning wherein the analyst eval proposed initiating events such as equipment failures, human failures, and natural Probabilistic assessments are based on deductive reasoning wherein the analyst assu as the release of radioactive materials from a facility) and then evaluates the nec to produce the assumed result. Risk professionals and analysts consider these tech complementary. In the EIS, reasonably foreseeable accidents over a range of likeli using these techniques. The EIS concludes that risk to workers and the public woul alternatives considered.

II COMMENT

The commentor states that public health analyses may not be adequate due to the lac and materials characterization.
RESPONSE
Many sites are preparing separate EISs on waste management, including SRS and Hanfo waste characterization will be analyzed for impacts to public health in those EISs. Volume 1 of this EIS covers SNF management. Radiological impacts are addressed in because these impacts are of greatest significance in managing this material, and a the public.
DOE has added better references to Volume 2 to characterize waste streams and has a mapping to those references.

II COMMENT

The commentor asks why the time period for obtaining occupational injury and illnes its contractors differs from that for private industry.
RESPONSE
The evaluation in the EIS is based on the latest available reported data from each for obtaining occupational injury and illness rates differ because DOE and the Nati report their data at different intervals.

II COMMENT

The commentor states that the analysis of worker doses emphasizes large accidents a address smaller events, such as unscheduled maintenance, that may give high doses t commentor asks if these are included under routine operations.
RESPONSE
As discussed in Volume 1, Appendix F, Parts Two and Part Three, section 5.15, the a considered a range of events from comparatively frequent operational upsets to very each range of frequency, accidents with the most severe potential consequences were the accident analysis evaluates the upper bound of consequences for the smaller, mo described by the commentor. In addition, these smaller events are included in the conditions. Potential impacts to workers from operations are based on historical d

records include any doses from unscheduled maintenance and other high-dose activiti
dosimetry database. (See also Volume 1, sections 3.3.2 and 5.1.1 and Appendices A

II COMMENT

The commentor finds a paragraph on radiological health effects difficult to follow
RESPONSE
Volume 1, Appendix F, Part Two, section 5.12 has been reworded to clarify its mean

II COMMENT

Commentors raise questions about or state that the EIS did not adequately discuss t
the public and environment as a result of operating facilities.
RESPONSE
Volume 1, Chapter 5 and Volume 2, Chapter 5 discuss radiological and nonradiologica
public relating to SNF management activities and environmental restoration and wast
activities at INEL. For all alternatives considered in this EIS, impacts would be
safety impacts to the public from the rest of DOE's operations are beyond the scope

II COMMENT

Commentors state that radiological health impacts other than fatal cancer, total de
addressed in this EIS.
RESPONSE
Risk of fatal cancers from exposure to radiation was used as a measure of impact to
throughout the EIS to provide a consistent document and to allow ready comparison w
impacts, such as those from exposure to chemical carcinogens. Nonfatal health effe
from radiation are a legitimate concern and are included in the EIS. Volume 1, sec
changed to clarify fatal and nonfatal cancers and genetic effects.
The EIS analyses of the potential effects of radiation exposure do consider health
fatalities and are based on the standards of the International Commission on Radiol
term "health detriments" includes the total impact of all fatal cancers, nonfatal c
The health detriments caused by any exposure to radiation are calculated by taking
effects after multiplying each effect by a weighting factor intended to represent t
each type of effect has on human health.
Volume 1, section 5.1 discusses the terminology and risk factors used by the Intern
Radiological Protection, which are consistent with those used by NRC. These factor
EIS in calculating the effects on human health. Cancer fatalities were used to sum
results in the EIS, because this effect was viewed to be of the greatest interest t
states that the number of total health effects (deaths, nonfatal cancers, genetic e
human health) may be obtained by multiplying the factor of 1.46 times the latent ca

II COMMENT

The commentor questions the safety of spent nuclear fuel when in a shipping cask, a
the potential radiation exposure of 10 millirem per hour at 1 meter from the surfac
RESPONSE
The comparison of the 10 millirem radiation dose with a chest x-ray was intended to
small the projected doses would be. DOE did not intend to imply that there would b
associated with exposure to a shipping cask. In fact, no members of the public are
radiation dose of as much as 10 millirem because they would be at greater distances
exposed for much shorter periods of time.

II COMMENT

The commentor questions the presentation of radiation dose and risk impact in Volum Table 3-1 as an example and states that as radiation exposure doubles, the chance o increases by approximately a factor of 10.
RESPONSE
The comment is inaccurate. In Volume 1, Appendix D, Table 3-1, units are the lifet over the entire 40 years for the alternatives listed in the table. The numbers are hour.

II COMMENT

Commentors suggest that estimated releases from proposed facilities are too near th dose limit established under the National Emission Standard for Hazardous Air Pollu should be implemented to reduce the dose to as low as reasonably achievable.
RESPONSE
The purpose of the EIS is to evaluate the potential environmental impacts from prop this reason, assumptions were made to ensure that estimated doses are conservativel upper bound of potential impacts. The EIS is not intended to substitute for the as the National Emission Standard for Hazardous Air Pollutants or any other regulatory facilities constructed or operated under the chosen alternative will comply with ap requirements, including assessments of radiation doses under the National Emission Hazardous Air Pollutants.

II COMMENT

The commentor expresses an opinion that DOE is not fully committed to protecting pu safety.
RESPONSE
The Secretary of Energy has publicly affirmed that DOE policy and practice now plac environmental considerations above other program goals. DOE is working as expediti rectify and eliminate adverse environmental impacts as a result of previous practic committed to protecting the safety and health of its workers and the public, and to environment. DOE intends to design, construct, and operate all proposed facilities level of safety and of safety assurance that complies with applicable Federal, stat and DOE Orders.

II COMMENT

The commentor questions whether the environmental, safety, and health effects to th radioactive releases from the K-basins have been adequately considered.
RESPONSE
The health effects for members of the public from radioactive releases are describe Appendix A, section 4.12.2. This section describes the environmental monitoring an consequences to the public from the Hanford Site. Volume 1, Appendix A, section 5. releases and dose consequences to the public from current activities at specific fa

II COMMENT

The commentor questions whether public health impacts are underestimated in the EIS
RESPONSE
DOE believes that conservative analyses have been used to estimate public health im Discussion of this matter has been added to the EIS. The environmental impact anal produce a reasonable projection of the upper bound for potential environmental cons requires the use of appropriately conservative assumptions and analytical approache "conservative" means that an assumption or analysis would tend to overproduced, rat

any adverse impacts. However, overly conservative analyses do not provide a useful alternatives. Therefore, the aim has been to avoid over conservatism and base the analyses on realistic, site-specific information wherever possible. Each alternati similar methods and levels of conservatism so that the relative impacts of alternat assessed.
The analysis of the impacts of operations and hypothetical accidents are based on c two elements: input data and a model or analytical method for projecting potential elements necessarily introduce some uncertainty in the estimated level of impacts o nature of the input data for each analysis is slightly different. Socioeconomic an projected budgets, for example, while air resources analyses are based on estimated The analytical models are also fundamentally different for similar reasons. Theref uncertainty varies among the analyses in the EIS. However, for all analyses where assumptions have been required, generally accepted engineering and scientific appro to ensure that these assumptions are not outside the range of uncertainty usually a Detailed uncertainty analyses can sometimes be used to evaluate environmental impac particularly valuable when projected impacts are large and it is important to know projections are. However, quantitative estimates of uncertainty in impacts for hyp are difficult to determine. When appropriately conservative estimates of impacts a exact degree of uncertainty diminishes in importance. The estimated impacts in thi that detailed quantitative uncertainty analyses are not necessary to provide a mean potential consequences.

II COMMENT

The commentor notes that EIS doses reported in rem are not defined as either "commi equivalent" or "total effective dose equivalent."
RESPONSE
For readability, the generic term "dose" is used throughout the EIS in place of the terms "committed effective dose equivalent" (CEDE) or "total effective dose equival general, the doses reported in the EIS are TEDE; that is, the reported dose account equivalent (EDE) from external radiation sources as well as the 50-year CEDE from i sources. For the accident analyses in the EIS, the TEDE is generally dominated by inhalation and ingestion pathways. On the other hand, occupational doses from operations are almost entirely EDE. In either case, it is appropriate to identify provided that doses from both external and internal pathways are accounted for.

II COMMENT

The commentor states that Volume 2, section 4.7.3 overestimates the significance of radiation when compared with other exposures and that exposures that are a small fr radiation are not necessarily "acceptable" because the public is usually unaware of fluctuations in exposure to background radiation.
RESPONSE
Volume 2, section 4.7.3 presents a comparison of doses from INEL activities to back attempt to call these doses acceptable.

II COMMENT

The commentor asks if multiple sclerosis was included in the health effects studied National Engineering Laboratory or anywhere else.
RESPONSE
Multiple sclerosis was not one of the health effects studied for INEL or any of the effects considered were the ones generally associated with exposures to radiation o health effects are the clearest indications of the effects of DOE activities discus the effects of radiation exposure have not indicated any association between radiat multiple sclerosis. Multiple sclerosis has been studied by medical researchers. F contact the Multiple Sclerosis Society at 800-624-8236.

II COMMENT

The commentor suggests that, with regard to incident-free transportation calculatio be an oversimplification in either the radiological or the nonradiological models b observed in the range of results presented.
RESPONSE
DOE has reviewed the models used for incident-free transportation calculations for nonradiological fatalities and has not identified any over-simplifications. The ba conclusion is apparently a comparison of the range between truck fatalities and rai general population presented in Tables I-15 to I-19 of Appendix I. Radiological an fatalities include both fatalities for the general population and for workers.

II COMMENT

The commentor objects to the characterization of a 34-percent increase in cancer ri
RESPONSE
The term "minimal" relates to the overall risk from operations of SNF facilities at 1 year of operations would be 2.9 x 10-2. In other words, a 34-percent increase in still a very small number.

II 5.11 Accidents/Releases

II COMMENT

The commentor is concerned about the effects from even small accidents.
RESPONSE
Volume 1, Chapters 3 and 5 and Appendices A through F; and Volume 2, Chapters 3 and F discuss risks to the public, workers and the environment due to a range of large discussions include extensive evaluations and analyses of accidents. Small acciden the analysis, particularly if they have a high probability of occurring. The EIS s workers and the public from all accidents would be small for all of the alternative

II COMMENT

The commentor states that, although there are no known disasters in handling of the exists, no one can say that a disaster will not be created.
RESPONSE
Volume 1, Chapters 3 and 5 and Appendices A through F, and Volume 2, Chapters 3 an F, discuss risks to the public, workers, and the environment due to facility and tr including SNF- handling accidents. The EIS analyses also evaluate the potential co accidents. These analyses have been extensively reviewed. The EIS shows that the public from such accidents would be small for all alternatives considered.

II COMMENT

The commentor questions the rationale of including analysis of a spent nuclear fuel involving a release of large amounts of radioactive materials, as the historic reco transportation accident shows no such releases.
RESPONSE
DOE agrees with the commentor's assessment of the historical safety record for SNF activities. Consequently, DOE assigned a probability of 1 x 10-7 (one in one millio SNF transportation accidents accompanied by a large release of radioactivity.

II COMMENT

The commentor suggested that a rural population would represent a "best case scenar scenario" in the event of a release from containment at the Oak Ridge site.
RESPONSE
This comment concerns the description of the existing socioeconomic conditions prov Chapter 4. These generalized population distributions were not used in accident as accident assessments, as discussed in Volume 1, Appendix F, Part Three, section 5.1 distributions in the most populous sector were used to maximize potential radiation population.

II II COMMENT

The commentor states that DOE should more fully study the potential effect of mass storage tanks at the Idaho National Engineering Laboratory regarding impacts on all downwind, and on the site.
RESPONSE
The evaluation of facility accidents in the EIS considered a range of large to smal maximum reasonably foreseeable accidents. Reasonably foreseeable accidents as defi Recommendations for the Preparation of Environmental Assessments and Environmental Statements include those for which impacts may have very large or catastrophic cons Chapters 3 and 5 and Appendix F discuss risks to the public, workers, and the envir all of the alternatives considered.
The maximum reasonably foreseeable accident considered in the EIS with a potential River Plain aquifer was the immediate release of 300,000 gallons of radioactive liq waste tank at the Idaho Chemical Processing Plant. The assessment, discussed in Vo shows that the impacts to the aquifer would be small; for example, drinking water s exceeded at the site boundary. No adverse impacts to other life forms would be exp accident.
Also discussed in Volume 2, section 5.14 is the maximum reasonably foreseeable acci result in an airborne release of radioactive or hazardous material at INEL. This e earthquake at the Argonne National Laboratory-West Hot Fuel Examination Facility. 2, Table 5.14-4, should such an incident occur, a potential exists for limited adve wildlife onsite or downwind of the facility. No impacts would be expected to endan species for this or any other reasonably foreseeable accident.

II COMMENT

Commentors state that there are significant safety problems at the Idaho National E including historical accidents, and operational incidents.
RESPONSE
DOE's accident history at INEL has been compared with other industries, as summari section 5.14.1. This comparison shows that the accident rate at INEL is lower than private industrial work. Past accidents were analyzed in Idaho National Engineerin Historical Dose Evaluation, and reasonably foreseeable accidents were analyzed in A for Idaho National Engineering Laboratory Facilities. Protection of members of the workers against accidents is considered by DOE in the design, location, constructio facilities. The EIS shows that the risk to workers and the public from facility ac all of the alternatives considered.

II COMMENT

The commentor states that the work-day population of the Idaho Chemical Processing 1,000, and that DOE does not explain why a lower number of workers was used in the potential collapse of the main stack caused by an earthquake.
RESPONSE

A seismic event large enough to cause a stack collapse would clearly initiate an em
Workers would either take cover or evacuate as directed by the emergency response a
qualitative assessment of the number of workers either within the range of the stac
normal evacuation path might be impeded by debris from the stack collapse indicated
workers could be affected.

II COMMENT

The commentor states that the more material that exists at a particular location, t
accident will occur.
RESPONSE
DOE agrees with the comment. The likelihood of accidents as assessed in the EIS de
handling rate and the amount of waste. Both of these considerations were included
analyses discussed in Volume 1, site-specific Appendices A through F, and Volume 2,

II COMMENT

The commentor states that the analysis associated with a radiological release follo
Snake River Plain aquifer.
RESPONSE
In terms of the consequences to the Snake River Plain aquifer, the maximum reasonab
accident analyzed with a potential impact was a release of the entire contents of a
the Idaho Chemical Processing Plant. This potential accident is discussed in Volum
Appendix F-5. The analysis assumed a seismic event of sufficient magnitude to cau
fail, and 300,000 gallons of high-level waste to be released to the soil beneath th
migration of contaminants into the aquifer showed that even without any mitigation
maximum concentration of radionuclides at the nearest site boundary was within requ
drinking water standards.
The analyses of accidents described in Volume 1 and Volume 2 of this EIS include a
that might release radioactive material to the Snake River Plain aquifer or to the
analyses are described in Volume 1, Appendices B and D, and in Volume 2, section 5.
These analyses show the risks to the public and workers would be small for all of t
considered.

II COMMENT

The commentor expresses the opinion that the fuel handling control systems at the I
Processing Plant are inadequate, and suggests the likelihood of a criticality may b
in the EIS, particularly as the Idaho National Engineering Laboratory consolidates,
more spent fuel. The commentor states that a criticality accident at ICPP-666 woul
frequency closer to 1E-01 per year rather than 1E-03 per year. Thus, the commentor
evaluation of an inadvertent nuclear criticality in ICPP-666 is needed to complete
RESPONSE
DOE established an estimated annual frequency for a criticality accident during SNF
in a water pool by consensus of a group of experts. To the knowledge of these expe
been a criticality accident anywhere in the world during storage of SNF in a water
the experts was that a frequency of 1E-4 events per year was a representative value
accidental criticality in a water pool throughout all DOE SNF handling and storage
consensus that controls in effect at a specific facility and the condition of fuel
facility may justify the use of a larger or smaller value, but that overall the pro
the range of 1E-03 to 1E-05 events per year. Detailed review of the EIS would reve
been used to describe the frequency of this accident in specific facilities.
Based on this consensus, the estimated annual frequency for a criticality accident
as 1E-03 per year in Volume 1, Appendix B. The higher frequency of occurrence was
the storage arrangement, and the type, age, and condition of fuel in ICPP-603. ICP
and storage arrangements for fuel in ICPP-666 are better than for fuel in ICPP-603.
expected that the frequency of occurrence of an accidental criticality in ICPP-666
ICPP- 603. Accordingly, a starting estimate of 1E-04 per year is more appropriate

ICPP-666 has a larger fuel inventory than ICPP-603. Methodology was established an EIS to adjust the frequency of occurrence for fuel inventories and for the number o operations. It was determined that a fuel inventory difference does not directly a occurrence of an inadvertent criticality, but only indirectly through an affect on the future
as it was in the past. Accordingly, it is
appropriate to use 1E-04 per year as the estimated frequency of occurrence of a cri ICPP-666.
The commentor also implies that receipt of more reactive Navy fuel would cause the criticality accident to increase. Because fuel is more reactive does not necessari occurrence of an inadvertent criticality. ICPP imposes additional administrative c reactive fuel (e.g., when such fuel is being handled, only one module is allowed to time). Thus, the frequency of occurrence of an inadvertent criticality for handlin ICPP-666 remains on the order of 1E-04 per year.
The commentor states that 1) ICPP has not performed a detailed assessment of nuclea fuel and ICPP-666 fuel-handling operations; 2) ICPP has not conducted comprehensive accident analyses of planned operations; and 3) ICPP has not developed and implemen fuel control system. The commentor is incorrect. All of these actions were comple fuel to ICPP-666.
The commentor further alleges that if SNF is consolidated at the Idaho National Eng "there will be a much higher probability that an accidental nuclear criticality wil by the EIS." The results in the EIS for ICPP-603 represent the bounding inadverten frequency of this event does not change for various alternatives, because movement would take place under all alternatives. If other fuels are consolidated at ICPP, used for storing that fuel. The frequency of occurrence of an inadvertent critical somewhat in another facility, either existing or yet to be built, for storage of th example, the frequency of an inadvertent criticality in ICPP-666 may increase from year if all the consolidated fuel were handled there. Nevertheless, the bounding e alternatives is expected to be an event in ICPP-603 as stated in the EIS.

II COMMENT

The commentor states that the location selected for the potential spent nuclear fue the Oak Ridge Reservation will be next to the Y-12 "walk-in pits," which contain sh pyrophoric chemicals.
RESPONSE
The Y-12 pits are actually 4 miles from the West Bear Creek Valley site selected fo management activities at ORR. The distance is accounted for in accident impacts an impacts in the EIS, and no significant adverse environmental or health and safety i foreseen as a result of the proximity of the Y-12 pits.

II COMMENT

The commentor asks for a description of the cask drop accident mentioned in Volume
RESPONSE
The cask drop accident mentioned is a postulated scenario in which a cask holding S overturned in the fuel transfer area of the 105-KE or 105-KW basins at the Hanford broken spent fuel rods might spill out of the cask and onto the floor of the buildi spent fuel pool. This accident is described in detail in Volume 1, Appendix A, sec section 5.1 of the EIS has been changed to correctly reference the cask drop accide

II COMMENT

The commentor recommends clarifying how the estimated frequency of a fuel-handling Idaho National Engineering Laboratory, and the impacts associated with it, would ch alternatives.
RESPONSE
The characteristics of accidents analyzed under the each of alternatives are adjust

scaling factors developed for both frequency and consequences (see Accident Assessm National Engineering Laboratory Facilities). For example, the expected frequency o accident involving SNF would be greater in the 1992/1993 Planning Basis alternative alternative because of the increased number of handling events in the 1992/1993 Pla compared with the No Action alternative. But no adjustments to the consequences wo because the same type and amount of "material at risk" would be involved.

II COMMENT

The commentor states that the accident impacts would decrease for Oak Ridge under t alternative due to storage upgrades not included in the No Action alternative.
RESPONSE
Volume 1, section 5.1 has been modified as identified by the commentor.

II COMMENT

The commentor notes that no liquid releases are planned for normal operations and t address whether these plans are subject to change; and if so, analyses should be mo
RESPONSE
No current plans exist to change the operating scenario (i.e., no liquid releases a environment, as stated in Volume 1, Appendix F, Part Two, section 5.8.1). Neverthe release scenario was evaluated for this EIS, which represents a maximum amount of l could be released under operating conditions. This evaluation should be sufficien operations releases.

II II COMMENT

Commentors indicate the EIS failed to analyze transportation accidents while transp fuel through inland waters of the United States.
RESPONSE
Volume 1, Appendix I has been expanded to include three additional shipping scenari N-Reactor SNF from the Hanford Site to Sellafield, England, for processing. The sc and U.S. territorial water barge transport of SNF and transoceanic shipment of SNF Accident consequences are included for port activities as well as during ocean tran the public from these activities has been shown to be very small. This evaluation example of reasonably foreseeable impacts. Analyses, impacts, and consequences of research reactor (FRR) SNF on the open seas to the United States is addressed in th Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research React Nuclear Fuel.

II COMMENT

Commentors suggest that the EIS describe the historical spent nuclear fuel accident 1971 and 1993 to determine if any had occurred in urban or suburban areas where the accident was noted by the EIS to be very low (less than 1 x 10-7 per year).
RESPONSE
The 1 x 10-7 per year probability cited by the commentors does not refer solely to SNF accident; rather, it refers to the probability of an SNF accident accompanied b radioactivity. Based on the historical record, no SNF accidents in any areas (rura have resulted in the release of large amounts of radioactivity.

II COMMENT

The commentor notes that the EIS does not address the potential for shipboard fires

contamination as a result of those fires, or the impact to emergency response perso should a shipboard fire occur.
RESPONSE
The analysis of accidents, including shipboard fires, in ports and on ships, and th emergency response personnel for FRR SNF is beyond the scope of this EIS. However, accidents and their impacts are being addressed in a separate EIS entitled Proposed Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel (Dra as well as a decision as to whether the United States will receive such SNF.
The criteria used to choose the ports of entry are outlined in the Notice of Intent Register Vol. 58, No. 202, October 21, 1993, pages 54336-54340). These criteria in of harbor and dock characteristics to satisfy the cask-carrying ship requirements, and secure lag storage, (c) adequacy of overland transportation systems from ports experience in safe and secure handling of hazardous cargo; (e) emergency preparedne and nearby communities; and (f) proximity to the proposed storage sites. A range o also be analyzed in the FRR EIS. The decision regarding port selection will not be EIS and the FRR EIS are completed.
An analysis of a shipboard fire involving Naval SNF is included in Volume 1, Append Attachment F.

II COMMENT

The commentor requests inclusion of a shipboard fire accident scenario in the EIS.
RESPONSE
Shipboard transport and handling of SNF is beyond the scope of this EIS. Policy al States origin foreign research reactor SNF, and for its transport, receipt, handlin addressed in a separate environmental impact statement (58 FR 54336). The FRR SNF impacts of marine transport and receipt of FRR SNF at six or more ports of entry. and potential accidents, including a shipboard fire, will be evaluated.
An analysis of a shipboard fire involving Naval SNF is included in Volume 1, Append Attachment F.

II COMMENT

Commentors raise the issue that transportation-accident health impacts to Tribal me inspectors along Interstate-15 through the Shoshone-Bannock Reservation are not inc
RESPONSE
As discussed in Volume I, section 5.11.2, radiological impacts for incident-free tr determined for (1) crewmen (drivers) and (2) members of the public. The crewmen cat drivers of the shipments, and the members of the public category includes Tribe mem For incident-free transportation, the radiological effects a shipment inspector mig encompassed within the effects to a crewman or driver of shipments based on the int inspector interacts with a shipment compared to the interaction time of the driver. effects to the driver are based on the driver receiving radiological exposure, with while in the cab of the vehicle and during detailed inspections of the cargo and th radioactive material.
Incident-free radiological impacts to Tribe members for SNF and radioactive waste s reservation are encompassed in the existing EIS analyses for members of the public density along a generic transport route.
A reservation-specific accident analysis would not provide information additional t provided in Volume 1, Appendices D and I for the programmatic alternatives consider probability of an accident occurring along a specific 20-mile segment of interstate shipment is so small that it is beyond the range of analysis required for a program

II II COMMENT

The commentor states that previous releases and accidents at DOE sites were intenti up. The commentor also discusses previous and potential releases of radioactivity government sites.

RESPONSE
It is DOE policy to identify and correct any inadequate practices concerning safety operation of its facilities. In this regard, accidents and accidental releases are releases from DOE facilities under all operating conditions are included in annual Detailed accounts of the events related to prior accidents or releases are outside EIS addresses the impacts of a number of reasonably foreseeable accidents related t with no significant risk of health effects or environmental impacts identified. DO current, and reasonably foreseeable future activities in assessing the cumulative i small.
The environmental impact analyses are designed to produce a reasonable projection o potential environmental consequences. This requires the use of appropriately conse and analytical approaches. In this context, "conservative" means that an assumptio to overproduced, rather than underpredict, any adverse impacts. However, overly co not provide a useful basis for comparison among alternatives.

II COMMENT

Commentors, when referring to the transportation discipline, state they are confuse reasonably foreseeable accident." For example, commentors state they wonder if thi worst-case accident and whether the EIS has evaluated such an accident. Commentors constitutes the maximum reasonably foreseeable accident, and commentors state they would deal with such an accident if it occurred.
RESPONSE
The EIS evaluates two complementary aspects of the impacts from transportation acci aspect is the risk associated with transporting radioactive material; transportatio the probabilities and consequences of a complete spectrum of transportation acciden with high probabilities and low consequences, to accidents with low probabilities a The second aspect is the consequence associated with a bad transportation accident. is too subjective and statistically, has virtually no probability of occurring. In accident that better represents an accident that could occur, but one which has lit This kind of accident is termed the "maximum reasonably foreseeable accident." In guidelines for accident analyses in EISs, this accident was chosen based on having x 10-7 per year or about one in 10 million per year. This kind of accident is roug used to be called a worst-case accident, except that it is chosen based on a specif x 10-7).
For most alternatives, an accident involving a rail shipping container containing S reasonably foreseeable accident. The precise accident scenario that leads to the m foreseeable accident is not described because there are different combinations of f lead to the accident conditions. For example, a high-speed train collision with th followed by a high-temperature fire that lasts 2 to 3 hours could lead to these con other combinations of fire and impact that could lead to the same conditions. App various combinations.
The mitigation of transportation accidents may come either before or after the acci used before the accident include shipping the radioactive material in approved cont containing large amounts of radioactive material, such as SNF, only containers that designed to withstand hypothetical accident conditions are used. In addition, tran chosen to minimize the risk associated with transporting radioactive material. Mea a transportation accident include emergency response and EPA protective action guid to limit doses.
The EIS Summary was changed to clarify this concept.

II COMMENT

The commentor asks about the impacts to the Idaho agricultural industry resulting f of hazardous materials to the air or to groundwater.
RESPONSE
Volume 1, Chapters 3 and 5 and Appendices A through F, and Volume 2, Chapters 3 and F, discuss risks to the public, workers, and the environment due to facility accide impacts from accidents would be small for all of the alternatives considered.
The maximum reasonably foreseeable accident considered with a potential impact to t

aquifer was a release of the entire contents of a high-level waste tank at the ICPP 2, section 5.14. The assessment shows that even without taking credit for mitigati the aquifer would be small; for example, drinking water standards would not be exce boundary. As shown in Volume 2, Table 5.14-4, for any accident involving an airbor radioactive or hazardous material at INEL, there is a potential for limited economi 1-year restrictions to public lands or up to a 1-year agricultural land withdrawal immediately adjacent to INEL (up to an estimated 10,000 acres).

II COMMENT

The commentor notes that it is inconsistent to say no cases were found where an acc could cause an accident in a collocated facility when an earthquake could cause mul facility and across the entire site.
RESPONSE
Qualitative assessments of accidents associated with existing and proposed operatio for causing accidents in another facility were part of the accident evaluation. No which an accident in one facility would cause an accident in another facility great accidents already considered in the EIS. The potential for simultaneous accidents seismic initiator is described in Volume 2, section 5.14. DOE's analysis shows tha would be bounded by those resulting from the postulated accidents at the Argonne Na Volume 1, Appendix B, the consequences and risks associated with multiple facility eliminated from further consideration because they do not represent the maximum rea accidents within the frequency categories defined in Volume 1, Appendix B, Table 5.

II COMMENT

Commentors state that the effects of a large earthquake at the Nevada Test Site sho high consequence, low probability event.
RESPONSE
In the EIS, the accident yielding the largest radiation dose (i.e., the bounding ev into the dry cell facility scenario. This accident scenario assumes a breach of th subsequent airplane fuel fire resulting in a plume of contaminants. The results of are provided in Volume 1, Appendix F, Part Two, Tables 5.15.1 through 5.15.6.
A large-earthquake scenario was considered in the EIS. It was determined that the differs from the airplane crash scenario in that there is limited combustible mater spilled airplane fuel is not present during an earthquake, and ignition sources are impact of subsequent fires and resultant contaminant plumes was found to be less in scenario than for the airplane-crash scenario. As a result, a more detailed analys

II COMMENT

The commentor expresses disbelief that impacts from accidents such as Three Mile Is would not cause damage if they occurred at the Idaho National Engineering Laborator
RESPONSE
The nature of potential accidents associated with storing SNF, as well as treating wastes, at INEL differs from the types of accidents the commentor mentions. Nuclea accidents cited were so intensely radioactive that the heat they generated internal or burn the fuels in the absence of cooling. For SNF in long-term storage at INEL, radioactivity has occurred long enough that the heat the fuel generates would be mu required for fuel melting. The fraction of radionuclides available to be released smaller for nonmelted fuel than for reactor fuel that could melt by internally gene This EIS shows that the risk to workers and the public from INEL facility accidents of the alternatives considered.

II COMMENT

The commentor notes that flooding could occur at the Idaho National Engineering Lab impacts to water resources should be addressed.
RESPONSE
The INEL accident analyses, summarized in Volume 1, Appendices B and D, and Volume considers flooding and other natural phenomena as potential causes of accidents. S were selected for detailed analysis because they were comparatively likely, and som for detailed analysis because of their large potential consequences. The consequen of the high-level waste tanks was selected for detailed analysis instead of floodin inventory in the high-level waste tanks has a larger potential for consequences to flood. The high-level waste tank failure accident is reported in Volume 2, section the aquifer would be small under all the alternatives that were analyzed.

II COMMENT

The commentor states that risks associated with Idaho National Engineering Laborato storage, waste management, and reburial of wastes for the Pit 9 Retrieval project h characterized in the EIS. The commentor further asks that if the Pit 9 waste is no ground, what is the case with the safety of the tons of high-level waste in storage
RESPONSE
The Pit 9 Retrieval Project is an on-going project initiated under INEL FFA/CO and alternatives. Simply stated, the project will excavate previously buried wastes, s components, and rebury the remaining waste. The separated components would be place stored in the Transuranic Storage Area of the RWMC. While the Project has separate documentation, the Pit 9 Retrieval Project impacts were included in this EIS as par A summary of Pit 9 Retrieval Project is given in Volume 2, Appendix C. Risks, incl associated with the Pit 9 Retrieval Project are part of the baseline impacts summar Chapter 5. Post-treatment low-level waste from Pit 9 could be stored safely above waste contaminated with fewer than 10 nanocuries per gram alpha-emitting radionucli returned to shallow land burial. The section in the EIS Summary entitled Public Wo notes that the risk from facility accidents would be small for the alternatives con

II COMMENT

The commentor states that collocation issues are not discussed, and that there is l secondary impacts from an accident in one facility on other operating facilities at Engineering Laboratory.
RESPONSE
Volume 2, Chapters 3 and 5 and Appendix F discuss risks to the public, workers, and to facility accidents at INEL. As indicated in the EIS, the discussion is a summar detailed in Accident Assessments for Idaho National Engineering Laboratory Faciliti includes evaluations and analyses of accidents that were extensively reviewed. Qua accidents associated with existing and proposed operations, and their potential for secondary impacts in another facility, were part of the accident evaluation. No ca an accident in one facility would cause an accident in another facility greater tha already considered in the EIS. Secondary impacts to other facilities were limited costs. No other collocation issues were identified.

II COMMENT

Commentors suggest that particles released from the main stack at the Idaho Chemica an incident on April 2, 1992, could be dispersed by wind and that a single 3-millir could cause an exposure of 10 millirem in about 3 1/2 hours. Commentors suggest th of such particles was not analyzed because of the assumption of interdiction measur
RESPONSE
In the incident at the ICPP main stack, a release of quarter-sized flakes of ammoni elevation of about 250 feet. All detectable material was found within an area 2,56

yards long, about 12 acres. Thus, it is unlikely that any detectable radioactivity the INEL boundary. A subsequent cleanup effort with high efficiency particulate ai equipment returned the contaminated area to levels below those for noncontaminated with DOE Order 5480.11, Radiation Protection for Occupational Workers.
Resuspension of radioactive materials from the ground by wind is acknowledged as a mechanism. Windborne resuspension reduces the amount of exposure at any given dist of releases, but increases the area in which some exposure occurs. The commentor i that direct contact with a 3-millirem-per-hour particle for about 3 1/2 hours would whole body dose of 10 millirem. Rather, only that part of the body in contact with receive a localized dose of 10 millirem. Depending on the exposure pathway, it may such particles to result in an effective whole body dose of 10 millirem. For the I with the maximum reasonably foreseeable consequences, and with the most unfavorable conditions, some restrictions on use of agricultural products might be implemented established protective action guides.

II COMMENT

Commentors raise the issue of health risks involved should there be an accidental s water table at the Idaho National Engineering Laboratory.
RESPONSE
Volume 1, Chapters 3 and 5 and site-specific Appendices A through F; and Volume 2, and Appendix F discuss risks to the public, workers, and the environment due to a r facility accidents. The maximum reasonably foreseeable accident considered with a Snake River aquifer was the release of the entire contents of a high-level waste ta Processing Plant. This accident is discussed in Volume 2, section 5.14. The asses without taking credit for mitigation measures, impacts to the aquifer would be smal at the site boundary would be within requirements of the safe drinking water standa

II COMMENT

The commentor states that the EIS fails to fully assess the Idaho Chemical Processi waste tanks and vaults, including structural constituents, seismic (risks), leakage and service line leaks.
RESPONSE
A maximum reasonably foreseeable accident associated with the high-level waste tank the EIS, as reported in Volume 2, section 5.14. A more detailed description of the Accident Assessments for Idaho National Engineering Laboratory Facilities. The ana seismic event of sufficient magnitude to cause one or more tanks to fail, and 300,0 waste to be released to the soils beneath the tank farm. Modeling of migration of Snake River Plain aquifer showed that even without any mitigation measures, the max of radionuclides at the nearest site boundary would be within requirements of safe standards.

II COMMENT

Commentors express disbelief that a criticality would occur only once in 10,000 yea fuel storage pool; risk methods used to estimate number of latent cancers a critica also not believable to commentors.
RESPONSE
DOE acknowledges a typographical error in Volume 1, Chapter 5. The estimated proba criticality accident at the ICPP is 1 chance in 1,000 per year of operation, not 1 While DOE recognizes the potential for a criticality accident in an SNF storage poo a nuclear criticality in an SNF storage pool in the history of the DOE complex or i experience base represented by the commercial nuclear power industry.
The evaluations in this EIS of the probability of an inadvertent criticality consid including facility design controls, administrative controls, fuel inventories, fuel of some fuels, and fuel-handling frequencies. In addition to the estimated probabi risk depends on the consequences of a criticality, which were conservatively calcul

The risk factors for cancer induction used in the EIS were taken from the most rece Commission on Radiological Protection recommendations (1990 Recommendations of the Commission of Radiological Protection), which reflect the most recent and most wide of all currently available data. The authors of ICRP 60 reviewed all available stu Appendix A provides a useful primer on radioactivity and radiation dose. Volume 2, provides a discussion of how radiation doses were calculated and how cancer risks w Volume 1, Appendix D, section F.1.3.3 and Volume 2, Appendix F-4 discuss the termi factors used by the International Commission on Radiological Protection and how the applied in calculating the effects of radiation on human health in this EIS.
Cancer fatalities were used in the EIS to summarize and compare the results, since be of the greatest interest to the most people. The typographical error in Volume corrected.

II COMMENT

The commentor asks DOE to clarify whether the "accident scenario with the highest r Summary is equivalent to the "maximum credible accident" or "maximum conceivable ac "maximum foreseeable accident" or "maximum reasonably foreseeable accident" as repo Volume 2.
RESPONSE
The accident scenario with the highest risk as reported in the Summary is not neces "maximum credible" or "maximum conceivable" or "maximum foreseeable" or "maximum re foreseeable" accident. The evaluation of facility accidents in Volume 1, Appendice 5.15; and Volume 2, section 5.14 consider a range of accidents, from relatively com handling accidents, to very rare events, such as an aircraft crash into a facility. "maximum reasonably foreseeable" accidents. For NEPA purposes, they are accidents catastrophic consequences even if their probability of occurrence is low, provided impacts is supported by credible scientific evidence, is not based on pure conjectu of reason" [40 CFR section 1502.22(b)]. In many cases, these accidents were beyon the facilities and more severe than the maximum reasonably foreseeable accident for Accident risks were determined by multiplying accident consequences by accident pro with the highest risk are reported in the Summary because they bound the risks from

II COMMENT

The commentor suggests that because of the potential for causing contamination in t seismically initiated Mackay Dam failure, a dynamic analysis of the dam structure s determine its level of seismic resistance.
RESPONSE
DOE considered the failure of the Mackay Dam in its analysis and found that the con potential event would be much less than the maximum reasonable foreseeable accident below. As a result, a dynamic analysis of the dam structure to determine its level unwarranted.
Mackay Dam is an earthenfill structure completed in 1917 and has a storage capacity The dam was not built to conform to seismic or hydrologic design criteria. In 1978 classified as a high-hazard dam by the State of Idaho, based on inspections by the Water Resources and the U.S. Army Corps of Engineers (Phase 1 Inspection Report). miles northwest of the epicenter of the 1983 Borah Peak earthquake. Following the was inspected and there was no structural damage to the dam or the outlet works. T structure's ability to withstand severe seismic activity is unknown, the performanc the Borah Peak earthquake demonstrated the stability of the embankment during moder ground motion (Flood Routing Analysis for a Failure of Mackay Dam). Following the earthquake, stabilization work was completed on the right abutment of the dam and t cleared of rock debris. The dam was inspected by the Idaho Department of Water Res certificate was issued for continued operation of the dam and storage (Letter, Depa Resources to Mr. J. Doyle Jensen, Big Lost River Irrigation District, April 20, 198 In spite of the good record for the dam, various postulated dam failure scenarios h regard to flooding of INEL facilities. These postulated failures include piping fa dam collapse, and overtopping of the dam structure during the hypothetical probable all cases, the reservoir was assumed to be full at the start of the initiating even

failure, the failure was assumed to occur during the 25-year return period flood wi full reservoir of 4,030 cubic feet per second (Flood Routing Analysis for a Failure These conditions bound any additional water that could be impounded by ice dams abo because the Big Lost River plain is relatively flat and the depth of the river is r feet), making the storage of significant bodies of water behind ice dams beyond rea In all the above cases, it is assumed that the Big Lost River diversion dam would b floodwaters, with the probable maximum flood being by far the worst case (Flood Rou Failure of Mackay Dam). The probability of a probable maximum flood leading to dam estimated to be less than 1.0E-6 per year [Flood Evaluation Study; Radioactive Wast Complex (Draft)]. Although the probability for a seismically induced failure of t calculated, the probability of seismic failure causing total collapse, coupled with Dam would overtop dikes at the RWMC (Safety Analysis Report for the Radioactive Was Complex at the Idaho National Engineering Laboratory), although there would be some Reactor Area, ICPP, Expended Core Facility, and Test Area North areas (Flood Routin Failure of Mackay Dam). Even for probable maximum flood conditions, the flood wate transported contamination would be contained within the boundaries of INEL (Flood R for a Failure of Mackay Dam). Groundwater contamination could be introduced during accident has been bounded by the assessment of a seismic failure of the high-level which is assumed to rupture one or more tanks, releasing 300,000 gallons of high-le beneath the ICPP tank farm. The maximum reasonably foreseeable event would be seve magnitude more severe than flood-induced contamination over a large surface area.

II COMMENT

The commentor expresses the opinion that DOE and the Department of Defense should s disposing of radioactive waste because the area at the Idaho National Engineering L seismically and volcanically active and could cause a radioactive release to the Sn

RESPONSE

Seismic hazards and geologic analyses can be found in Volume 1, section 4.2 and App and Volume 2, section 4.6 and Appendix F-2. Seismically induced accidents are disc section 5.14 and Appendix F-5. DOE takes seismic hazards very seriously, and INEL reviewed analyses to support the enforcement and implementation of DOE Orders and s extensive effort has occurred over the past several years to upgrade DOE Orders and natural phenomena hazards. Studies have been under way for many years and are cont to ensure that seismic hazard characterization is based on up-to-date information a methods. New geologic information on seismic hazard characterization is continuall determine if additional geologic studies are needed.

DOE has analyzed the effects of a hypothetical lava flow event at INEL . The geolog flow is discussed in Volume 2, section 4.6.4, and the estimated consequences of suc various alternatives are shown in Volume 2, section 5.14, Tables 5.14-3, -5, -6, -8 methodology used for performing these analyses is documented in Volume 2, Appendix Accident Assessments for the Idaho National Engineering Laboratory Facilities. As analyses, the DOE used conservative assumptions to account for the uncertainty in m an accident involving molten lava coming into contact with radioactive materials. public are well below DOE's Nuclear Safety Policy .

DOE has considered the potential for a volcanic ashfall event at INEL in Volume 2, Volume 2 Appendix F-2.1.2. As stated in section 4.6.4, potential ashfall events ar the site. The risk associated with an ashfall event is bounded by the accidents eva section 5.14. The impacts on the Hanford Site resulting from the Mount St. Helens were small. The Volcanism Working Group (Assessment of Potential Volcanic Hazards Production Reactor Site at the Idaho National Engineering Laboratory) determined th volcanic events are small for INEL. Therefore, a silicic ash-flow hazard at the IN reasonably foreseeable significant adverse impact on the human environment.

A hypothetical accident involving the instantaneous release of the contents of a hi represents the situation with the most potential impact on the Snake River Plain aq geologic conditions at the INEL and is discussed in Volume 2, sections 5.14 and Vol Under this scenario, maximum radionuclide concentrations are predicted to reach the years after the accident and predicted concentrations will be less than EPA MCLs or DOE Order 5480.28, Natural Phenomena Hazards Mitigation, sets forth DOE procedures assess, and operate DOE facilities so that workers, the general public, and the env from the impacts of natural phenomena hazards on DOE facilities. This Order specifi to be re-evaluated upon any change in design and construction standards. Existing f

undergone continual safety analysis and seismic design review. Several of the proj
Volume 2, Appendix C of the EIS are proposed by DOE to replace or upgrade facilitie
Likewise, actions such as the transfer of fuels from potentially vulnerable facilit
resulted from the ongoing safety analysis and seismic design reviews.
No new analyses are required for DOE Idaho Operations Office-managed facilities bec
summarizes existing credible scientific evidence relevant to understanding the exis
identifying reasonably foreseeable impacts, and evaluating potential consequences.
impacts is based on methods generally accepted by the scientific community. The an
EIS evaluate the potential consequences including direct, indirect, cumulative, irr
effects and long-term productivity losses. See also the responses to comments 05.0
05.08.01 (030).
General discussions of waste management procedures and plans are covered in Volume
2. Therein it is noted that the DOE is committed to a strategy emphasizing waste m
avoidance, with the goal being that most newly generated radioactive waste will be
necessary cleanup activities and decommissioning of contaminated facilities that no
missions. The DOE complex-wide management and cleanup of wastes associated with th
activities is outside the scope of this EIS. However, they are currently being add
Waste Management Programmatic EIS.
With respect to cleaning up INEL, the INEL Environmental Restoration Program, inclu
remediation and decontamination and decommissioning, is discussed in Volume 2, sect
description of the significant progress already made in this program at INEL, see t
02.04 (047).
The generation and storage of SNF is discussed in Volume 1, section 1.1. Therein i
DOE SNF was generated in DOE production and experimental reactors that have ceased
considerable source reduction has already occurred. See Volume 1, Appendix E for f
experimental reactors. In addition, the Navy is developing longer-lived Naval reac
reducing the amount of SNF that will be generated. Completely eliminating the sour
is outside the scope of this EIS.

II COMMENT

The commentor suggests that an additional failure scenario of the Mackay Dam be eva
RESPONSE
The Mackay Dam failure scenarios analysis in Flood Routing Analysis for a Failure o
cited in the EIS includes a probable maximum flood scenario considered to be the mo
reasonably possible using NRC siting criteria for commercial nuclear reactors. The
study includes sensitivity analyses that indicate significant changes in parameters
variations in flooding at INEL. Therefore, DOE believes the Mackay Dam failure mod
assesses reasonably foreseeable INEL flooding hazards that could occur as a result
Lost River. The combination of probable maximum flood estimated frequency and addi
their probabilities would result in flooding hazards with probabilities lower than
foreseeable.
No new analyses are required for DOE Idaho Operations Office-managed facilities bec
summarizes credible scientific evidence relevant to understanding the existing envi
reasonably foreseeable impacts, and evaluating potential consequences. This inform
Volume 2, section 4.8 and Volume 2, Appendix F-2.
The results of accident analyses (including beyond reasonably foreseeable accidents
greater that seismically induced accidents) indicate that the risk to the public fr
this EIS would be small. Therefore, additional information or characterization of
seismic events with lesser potential impact would have no effect on the decision-ma

II COMMENT

Commentors state that nuclear waste, spent nuclear fuel, and other dangerous materi
accidents.
RESPONSE
Volume 1, Chapters 3 and 5 and site-specific Appendices A through F, and Volume 2,
and Appendix F discuss risks to the public, workers, and the environment, and secon
from a range of potential accidents. The discussions include evaluations and analy
Although DOE cannot guarantee that no accidents will occur, the results of evaluati

this EIS indicate that risks to workers, the public, and the environment would be s alternatives considered. (See the EIS Summary, Public and Worker Health Effects.)

II COMMENT

The commentor suggests that the EIS discuss an accident at the Idaho National Engin involving up to 6,000 gallons of hydrofluoric acid.
RESPONSE
An accidental release of hydrofluoric acid is discussed in Volume 1, Appendix B, se Hydrofluoric acid is stored outside in the ICPP facility area in a 30,290-liter (8, Although there are only about 11,356 liters (3,000 gallons) in the tank, the accide assuming a full storage tank. The tank is over a catch basin that would contain th the tank ruptures or if there is a piping failure. All the tank's contents were as The amount of hydrofluoric acid released and the surface area of the acid in the ca considered in the analysis. Downwind concentrations of acid are independent of the spilled and depend only on the evaporation rate from the catch basin. The evaporat depends on the surface area of the catch basin, as well as other factors. The dura however, depends on the total amount of acid spilled.
The EIS shows that the consequence of this potential event at the nearest site boun per cubic meter of hydrofluoric acid. As to the impact to the maximally exposed in concentration represents 0.2 percent of the Emergency Response Planning Guide Level hydrofluoric acid. For reference purposes, 100 percent of the ERPG-3 level is the of the specific toxic material from which a person not wearing a respirator could e without having his ability to escape impaired or experiencing irreversible side eff

II COMMENT

The commentor questions whether the maximally exposed individual is the person at t recommends that further analysis be done to show that this individual has indeed re individual dose.
RESPONSE
The accident analyses in the EIS were performed with the plume rise going to the lo maximum dose is received. See Volume 1, section 5.1.

II COMMENT

The commentor suggests that after an accident, communication with members of the pu consume contaminated vegetables and other food produced in the vicinity is not well Idaho National Engineering Laboratory.
RESPONSE
Volume 1, section 5.7 and Volume 2, section 5.19 discuss accident mitigation. DOE Orders specifying the requirements for emergency preparedness, and each DOE site ha emergency management program. These programs are developed and maintained to ensur response for most accident conditions and to provide the framework to readily exten accidents not specifically considered.
The emergency management program incorporates activities associated with planning, response, including simulated emergency exercises with states, counties, and other preparedness requirements for the facilities would be part of the planning that wou Command, control, and communication are key parts of these emergency management pro the details of such planning are beyond the scope of the EIS.
For the off-site population, the need for any protective action would be based on t the protective action guides developed by EPA. Interdiction activities by INEL acc personnel are expected to take place following an accident to limit doses to off-si This interdiction can limit ingestion exposure to the public.
For accidents with maximum reasonably foreseeable consequences at INEL, interdictio with protective action guides was assumed in the EIS analyses. Doses resulting fro were calculated assuming contaminated foods comprised 10 percent of the person's 1- the accident. More information on the parameters used in the accident analysis an

regarding ingestion of contaminated food can be found in Accident Assessments for I Engineering Laboratory Facilities, sections 2.1.2. and 2.1.3.

II COMMENT

Commentors raise the issue of impacts a nuclear accident could have on the State of on tourism and the economy.
RESPONSE
Volume 1, Chapter 5 and Appendices A through F, and Volume 2, Chapters 3 and 5 and the EIS discuss reasonably foreseeable accidents and their impacts. Although DOE c accidents will be prevented or that contamination will not occur, for all alternati the risk to workers and the public from facility accidents would be small. DOE exp reasonably foreseeable accidents on tourism and the economy would be limited and of noted in Volume 2, section 5.14, there would be a potential for limited economic im

II COMMENT

The commentor wants to better understand the assumptions used to determine risk acc constitutes acceptable risk, and who is responsible for this determination.
RESPONSE
Risks are presented in the EIS without a determination of acceptability. Acceptabl determined only by the individual.
As used in this EIS, risk is defined as the product of the probability of an event that event. Volume 1, Appendices A through F, and Volume 2, Appendix F provide the risk analyses for this EIS were performed.

II COMMENT

Commentors state that accidents, accidental releases, and long-term effects of acci
RESPONSE
DOE cannot guarantee that accidents will not occur. Given that Volumes 1 and 2, Ch the results of analyses of reasonably foreseeable accidents. Volumes 1 and 2, Chap impact avoidance and mitigation measures. These analyses show that the risks of re accidents under all the alternatives considered would be small.

II COMMENT

The commentor states that assumed ground-level releases from a facility accident ma impacts to the off-site population, because the modeling assumptions bias the model conclusions of the accident analysis. An example provided is that a small number o release point receive a higher dose than the large numbers of members of the public perimeter.
RESPONSE
The environmental impact analyses are designed to produce a reasonable projection o potential environmental consequences. This requires the use of appropriately conse and analytical approaches. In this context, "conservative" means that an assumptio to overproduced, rather than underpredict, any adverse impacts. However, unreasona analyses do not provide a useful basis for comparing alternatives. Therefore, the unreasonable conservatism and base the environmental impact analyses on realistic, information whenever possible. Facility accidents were modeled using a release ele the specific accident scenario. For example, some scenarios would have an elevated through a stack, and others would have a ground-level release point. Each alternat using comparable methods and levels of conservatism so that the relative impacts of assessed accurately.
Volume 2, Appendix F-5.3.1 has been revised to state that the methods used in the a higher estimates of radiation exposures near the point of release.

II COMMENT

The commentor suggests that following an accident, certain roadways could be inacce direction or weather conditions, and that this should be acknowledged.
RESPONSE
The EIS has been changed to acknowledge that under certain conditions, the ability designated evacuation routes could be impeded.

II COMMENT

The commentor requests clarification of what is meant by "not credible" with respec the Hanford Site.
RESPONSE
The EIS has been revised to explain that if an event has a probability of occurring million years, additional analyses were not performed.

II COMMENT

The commentor states that there could be a considerable error in the assumption tha of contaminated foods consumed in the year following an accident for a person at th Engineering Laboratory's nearest site boundary would be 10 percent of their diet.
RESPONSE
For the purposes of this EIS, accident assessments were performed using realistic, conservative assumptions. As part of the health impact analysis to the maximally e following a potential accident, that individual's total dose received comprises fou immersion, inhalation, ingestion, and direct ground-surface exposure.
That portion of the dose resulting from the ingestion pathway was calculated assumi comprised 10 percent of the person's 1-year diet following the accident and there w actions unless EPA protective action guides were projected to be exceeded. The ass is based on an engineering judgment of what is reasonable for most of the people li near the site, as well as to try to make the scenario realistic, but generally cons percentage to a greater value would represent an unwarranted overconservatism in th MEI.
The environmental impact analyses are designed to provide a reasonable projection o potential environmental consequences. This requires the use of appropriately conse and analytical approaches. In this context, "conservative" means that an assumptio tend to overproduced, rather than underpredict any adverse impacts. However, overl analyses do not provide a useful basis for comparison among alternatives.
More information on the parameters used in the accident analyses and the assumption of contaminated food can be found in Accident Assessments for Idaho National Engine Facilities, sections 2.1.2 and 2.1.3.

II COMMENT

The commentor suggests that the degrading structural integrity of spent nuclear fue driver and that the EIS should include this prominent factor in the discussion of r alternative. As an example, the commentor states that the degraded fuel at the Han contributing to elevated radionuclide activities, which contaminates the groundwate Columbia River.
RESPONSE
The accident risks presented in the EIS for the No Action alternative reflect an as accident probabilities associated with SNF management, including the probabilities degraded (vulnerable) fuels and facilities. Under the No Action alternative, DOE w the minimum necessary for safe and secure management of SNF at the generation site location.

Volume 2, section 5.1.2 has been modified to state: "Consequences would be bounded accident assessments, but likelihood may increase."

II COMMENT

The commentor states that the cumulative impacts from more than one accident initia a major earthquake must be evaluated in the EIS.
RESPONSE
As discussed in Volume 2, section 4.6.3, seismic events were found to be the most l initiators with the potential to cause releases at more than one facility and invol type. Further, the potential for simultaneous accidents caused by a single seismic Volume 2, section 5.14.2. DOE's analysis shows that potential multiple-facility re resulting from the postulated accidents at the Argonne National Laboratory-West Hot Facility. Consistent with the accident selection methodology described in Volume 1 5.15.3, the consequences and risks associated with multiple facility releases were consideration because they do not represent the maximum reasonably foreseeable acci frequency categories defined in Volume 1, Appendix B, Table 5.15-5.

II COMMENT

The commentor states that nonradiological health effects resulting from an accident materials through a groundwater or surface water pathway at the Idaho National Engi have been overlooked.
RESPONSE
Such events are summarized in Volume 2, section 5.8. Under all of the alternatives possible future sources of contamination would be small compared with previous prac this section DOE concludes that (a) only contaminant concentrations below EPA MCLs would migrate beyond the site boundary, resulting in small impact to the quality of the INEL site; (b) adverse effects to groundwater quality have occurred in localize site (contaminant plumes), but these plumes have not affected the regional quality contaminants existing in water resources (through source reduction and reduction of through normal attenuation and radioactive decay); (d) computer modeling of vadose zone contaminant transport indicates that contaminant plumes with concentrations ab MCLs would continue to decrease at least through 2030 and the overall quality of th be improving; and (e) water use at the INEL site for any alternative would have min quantity of water in the Snake River Plain aquifer.

II COMMENT

The commentor suggests a seismically induced accident associated with the 100-K bas included in the Hanford Site accident assessments since an "unreviewed safety quest May 5, 1994.
RESPONSE
A discussion of the seismic effect on the 100-K basins has been added to Volume 1, section 5.15.

II COMMENT

The commentor states that thousands of cancers could result from one mistake that c involving transportation or a criticality in an inversion layer.
RESPONSE
Volumes 1 and 2, Chapter 5 discuss the probabilities and consequences of transporta accidents, including those caused by human error. These discussions and their supp include extensive evaluations of accident consequences using generally accepted eng practices including analysis under various meteorological conditions. The EIS sho public from facility and transportation accidents would be small for the alternativ

II COMMENT

The commentor states that a dam failure, rather than flooding at the Hanford Site, inundate spent nuclear fuel facilities. A reference to the dam failure discussion
RESPONSE
Volume 1, Appendix A, section 4.8 discusses natural flooding at the Hanford Site be potential for collapse of the shoreline along the riverbank in the White Bluffs are dam failure in Appendix A has been added. Neither the probable maximum flood, nor collapse of the shoreline in the White Bluffs area would impact SNF operations at t Flooding from a 50 percent failure of Grand Coulee Dam would inundate the K-basins.

II COMMENT

The commentor states that only "worst case" accidents should be the basis for a dec
RESPONSE
CEQ regulations no longer require analysis of worst-case accidents. Rather, CEQ re assessment of effects of reasonably foreseeable accidents. In accordance with CEQ guidance, the evaluation of reasonably foreseeable accidents in the EIS considers b section 5.15 and Volume 2, section 5.14.) The high-risk and high-consequence accid because they produce effects that are very unlikely to be exceeded by severe accide they could potentially represent a higher risk (risk = probability x consequence) probability accidents with higher consequences. The EIS shows that the risk to wor from all accidents analyzed would be small for all alternatives considered.

II COMMENT

The commentor notes that spent nuclear fuel is dangerous, but that so is gasoline i If gasoline had the same handling requirements as spent nuclear fuel, it would be t
RESPONSE
DOE agrees that potential consequences from accidents involving some hazardous mate greater than those from SNF management.

II COMMENT

The commentor states that DOE has not considered impacts from shipboard fires and e
RESPONSE
The EIS addresses seismicity in Volume 1, section 5.2.4, accidents in Volume 1, sec accidents involving shipboard fires in Volume 1, Appendix D, section F-1.4.4. Loca SNF management have emergency action plans and equipment to respond to accidents an emergencies. Shipboard fires would be included as one of the types of accidents, i location. The plans would be updated to cover any new SNF facilities and activitie coordinate activities with state and local agencies to establish and implement an a response training program for potential accidents for the location. The details of the scope of the EIS.

II II II II COMMENT

The commentor states that the source terms in Volume 2, Table 4.7.1 are constants a range of values over a 10-year period. Additionally the commentor requests project under postulated abnormal conditions involving several facilities.
RESPONSE
The projection requested by the commentor is provided in Volume 2, Chapter 5, which impacts of the alternatives, including impacts under abnormal and accident conditio

II 5.12 Transportation Issues

II COMMENT

Commentors object to the shipment of radioactive material because the risk is perce
Commentors state that an adequate study of the worst-case accident is needed and a
publicly fund response team training, and that some longshoremen may refuse to hand
shipments.
RESPONSE
DOE complies with the DOT regulations for transporting radioactive material. These
designed to protect workers and the public by minimizing the risks associated with
material. The EIS analyzes a full range of alternatives, from no action, which inv
transport of radioactive material, to centralization, which involves extensive tran
material. For all alternatives, the potential risks from transportation would be s
risks associated with maximum reasonably foreseeable accidents. The probabilities
maximum reasonably foreseeable transportation accidents are discussed and evaluated
Appendices D and I. Although the consequences of an accident of this type might be
of such an accident having high consequences is on the order of one chance in 10 mi
consequences of most accidents, including those with a probability of occurring mor
less than those of the accidents analyzed.
With more than 50 years of radioactive material transportation in the commercial an
there have been few transportation accidents involving radioactive materials, and t
little or no release of radioactivity. Nonetheless, emergency response teams are t
throughout the United States to respond quickly in the event of a transportation ac
the importance of preparedness for potential accidents involving SNF transportation
FEMA provide training and materials to local emergency responders to prepare them t
properly. DOE provides for Radiological Assistance Program teams, which consist of
equipped and prepared to quickly respond to an accident, and assist local emergency
requested. This response network, along with other preventive measures, such as sh
and testing, and adherence to stringent regulations, supports the continued safe sh
SNF shipping containers that could be handled by longshore workers are designed to
international standards for safety, including radiation levels at the outside of th
This EIS analyzes transportation from ports of entry. The potential for radiologic
workers is within the scope of the EIS entitled Proposed Nuclear Weapons Nonprolif
Concerning Foreign Research Reactor Spent Nuclear Fuel.

II COMMENT

One commentor states a definition of the term "general transportation" in Appendix
RESPONSE
The term "general transportation" is discussed in Volume 1, Appendix I, section I-9
"transportation activities that take place that are unrelated to the alternatives e
reasonably foreseeable actions. Examples of these activities are shipments of radi
nuclear medicine laboratories and shipments of commercial low-level radioactive was
disposal facilities." The activities described by general transportation activitie
independent of DOE work and over which DOE has no control.

II COMMENT

The commentor states that the EIS should address the condition of the transportatio
rail lines, crossings, bridges, and tunnels).
RESPONSE
Adequate rail lines, crossings, bridges, and tunnels exist to support the SNF trans
of SNF requires no special transportation infrastructure that is not also necessary
commodities in the United States today. DOT is the regulatory agency responsible f
enforcing the standards for the transportation infrastructure.

II COMMENT

The commentor states that DOE should halt shipments of spent nuclear fuel during in
RESPONSE
Although the comment is not specifically related to the effects of weather on SNF t response applies for radioactive material transportation. DOT requirements for con modeling codes used to analyze potential impacts of transportation account for such accidents, natural phenomenon, etc.

II COMMENT

The commentor states that the EIS used a generic approach to the mitigation of impa secondary route comparison factors discussed in the mitigation section are critical Idaho. The commentor also notes that TRANSAX-92 demonstrated that state corridor em responders are not prepared for radiological incidents.
RESPONSE
The primary and secondary route comparison factors discussed in the mitigation sect DOT; DOE and the Navy believe them to be accurate. Pursuant to 49 CFR 397.67, moto transporting hazardous material required to be placarded or marked in accordance wi and not subject to a nonradioactive hazardous material routing designation, shall o routes that do not go through heavily populated areas, places where crowds are asse streets, or alleys, except where the motor carrier determines that: (1) there is (2) a reasonable deviation is necessary to reach terminals, points of loading and food, fuel, repairs, rest, or a safe haven; or (3) a reasonable deviation is requir such as a detour that has been established by a highway authority, or a situation e enforcement official requires the drivers to take an alternate route.
DOE participates with other Federal, state, and local authorities to sponsor and fu response training courses throughout the United States. These courses are provided and local authorities responsible for public safety and emergency response to natur equipped state and Federal emergency response teams that are quickly available to a in the event of an emergency.

II COMMENT

The commentor states that DOE does not have a good record with respect to building nuclear fuel casks and waste repositories, and getting the cooperation of the state period of time.
RESPONSE
The commentor is referring to lengthy delays in the construction and opening of the Waste Isolation Pilot Plant sites, as well as the 5- to-10-year time period for des radioactive material shipping casks.
DOE operates within the framework of Federal regulations and DOE policy, which are and stakeholder involvement when procuring shipping casks or constructing new facil such a process is costly and time consuming; however, DOE feels it is a process tha opportunity to obtain facilities or apparatus designed with the highest standards o public/stakeholder input into the process.

II COMMENT

The commentor states that DOE did not address the environmental impacts of moving s
RESPONSE
Volume 1, Appendices D and I analyze the transportation of SNF. NEPA, 42 USC Secti and CEQ regulations at 40 CFR Part 1500 et. seq. require that an EIS describe the p the proposed action; alternatives, including no action; the affected environment; a consequences associated with the proposed action and alternatives. Volumes 1 and

these requirements. In each volume, Chapter 2 describes the purpose and need for t
Chapter 3 describes the alternatives being considered; Chapter 4 describes the affe
Chapter 5 describes the environmental consequences.
Input was solicited from the public during a 90-day public comment period, which al
send written comments, give oral comments and send a facsimile by a toll-free telep
one or more of the 33 public hearings held in 20 locations around the United States
All supporting documents referenced in the EIS are on file and are available to the

II COMMENT

The commentor requests specific information on the number of 40-year-period spent n
shipments, highway routes affected, and populations exposed to risks.
RESPONSE
Specific information on the number of SNF shipments is in Volume 1, Appendices D an
The HIGHWAY computer code predicts highway routes for transporting radioactive mate
United States. The HIGHWAY code currently describes approximately 240,000 miles of
complete description of the interstate highway system, United States highways, most
highways, and a number of local and community highways are identified in the databa
HIGHWAY computer code calculates routes that maximize the use of interstate highway
allows the user to predict routes for shipping radioactive materials that conform t
specified in 49 CFR Part 177). The routes calculated conform to applicable guideli
therefore, they represent routes that could be used.
The impacts of transportation for all programmatic alternatives considered in this

II COMMENT

The commentor questions the need for cross-country shipments under the Regionalizat
alternative.
RESPONSE
For the Regionalization by geography alternative, all existing and future SNF would
destination site without crossing the Mississippi River. However, there would be c
of Naval SNF. To examine all Naval SNF in a cost effective manner, examination wou
location. Because the Navy defuels and refuels ships at shipyards on the east and
the alternatives analyzed in the EIS are found in Volume 1, Chapter 3.

II COMMENT

The commentor states that a history of the movement of spent nuclear fuel is not in
specific example that gives the understanding that all previous shipments of spent
the Savannah River Site from Newport News/Hampton Roads have been transported by tr
many hundreds of shipments. Yet, the discussion of movements out of the Newport Ne
area in Volume 1, section 4.6.2 mentions only 10 shipments, each conducted by rail.
RESPONSE
The EIS conducted a comprehensive transportation cumulative impacts analysis, evalu
present, and future or projected shipments of radioactive material, which includes
SNF. Dose information is contained in Volume 1, Appendix I. The transportation cu
analyses includes historical shipments of SNF and is found in Volume 1, Appendix D
Appendix I for non-Naval SNF.
The example given by the commentor refers to Naval SNF shipments, which travel by r
references provided in Table I-58 contain the historical data for non-Naval SNF shi
predominantly travel by truck.

II COMMENT

The commentor suggests specific information regarding Fort St. Vrain fuel, number o
destination facility, and inventory be added to the Final EIS.

RESPONSE
The EIS already contains this information in either Volume 1 or Volume 2. Volume 1 1994 letter to distribution from T.L. Wichmann, Spent Nuclear Fuel Inventory Data,, information regarding quantity of Fort St. Vrain fuel currently stored at INEL and be received in the future. The quantity that could be received could be stored at may be managed in other facilities and in other ways. The EIS has bounded the info assumptions and methodologies used in calculating the individual and cumulative imp EIS is considered to bound the information suggested by the commentor, the EIS has

II COMMENT

The commentor states that the EIS concentrates on the radiological impacts of trans exclusion of the other hazardous materials.
RESPONSE
Volume 2, section 5.11 discusses the transportation of both hazardous and radioacti incident-free and accident cases. In incident-free transportation, there are no em being transported, so the only hazardous materials emissions considered were those sulfur dioxide present in urban population zones. The methodologies for determinin impacts associated with hazardous materials transportation accidents are discussed 5.11.1. The analysis of the maximum reasonably foreseeable case truck accident sce alternatives is in Volume 2, Table 5.11-15. The impacts of a hazardous material tr are low under all alternatives.

II COMMENT

The commentor states that the EIS should discuss the impacts of the increase in hig associated roadway congestion, as well as the impacts of increased rail traffic.
RESPONSE
A discussion of highway and rail transportation impacts and potential accident impa the EIS entitled Traffic and Transportation, Transportation, and Offsite Transporta public and agency comments, DOE has modified descriptions of on-site traffic patter DOE complies with the DOT requirements for off-site transportation of SNF, includin shipping containers that meet DOT performance requirements. As a result, the poten public to radiation hazards is extremely low. DOE further minimizes accident risks and route-selection guidelines and uses other procedural controls for hazardous and In the unlikely event of an accident, DOE and local governmental authorities will i response measures. As described in the EIS Summary, Public and Worker Health Effec overall risk from transportation would be small.
See also the response to comment 05.12 (003).

II COMMENT

The commentor expresses concern that the EIS inadequately addresses the nonradiolog transportation activities, and questions the adequacy of the 1982 reference documen
RESPONSE
Incident-free nonradiological fatalities were estimated using unit risk factors. T account for the fatalities associated with exhaust emissions, but the distances use must be doubled to reflect the round-trip distance, because these impacts occur whe shipment contains radioactive material. Two sets of data were evaluated: 1) data Impacts of Transporting Radioactive Material and 2) data from the Motor Vehicle-Rel Study. In Non-radiological Impacts of Transporting Radioactive Material, the nonra factor for trucks was 1.0 x 10-7 fatalities per kilometer, and the nonradiological was 1.3 x 10-7 fatalities per kilometer. These unit risk factors are applicable on Vehicle-Related Air Toxics Study the unit risk factor was calculated to be 7.2 x 10 kilometer; this unit risk factor is applicable in all areas (i.e., rural, suburban, routes analyzed in this EIS, the unit risk factors from Non-radiological Impacts of Radioactive Material were found to overestimate impacts by about 20 or 30 times rel factors from Motor Vehicle-Related Air Toxics Study. Therefore, the unit risk fact

Non-radiological Impacts of Transporting Radioactive Material were used as a conser the incident-free nonradiological fatalities presented in this EIS. Unit risk fact Impacts of Transporting Radioactive Material account for all fatalities, not just c effects of chronic exposure to diesel exhaust emissions have been followed in occup workers, but these data are not sufficient to make a correlation between the effec experienced (Motor Vehicle-Related Air Toxics Study). Therefore, these impacts wer EIS.

II II II COMMENT

The commentor states that the Mackay Branch has been abandoned by the Union Pacific there is an application before the Interstate Commerce Commission to abandon the Sc Arco, Idaho, to Mile Post 43.
RESPONSE
The map showing the Mackay Branch will be corrected to reflect abandonments by the Railroad.

II II COMMENT

The commentor states that purpose-built ships would greatly add to the safety of ha reactor spent nuclear fuel shipped to ports in the United States.
RESPONSE
The risks associated with the transport by ship of FRR SNF and its handling at U.S. purpose-built ships, are being evaluated in the EIS entitled Proposed Nuclear Weapo Policy Concerning Foreign Research Reactor Spent Nuclear Fuel (Draft).

II COMMENT

Commentors question the choice of ports of entry to the United States that are anal state that the EIS does not consider transportation or radioactive material handlin shipboard fires, at port facilities.
RESPONSE
The analysis of impacts at port facilities and nearby communities, the specific por the overseas transportation of FRR SNF to United States ports is being addressed in Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reacto Nuclear Fuel (Draft) (FRR EIS). Only the impacts of transportation of SNF from the DOE facilities are analyzed in this EIS.
The criteria used to choose the ports of entry are outlined in the Notice of Intent Register Vol. 58, No. 202, October 21, 1993, pages 54336-54340). These criteria in of harbor and dock characteristics to satisfy the cask-carrying ship requirements, secure lag storage, (c) adequacy of overland transportation systems from ports to t experience in safe and secure handling of hazardous cargo, (e) emergency preparedne and nearby communities, and (f) proximity to the proposed storage sites. A range o also be analyzed in the FRR EIS. The decision regarding port selection will not b EIS and the FRR EIS are completed. In addition, in response to public comments, thi that results in a shipboard fire approximately 2 miles from Seattle (Volume 1, Appe

II COMMENT

The commentor is concerned that Puget Sound will be a possible point of entry for h of radioactive material and that the DOE fails to recognize the danger for this urb
RESPONSE
The analysis of impacts at port facilities and nearby communities, the specific por the overseas transportation of FRR SNF to United States ports is being addressed in Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reacto Nuclear Fuel (Draft) (FRR EIS). Only the impacts of transportation of SNF from the

DOE facilities are analyzed in this EIS.
The criteria used to choose the ports of entry are outlined in the Notice of Intent Register Vol. 58, No. 202, October 21, 1993, pages 54336-54340). These criteria in of harbor and dock characteristics to satisfy the cask-carrying ship requirements, secure lag storage, (c) adequacy of overland transportation systems from ports to t experience in safe and secure handling of hazardous cargo, (e) emergency preparedne and nearby communities, and (f) proximity to the proposed storage sites. A range o also be analyzed in the FRR EIS. The decision regarding port selection will not be EIS and the FRR EIS are completed.
In addition, in response to public comments, this EIS discusses the consequences of that results in a shipboard fire approximately 2 miles from Seattle (Volume 1, Appe

II II COMMENT

A commentor raises the issue of the proposed movement of nuclear waste from Washing Tennessee in what his sources indicate are leaky containers.
RESPONSE
DOE is not proposing to ship nuclear waste from Washington, DC, and believes that t have Washington state or other states with DOE facilities in mind. DOE is evaluati alternatives that would entail transporting SNF to ORR for storage. Any transporta conducted in compliance with DOT regulations using NRC transportation standards.

II COMMENT

A commentor provides recommendations for the packaging of radioactive materials for
RESPONSE
DOE complies with the applicable requirements of DOT regulations covering the packa materials. DOE has conducted analyses using representative packaging for radioacti if an alternative is chosen that requires transportation of radioactive materials, by the commentor will be considered. These analyses are adequate for comparison of consideration in this programmatic EIS.

II COMMENT

The commentor believes the EIS does not adequately address the potential health eff radiation from spent nuclear fuel casks.
RESPONSE
Volume 1, Appendices D and I provide analyses of potential health effects from exte associated with SNF transportation. These analyses show that the health effects fr under all alternatives considered in the programmatic EIS would be small.

II II COMMENT

The commentor states that the EIS should analyze a more realistic scenario of trans shipments by truck or all shipments by rail. A combination of the two forms of tra analyzed.
RESPONSE
The assumption of all shipments by truck or all shipments by rail serves to produce representing the limits of potential transportation impacts; any combination of tru would have impacts between these extremes. Therefore, additional analyses are not of transport by truck or rail, the potential impacts would be small.

II COMMENT

The commentor states that the description of the regional transportation infrastruc Site implied that Interstate 90 would be used for shipping campaigns, and that the northern Idaho are not considered in the EIS.
RESPONSE
The description of the regional transportation infrastructure is a discussion of th environment at and around the Hanford Site; it is not meant to imply that Interstat shipping campaigns. The analysis of transportation risks is provided in Volume 1, These analyses cover all appropriate shipping routes and show that the risks for al alternatives considered would be small.

II II COMMENT

One commentor questions the regulatory status of on-site shipments in noncertified
RESPONSE
The Hazardous Materials Transportation Act applies only to hazardous material shipm commerce." A letter written in 1991 from the U.S. Department of Transportation, Re Programs Administration, addresses the definition of the term "in commerce" and the Hazardous Materials Transportation Act to shipments conducted on DOE sites. The re states that shipments conducted in areas to which the general public does not have not "in commerce" and as such, need not meet the requirements of 49 CFR. The above notwithstanding, DOE has implemented specific procedures, as required by DOE Order Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous and Hazardous Wastes, which ensures the health and safety of the public and workers onsite shipments. These procedures include (but are not limited to) speed restrict vehicles, and prior notification of appropriate emergency response personnel that t place.

II COMMENT

Commentors question the adequacy of transportation regulations, including radiation accident safety requirements, and routing. For example, commentors question the ex associated with the shipping containers, the ability of a shipping container to wit of radioactive material shipments.
RESPONSE
A brief discussion of transportation regulations is in Appendix I of the EIS. DOE for shipping radioactive material, which include requirements for external radiatio container to withstand hypothetical accident conditions (including fire), and trans requirements were established by DOT to protect workers and the public and are desi risks associated with transporting radioactive material. DOE has no reason to ques DOT regulations. As discussed in the EIS, the risk from transportation would be ve The criteria used to choose the ports of entry are outlined in the Notice of Intent Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Reactor Spent N (FRR EIS). These criteria included: (a) adequacy of harbor and dock characteristi transportation systems from ports to the storage sites, (d) experience in safe and hazardous cargo, (e) emergency preparedness status at the port and nearby communiti to the proposed storage sites. A range of alternative ports will also be analyzed decision regarding port selection will not be made until both this EIS and the FRR

II COMMENT

Commentors ask about notification and inspection of radioactive materials shipments commentors question the inspection of foreign research reactor spent nuclear fuel.
RESPONSE
The DOE complies with all DOT regulations regarding notification and inspection of shipments. The inspection of FRR SNF before it reaches the United States would be the shipper, who must certify that the radioactive material is in proper condition

includes compliance with external radiation and contamination requirements.

II COMMENT

The commentor states that the EIS has not acknowledged the right of Indian Tribes t transportation of spent nuclear fuel and other hazardous materials across Tribal la Materials Transportation Act.
RESPONSE
DOE is and always has been committed to safe and secure transportation of SNF to ap for storage or other management activities. Consistent with this commitment, DOE w applicable requirements promulgated by a state, a political subdivision, or an Indi authorized and has not been preempted by the Hazardous Materials Transportation Act Act, or other applicable Federal law.

II II II COMMENT

Commentors state that the consequences of the maximum reasonably foreseeable transp are provided only for a rural population zone. The commentor asks about the conseq accident occurred in an urban population zone.
RESPONSE
NEPA requires that an EIS evaluate reasonably foreseeable impacts from proposed act an accident is considered reasonably foreseeable if it has a probability of at leas chance in 10 million years. Factors that affect accident probability include state accidents per kilometer; the fraction of accidents that occur in rural, suburban, a zones; the probability that an accident will be of a certain severity; and the annu rural, suburban, and urban population zones. Weather conditions also affect the pr consequences because stable, worst-case, weather conditions are only about one-tent average weather conditions.
Volume 1, Appendix I, Table I-41 summarizes the maximum reasonably foreseeable tran accident for the Regionalization by geography alternative, in which all SNF is sent SRS. The footnotes to the table state that the maximum reasonably foreseeable acci suburban population zone, not a rural zone. If this same accident were postulated population zone, the accident probability would be less than 1 x 10-7 per year, whi that the scenario was not analyzed.
Volume 1, Appendix I, Table I-31 summarizes the maximum reasonably foreseeable tran accident for the Decentralization alternative. Footnote "a" to the table states th foreseeable accident occurs in a rural population zone. If an accident of equal se occur in an urban or suburban population zone, the accident probability has been ca than 1 x 10-7 per year, which makes it so unlikely that the scenario was not analyz used to calculate the probability of rail transportation accidents is summarized in Volume 1, Appendix I, Table I-55, summarizes the maximum reasonably foreseeable tra accident for the Centralization alternative at ORR. The table shows that under neu the maximum reasonably foreseeable transportation accident could occur in an urban probability of 1 x 10-7 per year. If the accident occurred under stable weather co would be one-tenth of the probability under neutral weather, or 1 x 10-8 per year, chance in 10 million per year. Calculations documented in the references also show equal severity in a suburban area also has a probability of less than 1 x 10-7 per population zone, because most of the distance traveled by the shipments would be in probability greater than 1 x 10-7 per year for an accident of maximum severity to o worst-case, weather conditions. Other less severe accidents would have a probabili chance in 10 million per year in urban and suburban areas under stable, worst-case, but their consequences would be less than the results shown in Table I-55.
The consequences of transportation accidents in rural areas include ingestion doses predominantly agricultural area where residents most likely eat what they produce f contrast to the consequences for transportation accidents in urban and suburban are include ingestion doses. Residents of these areas are most likely not involved in produce what they eat at their resident location. Therefore, the consequences of t in rural areas may be greater than the consequences in suburban or urban areas, eve population densities in the later areas are higher.

II COMMENT

A commentor states no emergency response systems are set up to respond to transport involving spent nuclear fuel.
RESPONSE
DOE has developed and implemented emergency response systems to respond to transpor involving DOE radioactive materials and SNF. This is discussed in Volume 1, Append date, accidents involving SNF have been rare. In the event of an accident involvin transit, local fire and police organizations are first to respond. DOE, DOT, and F and training materials to local emergency responders to prepare them to handle acci provides Radiological Assistance Program teams, which consist of trained experts eq to quickly respond to an accident and assist local emergency response personnel if response network, along with preventive measures, such as shipping container design adherence to stringent regulations, supports the continued safe shipping of SNF. DOE uses the Transcom satellite tracking system for each of its SNF shipments. Thi transponder located on the trailer with the shipment that relays continuous positio satellite to computer terminals at DOE facilities around the country. In the unlik occurs with a shipment, the exact position of the shipment can be immediately deter order to dispatch response teams and aid in assessing the situation.

II II COMMENT

Commentors note that the future selection of a national central repository would re of spent nuclear fuel and that analyses of these shipments should be included in th commentors state that the public has not been properly sensitized to the full trans
RESPONSE
Further shipments of SNF might be needed when a decision is made regarding ultimate permanent repository. Assessment of the impacts of these shipments is not included method for ultimate disposition has not been selected and such analyses would be pr describes the alternatives for SNF management until 2035. This amount of time may required to make and implement a decision for ultimate disposition of SNF. DOE has a range of reasonable alternatives for safely managing SNF during the period 1995 t To inform the public concerning SNF transportation issues, this EIS evaluates the t for a reasonable range of alternatives. The alternatives vary from no action, invo radioactive material, to centralization, which involves extensive transport of radi analyses in the EIS show that the potential risks from transportation of SNF would alternatives considered. Minimizing transportation is one of the factors that has DOE decision-making process.

II COMMENT

The commentor questions why and how these waste products must be moved.
RESPONSE
Transportation of SNF and radioactive wastes may be necessary to implement alternat effectively managing these materials during the period evaluated by the EIS. The n discussed in Volume 1, Chapters 1 and 2, and in Volume 2, Chapters 1 and 2. Most S wastes would be transported by truck or train using shipping containers that satisf requirements of DOT and NRC. DOE follows DOT regulations for the shipment of radio which include requirements for routing, external radiation limits, and the ability withstand hypothetical accident conditions, including fire. A brief discussion of is in Volume 1, Appendix I.

II II COMMENT

The commentor notes that the increased shipments required to centralize spent nucle Test Site matter because of the low risk of transportation and the eventual need to

to Nevada for ultimate disposition at Yucca Mountain.
RESPONSE
The commentor is correct that for all alternatives, the potential risks from transp small. It is true that centralization at NTS could provide interim storage of SNF potential site of ultimate disposition. DOE has considered these, as well as other identification of a preferred alternative and the ROD. See also the response to co DOE's preferred alternative.

II 5.13 Emergency Preparedness

II COMMENT

Commentors state that DOE has not agreed to pay for monitoring, training, and equip responders at ports of entry and along shipping routes. One commentor states that DOE responsibility for training emergency responders to DOE.
RESPONSE
As a shipper of radioactive materials, DOE is responsible for complying with the re the safety of its shipments. This includes assisting state, tribal, and local emer accident occurs. DOE's Transportation Emergency Preparedness Program includes init and training, exercises, and technical assistance to state, tribal, and local gover DOE participates with other Federal, state, and local authorities to sponsor and fu response training courses throughout the United States. These courses are usually of local, state, and tribal authorities responsible for public safety and emergency disasters or man-made accidents. The funds for these training sessions come from F allocations of state tax dollars. Trainees provide their own transportation to the provide their own emergency response equipment; however, Federal assistance is prov times. The Federal Government has organized, trained, and equipped state and Feder response teams, which are quickly available to assist local authorities in the even

II II COMMENT

The commentor wants to know the mechanics of dissemination of information to the pu occur at the Idaho National Engineering Laboratory.
RESPONSE
The DOE Idaho Operations Office maintains a Warning Communications Center (WCC) tha hours a day, 7 days a week. WCC personnel operate in four teams, with each team on time. Incident information is immediately passed to the WCC by INEL personnel and on the nature of the incident, different media are informed. Incidents such as car traffic are sent to local radio stations only. With radioactive materials releases however, information is immediately sent to not only local radio stations, but to a major state radio stations, newspapers, and public officials. Information is updat an incident, additional personnel are brought in to answer questions from public of the general public.

II COMMENT

Commentors propose that DOE inform all those living within a 500-mile radius of nuc sites of the wastes generated and stored nearby and the significant danger these wa
RESPONSE
The action proposed by the commentors is being accomplished by the preparation and EIS and other site-specific EISs that will be prepared to assess the environmental radioactive waste management at DOE sites. SNF and radioactive waste management po be understood and minimized. This EIS evaluates these hazards and the engineered s management practices designed to reduce or eliminate the hazards. Sites have emerg equipment to respond to accidents and other emergencies. DOE requirements for emer preparedness are contained in DOE Orders 5500.1B, 2B, and 3A (Emergency Management Emergency Categories, Classes, and Notification and Reporting Requirements; and Pla

Preparedness for Operational Emergencies, respectively). DOE emergency notificati based on the Emergency Response Planning Zone determined for each facility based on for the facilities. DOE notifies out to the distance required by the Emergency Res applicable state and local requirements.

II COMMENT

The commentor points out that, in the event of an incident involving spent nuclear National Engineering Laboratory, large numbers of highly trained personnel are alwa the effect of any incidents.
RESPONSE
The commentor is correct. INEL's highly trained work force includes a broad range and skills; this expertise, knowledge of plant systems and procedures, and training actions and priorities are key elements in the control of emergency situations and

II COMMENT

The commentor questions whether statements related to the evacuation time for motor public highway to the Idaho National Engineering Laboratory are substantiated.
RESPONSE
The commentor is referring to a statement in Volume 2 that a motorist at the neares could be evacuated in 2 hours. In the event of an accident at an INEL facility tha release to the environment, normal precautionary actions include establishment of r portions of public highways traversing the site. The road blocks prevent members o entering the affected area; site security personnel would also patrol the affected ensure no motorists remained after the road blocks were established. Evaluations o times indicate that these actions can be accomplished well within the 2-hour period Volume 2 accident analysis.

II II COMMENT

The commentor suggests that switching from truck to train for transportation of spe result in inadequate emergency preparedness along the new routes.
RESPONSE
The EIS addresses accidents in Volume 1, section 5.7.12. Locations considered for emergency action plans and equipment to respond to accidents and other emergencies. be updated to cover any new SNF facilities and activities. DOE would coordinate ac local agencies to establish and implement an appropriate emergency response trainin potential accidents. The details of such planning are beyond the scope of the EIS.

II COMMENT

The commentor states that the Shoshone-Bannock Tribes have limited emergency respon lack any equipment in the event of an accident on the Fort Hall Reservation.
RESPONSE
In the event of an accident involving a hazardous or radioactive material shipment Reservation, local fire and police organizations are first to respond. DOE, DOT, a training and training materials to local emergency responders to prepare them to ha If the accident involves a release of hazardous or radioactive material, assistance from the State Hazardous Materials Team located 15 minutes away in Pocatello. DOE Radiological Assistance Program teams consisting of trained experts equipped and pr respond to a radiological accident and assist local emergency response personnel, i response team could respond to a request for assistance from the Tribes in much les on documented response times to other locations such as Dubois, Idaho, and the Stat Although the accident analysis presented in the EIS takes no credit for emergency r impacts of the potential accidents would be small.

II COMMENT

The commentors state that emergency response systems are not set up to respond to t accidents involving spent nuclear fuel.
RESPONSE
To date, accidents involving SNF have been rare, but they do occur; however, no sig resulted from any of the accidents during SNF transportation. In the event of an a shipment in transit, local fire and police organizations are first to respond. DOE training and training materials to local emergency responders to prepare them to ha DOE provides for Radiological Assistance Program teams, which consist of trained ex prepared to quickly respond to an accident and assist local emergency response personnel if requested. This response network, along with preventive measures, suc design and testing and adherence to stringent regulations, supports the continued s

II COMMENT

The commentor states that DOE needs to define a position regarding the funding of l response in states along spent nuclear fuel transportation corridors.
RESPONSE
DOE recognizes the importance of preparedness for potential accidents involving tra Currently, training is available on a limited basis at the awareness level for firs working with state and local officials through the Transportation External Coordina develop a national approach for training and technical assistance.

II II II COMMENT

Commentors question the adequacy of notification of civil agencies and inspection o radioactive materials. In particular, some commentors express concern about the in research reactor spent nuclear fuel.
RESPONSE
DOE complies with DOT regulations and, when applicable, the International Atomic En regulations regarding notification and inspection of radioactive material shipments transporting material to ultimate destinations within the United States are also re regulations. Inspection of FRR SNF before it reaches the United States is the res who must certify that the radioactive material is in proper condition for transport compliance with external radiation and contamination requirements.
The Naval Nuclear Propulsion Program does not announce the times or routes of shipm more difficult for terrorists, saboteurs, or hijackers to plan and execute an attac This is in accordance with Federal Government policy and regulations governing such Navy's policy on notification is also in full compliance with the applicable state such shipments containing highly enriched weapons-grade uranium.

II COMMENT

The commentor requests that DOE consider Governor Campbell's request for assistance Carolina's emergency response capability because of the shipment of foreign researc fuel within the state.
RESPONSE
DOE responded to former Governor Campbell's request by providing funds to assist wi emergency response capability.

II 5.14 Not used

II 5.15 Socioeconomics

II COMMENT

The commentor states that the negative public perception of spent nuclear fuel stor Ridge Reservation could lead to rejection by certain persons or businesses of the n suitable place to live or conduct business. That rejection would have a correspond impact on the community.
RESPONSE
Volume 1, Appendix F, Part Three, section 5.3 discusses the socioeconomic impacts o on the region of influence around ORR. Because the actual environmental impacts as management under all alternatives considered in the EIS would be small, there is no storage or examination of SNF at any of the locations evaluated would have any adve economy.

II COMMENT

Commentors state they are concerned about the loss of spent nuclear fuel management the alternatives.
RESPONSE
Employment and job issues are discussed in Volume 1, Chapter 5 and site-specific Ap F, and in Volume 2, Chapters 4 and 5. These sections discuss direct and indirect j on the labor force of affected communities. The EIS Summary section Spent Nuclear Employment concludes that employment-related impacts would be small for all the alt considered.

II COMMENT

Commentors suggest looking at clean energy sources and toward alternative jobs that
RESPONSE
The development of clean energy sources and the associated new jobs and employment not within the scope of this EIS.

II COMMENT

Commentors state that the EIS socioeconomic analysis should include effects on loca subsequent effects on the tax base, and the effects on the effort to diversify the
RESPONSE
Because the environmental impacts associated with SNF management under all alternat small, there is no reason to believe that storage or examination of SNF at any loca have a discernible effect on local property values, as described where appropriate A through F, and Volume 2, section 5.3. Changes in the economic conditions under a considered would be small relative to the local economies of the potential sites an diversify local economies would be small.

II COMMENT

The commentor notes that in addition to the four county school districts, there are Oak Ridge and Harriman, Tennessee.
RESPONSE
The average daily memberships for city school districts, such as Oak Ridge and Harr the total average daily membership presented for the four county school districts i Part Three, section 4.3.3.

II COMMENT

The commentor states that the EIS should include a more detailed socioeconomic anal Clark Counties in Nevada, including consideration of the impact of this project in activities planned for the Nevada Test Site.
RESPONSE
The EIS, Volume 1, Appendix F, Part Two, section 5.16, presents the potential cumul the proposed SNF management facilities. The approach for analysis in Volume 1, App section 5.3, is adequate for comparing alternatives in a programmatic EIS.

II COMMENT

The commentor states that the environmental and health risks associated with nuclea outweigh any economic benefit.
RESPONSE
Volume 1, section 5.3 and Volume 2, section 5.15 of the EIS evaluate potential impa public from both radiological and nonradiological hazards. The analyses show that alternatives would be small.

II COMMENT

The commentor is concerned that the unique situation of the Shoshone-Bannock Tribes Hall Reservation is not discussed. The assumed migration rates fail to consider th or Reservation, and greater household sizes on the Reservation must be addressed in socioeconomic analysis should treat the Reservation as a separate entity due to the unemployment rate on the Reservation and because 70 percent of the food each reside acquired by hunting and gathering.
RESPONSE
The purpose of this EIS is to analyze the potential impacts related to the alternat changes in baseline conditions are addressed in general to support the impact analy would be no significant impacts to the socioeconomic resources of the region of inf changes in regional economic, transportation, health, accidents, or environmental c the SNF management alternatives at the potential sites or environmental restoration program alternatives at the INEL. Therefore, it was not considered necessary to sp potential impacts to the Shoshone-Bannock Tribes or the Fort Hall Reservation. Imp implementation of any of the EIS alternatives are expected to be small.
With respect to INEL, employees represent less than 2 percent of employed persons r Hall Reservation (25 out of 1,544). Employment changes at INEL as a result of the expected to disproportionately affect the Tribes or the Reservation; therefore, sep performed.
The migration assumptions do account for a proportion of the population remaining i lost. If the commentor is concerned that residents of the Reservation would not mi reflected in the migration assumptions contained in the EIS. Household size assump determine estimates of migrating population. Because it is unlikely that any affec Reservation would migrate, the difference in household size does not impact the pop Transportation and accident analyses do not indicate that Reservation lands would b no impact to agricultural production or hunting or gathering are expected. The res not expected to be impacted.

II COMMENT

The commentor observes that there is no discussion on the adequacy of public facili region of influence around the Idaho National Engineering Laboratory.
RESPONSE
Data regarding community resources are presented in Volume 2, section 4.3.3 The da

any remarkable excesses or deficiencies in levels of service; therefore, their adeq specifically evaluated. The data-collection process did not reveal outstanding pro

II COMMENT

The commentor disagrees with the use of current employment figures rather than more projections for the Idaho National Engineering Laboratory and states that the analy impacts and reasonably foreseeable actions.
RESPONSE
The EIS has been revised to reflect current projections of employment, including t contractor consolidation including program changes at Argonne National Laboratory-W Cumulative employment impacts are presented in Volume 2, section 5.15. The cumulat figures include the effects of (1) baseline changes at INEL, (2) alternative impact non-DOE) project impacts. The cumulative employment impacts are based on the best time of the analyses. The projected INEL employment figures are bounding for the r With the announced INEL employment reductions, employment estimates for any of the alternatives are easily accommodated within the existing site and region of influen The Final EIS and ROD will be issued in 1995; therefore, fiscal year 1995 would be for analyzing potential impacts that could result from implementation of the SNF an restoration and waste management alternatives. The analysis in Volume 2, section 5 potential impacts under each alternative relative to conditions in 1995. However, are provided beginning with fiscal year 1990 (Volume 2, section 4.4.3 and Figure 4. reader may compare the projected impacts to employment levels during years prior to raised in the comment regards baseline employment only. The absolute impacts of th the same regardless of which baseline year is chosen. It is the "relative" impact the analysis conducted estimates the impacts of the alternatives, not of changes in baseline employment is not an alternative, and therefore, is not analyzed as such.

II COMMENT

The commentor states that the socioeconomic analyses should have identified local j surrounding the Idaho National Engineering Laboratory and discussed the fiscal heal alternatives on those specific areas.
RESPONSE
Community resources were analyzed, and the results are presented in Volume 2, secti 4.3-4. Existing economic, social, and community profiles for affected communities The potential socioeconomic impacts associated with the alternatives are so small t local jurisdictions is not needed. Most INEL employees live in Bonneville County (Therefore, it could be expected that any potential impacts would be focused in that

II COMMENT

The commentor states that the higher wage rate of Idaho National Engineering Labora compared to the average wage rate in the region of influence, was not considered in analysis.
RESPONSE
It is true that INEL jobs on average are higher paying than the average private-sec However, job losses (under the Ten-Year Plan and Minimum Treatment, Storage, and Di alternatives) and job gains (under the Ten-Year Plan and Maximum Treatment, Storage alternatives), as discussed in Volume 2, section 5.3, are not expected to be suffic impacts with or without wage differentials taken into account. Volume 2, section 5 used to analyze impacts, including total employment and earnings impacts that were Regional Input-Output Modeling System multipliers. As described in Volume 2, secti year 1990, INEL directly employed approximately 11,100 persons, while the populatio supported by INEL employment was estimated to be approximately 38,000 persons.

II COMMENT

Commentors object to shipment and storage, and potential sabotage of nuclear waste Engineering Laboratory, because it would seriously affect the tourist industry and western Wyoming.
RESPONSE
Because the actual environmental impacts associated with SNF management under all a considered in the EIS would be small, there is no reason to believe that storage or any of the locations evaluated would have any significant effect on tourism. Even hypothetical accidents are limited in extent and small enough that there should be

II COMMENT

The commentor raises an issue about the lack of quantitative analysis of the socioe would result from a 1-year restriction of agricultural use of land surrounding the Engineering Laboratory that has been contaminated following an accident and release material.
RESPONSE
The impacts have been addressed in Volume 2, section 5.14 in a qualitative manner. that the major part of the land that would be restricted following an accident at I there is a potential for existing agricultural land near INEL to become contaminate from use. More likely, however, is the possibility of a temporary restriction of l completion of surveys to ascertain whether contamination has occurred under allowab temporary restriction would be of short duration.
Although the economic value of any contaminated land is highly subjective, in the e incurred as a result of contamination and restriction of land use, persons injured their losses in accordance with applicable laws and regulations.

II COMMENT

The commentor requests that the socioeconomic portion of the EIS address DOE's stra improve U.S. competitiveness in a world economy and to transfer technology from the sector. Specifically, the commentor asks what the impacts of each alternative are technology transfer.
RESPONSE
DOE is in the process of identifying technologies for transfer from the public to t its facilities and has ongoing programs targeting improving U.S. competitiveness in The activities associated with SNF management use existing technologies and do not opportunities for technology transfer.

II COMMENT

The commentor is of the opinion that managing spent nuclear fuel at the Savannah Ri projected employment declines, will impede economic development in the region and h impact on the quality of public education in Aiken County, South Carolina.
RESPONSE
As noted in Volume 1, Appendix C, section 5.3, DOE believes that the projected decl SRS would be offset, in part, by the creation of operations jobs to support SNF man DOE does not anticipate any adverse impacts to the public education system under an alternatives being considered.
In terms of economic development in Aiken County and the region, DOE believes that development activities and opportunities that may accompany SNF management activiti economic development in the region.

II COMMENT

The commentor notes the importance of maintaining the pool of experts.
RESPONSE
The commentor is correct in noting the importance of maintaining a pool of expert p it is necessary to maintain the existing infrastructure and skilled resources neces as other nuclear materials and waste. One of the factors considered in identifying management was maximizing the use of existing expertise and overall SNF infrastruct environment, safety, and health; waste management safeguards and security; and emer capabilities.

II COMMENT

The commentor raises an issue about adverse employment impacts to the Shoshone-Bann asks whether DOE will mitigate those impacts.
RESPONSE
Volume 1, section 5.7.2 states that DOE will minimize impacts by coordinating with planning agencies to address impacts on community services, housing, infrastructure transportation.

II COMMENT

The commentor states that the number used for the population located within 50 mile Site is too low and that workers from the Nevada Test Site are not considered in th
RESPONSE
Volume 1, Appendix F, Part Two, section 5.7 states that a population of 15,100 pers be within 50 miles of the proposed SNF facilities at NTS in 1995. This population 1990 census data extrapolated to 1995 using county growth rates. Volume 1, Append section 4.3, considers Nye and Clark counties, where most of the NTS work force res

II COMMENT

The commentor states that DOE needs to make firm commitments to mitigate adverse em that could occur, ranging from retraining displaced workers to providing support fo
RESPONSE
As stated in Volume 1, Chapter 5, DOE will coordinate its planning efforts with loc county planning agencies to address impacts on community services, housing, infrast transportation, and employment. In the past, DOE has worked to retrain and refocus changes in mission, such as the transition from past emphasis on defense-related ac War to current environmental restoration activities. Also, as in the case of the C working with community leaders to help diversify the economic base away from a larg DOE activities at INEL.

II 5.16 Safeguards and Security

II COMMENT

The commentor states that this EIS addresses nothing new in establishing a viable w moving nuclear wastes around only delays the problem to the next generation.
RESPONSE
DOE is committed not only to developing Federal geologic repositories for permanent but to providing safe interim storage pending availability of permanent disposal fa SNF is necessary to varying degrees under the alternatives DOE is analyzing for pro

storage and management of SNF. The alternatives have definite purposes for relocat storing similar fuel types within a single secure facility. Thus, the alternatives transportation concerns with other worthy considerations, including nonproliferatio cost effectiveness.
The potential impacts from storing radioactive materials associated with SNF are di Chapter 5. Environmental consequences of SNF management for all alternatives are d 1, section 5.1, and mitigation measures are discussed in Volume 1, section 5.7. D safety managing and storing SNF and other radioactive materials at each of the site It is DOE policy to design, construct, and operate its facilities in a way that pro safety assurance that meets applicable Federal, state, local, and DOE
requirements and regulations. DOE will manage SNF in accordance with applicable Fe and DOE requirements and regulations in a manner that ensures protection of the env health and safety of the public and site employees.

II COMMENT

The commentor states that there should be "a lot more" security associated with the described in Volume 1, and these alternatives should all be comparable with the mea Centralization alternative.
RESPONSE
DOE has security systems in place at all facilities that handle nuclear materials. systems established for the various alternatives would be appropriate for the activ Security precautions are routine for all shipments of DOE nuclear material. Securi more than 40 years, resulted in no known theft of DOE nuclear materials.
See also the response to comment 05.16 (001).

II COMMENT

Commentors request declassification of environmental, safety, and health documentat establishing historical Idaho National Engineering Laboratory source terms (radioa unavailability of this previously classified documentation has prevented an accurat impacts.
RESPONSE
This comment relates to DOE's dose reconstruction project, which is outside the sco The U.S. Department of Health and Human Services (HHS) and DOE have two Memoranda o Understanding (MOUs) for public health responsibilities around DOE sites. Under th signed in December 1990, DOE transferred the responsibility for managing and conduc analytic epidemiologic research to HHS. HHS has delegated reasonability to the Cen Control and Prevention (CDC). Baseline health effects studies for both DOE workers the surrounding public are either under way or planned at all facilities. To suppo directed that all worker health and exposure data and all data regarding releases o materials be released. DOE is responding to all CDC requests for declassification the dose reconstruction project. All studies will be made available to the public community. For more information on this matter, contact the DOE Office of Public A In recent years, DOE has released significant amounts of previously classified data release additional information as it becomes declassified. Although most environme are not classified, other data on DOE activities are very sensitive and will remain by the Secretary of Energy.

II COMMENT

The commentor asks about the consequences of terrorist attacks, and states that sto facilities should be where the least damage could occur.
RESPONSE
The EIS evaluates 10 sites as reasonable alternatives for some level of SNF managem analysis in the EIS includes a number of factors including the potential risks to t operations and reasonably foreseeable accident conditions. Discussions on public h found in the Occupational Public Health and Safety sections in Volume 1 (and its as

Appendices A through F), and in the Health and Safety section in Volume 2. The EIS would be no significant risks to the public or the environment due to SNF managemen the 10 sites being considered.
The consequences of postulated terrorist acts are expected to be bounded by the res analysis. SNF is not attractive to terrorists due to the bulk of the fuel and tran the high radiation fields surrounding unshielded SNF.
DOE and the Navy have extensive security systems at all facilities handling nuclear precautions are routine for all shipments of government-owned nuclear material. Fo security precautions have successfully prevented the theft of government-owned nucl

II COMMENT

The commentor is opposed to alternatives that centralize spent nuclear fuel at a si attack on a nuclear fuel storage facility could release large quantities of radioac cause significant loss of human life.
RESPONSE
DOE has extensive security systems in place at all facilities that handle nuclear m precautions, including emergency response team notification, are routine for all sh material. Even in the event of a successful attack on a DOE nuclear facility, the in the EIS, which bound any credible terrorist attack scenario, describe consequenc "the extinction of mankind" mentioned by the commentor. However, scenarios involvi weapons are outside the scope of this EIS. Volume 2, section 5.14 has been changed terrorism as an initiating event.

II COMMENT

The commentor is opposed to nuclear power because of the concern about nuclear mate "the wrong hands."
RESPONSE
DOE has extensive security systems in place at all facilities that handle nuclear m precautions, including emergency response team notification, are routine for all sh material. Security precautions have, for more than 40 years, successfully prevente nuclear materials. Questions and concerns regarding nuclear nonproliferation are o EIS. However, Volume 1, sections 1.2.3 and 1.2.4 refer the reader to other DOE-spo reviews. Nuclear nonproliferation policies will be addressed in two future DOE pub Proposed Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reacto Nuclear Fuel and Programmatic EIS for the Management and Disposition of Excess Nu (Draft).

II 5.17 Monitoring

II COMMENT

The commentor states that adequate funds must be available to support environmental at Idaho National Engineering Laboratory.
RESPONSE
INEL has adequate funds to support environmental monitoring activities per DOE Orde Environmental Protection Program, which implements the established environmental pr at INEL.

II COMMENT

The commentor states that the EIS does not evaluate the potential need for addition monitoring of new Idaho National Engineering Laboratory facilities described under
RESPONSE

The purpose of the EIS is to evaluate the potential environmental impacts from prop EIS is not intended to substitute for the assessments required by regulations. Any requirements for monitoring emissions from facilities and surveillance of the surro

II COMMENT

The commentor has requested documentation of the results of the environmental monit particularly those of the Environmental Protection Agency, in the Volume 1 site des
RESPONSE
DOE has added references to the environmental monitoring results at the various sit 1, Chapter 4.

II COMMENT

The commentor requests that the EIS contain a detailed monitoring plan for the pref describe the feedback mechanisms by which the monitoring results are used to modify based on changing information.
RESPONSE
The Idaho National Engineering Laboratory Environmental Monitoring Plan has been pr reference for the EIS. For existing facilities, it is independent of the alternati new facilities, more specific information, such as specific locations and facility required before an appropriate monitoring plan could be prepared. The facility-sp would be prepared after final issuance of an EIS. DOE believes that inclusion of a plan in this EIS would not provide useful information to decisionmakers, because it discriminator for comparison of the alternatives.

II 5.18 General Operations

II COMMENT

The commentor questions what techniques are being developed to ensure safe, long-te waste, and that this is not dangerous material and ways of safely storing it really
RESPONSE
Numerous technologies are already available for managing radioactive materials, and considered for this purpose. Technological options for SNF management are describe section 1.1.3 and Appendix J. Current management practices for all types of radioa discussed in Volume 2, section 2.2.7, and technology development activities are des section 3.1. (Volume 2 is specific to INEL, but waste management technologies also other DOE sites.) DOE has established a policy of compliance with all applicable F regulations and DOE Orders. All radioactive materials will be managed to protect t health and safety of the public and site employees.

II COMMENT

The commentor believes that technologies for safe, long-term storage of nuclear was not exist because the material being stored has a long half-life and will outlast t
RESPONSE
DOE has a program to safely manage and store radioactive materials (including both SNF) at each of the sites considered in the EIS. The potential impacts of storing mitigation measures are discussed in Volume 1, Chapter 5. Supporting information o storage options for them is provided in Volume 1, Appendix J. Management and stora materials at INEL are described in Volume 2, Chapters 1 and 2. It is DOE's policy applicable Federal, state, and local regulations and DOE Orders. All radioactive m to ensure protection of the environment and the health and safety of the public and One of the concerns that must be addressed prior to ultimate disposition is the con

commentor that the waste may outlast some storage methods. While ultimate disposit scope of this EIS, DOE is researching and developing disposition technologies that the longevity of the waste and ensure that the public and environment are protected General long-term solutions proposed for managing SNF at INEL are discussed in Volu and 2. The alternatives for safe SNF management in the interim are discussed in se Volume 1.

II II COMMENT

Commentors raise an issue about the disposing of hazardous and radioactive wastes u unacceptable methods.
RESPONSE
DOE accepts the responsibility to operate its hazardous and radioactive waste manag compliance with applicable requirements. DOE continues to improve the procedures a associated with waste management. Accordingly, the lessons learned from past waste practices and the knowledge being gained from current research and development prog incorporated into future waste management programs. One purpose of this EIS is to objectives.
Volume 1 is intended to provide the public and decisionmakers with a programmatic v actions and alternatives for managing SNF. For all alternatives analyzed, DOE is c applicable Federal, state, local, and DOE requirements to ensure that SNF is safely environment and health and safety of the public and site employees are protected. alternative, only the minimum actions necessary for continued safe management of SN implemented.
Volume 2 is a site-specific assessment of SNF and environmental restoration and was alternatives at INEL. Again, the intent of Volume 2 is to provide the public and d information necessary to select the best alternative for these activities at INEL. programmatic EIS for waste management, which will provide a broader view of comple management programs similar to the way Volume 1 of this EIS addresses the programma SNF.

II COMMENT

The commentor states that for Volume 1, high-level, transuranic, and mixed waste ar with different risks, and should be dealt with separately in the EIS. The commento definition of mixed waste.
RESPONSE
DOE agrees with the comment that these three wastes are of different types, with di different disposal requirements. While it would be necessary in a site-specific EI separate entities, for this programmatic EIS, they were lumped together (and separa wastes) for two reasons: (1) the volumes of high-level, transuranic, and mixed was generated from SNF management under the No Action alternative are uniformly small c volumes of these wastes already at DOE sites, and (2) high-level, transuranic, and eventually be disposed of offsite, whereas low-level wastes can be disposed of onsi mixed waste has been added to Appendix H.

II COMMENT

The commentor indicates that Figure 5-2 and the text on page 5-25 do not agree.
RESPONSE
The text in Volume 1, section 5.1.3.3 indicates that the Hanford Site would generat year of high-level, transuranic, and mixed waste due to processing. Volume 1, Figu volumes of waste that would be generated from the Decentralization alternative.

II COMMENT

The commentor has questions about safe temporary storage and ultimate disposal of r
RESPONSE
DOE has a program to safely manage and store radioactive materials, including SNF, considered in this EIS. It is DOE's policy to design, construct, and operate its f provides a level of safety and safety assurance that is in accordance with applicab local regulations and DOE Orders. DOE will manage radioactive materials and wastes ensures protection of the environment and the health and safety of the public and s Management and disposal of radioactive wastes are discussed in Volume 2, Chapter 1. management practices for each type of radioactive waste (which are improvements on given in Volume 2, section 2.2.7. The potential impacts of storing radioactive mat SNF are discussed in Volume 1, Chapter 5. Specific supporting information on types options for them are presented in Volume 1, Appendix J.

II COMMENT

The commentor asks about three waste treatment facilities under development by the Group, Inc. at the Oak Ridge Reservation site.
RESPONSE
Scientific Ecology Group, Inc., has three commercial waste treatment facilities und are not located at ORR. It has recently completed construction of a Carlsbad, New recently purchased property for a Hanford, Washington, site; and is in the planning Falls, Idaho, site. As stated in Volume 1, Appendix F-4, Scientific Ecology Group, considered, as stated in Volume 1, Appendix F, Part Three, section 5.16. While som this facility will be made, it will remain within the property boundaries of the si incremental impacts from the addition of a second radioactive incinerator are asses manner in the EIS.

II COMMENT

The commentor questions the meaning of off-site disposal as a waste management acti Test Site.
RESPONSE
Off-site disposal in the context of Volume 1, section 4.4 means disposal off of the DOE facility or permitted and licensed commercial disposal facility. The destinati depend on the type of waste. The text in the Final EIS has been changed to clarify manage wastes offsite.

II COMMENT

Commentors want all wastes disposed of in Resource Conservation and Recovery Act-pe waste and/or Environmental Protection Agency/Nuclear Regulatory Commission-permitte waste disposal sites as appropriate.
RESPONSE
DOE waste management policies and practices embrace numerous laws and regulations g hazardous and radioactive wastes. A comprehensive list of these requirements is pr Chapter 7, and associated environmental permits are also discussed there. Current for radioactive and nonradioactive wastes are described in Volume 2, section 2.2.7, INEL, but also generally applies to wastes at other DOE sites. DOE has established with all applicable Federal, state, and local regulations and DOE Orders, including establishing disposal requirements, including RCRA disposal of wastes in hazardous appropriate, EPA/NRC-permitted radioactive waste disposal sites. All radioactive materials will be managed to protect the environment and the health and safety of t employees.

II COMMENT

The commentor states that several types of low-level radioactive waste should be co
RESPONSE
DOE radioactive wastes are specifically managed according to DOE Order 5820.2A, Rad Management, which classifies radioactive wastes somewhat differently than regulatio NRC for commercial radioactive wastes. In particular, DOE has only one category fo which encompasses the A, B, C, and greater-than-Class-C distinctions made by NRC. management measures may still be prescribed for DOE low-level wastes according to t of radionuclides present, analogous to standards for disposal of commercial radioac example, DOE low-level waste analogous to NRC greater-than-Class-C waste is require 5820.2A, Radioactive Waste Management, to be handled as a special case, and is not buried in the RWMC. Additional information on special-case waste at INEL has been section 3.1.3.

II COMMENT

The commentor urges that until we can eliminate the generation of nuclear waste, ke it and monitor it, and people have an interest in seeing that the generation is eve substantially curtailed.
RESPONSE
Under the No Action alternative, DOE would limit actions to the minimum necessary f management of SNF at the generation sites or current storage locations. Most DOE S DOE production and experimental reactors that have ceased to operate, so considerab has already occurred. SNF management plans are presented for all alternatives in V and mitigation measures are discussed in section 5.7.

II COMMENT

The commentor expresses an opinion that all waste should be stored in a retrievable technologies available.
RESPONSE
Descriptions of how wastes would be managed under the proposed alternative actions and 2, section 3.1. These alternative actions also consider the best technologies development activities, including stabilization technologies, aimed at advancing th available for waste management are described in Volume 2, section 3.1.

II COMMENT

The commentor wants to know if the statement on Volume 1, page 5-72 stating "but wi approximately 2 cubic meters per year (3 cubic meters per year) of high-level waste process or a reprocessing activity at the Savannah River Site.
RESPONSE
The statement refers to "processing," as shown in Volume 1, Appendix C, section 3.1

II COMMENT

The commentor suggests a wording change in Volume 1, Appendix A, section 2.3 to bet characteristics of the Hanford Spent Nuclear Fuel Management Plan.
RESPONSE
The suggested wording change has been incorporated into the EIS.

II COMMENT

The commentor states that the EIS should reconsider the procedures for burial at th Engineering Laboratory Radioactive Waste Management Complex of the material removed fuel modules during examination at the Expended Core Facility, and that the EIS doe changes to this procedure.
RESPONSE
The Navy and DOE rely on definitions and classifications of nuclear materials set f Waste Policy Act, as amended, and regulations issued by EPA (40 CFR 261) and NRC (1 categories set forth in these regulations are "Spent Nuclear Fuel," "High-Level Was Waste," "Low-Level Waste," "Low-Level Mixed Waste," "Greater-than-Class-C Waste," a Waste."
Volume 1, Appendix H sets forth the definition of SNF used in this EIS as "fuel tha from a nuclear reactor following irradiation, the constituent elements of which hav The definition of high-level waste in Volume 1, Appendix H is "highly radioactive w results from the reprocessing of spent nuclear fuel, including liquid waste produce a solid waste derived from the liquid..." Transuranic waste is defined as "waste c nanocuries of alpha-emitting transuranic isotopes, with half-lives greater than 20 ..." Low-level waste is defined as "waste that contains radioactivity and is not waste, transuranic waste, or spent nuclear fuel."
The ends removed from Naval SNF modules at the Expended Core Facility are structura provides support and directs the flow of cooling water during operation. The mater ends of the fuel modules does not contain any fuel or fission products from fuel an considered SNF. It does not contain transuranic elements or fission products and t considered high-level waste or transuranic waste. The amounts of radioactivity in them to be classified as low-level waste. Consequently, the material removed from at the Expended Core Facility is categorized as low-level waste due to the amount o Their disposal at the RWMC at INEL is accomplished in accordance with applicable re indicated in Volume 1, Appendix D, section 5.2.15, the amount of low-level waste ge the Expended Core Facility is 425 cubic meters. The radioactive isotopes, which re the activity in the material removed from the ends of fuel modules, are identified

ISOTOPE	HALF LIFE
Fe55	2.73 years
Co60	5.271 years
Ni59	76,000 years
Ni63	100 years

A description of the composition of material removed from the ends of fuel modules has been added to Volume 1, Appendix D, Attachment B.

II II COMMENT

The commentor states that he was unaware that spent fuel storage generates transura concerned that this may be due to extensive fuel leakage.
RESPONSE
As reported in Volume 1, section 5.1.1 and site-specific Appendices A through F, tr generated in small quantities by the routine operations associated with transportin managing SNF (from filters, ion exchange columns, etc., particularly during examina activities) rather than extensive leakage.

II II II COMMENT

The commentor points out that the vulnerability assessment states that canned fuel transferred to ICPP-666 could lead to contamination and additional vulnerabilities, address this issue.
RESPONSE
DOE is aware of the potential for contamination if transfers are not conducted in a manner. All fuels to be transferred from ICPP-603 at the Idaho Chemical Processin have been inspected for corrosion and other potential breaches. Potentially breach will be placed in suitable containers to prevent release of radioactive material. in shielded transfer casks. ICPP-666 has extensive monitoring and water purificati leaking container or fuel element would be identified and necessary corrective acti

additional vulnerabilities are anticipated.
The EIS discusses the Spent Fuel Working Group Report on Inventory and Storage of t Spent Nuclear Fuel and Other Irradiated Nuclear Materials and Their Environmental, Health Vulnerabilities (known as the vulnerability assessment) and associated actio identified vulnerabilities in Volume 1, section 1.1.2 and Appendix I-2 and in Volum

II COMMENT

Many commentors raise issues about DOE's past record of waste-handling practices at Hanford, Oak Ridge, and Idaho National Engineering Laboratory, resulting in release
RESPONSE
DOE has identified, or is currently evaluating many of the problems that exist with infrastructure, or that have resulted from past releases of contaminants to the env management strategies are continually evolving to meet current regulatory requireme of technology advancements. Many facilities across the DOE complex are either unde or planning upgrades or replacements to come into compliance with applicable regula contaminant releases are addressed by DOE's Environmental Restoration Program. Eac on EPA's National Priorities List must negotiate an agreement with the appropriate prioritize work and develop enforceable schedules for cleanup of contaminated areas INEL's FFA/CO, which is signed by DOE, EPA Region X, and the State of Idaho.
As discussed in Volume 1, Chapter 1, DOE is committed to complying with all applic state laws and regulations, DOE Orders, and interagency agreements governing SNF an restoration and waste management.
As discussed in Volume 1, Chapter 3, safe management of SNF requires that many fact including site security, presence of skilled workers, safety, and the affected envi reach a decision regarding in which state or states SNF will be stored. Analysis o potential storage locations were included in the EIS. As part of the public commen public input regarding the eventual location of SNF storage facilities was sought. input was part of the process used in arriving at the preferred alternative. The EIS, as well as other factors, will be considered in the ROD for the proposed actio Volume 1, section 5.1.1 summarizes potential impacts from waste management activit the SNF management alternatives. Site-specific details are discussed in Volume 1, Hanford Site, Volume 1, Appendix F, Part Three for ORR, and Volume 1, Appendix B fo

II II COMMENT

The commentor wants mitigations measured for their effectiveness and addressed in t discussion of proposed mitigation for direct, indirect, and cumulative impacts shou Council on Environmental Quality regulation states that an EIS should include the m adverse environmental effects.
RESPONSE
As discussed in Volume 1, Chapter 5, the EIS evaluated impacts to socioeconomics, u waste management, occupational health and safety, public health and safety, and tra cases, the results indicate that impacts to the environment and to humans would be general mitigation techniques are discussed in Chapter 5. This level of detail is programmatic EIS. Follow-onsite-specific NEPA analyses would address specific miti considered for identified impacts. Comparison of specific impacts by alternatives in Table 3.3-1, with an indication of proposed mitigation measures. Possible mitig further discussed in Volume 2, Chapter 5. Specific mitigation measures to be under developed for the ROD, and if necessary, a formal mitigation action plan will be de

II 5.19 Miscellaneous

II COMMENT

Several commentors state preferences for truck, rail, barge, or air as modes of tra reasons were provided for favoring one mode of transportation over another.

RESPONSE
The EIS evaluates truck, rail, barge, and ship transportation because they are beli in terms of risk and cost. Other modes of transportation were not evaluated.
Truck transport of radioactive material is a legal and viable option and the potent transportation are very small. Rail transport of radioactive material is also a le EIS evaluates both truck and rail transportation for DOE shipments. Navy SNF has b rail, except for transportation by ship from Pearl Harbor Naval Shipyard to Puget S where the containers are transferred to railcars and heavy-lift transporters move c nearest rail access at the Kesselring Site. Transport of SNF or radioactive waste under any alternative being considered in this EIS.
An analysis of barge transport analysis has been added to the EIS.

II COMMENT

The commentor identifies errors or omissions in the text and suggests alternative w meaning of the text.
RESPONSE
The errors or omissions identified by the commentor have been corrected in the Fina

II COMMENT

The commentor expresses support for DOE ecological activities and research at the I Engineering Laboratory, which are not specific to this EIS.
RESPONSE
The comment is noted.

II COMMENT

Commentors express fear of moral impacts and obligations, catastrophic events, radi materials, and emotional concerns over the management of nuclear material such as s
RESPONSE
DOE has attempted in this EIS to develop reasonably foreseeable, quantifiable envir to the proposed action(s), including operations and accident consequences. Other p as moral, emotional, and psychological (including fear, dread, mental anguish, nega hatred, etc.) issues are beyond the scope of required NEPA evaluations. The U.S. S Metropolitan Edison v. People Against Nuclear Energy, 103 S. Ct. 1556 (1983), clear aforementioned NEPA evaluative requirements.

II COMMENT

Many commentors state they are concerned about errors and inconsistent use of infor the document, while others express concern about misleading discussions that need t
RESPONSE
The EIS has been reviewed for errors and inconsistencies, including those identifie commentors. Changes have been made to the EIS to correct errors or clarify mislead

II COMMENT

Commentors express reservation and/or discontent about residing near nuclear waste
RESPONSE
DOE is aware of general public fears regarding radiation and radioactivity, a signi arise from a basic unfamiliarity with such risks. The EIS analyzes the cumulative operations at the 10 candidate sites for management activities involving SNF. The would be no significant risk due to either operations or credible accidents involvi

SNF, including transportation, at any of the candidate sites.

II COMMENT

The commentor questions the existence or effectiveness of quality assurance or qual
or its facilities.
RESPONSE
DOE and its contractors implement quality assurance/quality control requirements fo
and facility operations. Formal quality program requirements are derived and imple
Order 5700.6C, Quality Assurance, which defines the interrelations of criteria and
for managing, achieving, and assessing quality that result in improved safety and r
products and services. In accordance with these requirements, approved quality pro
the project/program level. These quality programs are tailored to meet the specifi
of the projects/programs and apply the appropriate industry standard criteria uniqu
NQA-1 for nuclear reactor operations, EPA environmental quality assurance managemen
remediation activities, etc. In recent years, DOE has adopted the Total Quality Ma
whereby employees at all levels are encouraged to take ownership in applying qualit
aspects of their respective duties and interactions, resulting in more immediate an

II COMMENT

The commentor asks why the value for the State of Idaho appears to be omitted from
5.15-1 of the EIS.
RESPONSE
This error has been corrected.

II COMMENT

Commentors raise the issue of the potential impacts to the environment and the peop
RESPONSE
Descriptions of the existing environment at INEL and the potential impacts to the e
of implementation of the alternative actions are in Volumes 1 and 2, Chapters 4 and
chapters discuss the current environmental situation and the expected consequences,
alternative actions on the environment and show that the impacts would be small for
measures that DOE could implement to control or reduce impacts to the environment a
Volume 1, section 5.7 and Volume 2, section 5.19. As described in these sections,
operating its facilities in compliance with all applicable laws and regulations pro
resources to ensure that the impacts of DOE activities on those resources are small

II COMMENT

The commentor notes that the EIS identifies irreversible and irretrievable commitme
resources likely to occur due to the proposed action and notes "the assertion that
be and groundwater resources already have been irretrievably impacted." The commen
DOE has an obligation to protect natural resources under its jurisdiction and to re
agency has caused.
RESPONSE
The identification of irreversible and irretrievable commitments of resources is a
EIS. Irreversible and irretrievable commitment of resources refers to the process
unavailable for use as a result of past, present, or proposed actions. Irreversibl
commitment of resources does not imply adverse environmental impacts. The discussi
impacts in Volume 2, section 5.15 shows that the impacts from past, present, and pr
would be small.

II COMMENT

The commentor suggests specific deletions, corrections, or additions to the EIS.
RESPONSE
If the suggested change was considered editorial or significant to the decision-mak appropriate change has been incorporated into the EIS.

II COMMENT

The commentor states that a discussion of Oak Ridge spent fuel inventories in Volum incorrectly refers the reader to a section that does not exist.
RESPONSE
Volume 1, Appendix F, Part Three, section 2.3.7 has been modified to correct this e

II COMMENT

The commentor expresses the opinion that all facets of DOE's nuclear program are le protection of bureaucrats.
RESPONSE
This EIS addresses the programmatic management of SNF in the interim to ultimate di environmental restoration and waste management activities at INEL over the next 10 Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environmental impac alternatives considered in this EIS. The analyses show that the impacts of all alt Although vulnerabilities exist, DOE has the management skill, scientific capability mandate to safely manage SNF and INEL waste management and environmental restoratio during the period covered by this EIS. See also the response to comment 03.07 (004

II COMMENT

The commentor states that a description of the amount of radiation expected to be r this project is a necessary item in the EIS.
RESPONSE
This information is provided for all alternatives and all sites considered in the E Chapter 5 summarize information on potential releases to the environment. Addition in Volume 1, Appendices A through D and K, and Volume 2, Appendix F.

05.19 (017) Miscellaneous

COMMENT
The commentor identifies sections of Volume 2 of the EIS that require clarification information to more completely address the material in appropriate sections.
RESPONSE
The EIS has been modified to include the additional information requested by the co Chapter 4.

05.19 (018) Miscellaneous

COMMENT
The commentor requests a specific change to the EIS.
RESPONSE
The commentor's suggested language has been incorporated in Volume 1, section 5.1.1

05.19 (019) Miscellaneous

COMMENT
The commentor is unclear what the term "estimated population dose" means and states Volume 1 refers to Figure 5-1 as representing the estimated population dose, but th contain that term.
RESPONSE
The statement should have referred to estimated annual latent cancer fatalities. T the commentor has been revised in the EIS.

VOLUME III Part B

Department of Energy Programmatic
Spent Nuclear Fuel Management
and
Idaho National Engineering Laboratory
Environmental Restoration and
Waste Management Programs
Final Environmental Impact Statement
Volume 3
Part B
April 1995
U.S. Department of Energy
Office of Environmental Management
Idaho Operations Office

VOLUME 3, PART B: CONTENTS

SEE PART A FOR INTRODUCTION, ACRONYMS, AND CHAPTERS 1 THROUGH 5.

6. SPENT NUCLEAR FUEL MANAGEMENT SPECIFIC

6.1 Vulnerabilities

06.01 (002) Vulnerabilities

COMMENT
Commentors express the opinion that spent nuclear fuel is currently stored in poor
DOE will not take responsibility for the waste currently existing. Commentors also
trust DOE to manage additional spent nuclear fuel any better in the future, because
learned from the last 40 years of spent nuclear fuel management.
RESPONSE
DOE acknowledges its responsibility to safely manage spent nuclear fuel (SNF). The
has publicly affirmed that current DOE policy and practice emphasize safety and env
considerations above other program goals. DOE is formally committed to protecting
of its workers, the public, and the environment. Furthermore, DOE intends to desig
operate facilities in a safe manner, relying on lessons learned from the last 40 ye
DOE is working to rectify and eliminate any adverse environmental impacts from past
Problems at existing storage facilities have been identified in the Spent Fuel Work
Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra
Materials and Their Environmental, Safety and Health Vulnerabilities. This report,
nuclear fuel vulnerability assessment, and associated action plans to resolve ident
acknowledged in Volume 1, section 1.1.2 and Appendix J-2, and Volume 2, section 2.2
site-specific information is in Volume 1, Appendices A through F. Environmental co
management are presented for all alternatives in Volume 1, section 5.1, and mitigat
discussed in section 5.7. For all alternatives analyzed, the impacts of SNF manage
small.

06.01 (005) Vulnerabilities

COMMENT
The commentor states that the EIS fails to acknowledge current problems with spent
storage, and that these problems will continue to be ignored if DOE begins its mass
concentration program.
RESPONSE
Problems at existing storage facilities have been identified in the Spent Fuel Work
Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra
Materials and Their Environmental, Safety and Health Vulnerabilities. This report,
to as the spent nuclear fuel vulnerability assessment, and associated action plans
vulnerabilities are acknowledged in Volume 1, sections 1.1.2 and J-2, and Volume 2,
Additional site-specific information is in Volume 1, Appendices A through F. Envir
consequences of SNF management are presented for all alternatives in Volume 1, sect
mitigation measures are discussed in section 5.7. For all alternatives analyzed, D
complying with applicable Federal, state, and local regulations and DOE Orders to e
environment and the health and safety of the public and site employees. See also th
03.05 (024).

06.01 (006) Vulnerabilities

COMMENT
The commentor raises two issues: (1) the ability of the K-basins to withstand a cr
the chemical breakdown of the spent nuclear fuel in the basins.
RESPONSE

The continued management, storage, and chemistry of spent nuclear fuel currently st Site will be evaluated in the Hanford Spent Nuclear Fuel Management EIS (tiered fro the EIS for the Management of Spent Nuclear Fuel from the K-Basins at the Hanford S Washington. The EISs will consider both the seismic conditions and the chemistry o fuel.

06.01 (008) Vulnerabilities

COMMENT
The commentor states that existing storage conditions for N-Reactor fuels in the Ha must be corrected immediately because of degradation from corrosion and hydriding.
RESPONSE
Descriptions of SNF stored at the Hanford Site and technologies for managing SNF ar Volume 1, section 1.1. Hanford-specific information on N-Reactor fuel and conditio given in Volume 1, Appendix A, section 2.3. More general information on management degraded SNF and associated management technologies is in Volume 1, Appendix J, sec DOE agrees that it is necessary to deal with spent N-Reactor fuel, especially in th situation was prominently identified in the Spent Fuel Working Group Report on Inve of the Department's Spent Nuclear Fuel and Other Reactor Irradiated Nuclear Materia Environmental, Safety and Health Vulnerabilities (called the spent nuclear fuel vu assessment). These concerns also are reflected in a June 1994 Tri-Party Agreement encapsulation of uncontainerized fuel. This agreement between the State of Washing Environmental Protection Agency (EPA), and DOE has a target date of December 2002 f SNF and sludge from the 105-K basins. See also the response to comment 06.01 (006)

06.01 (009) Vulnerabilities

COMMENT
The commentor requests that the EIS address cleanup of Idaho National Engineering L contamination and the safety of existing spent nuclear fuel storage facilities, par
RESPONSE
The evaluation in Volume 2 of this EIS bounds environmental impacts from environmen cleanup) activities at the Idaho National Engineering Laboratory (INEL). However, related to cleanup at INEL are generally addressed under an enforceable agreement e Environmental Protection Agency (EPA) Region X, and the State of Idaho on December Federal Facility Agreement and Consent Order (FFA/CO). The FAA/CO establishes a co process that integrates the remediation requirements of Comprehensive Environmental Compensation, and Liability Act (CERCLA), the corrective action requirements of the Conservation and Recovery Act (RCRA), and the State of Idaho's Hazardous Waste Mana Cleanup activities are conducted under the process and schedule established in the Decision (RODs) under the FFA/CO process are signed by all three entities and repre determination that environmental protection will be achieved through implementation remedy. The FFA/CO's role in INEL's environmental restoration program is discussed 2, sections 2.2.6 and 7.2.5.
DOE has a program for safely managing and storing SNF and other radioactive materia considered in the EIS. It is DOE's policy to design, construct, and operate its fa provides a level of safety and safety assurance that is in accord with applicable F regulations and DOE Orders. DOE will manage SNF in a manner that ensures protectio environment and the health and safety of the public and site employees. The potenti radioactive materials associated with SNF are discussed in Volume 1, Chapters 5. E consequences of SNF management are presented for all alternatives in Volume 1, sect mitigation measures are discussed in section 5.7.
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small. Problems at existing storage facilities have been identified in Spent Fuel Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra Material and Their Environmental, Safety and Health Vulnerabilities. This report, SNF vulnerability assessment, and associated action plans to resolve identified vul acknowledged in Volume 1, sections 1.1.2 and J-2 of the EIS. Additional informati Volume 2, section 2.2.2.

06.01 (011) Vulnerabilities

COMMENT
The commentor asserts that DOE failed to acknowledge the urgency of the vulnerabili existing storage facilities at the Hanford Site, as highlighted in the Spent Fuel W Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra Material and Their Environmental, Safety and Health Vulnerabilities, and that the E modified to include the three specific actions included in the Hanford Federal Faci Consent Order (Tri-Party Agreement) in January 1994.
RESPONSE
DOE concurs that action is necessary to deal with spent N-Reactor fuel, especially This situation was prominently identified in the spent nuclear fuel vulnerability a concerns also are reflected in a June 1994 Tri-Party Agreement to initiate encapsul fuel. This agreement between the State of Washington, EPA, and DOE has a target da for removal of SNF and sludge from the 105-K Basins. A fourth amendment to the Tri (January 1994) contains specific milestones related to managing SNF at the Hanford SNF stored at Hanford and technologies for managing SNF are in Volume 1, section 1. information on N-Reactor fuel and K-basin conditions is given in Volume 1, Append More general information on management options for degraded SNF and associated mana technologies is in Volume 1, Appendices J-3 and J-4, respectively.

06.01 (013) Vulnerabilities

COMMENT
The commentor states that the EIS is based on an unjustified presumption that spent moved to be stored.
RESPONSE
Volume 1, section 1.1.2 discusses the corrective actions for the SNF vulnerability DOE. Volume 1, section 1.1 of the EIS presents a comprehensive discussion on the o managing SNF, including storing, stabilizing, transporting, and preparing it for fi technologies to accomplish these options are discussed in Volume 1, Appendix J. Th incorporated to varying degrees in all of the alternatives, as described in Volume Volume 1, Figures 3-1 and 3-6 show the number of shipments expected for each altern compares estimated shipments among all of the alternatives. The wide range in ship DOE's desire to consider all realistic transportation possibilities and the related addition, the alternatives have definite purposes for relocating SNF, such as stori within a single secure facility. Thus, the alternatives attempt to balance transpo worthy considerations, including nonproliferation, worker safety, and cost effectiv

06.01 (014) Vulnerabilities

COMMENT
Commentors note that descriptions of alternatives in Volume 1, Tables 3-1 through 3 storage problems at Test Area North but not at other storage facilities at the Idah Laboratory that were identified as not meeting current standards, such as the fuel ICPP-603. The commentor adds that no matter what alternative is selected, fuel sho facilities that do not meet current standards.
RESPONSE
DOE is currently taking steps to correct outdated and potentially unsafe facilities storage facilities have been identified in the Spent Fuel Working Group Report on I of the Department's Spent Nuclear Fuel and Other Reactor Irradiated Nuclear Materia Environmental, Safety and Health Vulnerabilities. This report, commonly called the assessment, and associated action plans to resolve identified vulnerabilities are a sections 1.1.2 and Appendix J-2 of the EIS. Additional site-specific information Appendices A through F. INEL plans to move SNF from ICPP-603 by December 31, 2000, action, and the impacts of the action are included in the No Action alternative. V Appendix K, and Volume 2, Chapter 5 summarize the environmental impacts of all the

considered in this EIS. The analyses show that the impacts of all alternatives wou
are differences among the alternatives, these differences by themselves are not suf
between alternatives. For all alternatives analyzed, DOE is committed to
complying with applicable Federal, state, and local regulations and DOE Orders to e
environment and the health and safety of the public and site employees.

06.01 (016) Vulnerabilities

COMMENT
The commentor states that the condition of the spent nuclear fuel and the spent nuc
facilities is not adequately covered in the EIS, and cites specific problems with t
the K-basins at the Hanford Site. In addition, the commentor believes that, based
Working Group Report on Inventory and Storage of the Department's Spent Nuclear Fue
Reactor Irradiated Nuclear Material and Their Environmental, Safety and Health Vuln
apparent that none of the facilities in the DOE complex is acceptable for the conti
inventories of spent nuclear fuel, much less additional fuel from another location.
RESPONSE
DOE believes that the condition of SNF and existing storage facilities, as well as
vulnerabilities, are adequately represented in the EIS. Problems with the K-basins
facilities identified in the Spent Fuel Working Group Report on Inventory and Stora
Department's Spent Nuclear Fuel and Other Reactor Irradiated Nuclear Material and T
Environmental, Safety and Health Vulnerabilities are being addressed by corrective
proceeding independently of this EIS.

06.01 (017) Vulnerabilities

COMMENT
The commentor states that it is urgent to address the vulnerabilities at the Hanfor
Spent Fuel Working Group Report.
RESPONSE
Descriptions of SNF stored at the Hanford Site and technologies for managing SNF ar
section 1.1. Hanford-specific information on N-Reactor fuel and K-basin conditions
Volume 1, Appendix A, section 2.3. More general information on management options
and associated management technologies is discussed in Volume 1, Appendix J, sectio
agrees that it is necessary to deal with spent N-Reactor fuel, especially in the 10
was prominently identified in the spent nuclear fuel vulnerability assessment. The
reflected in a June 1994 Tri-Party Agreement to initiate encapsulation of uncontain
agreement between the State of Washington, EPA, and DOE has a target date of Decemb
removal of SNF and sludge from the 105-K basins.
Under all alternatives except No Action, production reactor SNF would be removed fr
storage location. Volume 1, Appendix A, section 2.3 has been revised to provide ad
on the Hanford Site vulnerabilities described in the spent nuclear fuel vulnerabili
December 1993.

6.1.1 Working Group Report and Action Plans

06.01.01 (001) Working Group Report and Action Plans

COMMENT
Some commentors state that the safety and health vulnerabilities, some of which hav
Spent Fuel Working Group Report have been ignored or are not acknowledged in the E
whether the public had input to the report. Others ask if the No Action alternativ
as an excuse to avoid its responsibilities for spent nuclear fuel vulnerabilities,
this as a reason for supporting the No Action alternative.
RESPONSE
The Spent Fuel Working Group Report on Inventory and Storage of the Department's Sp
Fuel and Other Reactor Irradiated Nuclear Material and Their Environmental, Safety

Vulnerabilities (spent nuclear fuel vulnerability assessment) and associated actio identified vulnerabilities are acknowledged in Volume 1, section 1.1.2 and Appendix section 2.2.5 for INEL. These sections note that Phase I, Phase II, and Phase III released for public comment.
Additional site-specific information is presented in Volume 1, Appendices A through environmental consequences of SNF management are presented for all alternatives in 5.1, and mitigation measures are discussed in Volume 1, section 5.7. For all alter committed to comply with applicable Federal, state, and local regulations and DOE O protection of the environment and the health and safety of the public and site empl exception of the No Action alternative, all alternatives fully address the identifi Although the No Action alternative includes actions for safe and secure SNF managem Volume 1, section 5.1.2, the minimal actions allowed by the No Action alternative m resolve all the long-term vulnerabilities at all existing facilities identified in assessment, particularly for degraded SNF. As a result of public comments, additio vulnerability assessment and corrective action plans and their relationship to this Volume 1, Appendices A, C, and F.
For additional discussion on the No Action alternative as it relates to SNF storage comment 06.05 (016).

6.2 Existing Facilities

06.02 (002) Existing Facilities

COMMENT
The commentor states that the use of a hypothetical spent nuclear fuel processing p misleading because DOE started constructing the fuel processing facility at Idaho C Plant in 1991.
RESPONSE
The hypothetical facility is described in Volume 2, Appendix C, SNF6. This facilit basis for estimating the impacts of constructing the facility at other sites consid data sheet states that the existing Fluorinal Dissolution Process (Idaho Chemical P 601) and Fuel Processing Restoration Project were considered as part of the structu project.

II COMMENT

Commentors question where spent nuclear fuel from foreign research reactors would b into the United States, and express concern about the ability of existing spent nuc Savannah River Site to safely store foreign research reactor spent nuclear fuel, gi of spent nuclear fuel storage areas.
RESPONSE
Foreign research reactor (FRR) SNF is discussed in Volume 1, sections 1.1 and 1.2. accept up to 409 SNF elements, which will be stored temporarily at the Savannah Riv preparing a separate EIS entitled Proposed Nuclear Weapons Nonproliferation Policy Foreign Research Reactor Spent Nuclear Fuel (Draft), which will determine whether t 25,000 additional elements and which port(s) of entry would be used. Volume 1 of t cumulative environmental impacts of managing all DOE FRR SNF through 2035, includin 25,000 FRR elements.
Consequently, the impacts associated with FRR SNF are evaluated under the managemen analyzed in Volume 1, along with the DOE SNF generated in the United States. Probl storage facilities have been identified in the Spent Fuel Working Group Report on I of the Department's Spent Nuclear Fuel and Other Reactor Irradiated Nuclear Materia Environmental, Safety and Health Vulnerabilities (spent nuclear fuel vulnerability report and associated action plans to resolved identified vulnerabilities are ackno section 1.1.2 and Appendix J-2. Additional site-specific information is presented A through F. As noted in the summary section of Volume 1, on a nationwide or site- implementation of any of the alternatives would not significantly contribute to cum main storage location(s) Preferred Alternative language for all DOE SNF, including

research reactors if the decision is to accept such fuel into this country, will be this EIS. For locations of foreign research reactors SNF management under DOE's see the response to comment 04.04 (008).

II COMMENT

The commentor notes that the EIS emphasizes the use of new facilities and believes more effective use of existing and currently uncompleted facilities.
RESPONSE
DOE did consider facility usage in its decision-making process for the identificati alternative for SNF management. The alternatives considered in this EIS include th existing facilities and those based on using new facilities. To the extent practic modifying existing facilities when safety and environmental considerations would no when such modifications and operations are relatively cost effective. Although not separate cost report on SNF management has been prepared and identifies the cost di using existing facilities and building new facilities.

II COMMENT

The commentor asks when more effective storage facilities will be available.
RESPONSE
Following the ROD for this EIS, if the alternative selected requires new storage fa upgrading existing facilities or building new facilities as soon as possible after Environmental Policy Act (NEPA) reviews are performed and funding is available. A schedule for new nuclear facilities is 7 to 10 years. In the meantime, DOE will co safely managing and storing SNF and other radioactive materials at each of the site considered in the EIS. DOE manages SNF in accordance with applicable Federal, stat regulations and DOE Orders in a manner that ensures protection of the environment a safety of the public and site employees.

II COMMENT

The commentor states that DOE failed to analyze what it will do when ICPP-666 is fu long before 2002.
RESPONSE
DOE analyzed various methods of expanding the storage capacity at INEL to accommoda receipts under each of the alternatives. The capacity of Building 666 at the Idaho Plant (ICPP) can be increased by implementing the Increased Rack Capacity for ICPP- described in Volume 2, Appendix C, SNF2. This project would extend the ability to ICPP-666 by several years. In addition, depending on the alternative selected, add at INEL could be provided by additional reracking at ICPP-666 [see Volume 2, Append Additional Increased Rack Capacity (ICPP-666)] or by constructing Project SNF4, Dr Facility: Fuel Receiving, Canning/Characterization, and Shipping (see Volume 2, App

II COMMENT

The commentor asks if there are sufficient glass containers available at the Savann all of the wastes that might be shipped to that site under some of the alternatives
RESPONSE
DOE believes that the commentor is referring to the vitrified (glass) high-level wa the Savannah River Site Defense Waste Processing Facility. This facility does not rather it adds inert materials to the waste materials and melts them into a vitrifi interim storage or disposition. This technology is not directly applicable to SNF, high-level waste produced from processing SNF. Detailed information on this activi Supplemental EIS - Defense Waste Processing Facility, Savannah River Site.

II COMMENT

The commentor notes that, while the EIS states that spent nuclear fuel is stored in above-grade dry storage, there is some spent nuclear fuel in below-grade dry storag Processing Plant at the Idaho National Engineering Laboratory.
RESPONSE
Some SNF is stored in below-grade dry storage at ICPP. Volume 1, section 5.8.3 has clearly include isolation from the environment in below-grade dry storage.

II COMMENT

The commentor identifies specific safety issues associated with the continued manag chemistry of spent nuclear fuel, principally N-Reactor fuel, currently stored at th continued wet storage for N-Reactor fuel.
RESPONSE
DOE has fully evaluated the safety issues associated with SNF management at the Han DOE sites and reported the results of this evaluation in the Spent Fuel Working Gro Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra Materials and Their Environmental, Safety and Health Vulnerabilities. This EIS eva associated with SNF management at Hanford, including normal emissions and accidenta found that they would be small. The continued management, storage, and chemistry o stored at Hanford will be evaluated in the Hanford-specific NEPA reviews. One such being prepared for the transfer of fuel from the K-basins.
Appendix A has been revised to reflect the proposed path forward for the K-basins.

II COMMENT

The commentor expresses an opinion that DOE is currently storing "other spent fuel waste" at the Hanford Site in illegal "once-through" cooling pools that discharge w contaminated soils and flush contaminants into the Columbia River.
RESPONSE
Storing SNF in basins is not illegal; the SNF storage basins do not use "once-thro nuclear fuel vulnerability assessment fully describes SNF at Hanford and identifies associated with this storage. Eight of the Hanford production reactors, all of whi use "once-through" cooling systems. Direct discharges to the Columbia River from t accordance with an existing, legal National Pollutant Discharge Elimination System measures are being taken to isolate from the rest of the basin a known area in the to the ground have occurred.

II COMMENT

The commentor raises an issue about the numerical designation of a specific spent n facility.
RESPONSE
The numerical designation of the facility in question is of no intended significanc

II COMMENT

The commentor states that the spent fuel capacity, which could be provided by the r Flux Isotope Reactor at the Oak Ridge Reservation, is not addressed in the EIS.
RESPONSE
A discussion of the SNF management program at the Oak Ridge Reservation (ORR) is in Appendix F, Part Three, section 2.3.

II COMMENT

Commentors suggest that the discussion of transuranic waste in Volume 1, Appendix F not explain how or why the waste is generated. Commentors also question whether th Reservation has facilities capable of handling more waste than is obligated by pres
RESPONSE
Small quantities of radioactive wastes, including transuranic wastes, would usually some fuel stabilization activities. The quantities identified in Volume 1, Appendi estimates of the maximum amount that could be generated from these activities. Act generated are likely to be smaller. A discussion of transuranic wastes is presente Volume 1, section 3.3.4. Additional information about waste generation can be foun F-Team Final Report. This report is available in reading rooms and information loc EIS.
SNF management generates low-level waste. For ORR, this is described in Volume 1, Three, section 5.14.2, which states that low-level waste generated by SNF managemen wet-storage option is estimated at 7,800 cubic meters, and the dry storage option w significantly less. This section shows that ORR has a capacity for storing low-lev 98,300 cubic meters. The addition of 7,800 cubic meters would not significantly im the decisions associated with low-level waste management at ORR.
SNF management also generates small amounts of transuranic waste, although transur shipped to ORR, as commentors' remarks imply. This is discussed in Volume 1, Appen section 5.14.2, which states that transuranic waste generated by SNF management act shipped directly to the Waste Isolation Pilot Plant, if it is available. If the Wa available, ORR transuranic management capacity would be evaluated, including optio storage.

II COMMENT

Commentors state that reactor-irradiated nuclear materials are currently stored in some examples of the vulnerabilities at Idaho National Engineering Laboratory from Working Group Report and express the opinion that DOE may not manage additional sp any better in the future.
RESPONSE
Problems at existing SNF storage facilities have been identified in the Spent Fuel on Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor I Materials and their Environmental, Safety and Health Vulnerabilities. This DOE rep vulnerability assessment, and associated action plans to resolve identified vulnera in Volume 1, sections 1.1.2 and Appendix J-2, and Volume 2, section 2.2.5. Additio information is in Volume 1, Appendices A through F. Environmental consequences of are presented for all alternatives in Volume 1, section 5.1, and mitigation measure Volume 1, section 5.7. For all alternatives analyzed, DOE is committed to comply w Federal, state, and local regulations and DOE Orders to ensure protection of the en health and safety of the public and site employees.
The Secretary of Energy has publicly affirmed that current DOE policy and practice environmental considerations above other program goals. DOE is committed to protec health of its workers, the public, and the environment. Furthermore, DOE intends t operate facilities in such a way as to provide a level of safety equal to or better the operation of commercial facilities. DOE is working as quickly as possible to r adverse environmental impacts from past programs.
Immediate actions to correct any possible unsafe storage practices and to address S include transfer of SNF from the Underwater Fuel Storage Facility at ICPP-603 and o more modern facilities at ICPP-666. These actions also involve inspection and cann Volume 2, Table 2.2-1 lists specific corrective actions and schedules to address SN INEL.

II COMMENT

The commentor asserts that DOE has not demonstrated that safe storage methods are a

kept secret the fact that spent nuclear fuel storage areas at ICPP-603 had been uns nuclear fuel; that only after a whistleblower gave this information to the State wa that transfers of spent nuclear fuel from ICPP-603 at the Idaho National Engineerin be as safe or as quick as projected.
RESPONSE
DOE is taking the actions necessary to ensure safe SNF storage, including the SNF c transferred from ICPP-603. In the absence of substantiation of the commentor's ass reason to question the safety or speed of the transfers from ICPP-603 or the requir safety. DOE has aggressively identified and disseminated information about the vul deficiencies of its SNF management facilities.
See the response to comment 06.02 (015) for more information on vulnerabilities ass storage.

II COMMENT

Commentors state that DOE should reconstruct all existing facilities at the Idaho N Laboratory that do not comply with the current design standards, such as those for confinement requirements.
RESPONSE
DOE Order 5480.28, Natural Phenomena Hazards Mitigation, sets forth DOE policy for constructing, and operating DOE facilities so that workers, the general public, and protected from the impacts of natural phenomena hazards on DOE facilities. This Or requires facilities to be reevaluated when there is any change in design and constr Additionally, in accordance with DOE Order 5480.23, Nuclear Safety Analysis Reports at INEL are required to undergo periodic safety analyses, including seismic and con reviews. When appropriate, design modifications are made. Besides design modifica emergency preparedness plans and administrative controls to minimize potential haza INEL reactors and confinement structures meet requirements as outlined in their saf safety evaluation reviews, and safety basis documents. These reviews show that pot site boundary are within regulatory limits. Engineered barriers are designed for o potentially high impact or high probability of occurrence.
The seismic analyses, which have been completed for some facilities at INEL, show t adequate to meet current earthquake standards. For facilities that do not meet cur actions have been identified and implemented. As an example, DOE is taking action nuclear fuels from potentially vulnerable facilities to modern facilities. Further described in Volume 2, Appendix C are proposed by DOE to replace or upgrade existin

II COMMENT

The commentor states that long-term radiation exposure has compromised spent nuclea barriers in Savannah River Site canyons by changing the concrete into a spongy subs the commentor requests that DOE identify the canyon confinement boundaries and thos will ensure their safe maintenance.
RESPONSE
Periodic inspections of Savannah River Site canyons reveal some erosion of interior long-term exposure to acids and bases. This erosion, or etching, has left the surf appearance. Tests have shown this to be only a surface phenomenon that does not co structural integrity of the 4- to 5-foot-thick concrete confinement barriers.

II COMMENT

Commentors state that DOE has failed to recognize in the EIS the problems with exis such as compliance with environmental laws and safety requirements, and question wh vulnerabilities identified in the Spent Fuel Working Group Report will be addressed commentor notes that the U.S. District Court ordered immediate action to mitigate u at the Idaho National Engineering Laboratory.
RESPONSE
As noted by the commentors, DOE prepared a report on vulnerabilities of the current

been directed by the Secretary of Energy to develop an integrated, long-term SNF pr vulnerability assessment and associated action plans to resolve identified vulnerab acknowledged in Volume 1, section 1.1.2 and Appendix J, and Volume 2, section 2.2.5 site-specific information is in Volume 1, Appendices A through F. Environmental co management for all alternatives are discussed in Volume 1, section 5.1, and mitigat discussed in Volume 1, section 5.7. For all alternatives analyzed, DOE is committe Federal, state, and local requirements and DOE Orders to ensure protection of the e health and safety of the public and site employees. However, under the No Action a minimum actions deemed necessary for the continued safe management of SNF would be Action has been taken at INEL to correct any possible unsafe storage practices, inc from the Underwater Fuel Storage Facility and other facilities into more modern fac inspection and canning of corroded fuel. However, the U.S. District Court did not action be taken to mitigate unsafe storage practices at INEL.

II COMMENT

The commentor asks why Volume 1, Table 1-2 lists only 45 non-DOE facilities, while 55 such facilities.
RESPONSE
There are a total of 57 non-DOE facilities representing domestic, licensed, small g 45 facilities identified in Volume 1, Table 1-2, Appendix E, Table 2.1-1 are non-DO contribute to projected SNF inventories during the next 40 years. The EIS has been distinction.

II COMMENT

The commentor requests that the word "proposed" be deleted from Volume 1, Appendix with regard to the Fort St. Vrain Independent Spent Fuel Storage Installation, bec operation.
RESPONSE
The requested changes have been made.

II COMMENT

The commentor suggests that a reference to Las Vegas being 80 kilometers to the eas Site is incorrect and should be deleted.
RESPONSE
The sentence intended to infer that the Union Pacific railroad is near Las Vegas, The EIS has been clarified.

II COMMENT

The commentor identifies three issues related to the transfer of fuel between the K Site.
RESPONSE
Volume 1, Appendix A, section 3.1 and Attachment A discuss basin storage at the Han potential for an inadvertent criticality related to this transfer has been consider Westinghouse Hanford Company, Richland, Washington, internal memorandum to J. P. Sc Westinghouse Hanford Company, Richland, Washington, Consequences Analyses of Hypot K-Basin Accident Scenarios, 105 KE/KW Accident Liquid Discharge, August 14; and Mon 1993, Engineering Study of the Transfer of Irradiated Fuels on the Hanford Site, WH Rev. 0, Westinghouse Hanford Company, Richland, Washington). The details provided Appendix A, section 3.1 and Attachment A are adequate for the evaluation and compar in this programmatic EIS.

II COMMENT

The commentor requests more information concerning near-term plans for the Hanford
RESPONSE
The EIS evaluates five alternatives for SNF interim management over a 40-year perio
for any specific SNF management location will be the subject of site-specific NEPA
Volume 1, Appendix A, section 2.3 has been revised to provide additional informatio
status of K-basin fuel. Additional information concerning foreign processing of N-
to Volume 1, section 3.2.5 and Appendix A.

II COMMENT

The commentor suggests that removal of all fuel from pool storage at ICPP-603 by De
the Idaho National Engineering Laboratory be added as a project in Volume 1, Append
(potential spent nuclear fuel projects for each alternative).
RESPONSE
On-site SNF movement is under-way. This activity is considered part of normal SNF
not considered a potential activity.

II COMMENT

The commentor requests that the EIS provide information on the capacity of ICPP-666
the rerack projects and a comparison of the capacities to the amount of SNF expecte
Engineering Laboratory under the Ten-Year Plan alternative and the Maximum Treatmen
Disposal alternative.
RESPONSE
The EIS has been modified to incorporate the requested information. Specific chang
Volume 2, Appendix C, Projects SNF2, Increased Rack Capacity for ICPP-666, and SNF3
Increased Rack Capacity (ICPP-666). The comparison to the amount of SNF expected u
Plan alternative and the Maximum Treatment, Storage, and Disposal alternative is p
section 3.1.1. The EIS has been changed to compare rack capacity and projected inv
various alternatives.

II COMMENT

The commentor states that the short-term impacts of the transfer of spent nuclear
other facilities are not addressed in the EIS.
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme
all the alternatives considered in this EIS. The analyses show that the impacts of
small.

II COMMENT

The commentor notes that there has been nuclear waste stored at the Idaho National
Laboratory for the past 40 years, which was not intended to be long-term storage, b
opinion that this does not justify adding additional waste, and that possibly all o
RESPONSE
Volume 2, Chapter 5 and Volume 1, Appendix D discuss the impacts of waste managemen
SNF management, respectively. These impacts would be small under all the alternati
EIS.

II COMMENT

The commentor states that the safety of existing technologies and facilities has be
decades.
RESPONSE
This comment is consistent with the EIS, which shows environmental impacts from all
considered would be small.

II COMMENT

The commentor states that the EIS does not adequately address spent nuclear fuel fa
that specific information such as layout plans, design standards, proposed safety m
environmental monitoring plans be added. Additionally, the commentor states that u
is unacceptable because the 40-year project lifetime exceeds the design lifetime of
RESPONSE
This is a programmatic EIS to aid in making programmatic decisions for SNF manageme
evaluates the general technologies and types of facilities required under the diffe
specific information requested by the commentor will be developed as part of the im
programmatic decisions. The information would be available in later facility-speci
permit applications and design documents.
DOE recognizes the commentor's concern regarding facility design life. DOE is taki
facility design lives and taking appropriate action to upgrade facilities to safely
replace facilities that cannot be upgraded.

II COMMENT

The commentor believes that releases due to degrading cladding have been calculated
RESPONSE
Volume 1, Appendix A of the EIS has been modified to include an evaluation of the r
commentor.

II COMMENT

The commentor questions the capacity of K-basins to combine 105-KE and 105-KW volum
RESPONSE
The footnote for Volume 1, Appendix A, Table 3-2 has been changed to clarify the ca
K-basins with reracking.

II 6.3 Inventories (amount and characteristics)

II 06.03 (001) Inventories (amount and characteristics)

COMMENT
The commentor notes an apparent discrepancy between Volume 1, Table 1-1, which stat
existing foreign research reactor spent nuclear fuel in the United States, and the
EIS Implementation Plan, which addresses 15,000 elements of foreign research reacto
RESPONSE
The Volume 1, Table 1-1 column headed "Existing" refers to SNF currently managed by
facilities. Until received in the United States, FRR SNF is not managed by DOE an
part of the existing inventory. Although the Implementation Plan for the EIS on th
Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear F
15,000 elements of FRR SNF that would be eligible for return to the United States

DOE in the event FRR SNF acceptance policy is renewed, the revised Implementation P
25,000 elements of FRR SNF eligible for return to the United States. These element
the United States or managed by DOE except for fuel shipments returned under the En
Assessment of Urgent-Relief Acceptance of Foreign Research Reactor Spent Nuclear Fu

II 06.03 (002) Inventories (amount and characteristics)

COMMENT
The commentor states that DOE refers to approximately 290 metric tons of heavy meta
approximately 1,200 metric tons of spent nuclear fuel at the Idaho National Enginee
RESPONSE
The 290 metric tons of heavy metal (MTHM) and 1,200 metric tons (total assembly wei
DOE currently manages at INEL refer to the same amount of material and are consiste
heavy metal content of SNF as a common measure of the amount of fuel matrix in a fu
done to provide a standard of comparison among fuel types. Fuel elements vary wide
structural material in relation to the amount of fuel matrix associated with them.
materials removed prior to storage may depend on fuel type. MTHM provides a unifor
measuring of quantity, irrespective of the structure of the fuel element. DOE reco
structural material, either as an integral part of the fuel element, or as a separa

II 06.03 (003) Inventories (amount and characteristics)

COMMENT
The commentor states that the Kema Suspension Reactor Fuel is not addressed in the
RESPONSE
At the time the Draft EIS was prepared, the Kema Suspension Reactor Fuel was not on
Subsequently, the fuel was placed on the inventory. The EIS has been modified to a
discussion of the SNF management program at ORR, where the Kema Suspension Reactor
can be found in Volume 1, Appendix F, Part Three, section 2.3.

II 06.03 (004) Inventories (amount and characteristics)

COMMENT
The commentor points out that Volume 1, Appendix B states that there is no DOE prod
stored in Idaho. Volume 1, Appendix B, Table 2-2 indicates production fuel is stor
Chemical Processing Plant. The commentor suggests resolving this apparent discrepa
RESPONSE
The ICPP does not store production reactor fuel, but only stores other aluminum-cla
Savannah River Site, as referenced in Volume 1, Appendix B, Table 2-2.

II 06.03 (005) Inventories (amount and characteristics)

COMMENT
The commentor notes that in Volume 1, Table 1-8, the spent nuclear fuel inventory a
Reservation is 3.02 metric tons of heavy metal and in section 1.1 the inventory is
of heavy metal and requests clarification.
RESPONSE
The correct SNF inventory at ORR is 3.02 MTHM. The inventory number in Volume 1, s
been corrected to 3.02 MTHM.

II 06.03 (006) Inventories (amount and characteristics)

COMMENT
The commentor notes that Volume 1, Appendix B, Table 2-2 indicates that graphite f

underwater in ICPP-603 and believes that this is not correct.
RESPONSE
The commentor is correct. Graphite fuels, such as Fort St. Vrain SNF, are not stor ICPP-603; they are stored dry in the Irradiated Fuel Storage Facility, a separate p facility. This error has been corrected in the EIS.

II 06.03 (008) Inventories (amount and characteristics)

COMMENT
The commentor requests spent nuclear fuel inventory information, including fuel typ National Engineering Laboratory storage facilities.
RESPONSE
The primary INEL SNF storage facilities, the types of fuel stored, and the stored c presented in Volume 1, Appendix B, Table 2-2, and the relative properties of SNF at metric tons of heavy metal is presented in Volume 1, Appendix B, Figure 2-2. Addit available in Volume 1. This document, T. Wichmann letter, Subject Spent Nuclear Fu is available at any of the reading rooms and information locations listed in the Vo also the response to comment 06.03 (013).

II 06.03 (009) Inventories (amount and characteristics)

COMMENT
The commentor identifies an apparent discrepancy between Idaho National Engineering nuclear fuel quantities in the EIS (288.68 metric tons of heavy metal) and those gi INEL Site-Specific Advisory Board (266.55 metric tons of heavy metal). The comment clarification, particularly with respect to the fuel rods identified in the 1989 Ra Management Information System as having been shipped to the Radioactive Waste Manag for disposal.
RESPONSE
Both numbers are correct in the context in which they are given. The presentation Advisory Board reflects the inventory as of approximately January 1994, and exclude were in the Experimental Breeder Reactor-II (EBR-II) at the time. (Nuclear fuel is SNF until it has been discharged from a reactor after irradiation.) The number giv 1994 estimate that reflects the projected inventory as of July 1995. This projecte EBR-II, fuel, as well as approximately 4 MTHM of other fuels. These other fuels co receipts from other INEL reactors and the 19 Naval shipments allowed under the modi The fuel rods identified in the 1989 Radioactive Waste Management Information Syste in this inventory because no positive determination has been made that they exist. of these materials will be resolved by the CERCLA action proposed for the Radioacti Management Complex.

II 06.03 (010) Inventories (amount and characteristics)

COMMENT
The commentor identifies specific inaccuracies in the EIS dealing with the number o elements that are in storage and that would be transferred to DOE under the agreeme that the inaccuracies be corrected.
RESPONSE
DOE revised the EIS in response to this comment.

II 06.03 (011) Inventories (amount and characteristics)

COMMENT
The commentor notes that the EIS incorrectly states that facilities on the Oak Ridg generate or manage spent nuclear fuel, high-level waste, or transuranic waste.
RESPONSE

ORR does generate and manage SNF and transuranic waste. A discussion of SNF genera ORR is presented in the EIS in Volume 1, Appendix F, Part Three, section 2.2. Volu been modified to correct the statement about generation and storage of SNF and tran discussion of past generation activities at ORR is beyond the scope of this EIS.

II 06.03 (013) Inventories (amount and characteristics)

COMMENT
The commentor requests that considerably more detail be added to Volume 1, Table 1. characterize the DOE spent nuclear fuel inventory.
RESPONSE
The level of detail requested for SNF characterization is not available in all inst detail is not essential for a programmatic NEPA document. However, some additional SNF are provided in each site appendix. For example, see Volume 1, Appendix F, Par Additional storage condition characterization can be found in the Spent Fuel Workin Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra Materials and Their Environmental, Safety and Health Vulnerabilities, which is refe

II 06.03 (014) Inventories (amount and characteristics)

COMMENT
The commentor raises questions about complete reliance on high-efficiency particula preventing emissions of radioactive particulates.
RESPONSE
To minimize airborne releases, projects at INEL involving radioactive particulates a double-confinement structure. Conservative assumptions normally are used to esti atmosphere, such as modeling only two filters in series when at least three are pla operations. Also, although high-efficiency particulate air (HEPA) filters have est removal efficiencies of 99.97 percent (down to diameters of 0.3 micrometers), a con factor of only 99 percent typically is used for operational safety and accident ana capable of removing particles as small as 0.001 micrometers from an airstream, but performs the rating calibration at 0.3 micrometers using a standard aerosol-generat are tested annually and inspected daily to ensure that their efficiency is maintain Safety analyses for forthcoming INEL facility operations will not assume perfect HE Additional precautions will be taken to minimize airborne releases. The pressure d filter is measured continuously to detect the formation of any holes or insecure fi temperature will be measured to promptly detect a filter fire.
Finally, radiation sensors will be installed downstream of the filters to continuou releases. Detection of radioactive particulates above the natural background level prompt shutdown of facility operations.

II II COMMENT

The commentor emphasizes that spent nuclear fuel should be classified as waste.
RESPONSE
The status of SNF is addressed in Volume 1, section 7.2.5. Historically, SNF was valuable products and fissionable materials. As a recycled material, SNF is not co under RCRA. Since April 1992, however, DOE's focus on most of its SNF has changed ultimate disposition. This has created some uncertainty with regard to the regulat SNF. DOE has initiated discussions with EPA, along with state regulators, about wh should be designated as a waste, and about the potential applicability of RCRA to s decisions are made about which additional requirements might apply, SNF is still di materials.

II COMMENT

The commentor states that the EIS does not include substantial quantities of spent manages and references the National Academy of Sciences recommendation to manage ma be generated from DOE's weapons-grade fissile materials program to an "SNF Standard also states that the EIS does not include the recent purchase of 500 metric tons of from dismantled nuclear weapons from the former USSR. The commentor is of the opinion that a programmatic EIS not including these potential sources of spent nucl the risks and other impacts and prevents meaningful evaluations of alternatives.
RESPONSE
The scope of the programmatic SNF portion of this EIS, described in Volume 1, secti of DOE SNF in a safe and environmentally sound manner until decisions regarding its are made and implemented. For the purpose of this EIS (as described in the Volume 1 Summary), SNF is essentially defined as fuel that has been withdrawn from following irradiation, the constituent elements of which have not been separated. includes uranium/neptunium target material, blanket subassemblies, pieces of fuel, responsibilities, which are addressed in this EIS, include all current or reasonabl generated by DOE production, research, and development reactors; Naval reactors; un (both domestic and possibly foreign of U.S. origin); and some special-case commerci rubble from the Three Mile Island Unit 2 reactor.
Materials that would be generated from the DOE weapons-usable fissile materials pro uranium from dismantled nuclear weapons, are outside the scope of this EIS. These known as special nuclear materials, are being addressed in the Storage and Disposit Weapons-Usable Fissile Materials Programmatic Environmental Impact Statement, which being prepared. Special nuclear material is defined as (a) plutonium or uranium en 233 or 235, and any other material that the Nuclear Regulatory Commission, pursuant the Atomic Energy Act of 1954, Section 51, determines to be special nuclear materia artificially enriched by any of the foregoing, but which does not include source ma The above definitions are contained in Volume 1, Appendix H of the EIS. There are between the management of SNF and special nuclear materials, such as the level of s required.

II II COMMENT

The commentor expresses the belief that Navy spent nuclear fuel is probably more st nuclear fuel that DOE manages, such as graphite and aluminum spent nuclear fuel, an Naval fuel represents a substantial portion of DOE's spent nuclear fuel, because th present in spent nuclear fuel will outlast the cladding and the temporary storage f
RESPONSE
DOE agrees that because of the robust nature of Navy SNF, it is more stable and eas graphite and aluminum fuels. However, as described in Volume 1, section 1.1.3 and of Navy and DOE fuels will be stored safely until ultimate disposition is decided. amounts and descriptions of SNF, refer to Volume 1, section 1.1.2 and site-specific F.

II COMMENT

The commentor contends that the EIS is flawed because it does not indicate that tra spent fuel is a new venture by DOE, is untested, and may prove to be unsafe.
RESPONSE
DOE has substantial experience with handling and transferring SNF, including some c otherwise damaged fuel. Transfers have been accomplished safely, and appropriate m taken to similarly ensure the safety of future transfers, such as placing the corro containers. DOE also has safety analysis systems in place to ensure that the risks understood and appropriately minimized. All transfers are conducted in accordance analysis requirements.

II COMMENT

The commentor identifies safety concerns related to handling metal fuels.
RESPONSE
The potential impacts from storage of radioactive materials associated with SNF are Volume 1, Chapter 5. The impacts of transporting SNF are also discussed in Volume environmental consequences of managing SNF, including metal fuels, are presented fo Volume 1, section 5.1, and mitigation measures are discussed in Volume 1, section 5 on the management of metallic SNF are provided in the site-specific appendices to V DOE has a program to safely manage, transport, and store all types of SNF and other at each of the sites considered in the EIS.

II 6.4 Technologies

II COMMENT

Commentors recommend several strategies for spent nuclear fuel management, as well technologies for the storing, stabilizing, and treating spent nuclear fuel.
RESPONSE
Some of the management strategies and technologies recommended by commentors are al actively pursued by DOE, while others are currently speculative and require additio determine their effectiveness for managing SNF. Volume 1, section 1.1 presents a c discussion of the options available for managing SNF, including storage, stabilizat preparation for final disposition. Specific technologies to accomplish these optio Volume 1, Appendix J.

II COMMENT

The commentor questions what techniques are being developed to ensure safe, long-te waste so it cannot be used again.
RESPONSE
Numerous technologies are already available for managing radioactive materials, and actively developed for this purpose. Technological options for managing of SNF are 1, section 1.1.3 and Appendix J of the EIS. Current management practices for all t wastes are discussed in Volume 2, section 2.2.7, and technology development activit Volume 2, section 3.1. Volume 2 is specific to INEL, but waste management technolo apply to other DOE sites.

II COMMENT

The commentor proposes on-site disposition of spent nuclear fuel using technology i
RESPONSE
DOE is unaware of any technology involving Tela coils that would be of practical be SNF. Technologies currently available are summarized in Volume 1, Appendix J. Dev technologies for managing SNF is beyond the scope of this EIS, and will be subjecte review prior to implementation.

II COMMENT

The commentor supports technology development if it results in recycling fuel and e storage.
RESPONSE
Numerous technologies are available for managing radioactive materials, and others developed for this purpose. Technological options for managing SNF are described i 1.1.3 and Appendix J. Current management practices for all types of radioactive wa

Volume 2, section 2.2.7, and technology development activities are described in Vol
Volume 2 is specific to INEL, but waste management technologies also generally appl
DOE is committed to comply with all applicable Federal, state, and local regulation
radioactive materials will be managed to protect the environment and the health and
and site employees.

II COMMENT

The commentor expresses the opinion that the "solution" to nuclear waste is the cer
technology and that this technology should be at Hoquiam and Aberdeen, Washington.
RESPONSE
Technologies for the encapsulation of high-level waste in ceramic or glass logs are
immobilization of such wastes at a number of locations, including INEL's proposed
Facility. DOE does not currently consider it reasonable to locate such facilities
Location of similar facilities at sites other than INEL is beyond the scope of this
1, Appendix J of the EIS describes technologies that are considered reasonable for
present time.

II COMMENT

The commentor states that the EIS merely describes potential technologies for proce
fuel and does not analyze their potential consequences.
RESPONSE
Volume 1, section 1.1 discusses DOE's plan to develop an integrated, long-term SNF
discussion also points out a number of actions that prevent DOE from making all dec
management for the next 40 years at this time. These actions include characterizat
SNF and lack of acceptance criteria for ultimate disposition.
There are more than 90 types of DOE SNF, and any spent fuel that is to be disposed
repository must first be characterized under an approved quality assurance program.
database would be used to evaluate each fuel type to determine the extent of condit
necessary to meet repository waste acceptance criteria.
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme
all the alternatives considered in this EIS. The analyses show that the impacts of
small.

II COMMENT

Commentors recommend a particular technology that they believe would be beneficial
or disposition of spent nuclear fuel, specifically alternative fuel processing meth
conducted at Argonne National Laboratories, and dry cask storage.
RESPONSE
A summary of the technologies for SNF management, including some of the work being
National Laboratories, as well as dry cask storage options, are presented in Volume
of these technologies are already being actively pursued by DOE, while others are c
and would require additional research to determine their effectiveness for managing
that the technologies recommended are viable, they were considered, with many other
the decision-making process for identification of the preferred alternative for SNF

II COMMENT

The commentor states that no interim decision concerning DOE's metal fuel at the Ha
made without considering the ultimate treatment measures necessary to prepare this
disposition, and that some of the treatment options mentioned in the EIS are as yet
RESPONSE
General technologies and practices for managing SNF, including metal fuels, are dis
section 1.1.3 and Appendix J. Therein, it is noted that technologies for final dis

specified in advance of repository acceptance requirements. These requirements are completion and approval, but a combination of the technologies described in Volume satisfy the eventual acceptance criteria, even though some of them are as yet unpro Furthermore, consideration is given by the alternatives analyzed in the EIS to prov processing flexibility that may prove necessary to meeting the acceptance requireme although the ultimate disposition of SNF is a high priority for DOE, the details of not been finalized and are beyond the scope of this EIS.

II COMMENT

The commentor states that the Draft EIS does not adequately address the impacts of research and development of technologies to convert liquid high-level waste to a so disposal and proposals for any necessary interim storage.
RESPONSE
The impacts of proposals regarding converting liquid high-level waste to a solid fo and proposals for interim storage are discussed under the Project Summary entitled Facility (Technology Selection for Treatment of Sodium-Bearing and Calcined Wastes) Appendix C, HLW 2. DOE believes the analysis performed for this project is adequat

II COMMENT

The commentor recommends the quarter sections of land adjacent to the Zoo-East area "example site" the first time this site is mentioned in Volume 1, Appendix A, secti waiting until section 5.1.2 to make this statement.
RESPONSE
The descriptions in Volume 1, Appendix A, sections 5.1 and 5.1.2 are very similar a Thus, there is little chance for confusion about the wording, and no change is requ

II COMMENT

The commentor wants Volume 1, Appendix A, Table 5.7-5 to indicate best available co used in design.
RESPONSE
Volume 1, Appendix A, section 2.2.2 has been changed to make it clear that DOE stan for all design/construction activities.

II II COMMENT

One commentor states that the EIS alternatives specify either wet or dry storage wi the environmental consequences or reasons for not splitting the two storage types i Commentors request information on the relative merits of wet storage versus dry sto fuel. Commentors state that the EIS does not distinguish the consequences of repro wet storage. Information is also requested on spent nuclear fuel types, costs and short-term activities to fix storage problems, storage facility design, and work-fo
RESPONSE
The EIS discusses wet and dry storage in Volume 1, section 1.1.3 and Appendix J. W estimated impacts of the particular storage type were included as input in modeling alternative's impact; therefore, the consequences related to a particular storage t (see Volume 1, Appendix I, for example). The analyses demonstrate that the impact considered would be small for both wet and dry storage. Separation into additional storage type is not likely to result in any significant difference in the consequen Volume 1, Chapters 1, 4, and 5 and Appendix J, and Volume 2, Chapters 2 and 4 and A the requested information. Volume 1, section 3.3 summarizes the SNF cost evaluatio Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS.

II COMMENT

The commentor advocates long-term storage or disposal of spent nuclear fuel in a ma future generations to recover it and perhaps neutralize it, or otherwise treat it w available today.
RESPONSE
The ultimate disposition of SNF is outside the scope of this EIS. This EIS address DOE SNF for a period of up to 40 years, until disposition decisions regarding DOE S

II COMMENT

The commentor advocates considering monitored retrievable storage for spent nuclear permanent disposal because of concern about criticality issues.
RESPONSE
Although the final disposition of fissile materials and SNF is outside the scope of Waste Policy Act (NWPA), as amended, determined that these materials will be dispos repository. DOE is aware of the criticality safety concerns and is considering sev address these concerns, including processing of some SNF to separate the fissile ma allowed by NWPA, DOE could use monitored retrievable storage for some SNF pending r long-term criticality safety issues.

II COMMENT

commentors suggest that highly enriched spent nuclear fuel and highly enriched spen stored in aboveground engineered storage facilities.
RESPONSE
As stated in Volume 1, Chapter 1: "In 1992, the Secretary of Energy directed the De integrated, long-term Spent Nuclear Fuel Management Program. This program is asses fuel storage facilities, integrating DOE's many existing SNF activities into one pr appropriate and responsible means of facility operation, and ensuring that issues a resolved safely and cost-effectively." Solutions to the storage questions may requ management strategies for these fuels, including such options as the construction o including those suggested by the commentor, and stabilization of certain fuels. Th established a programmatic objective to define a management path and proceed toward of DOE SNF. Activities are currently in process to meet or address this objective. provides an overview of technologies for SNF management. Storage and disposition o materials is beyond the scope of this EIS, but is being analyzed in the Programmati Disposition of Weapons-Usable Fissile Materials (see Volume 1, section 1.2.3).

II II COMMENT

The commentor states that the EIS should address the failure of science to turn nuc compatible with people and species on the planet.
RESPONSE
Technology development addressed within this EIS, such as the Waste Immobilization in Volume 2, Appendix C, section HLW2), is focused on meeting waste acceptance crit disposition. These criteria will represent the best scientific consensus for a comp

II 6.5 Ultimate Disposition

II COMMENT

Some commentors request information on DOE's long-range plans for reprocessing or p commentors oppose reprocessing of spent nuclear fuel for reasons such as poor past nonproliferation issues, while others support it because they want the fissile mate resources to be recovered. Other commentors support processing for the purpose of long-term storage, but oppose reprocessing for purposes of separation and recovery
RESPONSE
Processing and reprocessing are defined in Volume 1, Appendix H. Processing means or physical process designed to alter the characteristics of the SNF matrix." Repr "processing of reactor-irradiated nuclear material (primarily SNF) to recover fissi order to recycle such materials primarily for defense programs." Thus, reprocessin processing. As discussed in Volume 1, Chapter 1, DOE made a policy decision in 19 of SNF for weapons production would be phased out. This policy is still in effect. Volume 1, Chapter 1 also indicates that several forms of SNF processing may still b certain types of SNF for safe storage. In addition, there are many different types differing characteristics that may require treatment for safe storage and final dis repository acceptance criteria for SNF and high-level waste for final disposition h therefore, the types of fuels that may require some type of treatment or processing Many of the treatments being studied do not separate fissile materials, although so repository acceptance criteria are not defined, it is not currently possible to det material will have to be separated from some fuels (such as fuels containing highly meet disposal criteria. Processing and use of existing reprocessing facilities are because these facilities could be utilized for short-term management of some fuels for extended underwater storage, but which are currently being stored underwater. for managing SNF are described in Volume 1, Appendix J.

II COMMENT

Commentors express opinions that DOE is emphasizing transportation of spent nuclear considering the goals and consequences of these actions, and that DOE advocates rel fuel instead of addressing current storage problems and long-term spent nuclear fue including ultimate disposition. Commentors further note that there is no justifica nuclear fuel which is currently in storage before final disposition.
RESPONSE
Volume 1, section 1.1 of the EIS presents a comprehensive discussion of the options managing SNF, including storage, stabilization, transportation, and preparation for Specific technologies to accomplish these options are discussed in Volume 1, Append are incorporated to varying degrees in all of the alternatives, as described in Vol Volume 1, Figures 3-1 and 3-6 graphically indicate the number of shipments expecte and Figure 3-7 compares estimated shipments among all of the alternatives. The wid numbers reflects DOE's desire to consider all realistic transportation possibilitie stakeholder concerns. In addition, the alternatives have definite purposes for rel storing similar fuel types at a single site. In this way, the alternatives attempt concerns with other important considerations, including nonproliferation, worker sa effectiveness.
Problems at existing storage facilities have been identified in the Spent Fuel Work Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra Materials and Their Environmental, Safety and Health Vulnerabilities. This report, the SNF vulnerability assessment, and associated action plans to resolve identified acknowledged in Volume 1, section 1.1.2 and Appendix J-2. Additional site-specific presented in Volume 1, Appendices A through F.
Environmental consequences of SNF management are presented for all alternatives in 5.1, and mitigation measures are discussed in section 5.7. For all alternatives an to meeting applicable Federal, state, and local regulations and DOE Orders to ensur protection of the environment and the health and safety of the public and site empl alternatives, the environmental consequences would be small.
Volume 1, section 1.1.3 and Appendix J of the EIS notes that technologies for final cannot be specified in advance of repository waste acceptance criteria. These requ years from completion and approval, but a combination of the technologies described Appendix J may satisfy the eventual acceptance criteria. Furthermore, consideratio alternatives analyzed in the EIS to providing or maintaining processing flexibility to meeting the acceptance requirements.

Ultimate disposition of DOE SNF is a high priority. For planning purposes, DOE ha SNF managed by DOE that is not otherwise dispositioned (e.g., chemically separated, waste being converted into a vitrified glass for repository disposal) is authorized repository. This authorization is subject to the physical and statutory limits of SNF meeting repository acceptance criteria, and payment of fees. As part of its SN DOE would (1) stabilize the SNF as needed to ensure safe interim storage, (2) chara SNF inventory to assess compliance with the first repository's acceptance criteria, processing, if any, is required to meet the criteria. Decisions regarding the actu would follow appropriate review under NEPA and be subject to licensing by NRC. Thi would be implemented so as to minimize impacts on the first repository schedule.

II COMMENT

Commentors express the opinion that disposal of spent nuclear fuel would result in resources, including some of the fission products, in addition to the uranium and p DOE carefully guard and conserve these resources as well as pursue new and innovati neutralizing the dangers of spent nuclear fuel and making use of its constituents. commentors state that concentrating such resources in a particular location could c to attempt to mine them.
RESPONSE
Under the Nuclear Waste Policy Act, as amended (Section 122), disposing of SNF in a requires that the material be retrievable for recovery of economically valuable con short period of time. This requirement will be met by appropriate siting and desig repository. In accordance with EPA's environmental standard (40 CFR 191), institut provisions for safeguards and security will be implemented to address human intrusi

II COMMENT

The commentor states that DOE should stop trying to appease the public and create a or stop generating nuclear energy.
RESPONSE
Volume 1, Chapter 2 states the purpose and need for DOE action. DOE must deal in a sound manner with the SNF remaining in inventory, and with the small amounts to be programs. Neither disposal nor generation is within the scope of this EIS.

II COMMENT

The commentor states that the EIS does not adequately integrate important informati disposition (e.g. availability, cost, and acceptance criteria) with decisions on sp storage, and stabilization.
RESPONSE
General solutions for managing SNF are discussed in Volume 1, section 1.1.3 and App sections note that technologies for final SNF disposition cannot be specified in ad acceptance requirements. These requirements are several years from completion and combination of the technologies described in Volume 1, Appendix J may satisfy the e criteria. Furthermore, consideration is given by the various alternatives in both to providing or maintaining processing flexibility that may prove necessary to meet requirements. As stated in Volume 1, Chapter 2, activities related to the final di beyond the scope of this EIS.

II COMMENT

The commentor states that, because there is obviously no risk associated with any a abandon construction of the Yucca Mountain repository and retain the site for use a using existing technologies, because they have been demonstrated to be so safe.
RESPONSE

The EIS analyses indicate that the environmental impacts for all alternatives consi
Nevertheless, Congress has mandated in the Nuclear Waste Policy Act, as amended, th
geologic repository(s) for permanent disposal of SNF and high-level waste to ensure
generations are protected from the hazards of this material. Accordingly, DOE is p
characterize the Yucca Mountain site to determine if it is a suitable site for a re
repository is available, DOE will continue to store its SNF in accordance with the
ROD.

II COMMENT

Commentors state that criteria necessary for safe temporary or permanent disposal o
should be identified and the alternatives compared with them. Commentors give a li
should be addressed, including transportation risks and accidents, human health ris
pollution prevention, and cost.
RESPONSE
The ultimate disposition of SNF, including risks after disposition is beyond the sc
1, section 3.3 compares the impacts of the alternatives considered for managing SNF
topics identified by the commentor, including public health effects and risks from
transportation, and accidents. Volume 1, Chapter 5 and supporting appendices and r
discuss the potential environmental consequences and identify possible measures to
interim until disposal in the repository. Congress has mandated in the Nuclear Was
amended, that the need for a repository and all alternatives to geologic disposal f
waste need not be considered by DOE.
In following the requirements of NEPA, this EIS includes a complete description of
associated with all of the alternatives considered for SNF management. This EIS co
alternatives and, as discussed in Volume 1, section 3.3.6, DOE evaluated the cost o
alternatives. This evaluation is available to the public.
Refer to Volume 1, Chapter 1 for an overview of DOE Spent Nuclear Fuel Management a

II COMMENT

The commentor is of the opinion that spent nuclear fuel could be reprocessed at the
therefore, all spent nuclear fuel should be sent there for reprocessing.
RESPONSE
DOE considered in this programmatic EIS the potential for processing SNF for stabil
1992, DOE instituted a policy that phased out reprocessing for weapons production.
reprocessed at the Hanford Site. Because existing facilities at Hanford are not ca
many of the fuel types managed by DOE, and due to significant safety concerns of op
reprocessing facilities there, DOE has no plan to reprocess material at the Hanford
facilities.

II COMMENT

The commentor expresses an opinion that the EIS does not address the problems assoc
long-term storage of spent nuclear fuel.
RESPONSE
The potential impacts from SNF storage over a 40-year period are fully discussed in
and the Volume 1 site-specific appendices. Specific environmental consequences of
presented for all alternatives analyzed in Volume 1, section 5.1, and mitigation me
section 5.7. Further details are provided for each site in Volume 1, Appendices A
through F.
DOE has a program to safely manage and store SNF at each of the sites considered in
technological options for dealing with current and future inventories are discussed
J. In general, DOE has established a policy of designing, constructing, and operat
that meet applicable Federal, state, and local requirements and DOE Orders. All ra
managed in a manner that ensures protection of the environment, the health and safe
site employees.
Ultimate disposition of DOE SNF is a high priority. For planning purposes, DOE h

SNF managed by DOE that is not otherwise dispositioned (e.g., chemically separated, waste being converted into a vitrified glass for repository disposal) is authorized repository. This authorization is subject to the physical and statutory limits of SNF meeting repository acceptance criteria, and payment of fees. As part of its SN DOE would (1) stabilize the SNF as needed to ensure safe interim storage, (2) chara SNF inventory to assess compliance with the first repository's acceptance criteria, processing, if any, is required to meet the criteria. Decisions regarding the actu would follow appropriate review under NEPA and be subject to licensing by NRC. Thi would be implemented so as to minimize impacts on the first repository schedule.

II COMMENT

Commentors question the schedule for ultimate disposal of spent nuclear fuel with r delays in New Mexico and Nevada, and problems with the associated siting process. state that the proposed repositories are not the answer to spent nuclear fuel mana
RESPONSE
The repositories to which the commentors apparently refer are the Waste Isolation P New Mexico, for disposal of defense transuranic (TRU) wastes, and the Yucca Mountai for disposal of commercial SNF and high-level wastes. Although the ultimate dispos TRU wastes, and the perceived delays in the availability of associated facilities a EIS, the assumptions used in evaluating alternatives for interim management of SNF wastes at INEL are discussed in this EIS.
As described in Volume 2, section 2.2.7, DOE plans to transport all stored and newl waste that meets the waste acceptance criteria to WIPP. DOE's current schedule is compliance with the disposal requirements as mandated in the WIPP Land Withdrawal A (Publication 102-579) and begin waste disposal operations in 1998. Alternatives fo in the interim are described in Volume 2, section 3.1.3.
Ultimate disposition of DOE SNF is a high priority. For planning purposes, DOE h SNF managed by DOE that is not otherwise dispositioned (e.g., chemically separated, waste being converted into a vitrified glass for repository disposal) is authorized repository. This authorization is subject to the physical and statutory limits of SNF meeting repository acceptance criteria, and payment of fees. As part of its SN DOE would (1) stabilize the SNF as needed to ensure safe interim storage, (2) chara SNF inventory to assess compliance with the first repository's acceptance criteria, processing, if any, is required to meet the criteria. Decisions regarding the actu would follow appropriate review under NEPA and be subject to licensing by NRC. Thi would be implemented so as to minimize impacts on the first repository schedule.
See also the response to comment 04.01 (005).

II COMMENT

The commentor believes that long-term management of spent nuclear fuel is extremel probably beyond human capability.
RESPONSE
General technologies and practices for managing SNF are discussed in Volume 1, sect Appendix J. The EIS evaluates impacts of SNF management alternatives during the ne SNF can be disposed of in a geologic repository. For the long-term (beyond 40 year and design requirements contained in the Nuclear Regulatory Commission's regulation address issues that span geologic time to ensure safe isolation of this material. technologies for final disposition of SNF cannot be specified in advance of reposit requirements. These requirements are several years from completion and approval.
See also the responses to comments 06.05 (007) and 06.05 (010) for additional infor disposition of SNF.

II COMMENT

The commentor states that based on the overall risks of the spent nuclear fuel mana evaluated in the EIS, DOE should adopt an alternative plan that facilitates accepta

reactor fuels because the risks of doing so would be small compared with the possib
United States from the diversion of fuel abroad.
RESPONSE
The policy on acceptance of foreign research reactor fuels is not within the scope
response to comment 06.09 (013) for additional discussion.

II COMMENT

The commentor asks if there is any research going on to find a better plan for spen
than encapsulation or vitrification, which the commentor asserts have been shown in
RESPONSE
DOE, and others, are researching techniques to process SNF for disposal. Contrary
statement, encapsulation and vitrification are viable technologies for certain spen
Volume 1, Appendix J. In all Volume 1 alternatives except No Action, research woul
ensure that there will be a broad base of technologies available, including vitrifi
multipurpose canisters, for treating SNF to meet the repository acceptance criteria

II COMMENT

The commentor believes that solutions do not exist for the problems of spent nuclea
including commercial sources and low-level waste. The commentor also states that a
for dealing with these wastes is needed.
RESPONSE
General solutions for managing SNF are discussed in Volume 1, section 1.1, and tech
dealing with the current and future inventories are described in Volume 1, Appendix
program for safely managing and storing SNF at each of the sites considered in the
Environmental Management Program prepared the DOE-Owned Spent Nuclear Fuel Strategi
the safe, reliable, and efficient management of DOE SNF and its preparation for dis
available to the public. All SNF and other wastes will be managed to ensure protec
and the health and safety of the public and site employees. While DOE complex-wide
wastes is outside the scope of this EIS, the Waste Management Programmatic EIS is c
prepared to address an integrated national approach for dealing with these wastes.
Management Programmatic EIS will be issued for public comment later this year.

II COMMENT

Commentors express the opinion that DOE is avoiding making a clear choice of a path
management of spent nuclear fuel, including a decision as to ultimate disposition,
preparation of future documents to clear up the missing pieces to the "ultimate sol
that the experience exists to make a decision now. Commentors express frustration
policy has not been established, and long-range plans do not exist. Such policy an
should include the total energy picture and its associated environmental impacts, n
disposition of spent nuclear fuel and nuclear waste, and other "nuclear age" proble
solutions are favored over interim solutions. Commentors prefer the No Action alte
nuclear fuel management.
RESPONSE
This EIS addresses the interim programmatic management of DOE SNF nationwide, in ad
environmental restoration and waste management activities at INEL. Yucca Mountain
the potential site for the first geologic repository. If the site is found suitabl
commercial SNF is expected to begin in 2010. Although acceptance of DOE high-level
for 2015, the date for acceptance of DOE SNF at the repository has not been finaliz
SNF management is based on the maximum amount of time considered necessary to imple
on the ultimate disposition of DOE SNF. DOE, through this EIS, solicited public co
program needs. Regarding INEL activities, this period is indexed to both strategic
budget forecasts, as well as looking into the future as far as reasonably foreseeab
site-wide programs. The programmatic SNF 40-year period is based on the maximum am
considered necessary to make and implement decisions on the ultimate disposition of
define the criteria necessary to implement such disposition, and to have the facili

repositories) available to implement ultimate disposition. The need for such inter discussed in Volume 1, Chapter 2, and the EIS Summary in greater detail. According a reasonable range of alternatives for the safe and environmentally sound managemen as the No Action alternative required by law. The programmatic SNF portion of the and updated as necessary.
With respect to establishing an overall national nuclear or energy policy, this EIS strategy for the period required to develop and implement decisions on ultimate dis disposition of DOE SNF is a high priority. For planning purposes, DOE had determi managed by DOE that is not otherwise dispositioned (e.g., chemically separated, wit being converted into a vitrified glass for repository disposal) is authorized for d repository. This authorization is subject to the physical and statutory limits of SNF meeting repository acceptance criteria, and payment of fees. As part of its SN DOE would (1) stabilize the SNF as needed to ensure safe interim storage, (2) chara SNF inventory to assess compliance with the first repository's acceptance criteria, processing, if any, is required to meet the criteria. Decisions regarding the actu would follow appropriate review under NEPA and be subject to licensing by NRC. Thi would be implemented so as to minimize impacts on the first repository schedule.
National policy with regard to the overall management of DOE's waste is being estab preparation of the Waste Management Programmatic EIS, which is on a parallel course The site-wide management of INEL waste streams is being coordinated with the progra which will set the overall strategic approach. Commercial SNF and waste management activities are not within the scope of either this SNF or the Waste Management Prog currently being prepared. National energy policy is not within the scope of any of See the response to comment 03.05 (007) regarding alternative sources of energy. S comment 01.01.01.01 (008) regarding preference for the No Action alternative.

II COMMENT

A commentor states that the ultimate disposition of DOE spent nuclear fuel is gener situations facing nuclear power utilities in the United States and other nuclear re the commentor suggests that all spent nuclear fuel be turned over to the Internatio Agency for choice of one final repository. Other commentors suggest that an intern taken regarding spent nuclear fuel disposition or storage issues.
RESPONSE
The scope of the EIS for SNF is discussed in Volume 1, Chapters 1 and 2. These cha EIS is restricted to considering temporary storage (through 2035) and related inter managing only DOE SNF. Consequently, the location and nature of a geologic reposit commercial SNF and SNF of international origin, are not included in this EIS becaus independent actions and the subject of Presidential and Congressional policies. SN disposition is subject to the Nuclear Waste Policy Act, as amended, which restricts evaluations to the Yucca Mountain site in Nevada. No treaties or other arrangement envisioned as being feasible to combine SNF disposition efforts with those occurrin States. Nevertheless, among the technologies described in Volume 1, Appendix J are would prepare SNF for satisfying eventual repository acceptance requirements. Thes consistent with SNF disposition approaches being actively pursued or under consider countries. Also, as outlined in Appendix J, DOE maintains an awareness of internat take advantage of any technological advancements elsewhere that would be helpful in

II COMMENT

The commentor suggests that funds should not be expended on moving toxic waste unti known.
RESPONSE
DOE is committed not only to developing a Federal geologic repository for permanent and high-level waste, but to providing safe interim storage pending availability of facilities. DOE has a program for safely managing and storing radioactive material considered in the EIS. Analyzing transportation of SNF and waste materials is nece under the alternatives DOE is analyzing for providing safe interim storage and mana waste materials. The alternatives have definite purposes for relocating SNF and wa storing and/or treating similar fuel and waste types within a single secure facilit

attempt to balance transportation concerns with other worthy considerations, includ worker and public health and safety, and cost effectiveness.

II COMMENT

The commentor suggests disposing of spent nuclear fuel at sea, enclosed in a submar repository, or in outer space. Another commentor opposes disposing of spent nuclea
RESPONSE
In the late 1970s the Federal Government evaluated a full range of reasonable alter disposition of SNF and high-level waste. These alternatives included mixed geologi disposal, island disposal, and space disposal. As a result of this evaluation, doc issued in 1979 by DOE, Congress mandated in the Nuclear Waste Policy Act in 1983 an amendment that geologic repositories be developed for permanent disposal of SNF and that research and development or alternative means and technologies for permanent d continued and accelerated (section 222) and that, in particular, sub-seabed disposa progress reported periodically to Congress (section 224). DOE is proceeding with t

II COMMENT

The commentor states that to resolve the overall problem of storage of all types of should press ahead to determine where the ultimate repository of spent nuclear fuel the commentor urges DOE to complete the EIS process, and adopt the Navy's preferred Naval fuel.
RESPONSE
Volume 1, section 3.1 shows the actions that would be undertaken by DOE to the exte Navy's preferred alternative. Activities related to the management of SNF, includi development activities would be included. DOE is continuing to aggressively pursue candidate repository site at Yucca Mountain in Nevada for disposal of high-level wa Ultimate disposition of DOE SNF is a high priority. For planning purposes, DOE h SNF managed by DOE that is not otherwise dispositioned (e.g., chemically separated, waste being converted into a vitrified glass for repository disposal) is authorized repository. This authorization is subject to the total quantity of DOE SNF and hig exceeding 10 percent (by weight) of the first repository capacity limit (70,000 me DOE SNF meeting repository acceptance criteria, and payment of fees. As part of it program, DOE would (1) stabilize the SNF as needed to ensure safe interim storage, existing SNF inventory to assess compliance with the first repository's acceptance determine what processing, if any, is required to meet the criteria. Decisions reg disposition of DOE SNF would follow appropriate review under NEPA and be subject to NRC. This path forward would be implemented so as to minimize impacts on the first

II COMMENT

The commentor suggests that highly enriched spent nuclear fuel may never meet repos acceptance criteria due to criticality and safeguards concerns.
RESPONSE
DOE agrees that highly enriched SNF is an issue regarding repository disposal, in p criticality. This issue is being addressed by DOE and the Nuclear Regulatory Commi ultimately be processed to satisfy the repository acceptance criteria, Volume 1, se J of the EIS discuss the available technologies that may be needed for final dispos

II COMMENT

The commentor states that until final repository siting and its requirements are as to consider other elements of the spent nuclear fuel program.
RESPONSE
As the EIS discusses, interim management of SNF must be addressed for up to the nex

ultimate disposition. The alternatives identified and evaluated in the EIS represe reasonable alternatives for managing SNF, including the No Action alternative. The impacts of these alternatives, along with other decision factors such as cost, miss comment, will be considered in the decision-making process leading to the ROD.

II COMMENT

The commentor states that DOE's Environmental Management and Office of Civilian Rad Management should have an integrated approach to discussion of spent nuclear fuel a undertaken to define the ultimate disposal in a geologic repository. The commentor the EIS be revised to include a road map that would demonstrate a joint approach.
RESPONSE
Ultimate disposition of DOE SNF is a high priority. For planning purposes, DOE ha SNF managed by DOE that is not otherwise dispositioned (e.g., chemically separated, waste being converted into a vitrified glass for repository disposal) is authorized repository. This authorization is subject to the physical and statutory limits of SNF meeting repository acceptance criteria, and payment of fees. As part of its SN DOE would (1) stabilize the SNF as needed to ensure safe interim storage, (2) chara SNF inventory to assess compliance with the first repository's acceptance criteria, processing, if any, is required to meet the criteria. Decisions regarding the actu would follow appropriate review under NEPA and be subject to licensing by NRC. Thi would be implemented so as to minimize impacts on the first repository schedule.
As part of this path forward strategy, the Office of Environmental Management and t Radioactive Waste Management have established a working group to provide an integra identify and address technical, regulatory, and institutional issues regarding disp geologic repository. This working group has made significant progress in defining establishing work plans to address them.

II COMMENT

The commentor asks about the potential long-term radiation of DOE's waste, and supp Plan alternative for disposal of spent nuclear fuel at the Idaho National Engineeri
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small. While there are differences in the impacts among the alternatives, these di are not sufficient to distinguish between alternatives.
Volume 1, Chapter 5 summarizes the radiological impacts associated with all the alt this EIS, including using existing facilities and constructing new ones. Volume 1, the cost of alternatives. The health and safety of workers and the public has been evaluation of these alternatives and the identification of a preferred alternative. on radiological impacts and facility costs is considered adequate for evaluation an impacts of all the alternatives considered in this EIS.
Volume 1, section 3.1 describes the preferred alternative for SNF management. See comment 04.04 (008). Volume 2, section 3.4 discusses DOE's preferred alternative f environmental restoration, and waste management activities at INEL. See the respon (011).

II COMMENT

The commentor states that the repository for spent nuclear fuel will not take DOE f on managing Hanford Site materials should not be based on a mythical repository, bu assumed that it will remain at Hanford forever. The commentor also states that the Storage negotiations with Indian Tribes have not been successful.
RESPONSE
Although activities associated with licensing and opening the repositories or Monit are outside the scope of this EIS, general solutions for managing SNF in the interi this EIS and are discussed in Volume 1, section 1.1 and Appendix J of the EIS. Mo

descriptions are in the Volume 1 site-specific Appendices A through F. Therein it technologies for final SNF disposition and a geologic repository site cannot be sel repository performance requirements and waste acceptance criteria. These requireme several years from completion and approval. The repository must then be constructe could require decades to properly accomplish. Evaluating and opening disposal site materials is time consuming. Yucca Mountain is being studied as the potential site repository. If the site is found suitable, acceptance of commercial SNF is expecte Although acceptance of DOE high-level waste is planned for 2015, the date for accep the repository has not been finalized. DOE acknowledges these challenges by allowi suitable repository to become fully operational.

II COMMENT

The commentor has an opinion on the second geologic repository being used for dispo reactivity spent nuclear fuel.
RESPONSE
Under the Nuclear Waste Policy Act, as amended, DOE is not authorized to work on a and is required to report to the President and to Congress between January 2007 and need for a second repository. Concerns regarding disposal of higher-reactivity (en addressed for the first repository between DOE Office of Environmental Management a Radioactive Waste Management.

II 6.6 Interim Management

II COMMENT

The commentor states that the EIS does not evaluate reasonable, safe alternatives f storage.
RESPONSE
DOE believes that the alternatives analyzed in this EIS are reasonable and in accor Council on Environmental Quality (CEQ) requirements to consider a range of reasonab Alternatives range from the No Action alternative, required by law, to an alternati SNF at one of five sites. Alternatives dismissed are discussed in Volumes 1 and 2, believes the discussion of the basis for dismissing other possible alternatives is

II COMMENT

The commentor states that possible future contamination of the Idaho National Engin (ICPP-666) storage pool from spent nuclear fuel transferred from ICPP-603 could pro environmental impact.
RESPONSE
Volume 2, Appendix C, SNF4-1 discusses the Canning Characterization Project that co under various alternatives at ICPP to keep this situation from occurring.

II COMMENT

Commentors express opinions that the interim spent nuclear fuel management program "de facto" permanent storage sites for the nation and perhaps the world, and that t permanent storage site will be delayed. In addition, several commentors express t may not be suitable for permanent disposal of spent nuclear fuel, but because they economically weak, the storage sites will be forced on them.
RESPONSE
It is not DOE's intent to allow interim SNF storage sites to become de facto perman fact, Congress mandated that the Federal Government pursue the development of a geo

the permanent disposal of SNF and high-level waste and directed DOE to study the Yu Nevada to determine if it is suitable for this purpose. DOE currently is pursuing committed to developing facilities for permanent isolation of SNF and high-level wa availability of such disposal sites, DOE must provide for safe and environmentally management of these materials. The implementation of safe interim storage and tran disposition represents the solution that DOE seeks to define with this EIS.
This EIS objectively evaluates 10 sites as reasonable alternatives for some level o management activity, without regard to or consideration of political or economic fa the EIS include environmental considerations, socioeconomic impacts, potential risk operations and reasonably foreseeable accident conditions, and other environmental of options for management of SNF. The EIS concludes that the alternative sites are suitable for management of SNF and that there would be no significant risk to the p environment due to interim management of SNF at any of the 10 sites being considere DOE considered public comment while preparing the EIS, upon which decisions will be the EIS provides DOE with an informed basis for decisionmaking from the perspective impacts and public comment, decisions will also consider such factors as national n costs. In addition, implementation of decisions is subject to independent processe Congressional funding and environmental permitting. DOE intends, however, to devel national SNF management strategy that best serves the overall needs of the nation.

II COMMENT

The commentor asks DOE to quantify the relationship between the capacity of any new planned and DOE's total inventory of spent nuclear fuel.
RESPONSE
The storage capacity required to safely manage the existing and projected SNF inven programmatic approach selected by DOE. However, SNF storage facilities, complex-wi to provide the storage capacity required under the programmatic approach selected, availability of qualified existing storage under the specific alternative, at the s

II COMMENT

The commentor notes that the transfer of fuels from Idaho Chemical Processing Plant 603) to the newer storage pool in ICPP-666 is not assessed in the EIS.
RESPONSE
As discussed in Volume 2, Chapter 3, phasing out wet storage in ICPP-603 and movin is part of the No Action, Ten-Year Plan, and Maximum Treatment, Storage, and Dispo The impacts of moving this fuel have been assessed as a part of the overall impacts described in Volume 2, section 5.1.

II COMMENT

The commentor notes that the EIS does not discuss the Test Area North Dry Cask Stor Appendix B, section 3.1.1.3, where it would be expected. The commentor states that the spent nuclear fuel to the Idaho Chemical Processing Plant, it could be stored o Test Area North with less transportation, less handling, and less attendant risk. states alternatives to moving spent nuclear fuel from Test Area North to Idaho Chem should be evaluated in the EIS.
RESPONSE
The Test Area North Dry Cask Storage Project is proceeding as an interim action. V discusses two projects related to the use of Test Area North: (1) dry fuel storage canning, characterization and shipping; and (2) Test Area North pool fuel transfer. Volume 2, section 2.2 states that as part of the vulnerability corrective action pl SNF management activity from Test Area North to a more central location.

II COMMENT

The commentor states that relocation of spent nuclear fuel will only enlarge the ar that will later have to be restored, because both the old storage area from which t be moved and the a new area to which it will be moved will both have to be restored
RESPONSE
Volume 1, section 1.3 discusses safe and environmentally sound management of SNF un regarding its ultimate disposition are made and implemented. Storage options at ea other storage options are analyzed. The analysis of the storage options of each al estimated type and size of a representative storage facility potentially needed at DOE believes that relocation of some SNF could be a beneficial management strategy. would be designed both for safe storage and for more effective restoration when the Removing SNF from older facilities in the near term could serve to reduce future en problems and allow restoration activities to begin.

II COMMENT

The commentor notes that the EIS states: "DOE has scheduled the installation and o characterization and canning equipment in the Irradiated Fuel Storage Facility befo Decision (1995)." According to Westinghouse Idaho Nuclear Company, the earliest su operating is early to mid-1996, and the location has not been determined.
RESPONSE
Installation of new fuel characterization and canning equipment in the Irradiated F now tentatively scheduled for early 1996. The text of the EIS has been revised to schedule.

II COMMENT

The commentor notes that DOE sites predominantly use wet storage, and only limited experience exits within DOE. The commentor recommends that DOE consider commercial wherever possible to increase regulator and public acceptance, and reduce schedule
RESPONSE
Current and projected DOE SNF inventories are considered in this EIS. Existing sto identified, and their status, capacities, and accident histories are described. SN integrity, corrosion and corrosion byproducts, storage technologies, and storage fa factored into the EIS analysis for each alternative. Storage options at the site o storage options are analyzed. The analysis of the storage options for each alterna estimated type and size of representative storage facilities potentially needed at experience is considered whenever possible to increase public acceptance and reduce

II 6.7 Cost

II COMMENT

Commentors want cost evaluation to be part of this EIS.
RESPONSE
Volume 1, section 3.3.6 summarizes the costs for implementing actions under each al a discussion of the cost evaluation has been prepared for use by decisionmakers F cost evaluation considers capital costs for upgrades, operations, maintenance, deco decommissioning, and transportation. The evaluation also addresses additional syst disposition.

II COMMENT

The commentor expresses the opinion that a spent nuclear fuel management facility (

receipt, inspection, processing, and temporary storage) would be less costly if bui fuel final storage repository, and that the cost of such a facility would be lower than in the future.
RESPONSE
The commentor may be correct in asserting that economies of scale and transportatio help lower the eventual cost of a centralized SNF management facility located near repository. It is also true that inflation causes cost escalations for facilities now. DOE considered these issues when it identified the preferred alternative.

II COMMENT

The commentor indicates that the costs of handling and storing DOE spent nuclear fu higher than equivalent costs for commercial fuel and asks whether characterization needed and whether overseas processing of spent nuclear fuel might be more cost eff
RESPONSE
Volume 1, section 3.3.6 summarizes the cost for implementing actions under each alt alternative, the cost evaluation considers capital costs for upgrades, operation, m decontamination, decommissioning, and transportation. The evaluation also addresse costs, including disposition. This is adequate for evaluating and comparing the al this programmatic EIS. Volume 1, section 3.1 discusses the requirements for charac under all of the alternatives discussed in this EIS. Volume 1, section 3.2 has bee evaluate overseas processing of SNF.

II COMMENT

The commentor states that the cost of removing and mitigating environmental hazards nuclear fuel will increase in the future, so decisions need to be made soon.
RESPONSE
The commentor may be correct in assuming that costs may increase over time. Volume the EIS summarizes the costs of managing SNF. The ROD for this EIS will be issued

II COMMENT

The commentor asks that cost considerations be weighed against radiological impact using existing facilities could lower costs.
RESPONSE
Volume 1, Chapter 5 summarizes the radiological impacts associated with all the alt this EIS, including using existing facilities and constructing new ones. Volume 1, the cost for implementing actions under each alternative. The health and safety of has been considered in the evaluation of these alternatives and the identification The information provided on radiological impacts and facility costs is considered a and comparing the impacts of all the alternatives considered in this EIS.

II COMMENT

Commentors state that the cost of the corrective action plans for the problems iden Working Group Report are underestimated and should have been included in this EIS.
RESPONSE
A summary of specific corrective actions to address the SNF vulnerabilities at INEL Fuel Working Group Report on Inventory and Storage of the Department's Spent Nuclea Other Reactor Irradiated Nuclear Materials and Their Environmental, Safety and Heal Vulnerabilities at INEL are listed in Volume 2, Table 2.2-1. Many of the correcti under way or have been completed. Those activities for which NEPA review was compl ROD for this EIS was issued are analyzed under the No Action alternative. Although require an analysis of the costs of implementing alternatives in an EIS, DOE prepar all alternatives that includes the SNF facilities; the results are summarized in Vo

II COMMENT

The commentor states that "moving nuclear waste around from 'interim site' to 'inte and extremely expensive." The commentor also states that funds would be put to bet and organizing individual sites and developing a program to eliminate waste."
RESPONSE
DOE evaluated the transportation impacts of shipping SNF; the results are presented Appendix I, and Volume 2, section 5.11. DOE's cost evaluation of the proposed alte in Volume 1, section 3.3.6, shows that transportation costs do not differ among alt Transportation of the entire DOE inventory between widely dispersed sites was analy reasonable range of alternatives and associated impacts for decisionmakers to consi show that the impacts of all the alternatives considered in this programmatic EIS w

II COMMENT

Commentors state that the cost information presented is not truthful and that the c stated.
RESPONSE
Volume 1, section 3.3.6 summarizes the cost for implementing actions under each alt a reference to the cost evaluation has been added to the EIS. DOE has provided a s information in these documents to allow independent evaluation of the costs.

II COMMENT

The commentor believes that the Federal Government should have to pay a tariff to l house spent fuel.
RESPONSE
The government provides support to communities that have Federal facilities and pro creation of jobs and other associated benefits. Payments to areas willing to accep determined by Congress or the President and are outside of the scope of this EIS.

II COMMENT

The commentor raises issues regarding the costs and scheduling of alternatives bein EIS.
RESPONSE
While cost and schedule issues will be considered in the decisions facilitated by t administrative issues that are beyond the scope of this EIS. DOE prepared a cost r the cost of each of the alternatives under consideration in this EIS. This report section 3.3.6 and is available to the public.

II COMMENT

The commentor states that the "massive" cost estimates for ICPP-666 and dry spent n "lead us to wonder whether the scale of these projects might be a Trojan horse" to additional spent nuclear fuel and other nuclear materials.
RESPONSE
Decisions for storing other nuclear materials will be decided through other NEPA do those discussed in Volume 1, section 1.2. Facility costs are based on compliance w requirements, as identified in DOE Order 6430.1A, General Design Criteria. The siz facilities vary by alternative and the proposed amount of SNF to be stored.

II COMMENT

The commentor states that the cost of each proposed alternative and assumptions sho public and included in the EIS.
RESPONSE
While cost and scheduling issues will be considered in the decisions facilitated by administrative issues that lie beyond the scope of the EIS itself. DOE prepared a estimates the cost of each of the alternatives under considerations in this EIS. T Volume 1, section 3.3.6 and is available to the public.

II 6.8 Commercial Spent Nuclear Fuel

II COMMENT

The commentor requests that DOE accept greater-than-Class-C sealed sources from com power plants, and that the EIS be expanded to include acceptance of commercial powe high-level waste.
RESPONSE
Volume 2, section 3.1 discusses acceptance of greater-than-Class C sealed sources f for all of the alternatives analyzed except the Maximum Treatment, Storage, and Dis discussed in Volume 1, Chapter 1 and the Implementation Plan, this EIS does not add power plant SNF or high-level waste, which are the subjects of the Nuclear Waste Po

II COMMENT

The commentor raises issues regarding commercial spent nuclear fuel, particularly w compensating communities for storage as is being discussed with tribal governments nuclear fuel monitored retrievable storage.
RESPONSE
This EIS pertains to the programmatic management of DOE SNF. Issues regarding SNF cognizance of commercial power utilities are beyond the scope of this EIS. Compens of negotiations between the former Nuclear Waste Negotiator and various entities to SNF monitored retrievable storage facility is likewise beyond the scope of this EIS

II COMMENT

The commentor states that the Project Summary for Fort St. Vrain spent fuel shipmen corrections.
RESPONSE
The Fort St. Vrain Project Summary has been corrected.

II COMMENT

The commentor states that there may be a relationship between DOE spent nuclear fue spent nuclear fuel.
RESPONSE
Except for a very few special-case situations as described in Volume 1, section 1.1 discuss SNF from commercial power nuclear reactors. Volume 1, Chapter 2 states tha must be made to establish an effective program for DOE SNF are a) where to conduct activities, b) the appropriate facilities, capabilities and technologies for SNF ma research and development activities to support the SNF management program.
See also the response to comment 04.01 (001).

II COMMENT

The commentor notes that the EIS fails to fully consider that the remaining useful the Fort Ft. Vrain fuel is to be stored will be exceeded by 2015, well before a rep ready for this fuel.
RESPONSE
In Volume 2, Chapter 3, DOE proposes a dry storage facility in each of the alternat Vrain SNF would be received. Yucca Mountain is being studied as the potential site repository. If the site is found suitable, acceptance of commercial SNF is expecte Although acceptance of DOE high-level waste is planned for 2015, the date for accep the repository has not been finalized. DOE considered that the design life of the before a repository is ready. In the event that engineering studies cannot justify existing facility, Fort St. Vrain SNF would be moved to the new dry storage facilit

II COMMENT

The commentor urges DOE to consider all contractual obligations to accept spent nuc refers specifically to Fort St. Vrain fuel.
RESPONSE
DOE considered its contractual obligation to accept specific fuels in its identific alternative for programmatic SNF management.

II COMMENT

The commentor states that DOE is responsible for accepting spent nuclear fuel and h commercial power reactors, referring to commercial spent nuclear fuel that DOE is o after 1998.
RESPONSE
As described in Volume 1, Chapter 1, this EIS focuses on DOE SNF from production, r development reactors, Naval reactors, university and foreign research reactors, and generators. Management of commercial SNF is beyond the scope of this EIS. DOE's r respect to commercial SNF is within DOE's Office of Civilian Radioactive Waste Mana

II COMMENT

The commentor states that, with respect to the No Action alternative, Public Servic would not be able to transport the remaining spent nuclear fuel from the Fort St. V the facility for unrestricted use.
RESPONSE
DOE recognizes that this would be a consequence of the No Action alternative. This in DOE's identification of a preferred alternative for SNF management.

II 6.9 Miscellaneous

II COMMENT

The commentor states that the EIS should also include plans for dealing with errors provide compensation for damages for those locations that accept spent nuclear fuel
RESPONSE
Potential accidents and the impacts associated with these accidents are generally d section 5.1, and treated in more detail in Volume 1, Appendices A through F. DOE i for dealing with errors in its planning for new facilities and activities, as well

facilities and activities. An in-depth analysis of the impacts of operations and p provided for SNF management operations in Volume 1, Appendices A though F, and for and remediation activities in Volume 2. The analyses include potential hazards and possible methods, measures, or controls to be employed to minimize them. The analy risk from SNF management operations is small.
DOE will use the statutory indemnity contemplated by the Price-Anderson Act (42 USC ready and prompt availability of funds to compensate the public for injuries and da nuclear incident arising from activities conducted by indemnified DOE contractors. provided under the Act would cover nuclear incidents at INEL as well as nuclear inc transport of material to and from the site.
Although the Price-Anderson Act is the primary means for compensating the public fo nuclear incidents, other remedies exist for claims not falling within the purview o claims against DOE or its employees may be cognizable under the Federal Tort Claims environmental damage may fall within CERCLA. These and other laws afford an injure mechanisms for seeking recovery for damages related to operation of DOE facilities.

II COMMENT

The commentor states that spent nuclear fuel does not require treatment prior to di proposing treatment facilities only so that it can remain in the weapons production
RESPONSE
Volume 1, section 1.1.3 discusses technologies for managing SNF, and more details o technologies are provided in Volume 1, Appendix J. Therein it is acknowledged that require treatment prior to disposal in a repository. However, there are many diffe widely differing characteristics, which may make treatment necessary. At this time acceptance criteria have not been defined; therefore, the fuels that might require determined at present. Processing is being considered to provide the chemical or m needed for ultimate disposition or to meet limits on size or amount of fissile mate containers.
Many of the SNF treatment technologies being studied do not require separation of u and thus would not be related to the weapons production business. As discussed in Volume 1, Chapter 1, DOE made a policy decision in 1992 that reprocessing of SNF fo production would be phased out. That policy is still in effect.

II COMMENT

The commentor expresses the opinion that if people are unhappy with the current sit spent nuclear fuel, they should participate in solving the problem, rather than com
RESPONSE
Through the public scoping process and the public comment period on the Draft EIS, organizations have participated in developing solutions to the SNF problem.

II COMMENT

The commentor states that the inset entitled "What is Spent Nuclear Fuel?" in the S inadequate and 'harmless' as far as the lay public is concerned."
RESPONSE
This insert was provided to clarify the definition of SNF for the public. It has b accomplish that.

II COMMENT

Commentors request that DOE address spent nuclear fuel management program prioritie of funding and other limitations. commentors also request that the public be allow priorities.
RESPONSE

The Spent Fuel Working Group Report on Inventory and Storage of the Department's Sp Fuel and Other Reactor Irradiated Nuclear Materials and Their Environmental, Safety Vulnerabilities and associated action plans address some of DOE's immediate SNF man The Phase I Action Plan was issued in February 1994, the Phase II Action Plan in Ap Phase III Action Plan in October 1994. These action plans currently are being impl Additionally, DOE has issued the DOE-Owned Spent Nuclear Fuel Strategic Plan. This the issues associated with the management of SNF and its preparation for disposal. the reading rooms and information locations listed in the EIS.

II COMMENT

The commentor expresses the opinion that disposal of spent nuclear fuel in a reposi concentration of valuable resources at a particular site and that it would attract who would want to mine the resources.
RESPONSE
The ultimate disposition of SNF is not within the scope of this EIS. This EIS cons until the decisions on ultimate disposition are made. The process that will decide disposition will consider the resource value of SNF and its constituents, along wit and security concerns, including human intrusion.

II COMMENT

The commentor, although supportive of options that would help solve the plutonium (uranium) waste problem, feels the Isaiah Project is not an appropriate option.
RESPONSE
The Isaiah Project has been proposed to consume excess plutonium as a mixed-oxide f power-production reactors (specifically within the Washington Public Power Supply S projects concern the management of existing special nuclear material, not SNF (whic reprocessed to yield recycled fissile material). The Isaiah Project is not include considered in this EIS and its adoption or rejection would not change the need to s management. Future management of the current inventory of special nuclear material the forthcoming EIS for Storage and Disposition of Weapons-Usable Fissile Material. that EIS was recently announced in Volume 59 of the Federal Register, pages 31985 t

II COMMENT

The commentor questions why the EIS frequently mentions reprocessing activities and that none of the fuel brought to the Idaho National Engineering Laboratory has been
RESPONSE
The commentor seems to be referring to Fort St. Vrain SNF. While there has been su of some SNF at INEL over its 40-year history, no Fort St. Vrain SNF has been reproc processing facilities at INEL do not have the capability to reprocess graphite matr used at Fort St. Vrain.

II COMMENT

The commentor asserts that the illustration of a fuel rod and a fuel assembly in th Nuclear Fuel is not representative of the vast majority of spent nuclear fuel mana Navy. Additionally, the commentor states that the other illustrations and descript in the EIS summaries do not include descriptions of many fuels, including Navy fuel TRIGA fuels.
RESPONSE
The illustrations and descriptions in the fact sheet and the EIS summaries were cho they help provide a basic understanding of the typical components of SNF. DOE is n provide detailed descriptions of the numerous SNF types in this EIS; rather, DOE is considerations, such as cladding type and condition, that are germane to a general

management.

II COMMENT

The commentor asks DOE to responsibly manage the radioactive materials (including r and spent nuclear fuel) that DOE helped to create and wants to give DOE 2 years to strides in decontamination, stabilizing, and managing radioactive wastes, or replac
RESPONSE
DOE acknowledges its responsibility for safe management of radioactive materials, i radioactive wastes. DOE is committed to comply with all applicable Federal and sta regulations, DOE Orders, and interagency agreements governing SNF and radioactive a wastes. According to Volume 2, Chapter 2, two programmatic EISs are being prepared level regarding DOE's SNF Program (Volume 1) and DOE's Environmental Restoration an Management Program (a separate forthcoming document). Additionally, DOE prepared a Spent Nuclear Fuel Strategic Plan for the safe, reliable, and efficient management preparation for disposal. This plan is available to the public.
For more discussion on DOE's legal authority and responsibility for managing radioa response to comment 03.04 (010).

II COMMENT

The commentor states that receipt of spent nuclear fuel from foreign research react existing storage capacities at the Norfolk Naval Shipyard.
RESPONSE
Volume 1, section 4.6 of the EIS states that the Norfolk Naval Shipyard is being co temporary storage of Naval SNF, not SNF from DOE facilities or international source Virginia, is a potential port of entry being analyzed in the forthcoming EIS on the Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear F

II COMMENT

One commentor favors keeping foreign spent nuclear fuel out of the United States. need, cost, motive, legality, or reasons behind such returns, especially given the SNF overseas. Another commentor states that this EIS should address what happens b on our shores.
RESPONSE
Alternatives related to the acceptance of FRR SNF of United States origin, includin analyzed in a separate EIS. This EIS does analyze the impacts of domestic transpor of FRR SNF, which represents less than 1 percent of all SNF addressed in this EIS, return such fuel be made. The environmental impact analyses are designed to produc projection of the upper bound for potential environmental consequences. This requi appropriately conservative assumptions and analytical approaches. In this context, that an assumption or analysis would tend to overpredict, rather than underpredict, However, overly conservative analyses do not provide a useful basis for comparing a not make a final decision on the acceptance of FRR SNF until the EIS on a Proposed Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel and completed.
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small.

II COMMENT

The commentor discusses the need for cleanup at other sites, including non-DOE site consideration of alternatives that gauge environmental and accidental risks. It wa should address these problems. The commentor states that DOE has willfully and ill

request the funding necessary to cease discharges and implement best available trea cooling to meet the deadlines in the Hanford Cleanup Agreement. The commentor stat lack of confidence for the storage of any additional fuels at Hanford.
RESPONSE
Cleanup at sites other than INEL is not within the scope of this EIS, which address management of SNF at all sites (Volume 1), and limited to cleanup and waste managem INEL (Volume 2). However, the Secretary of Energy has publicly affirmed that curre practice emphasizes safety and environmental considerations above other program goa closely with EPA to remediate and eliminate adverse environmental impacts from past significant potential environmental impacts have been identified for any of the alt EIS for SNF management.

II COMMENT

The commentor states that at a public meeting unrelated to the EIS, the commentor's nuclear waste was ignored. The commentor also states that the current administrati policy.
RESPONSE
This EIS pertains to the programmatic SNF management and SNF management, environmen and waste management at INEL. SNF reprocessing to recover uranium and plutonium fo is being phased out as a matter of national policy. As discussed in Volume 1, sect processing is being evaluated for certain types of SNF for the purpose of stabilizi recovering, fissile materials, which would not eliminate the need for storage and e nuclear policy of this administration is outside the scope of this EIS.

II COMMENT

The commentor expresses opinions regarding storage or disposition of fissile materi material if foreign research reactor and spent nuclear fuel are reprocessed in Euro
RESPONSE
These concerns relate to the management of special nuclear material, not DOE SNF, being reprocessed to recycle fissile material. Future management of the current in nuclear material will be addressed in the forthcoming EIS for the Storage and Dispo Weapons-Usable Fissile Material, as described in Volume 1, section 1.2.3. See also comment 06.09 (013).

II COMMENT

The commentor expresses an opinion that areas of little or no population and/or are resources are best suited for the management of spent nuclear fuel. The commentor select the safest site for the management of spent nuclear fuel.
RESPONSE
Although SNF management activities can safely coincide with high population or othe risks can be higher in such areas. However, public perceptions of risk from DOE an tend to significantly exceed the risks as presented in this EIS.
The EIS evaluates 10 sites as reasonable alternative sites for some level of SNF ma in the EIS includes a number of factors, including the risk to the public from oper foreseeable accident conditions. Discussions on public health and safety can be fo Public Health and Safety sections in Volume 1 (and its associated site-specific app and in the Health and Safety section in Volume 2. The EIS concludes that the conse and the environment due to SNF management activities at any of the 10 sites under c small. DOE tries to avoid high-population areas to the extent practicable.

II COMMENT

The commentor raises questions regarding management of special nuclear materials an

generated by spent nuclear fuel processing, specifically the Actinide Recycle Demon questions details of the Actinide Recycle Demonstration Project. The commentor req that the EIS provide additional information on projects or facilities that are in p
RESPONSE
The Electrometallurgical Process Demonstration Project (formerly the Actinide Recyc Project) is discussed in Volume 2, section 3.1.1, where SNF activities under the va discussed. More detailed information is in Volume 2, Appendix C, section SNF8. Th demonstration are to investigate electrochemical processing of SNF, to produce a wa potentially suitable for a geologic repository, and to quantify volumetric reductio demonstration would produce high-level radioactive waste containing fission product be processed. Mixed wastes also would emerge because of electrorefiner operation i plus sodium contaminants in the SNF to be used for this demonstration.
Management of special nuclear materials such as highly enriched uranium is being co EIS and is outside the scope of this EIS. Specific information is not available fo been constructed or activities that have not been conducted to acquire a valid base have been included in the EIS as placeholders to present readers with as comprehens forthcoming projects as is currently possible. These projects or facilities may r documentation. At such time, accurate information on secondary waste generation wi assessment of impacts on waste management.

II COMMENT

The commentor states that the period of interim storage addressed in this EIS shoul repository availability, and that consideration should be given to recycling rather
RESPONSE
Decisions as to the ultimate disposition of SNF have not been made, and are outside Ultimate disposition of DOE SNF is a high priority. For planning purposes, DOE ha SNF managed by DOE that is not otherwise dispositioned (e.g., chemically separated, waste being converted into a vitrified glass for repository disposal) is authorized repository. This authorization is subject to the physical and statutory limits of SNF meeting repository acceptance criteria, and payment of fees. As part of its SN DOE would (1) stabilize the SNF as needed to ensure safe interim storage, (2) chara SNF inventory to assess compliance with the first repository's acceptance criteria, processing, if any, is required to meet the criteria. Decisions regarding the actu would follow appropriate review under NEPA and be subject to
licensing by NRC. This path forward would be implemented so as to minimize impacts repository schedule.
The 40-year period of interim management proposed in this EIS is designed to bound on ultimate disposition to be made and necessary facilities, such as a potential re implementation. Yucca Mountain is being studied as a suitable geologic repository. suitable, acceptance of commercial SNF is expected to begin in 2010. Although acce high-level waste is planned for 2015, the date for acceptance of DOE SNF at the rep finalized.
The current policy of DOE precludes the reprocessing of SNF to recover fissile mate policies are subject to periodic review, a need for the recovery or recycling of su currently foreseen.

II COMMENT

The commentor believes that nonfinancial costs of spent nuclear fuel management, to resources, and people, should be included in DOE's decision.
RESPONSE
DOE interprets the nonfinancial costs identified by the commentor to mean impacts t Volumes 1 and 2, Chapter 5 summarize the environmental impacts for all of the alter this EIS. The impacts for all of the alternatives would be small.

II COMMENT

Commentors express opinions about the history of spent nuclear fuel mismanagement.
RESPONSE
The condition of SNF management facilities is the result of a number of factors. R factors, it was recognized that the condition of these facilities cast doubt on the manage SNF. Therefore, DOE prepared a report commissioned by the Secretary of Ener vulnerabilities of the current program and has been directed by the Secretary to de long-term SNF program. The SNF vulnerability assessment and associated action pla identified vulnerabilities are identified in the EIS in Volume 1, section 1.1.2 and 2, section 2.5.2. Additional site-specific information is in Volume 1, Appendices Environmental consequences of SNF management for all alternatives are discussed in 5.1, and mitigation measures are discussed in section 5.7. For all alternatives an be small.

II COMMENT

The commentor indicates that information on the Fort St. Vrain site was incorrect a data.
RESPONSE
These data have been incorporated into Volume 1, section 4.7.3, and Volume 1, Appen section 3.3.2.

II COMMENT

The commentor suggests minor text revisions to the Fort St. Vrain project summary i Volume 2.
RESPONSE
The EIS has been changed to reflect the commentor's recommendation for text changes summary.

II COMMENT

The commentor notes that Volume 1, Appendix A, section 2.1.4 fails to mention the B Company and states the opinion that privatization of certain activities may bring a key roles.
RESPONSE
The following sentence was added to the end of Volume 1, Appendix A, section 2.1.4: Bechtel Hanford Company and a team of subcontractors became DOE's environmental res contractor at the Hanford Site." Future contractor arrangements at the Hanford Si of this EIS.

II COMMENT

The commentor states that the EIS does not solve the current Idaho National Enginee nuclear fuel problems, let alone the ones that will be there in 40 years.
RESPONSE
Volume 1, Chapter 1 discusses DOE's plan to develop an integrated, long-term SNF pr discussion also points out a number of reasons why DOE cannot make all decisions re management for the next 40 years at this time. These reasons include (a) lack of c the interim storage behavior of certain types of SNF and (b) lack of acceptance cri disposition. Volume 1, Appendix J identifies a number of activities currently unde management path and proceed toward ultimate disposition. This EIS is one step in t ultimate disposition.
This EIS is not a decision-making document; rather, it is a tool designed to aid th by evaluating the environmental consequences of proposed actions and their alternat

is used by decisionmakers in conjunction with other information, such as costs and course of action.

II COMMENT

Commentors request information on the relative merits of wet storage versus dry sto fuel. Commentors state that the EIS does not distinguish the consequences of repro wet storage. Information is also requested on spent nuclear fuel types, costs and short-term activities to fix storage problems, storage facility design, and work-fo commentors question why the two storage types are not split into two alternatives.
RESPONSE
Volume 1, Chapters 1, 4, and 5 and Appendix J, and Volume 2, Chapters 2 and 4 and A the requested information. Volume 1, section 3.3 summarizes the Spent Fuel Managem Evaluation Plan. Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summa environmental impacts of all the alternatives considered in this EIS. The analyses all alternatives would be small.

II COMMENT

The commentor expresses a general opinion that engineering has its limitations and account consequences and that the consequences of that engineering bring about and burden on the whole society to solve those problems.
RESPONSE
The commentor's opinion regarding engineering and its perceived limitations is note

II COMMENT

The commentor wants to keep spent nuclear fuel where it is until "we come up with s
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small. While there are differences in the impacts among the alternatives, these di are not sufficient to distinguish between alternatives. Volume 1, section 3.1 desc alternative for programmatic SNF management.
See also the response to comment 04.04 (008).

II COMMENT

The commentor objects to reactor irradiated nuclear material continuing to be gener serious health effects.
RESPONSE
Eliminating all current and future generation of DOE SNF would not significantly di storage, and final disposition challenges DOE faces. Inventories of DOE SNF are ad section 1.1. Approximately 86 percent of the current inventory originated in DOE w reactors that have ceased to operate. Another 8 percent was generated in DOE exper of which have been shut down. According to Volume 1, Table 1-1, the additional SNF over the next 40 years (until 2035) will amount to only a 3-percent increase in the Eliminating sources of DOE SNF altogether would require halting nuclear Navy operat research at universities, which is not within the control of DOE and is outside the

II COMMENT

The commentor asks how DOE will correct storage problems and what new designs have handling and storing spent nuclear fuel. Furthermore, the commentor is of the opin

not address the broad issues of permanent storage and availability of mature techno
RESPONSE
The potential impacts of storing radioactive materials associated with SNF are disc
Chapter 5. Environmental consequences of SNF management are presented for all alte
1, section 5.1, and mitigation measures are discussed in section 5.7.
Problems at existing storage facilities have been identified in Spent Fuel Working
Inventory and Storage of the Department's Spent Nuclear Fuel and Other Reactor Irra
Materials and Their Environmental, Safety and Health Vulnerabilities. This report,
the SNF vulnerability assessment, and associated action plans to resolve identified
acknowledged in Volume 1, section 1.1.2 and Appendix J-2. Additional site-specific
presented in Volume 1, Appendices A through F.
At INEL, there is an ongoing dry storage demonstration project to gain information
using commercial dry storage casks for DOE fuels. Dry storage is addressed in Volu
Appendix J.
Volumes 1 and 2, and Appendix D discuss the impacts of waste management on INEL and
management. These impacts would be small under all alternatives considered in the
that the transfer of SNF at INEL from potentially unsafe storage to a newer storage
interim action that can be conducted prior to completion of this EIS. Depending on
in the ROD for this EIS, various projects are proposed for interim storage and trea
later decision on ultimate disposition. DOE will implement the reflected projects,
Appendix C, to address the deficiencies with current storage. The proposed project
existing underwater storage facilities to more effectively use their capacities, co
storage facilities for longer-term storage, and processing facilities to treat and
interim storage. Commercial experience is considered whenever possible to increase
reduce costs and schedules. The alternatives analyzed attempt to balance considera
existing facilities, minimizing transportation, consolidating similar fuels, and ot

II COMMENT

The commentor states that DOE fails to explain how spent nuclear fuel should be pro
disposed of.
RESPONSE
Volume 1, section 3.1 describes the preferred alternative for programmatic SNF mana
Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environmental impac
alternatives considered in this EIS. The analyses show that the impacts of all alt
Volume 1, Appendix B, Chapter 2, specifically discusses INEL's program objectives.
See also the response to comment 04.04 (008).

II COMMENT

The commentor states that the EIS fails to take an integrated approach to addressin
involved in handling and storing spent nuclear fuel.
RESPONSE
Volume 1, Chapter 1 discusses DOE's plan to develop an integrated, long-term SNF pr
Appendix J identifies a number of activities currently under way to define a manage
toward ultimate disposition. DOE's Plan of Action to Resolve Spent Nuclear Fuel Vu
identified in the Spent Fuel Working Group Report on Inventory and Storage of the D
Nuclear Fuel and Other Reactor Irradiated Nuclear Materials and Their Environmental
Health Vulnerabilities identified this EIS as a vehicle to address the lack of a pa
disposition of SNF. In addition, this EIS focuses on a programmatic approach to SN
Site-specific SNF management issues will be addressed by additional NEPA reviews ti

II COMMENT

The commentor requests that more details and options be provided in the EIS concern
alternatives, storage facility design, types of processing, improved long-term stor
nuclear fuel disposition. The commentor states that many of these same concerns we
scoping meetings and have not been adequately addressed, including minimization of

transportation.
RESPONSE
The EIS has been augmented to include the estimated range of costs for each of the alternatives. The technological options for interim storage, transportation, sta are discussed in Volume 1, Appendix J. Evaluation of specific designs and technolo required at the programmatic NEPA level and will be analyzed in follow-on site-spec documents. DOE received approximately 1,900 comments during on the EIS scoping pro attempted to respond to all the public concerns; however, the ultimate disposition specifically addressed in this EIS due to unknown future requirements for geologic criteria, which in turn affect stabilization and treatment strategies. The range o DOE believes may be required for stabilization, treatment, or preparation for ultim discussed in Volume 1, Appendix J. Minimization of transportation is a DOE goal co efficient operations.

II COMMENT

The commentor states that the EIS should evaluate the best storage form, processing other technical considerations required for long-term management of spent nuclear f
RESPONSE
Volume 1 of the EIS is programmatic in nature and addresses the major management de the groundwork for the more specific technical decisions that the commentor believe such as the best storage form and processing requirements for specific fuel types. discusses the current SNF management problem and the need for action in Volume 1, C Technical considerations and solutions to the management problems are addressed in J, including storage options, containers, and processing options.

II COMMENT

The commentor states that storage is not the optimum strategy for spent nuclear fue commentor also states that plutonium is too readily available for making weapons an degraded as rapidly as possible while maintaining the safety of the environment and other valuable constituents.
RESPONSE
This EIS does not consider ultimate disposition of SNF; rather it considers interim decisions on ultimate disposition of special nuclear material are made. The proces manner of ultimate disposition, which is the subject of another EIS, will consider SNF and its constituents, as well as the necessary safeguards against diversion of production. DOE has a program for safely managing and storing SNF and other radioa each of the sites considered in the EIS. DOE will manage SNF in accordance with ap state, and local requirements and regulations and DOE Orders in a manner that prote and the health and safety of the public and site employees.

II COMMENT

The commentor requests that specific corrections or specific additional information management options for the fuel elements at the Veterans Administration Medical Cen Nebraska, be included in the EIS.
RESPONSE
As described in footnotes to Volume 1, Appendix E, Table 2.1-3, the Veterans Admini Center in Omaha, Nebraska, is a Category 2 Facility that does not routinely generat expected to be generated by this facility during the period covered by this EIS. V Table 1-2 has been deleted from the EIS because it duplicated Volume 1, Appendix E,

II COMMENT

The commentor states that Volume 1, Appendix J does not appear to recognize the com

when spent nuclear fuel is damaged, and that oxidation products on the outside of f facility contamination during canning. The commentor states that the EIS should be this omission.
RESPONSE
The section of Volume 1, Appendix J to which the commentor refers is intended to pr the reader of the technology options that are available to DOE for use in preparing Technologies would be evaluated for appropriateness for specific fuels prior to use identify potential problems and appropriate mitigation measures. The potential for contaminated fuels is routinely considered in DOE's evaluations of technologies for conditioning of SNF.

06.09 (050) Miscellaneous

COMMENT
The commentor states that the Project Summary on Fort St. Vrain spent fuel shipment previously prepared environmental assessment that may not be relevant.
RESPONSE
The EIS has been corrected in response to this comment.

06.09 (051) Miscellaneous

COMMENT
The commentor expresses the opinion that the storage of spent nuclear fuel has adve Americans and will next destroy the institution of the American family farm.
RESPONSE
Volume 1, Chapter 5 and Appendix K, and Volume 2, Chapter 5 summarize the environme all the alternatives considered in this EIS. The analyses show that the impacts of small.

06.09 (052) Miscellaneous

COMMENT
The commentor notes that in Volume 1, section 4.6.5 the effective dose equivalent i year, but in Appendix D, effective dose equivalent values are provided in millirem commentor suggests that units be consistent throughout the document.
RESPONSE
The EIS has been revised to ensure uniformity in units throughout the document.

06.09 (053) Miscellaneous

COMMENT
The commentor wants to ensure that mitigation is an integral part of planning and s should consider avoidance, minimization, rectification, and compensation.
RESPONSE
If necessary, a mitigation action plan will be prepared for this EIS in accordance at 10 CFR 1021. All necessary mitigation is generally noted in this EIS. Volume 1 mitigation measures relative to environmental impacts.