7. INEL ER&WM PROGRAMS SPECIFIC

07 (001) INEL ER&WM Programs Specific

COMMENT
Many commentors state that the discussion about environmental restoration activitie Engineering Laboratory lacks substance and that no specific projects are discussed. express the opinion that there is a need for more progress on environmental restora DOE sites in particular, contaminated sites at the Idaho National Engineering Labor cleanup of the Snake River Plain aquifer, and on resolution of spent nuclear fuel m Idaho National Engineering Laboratory.
RESPONSE
The environmental restoration program at the Idaho National Engineering Laboratory in Volume 2, sections 2.2.6 and 7.2.5 of the EIS. Volume 2, Table 3.1-3 lists the restoration projects that would be completed under each alternative. Details regar projects are not available at this time. However, summaries of some projects are i Appendix C, Decontamination and Decommissioning Project Summaries and as Ongoing Pr Summaries.
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, the Environmental Protect Region X, and the State of Idaho on December 9, 1991. This agreement is the Federa and Consent Order (FFA/CO). The FFA/CO establishes a comprehensive process that in remediation requirements of the Comprehensive Environmental Response, Compensation, Act (CERCLA) and the corrective action requirements of the Resource Conservation an (RCRA) and the State of Idaho's Hazardous Waste Management Act. Cleanup activities under the process and schedule established in the FFA/CO. Records of Decision (ROD FFA/CO process are signed by all three agencies and represent a joint determination will be achieved through implementation of the selected remedy.
Environmental restoration efforts at INEL have progressed substantially since the F of November 1994, 10 of the 25 scheduled RODs have been successfully negotiated and EPA and the State of Idaho. These RODs have resulted in implementation and/or comp interim and final actions designed to reduce or eliminate hazards to human health a date, all enforceable milestones set in accordance with the FFA/CO have been met, e schedule. Additional work will continue over the next several years, as detailed i FFA/CO Action Plan.
The draft ROD for the Waste Area Group 10 Comprehensive Snake River Plain Aquifer R Investigation Feasibility Study, scheduled for May 2001, will announce decisions re of the Snake River Plain aquifer. This EIS cannot anticipate the detail of those d analyses performed in support of this EIS must address the nature of the anticipate terms.
Other DOE sites negotiate similar agreements with the appropriate regulatory agenci processes for management of their environmental restoration activities. However, t programs for the other DOE sites is not within the scope of this EIS.
DOE prepared a report on vulnerabilities of the current spent nuclear fuel (NSF) pr vulnerability assessment and associated action plans to resolve identified vulnerab in Volume 1, section 1.1.2 and Appendix J. Additional site-specific information is Appendices A through F. Environmental consequences of NSF management are presented alternatives in Volume 1, section 5.1, and mitigation measures are discussed in se alternatives analyzed, DOE is committed to meeting applicable Federal, state, and l DOE Orders to ensure protection of the environment and the health and safety of the employees. Consequently, the No Action alternative still includes the minimum acti for continued safe NSF management.

07 (003) INEL ER&WM Programs Specific

COMMENT
The commentor disapproves of Bin Set #8, feeling that this would only be used to su of spent nuclear fuels. In addition, the commentor expresses concern that there is the radionuclide content of existing calcine in the EIS and that presentation of th (Bin Set #1) as a Research Development Project is misleading. The commentor also b decontamination and decommissioning of Bin Set #1 should be a high priority project
RESPONSE
Additional calcine storage facilities, i.e., Bin Set #8, are proposed under the Max and Disposal alternative at the Idaho National Engineering Laboratory. Bin Set #8 capability to transfer liquid high-level waste to a more stable form irrespective o A large part of the liquid to be concentrated and calcined would consist of deconta generated from the extensive decontamination and decommissioning activities underta alternative, rather than additional high-level liquid waste from reprocessing. Rep of fissile material for the weapons stockpile is being phased out as a matter of DO type of processing of some fuels may be necessary as a waste treatment.
Presentation of detailed calcine data in this EIS was not considered important to t all calcine is to be managed as high-level waste, irrespective of its radionuclide characterization data on calcine can be found in Inventory and Properties of Idaho Plant Calcined High Level Waste (WINCO-1050; February, 1988) available through the Reading Rooms.
DOE acknowledges the commentor's opinion that decontamination and decommissioning o should be a priority. The Calcine Transfer Project (Bin Set #1), which would resul from Bin Set #1 to more modern facilities is classified as research and development removal of the calcine must be developed and tested; Bin Set #1 does not have calci built in. Decisions on decontamination and decommissioning will be made after calc accomplished and the condition of Bin Set #1 can be properly evaluated.

7.1 Waste Management

07.01 (002) Waste Management

COMMENT
The commentor is unsure if waste contaminated with 10 to 100 nanocuries alpha emitt mixed low-level waste designated for incineration in the Waste Experiment Reduction
RESPONSE
Volume 2, section 2.2 states "Alpha low-level wastes (low-level radioactive waste c 100 nanocuries alpha emitters) and alpha-mixed low-level wastes are managed togethe Engineering Laboratory site." As discussed in Volume 2, the Waste Experimental Red (WERF) would provide for low-level waste and mixed low-level waste incineration. W does not handle waste streams with concentrations of alpha-emitting radionuclides g nanocuries per gram.

II COMMENT

The commentor questions whether private-sector treatment of alpha-contaminated mixe will be located on or off the Idaho National Engineering Laboratory .
RESPONSE
As discussed in Volume 2, section 3.1 under the Ten-Year Plan and Maximum Treatmen Disposal alternatives, transuranic and alpha low-level waste treatment capabilities either through the private sector (on- or offsite) or through INEL facilities. How in Volume 2, the facility was located on the INEL site slightly east of the Radioac Complex (RMWC), as stated in Volume 2, Table F-3-6, Note g.

II COMMENT

The commentor notes that waste management impacts were not analyzed, and also raise

EIS does not delineate why impacts are negligible.
RESPONSE
Volume 2, Chapter 5 discusses the evaluations of impacts. These impacts are summar Volume 2, section 3.3. These sections and the supporting references provide techni evaluations that DOE believe are adequate for the purpose of this EIS. The stateme negligible is a generalized summary of the specific analyses and data presented in of the document. Each discipline has a standard against which it measures adverse in Volume 2 in the section on land use, the number of acres that would be disturbed implementation of each alternative is presented and that number is further divided disturbed and acres previously disturbed. The standard for land use is whether the affect surrounding land uses or local land-use plans. The conclusion is that exist within INEL facility areas would not change. Proposed activities would also be con analyzed and discussed in the EIS.

II COMMENT

The commentor states that the EIS fails to provide throughput characterization of t Facility, fails to identify calcining and vitrification in combination, as an optio the Waste Immobilization Facility emission control system. The commentor also stat low-level waste has been thoroughly discredited at the Hanford Site and that direct the separation and vitrification of high-level waste, offers the best solution beca largest high-activity waste portion, which would be sent to a repository rather tha National Engineering Laboratory.
RESPONSE
As the commentor states, the EIS does not provide throughput characterization of th Immobilization Facility. Rather, the EIS presents the Waste Immobilization Facilit bounding analysis of the potential range of technologies that have been identified and calcine high-level waste. The specific technology to be used is scheduled to b with the ROD for this EIS. Following selection of the technologies, a facility-sp Environmental Policy Act (NEPA) document would be required for facility constructio This facility-specific document would provide the Waste Immobilization Facility thr characterizations.
ICPP Radioactive Liquid and Calcine Waste Technologies Evaluation Interim Report, l references for the Waste Immobilization Facility project presents all of the option the systems engineering analysis of potential treatment technologies. The option o vitrification was considered but was not recommended because it failed to meet spec in the report.

II COMMENT

The commentor states the EIS does not provide information related to the management than-Class-C low-level radioactive waste, including recycling and reusing sealed so Engineering Laboratory.
RESPONSE
Greater-than-Class-C low-level radioactive waste is discussed in Volume 2, section Management of greater-than-Class-C waste materials is described for each of the alt Volume 2, section 3.1.3. The comprehensive range of options includes managing exis at the INEL RWMC, building a new dedicated storage facility for all sealed radiatio transferring management responsibility to another site. The percentage of sealed s recycled is currently unknown.

II COMMENT

The commentor suggests that "higher impact wastes" should not be disposed of at the Management Complex; this includes materials from EBR-II and the Advanced Test React
RESPONSE
Greater-than-Class-C wastes are not disposed of at the RWMC. In May 1989, the Nucl Commission (NRC) promulgated a rule that requires disposal of commercially generate

with concentrations of radioactivity greater-than-Class-C in a deep geologic reposi elsewhere is approved by NRC. Currently, a small amount of greater-than-Class-C lo stored at INEL pending availability of a disposal facility licensed by NRC. Manage the disposal of greater-than-Class-C wastes are discussed in Volume 2, section 3.2.

II II COMMENT

The commentor is impressed that only 11 acres of the Idaho National Engineering Lab been contaminated by radioactive materials.
RESPONSE
The comment is noted.

II COMMENT

The commentor states that the Idaho National Engineering Laboratory has received Ro waste in the past.
RESPONSE
It is correct that INEL received waste shipments from the Rocky Flats Plant that we in several pits and trenches, including Pit 9, at the Subsurface Disposal Area at t and 1970. For information regarding cleanup of Pit 9, refer to the project summary C.

II COMMENT

The commentor states that the sodium treatment and processing facilities at the Ida Laboratory should be kept up to date and working and that the Idaho National Engine should process all these types of wastes from throughout the country.
RESPONSE
The general objective of the proposed Sodium Processing Project would be to constru process system to convert hydroxide to a disposable waste form, sodium carbonate. This project would involve treating mixed wastes. Under the Federal Facility Compl DOE is required to negotiate with states or EPA, as appropriate, to develop site tr schedules and milestones, to develop treatment technologies and construct facilitie wastes. Decisions on these treatment technologies and related facilities would be negotiations already under way with the State of Idaho pursuant to the Federal Faci and after appropriate NEPA review has been completed and public comments have been

II II COMMENT

The commentor states that the infrastructure at the Idaho National Engineering Labo criteria for site selection, is not as usable as the EIS suggests and the figures d Reactors Facility and Argonne National Laboratory-West.
RESPONSE
DOE acknowledges that some facilities at some of the alternative sites may be too o waste management activities and may need to be upgraded or replaced. For instance, being relocated from an old facility (ICPP-603) to a modern facility (ICPP-666), wh vulnerabilities. Site-specific details are provided in the Materials and Waste Man Volume 1, Appendices A through F.
Regarding facility costs, DOE developed an independent cost evaluation report, whic Volume 1, section 3.3.6. For each alternative, the cost evaluation considered capi existing facilities and for new facilities. DOE will consider evaluation results i However, details on specific facility needs at individual sites will be developed a alternatives have been made and the ROD published. At that time, there will be add as necessary to address proposals to implement that strategy in a safe and environm Age and condition of buildings are a consideration when evaluating waste and NSF ma capabilities and needs. In the case of INEL, this information is in Volume 2.

The INEL Institutional Plan covers facilities that are under the control of the DOE Office. The Naval Reactors Facility and Argonne National Laboratory-West are organ from the DOE Idaho Operations Office, and as such, are not considered part of the o infrastructure. Details on the Naval Reactors Facility are included in Volume 1, A

II COMMENT

The commentor believes that information on waste management for the Idaho National Laboratory is not always complete and asks for the status of the waste vitrificatio
RESPONSE
DOE attempts to provide to the public accurate and complete information, and the pu opportunity to request information from DOE and to provide comments during scoping periods.
Glassification and vitrification technologies have been considered at INEL for trea in Volume 2, section 3.1.3. Calcined solids would be converted to a more stable gl under the Ten-Year Plan; Minimum Treatment, Storage, and Disposal; and Maximum Trea and Disposal alternatives. The Waste Immobilization Facility at INEL is tentativel operating in 2008. More information on this facility is in Volume 2, Appendix C.

II COMMENT

The commentor states that the Volume 2 discussion about storage of nonmixed private waste should include discussion of permit modifications and limited capacity.
RESPONSE
Volume 2, Table 7-3 discusses the RCRA permitting status of each activity. The pos nonmixed private-sector transuranic waste, and any possible modifications to the pe permit are included in discussions in Volume 2, Chapter 7. The capacity to store t compliance with applicable requirements is provided by the Transuranic Storage Area Storage Project, an ongoing project described in Volume 2, Appendix C, section OP8.

II COMMENT

The commentor alleges that the EIS does not provide a full analysis of the proposed operations of the Waste Experiment Reduction Facility, including an analysis of alt cumulative impacts.
RESPONSE
Restart and expanded operations, including incineration, at WERF were addressed in response to public comments, the project summary was expanded in the Final EIS. Th Appendix C project summary (MLW-1) provides specific information about WERF operati cumulative impacts of operating WERF are assessed in Volume 2, section 5.15, includ alternative, which would involve no incineration at WERF. DOE believes that the an operating WERF, not operating WERF, and treatment of low-level and mixed low-level facilities are adequately assessed in the EIS.
The Environmental Assessment, Idaho National Engineering Laboratory Low-Level and M Processing Finding of No Significant Impact (FONSI) was signed by Tara O'Toole, EH- The FONSI was initially provided to the State of Idaho in mid-September 1994, for a of this EIS. It was officially provided by letter OPA/AD-94-287, dated November 17 See also the response to comment 05.02 (008).

II COMMENT

The commentor states that overall radiological performance assessment methodology f buried low-level waste at the RWMC and the disposal facility's performance should b assumptions and employ calculation methods known to perform satisfactorily.
RESPONSE
Impacts of low-level waste disposal at the INEL RWMC are currently being assessed.

assessment will specify criteria waste forms must satisfy before the waste can be d
Waste disposal would not occur if the requirements of the waste acceptance criteria
performance assessment, were not satisfied. Waste not meeting the criteria would r
before disposal. The overall performance assessment methodology will be based on s
and calculation methods known to perform satisfactorily and will be available for p
agency review.

II II COMMENT

The commentor wants details on the waste material that has been synthesized at the
Engineering Laboratory from reactors.
RESPONSE
Details on the operations of nuclear reactors at INEL are outside the scope of this
generated to be handled by the environmental restoration and waste management progr
with other INEL operations in Volume 2, section 5.15. In addition, reactor operati
NSF are addressed in Volume 1, section 2.1. Adequate information on these wastes f
alternatives is provided in the EIS.
Detailed information on wastes generated from reactor operations, both currently an
found in the INEL Radioactive Waste Management Information System, which is availab
information locations.

II COMMENT

The commentor is concerned that volumes and waste type descriptions are vague for t
Treatment, Storage, and Disposal alternative.
RESPONSE
Graphics are provided in Volume 2, section 3.1 that indicate the volumes of each wa
handled under each alternative. Definitions and descriptions of each waste type ar
Chapter 2.

II COMMENT

The commentor states that the 145,000 cubic meters of low-level waste disposed of a
Engineering Laboratory cited in Volume 1, Appendix B, section 4.14.4 of the EIS is
than an Idaho National Engineering Oversight Program report cites.
RESPONSE
The value of 145,000 cubic meters of low-level waste disposed of at the INEL RWMC c
of the EIS is consistent with low-level waste volumes cited elsewhere in the EIS an
Integrated Data Base (1992) information. The number cited from the INEL Oversight
does not necessarily reflect only volumes of low-level waste.

II COMMENT

The commentor states that DOE must fully and separately characterize the various wa
storage and discharged to the environment. The commentor is particularly concerned
values listed for transuranic waste in Volume 1 because they do not correspond to s
which are considerably higher. In addition, the EIS fails to account for the 2,787
DOE has recently acknowledged is buried at the Radioactive Waste Management Complex
is not included in the inventories of spent nuclear fuel in Volume 1, Appendix I,
Table I-25.
RESPONSE
General discussions of current waste inventories at the INEL RWMC are in Volume 2,
the specific waste categories. Effluent discharges are discussed in Volume 2, sect
References are included in those sections directing the reader to documents for mor
The commentor is correct that the transuranic waste inventories in Volume 1, sectio
Volume 2, section 2.2.7) of the Draft EIS incorrectly report that 102,000 cubic met

is buried and stored at RWMC. The correct total volume of transuranic waste (which error has been corrected in both sections of the Final EIS.
The press release to which the commentor refers (Fact Sheet, Buried Waste at INEL M Plutonium than Previously Recorded) acknowledges that more plutonium than previousl shipped to and buried at INEL. Currently, DOE estimates that 1,320 to 1,980 pounds kilograms) more plutonium was shipped from the Rocky Flats Plant between 1954 and 1 previously estimated. This amount is in addition to 807 pounds (366 kilograms) of records indicate is buried in waste at the RWMC. Limitations of plutonium measurem uncertainties associated with plutonium quantities have been known for many years a discrepancy. This increase in the estimated plutonium inventory at the RWMC does n transuranic waste volume inventories in Volume 2, section 3.1.3 or the consequences Volume 2, Chapter 5; therefore, the new estimated inventory of plutonium buried at addressed in the EIS.
The radionuclide inventory for representative DOE research/test reactor NSF based o presented in Volume 1, Appendix I, Table I-25 correctly lists plutonium, including plutonium and the curie content per assembly of each isotope. No changes to this t

II COMMENT

The commentor cites an apparent inconsistency between the EIS, the Federal Register National Engineering Laboratory Oversight Committee on the mixed waste volumes at t the commentor questions whether high-level liquid waste is included in any of the n
RESPONSE
Volume 1, Appendix B, section 4.14.3 states that 1,100 cubic meters (1,439 cubic ya waste is stored at INEL, while the commentor cites the Federal Register (May 26, 19 site of 63,973 cubic meters (83,670 cubic yards). The 1,100-cubic-meter (1,439-cub EIS refers only to mixed low-level wastes, not all mixed wastes, which was the case Register value and also possibly the Oversight Committee values, although the origi specific values is not known. Liquid high-level waste volumes are reported in Volu section 4.14.1.

II COMMENT

The commentor states that the EIS does not present sufficient information on certai treatment processes/facilities and wants to know the amounts of wastes, where they type, and the technologies available and being worked on.
RESPONSE
Information on waste materials and related facilities currently at INEL (including where they are, and their condition and type) is given in Volume 2, section 2.2.7. under the various alternatives, including technologies available and being worked o Volume 2, section 3.1. However, in some cases, complete information is not yet ava waste streams from future decontamination activities and where treatment plans have determined. In other cases, although facility designs and treatment processes are stage, sufficient information exists to bound the environmental impacts from the ra considered.

II II COMMENT

The commentor states that the Volume 2, Maximum Treatment, Storage and Disposal alt transuranic waste should discuss impacts from Best Demonstrated Available Technolog the Waste Isolation Pilot Plant waste acceptance criteria may adopt Land Disposal R
RESPONSE
As shown in Volume 2, Table 3.1-6, treatment to meet disposal requirements will be Waste Processing Facility and/or private-sector alpha-contaminated mixed low-level facility. These facilities are described in Volume 2, Appendix C, sections TRU3 an As stated in section TRU3, under the Federal Facility Compliance Act of 1992, DOE i negotiate with states or EPA, as appropriate, to develop site treatment plans, incl milestones, to develop treatment technologies and construct facilities that would t

Decisions on these treatment technologies and related facilities would be made in c
negotiations already under way with the State of Idaho, pursuant to the Federal Fac
and after appropriate NEPA review is complete.

II COMMENT

The commentor asks about the status of the glass vitrification project that seemed
National Engineering Laboratory a few years ago.
RESPONSE
Glassification and vitrification technologies have been considered at INEL for trea
radioactive waste. High-level waste and related actions under the alternatives ana
Volume 2, section 3.1.3. Calcined solids would be converted to a more stable glass
all alternatives except the No Action alternative. The Waste Immobilization Facili
Engineering Laboratory is planned for operation after 2005. More information on t
Volume 2, Appendix C.

II COMMENT

The commentor asks how the Actinide Recycle Demonstration Project would generate hi
wastes.
RESPONSE
The Actinide Recycle Demonstration Project (now the Electrometallurgical Demonstrat
description has been modified and expanded in Volume 2, Appendix C, section SNF8.
this demonstration are to investigate pyroprocessing of NSF, to produce a waste for
suitable for a geologic repository, and to quantify volumetric reduction factors.
produce high-level radioactive waste containing fission products because NSF would
wastes also would be generated because of electrorefiner operation involving cadmiu
contaminants in the NSF to be used for this demonstration.

II II COMMENT

The commentor opposes new high-level waste storage facilities proposed for the Idah
Processing Plant until DOE selects a technology for processing existing high-level
that nuclear weapons materials production capacity is needed to meet national secur
RESPONSE
New storage facilities have been proposed for liquid high-level waste and solid hig
discussed in Volume 2, Appendix C, new tanks would be needed to replace others that
comply with RCRA under some of the alternatives analyzed. Additional storage capac
for calcined high-level waste if existing liquid high-level waste is to be converte
calcined form. None of these new facilities is intended to support nuclear weapons
capacity.
See also the response to comment 04.04 (008).

II COMMENT

Commentors remark about the large amount of nuclear waste that is accumulating at t
Engineering Laboratory and that there is not a coherent plan for what to do next.
RESPONSE
This EIS is a fundamental planning tool in development of a coherent plan for manag
INEL. Descriptions of how specific wastes would be managed under the proposed alte
in Volume 2, section 3.1. The DOE Environmental Restoration and Waste Management F
describes the activities of the environmental restoration program, which is alread
the ultimate disposition of high-level nuclear wastes is a high priority for DOE, t
disposition activities have not been finalized and are beyond the scope of this EIS

II 7.2 Environmental Restoration

II COMMENT

Commentors identify sections of Volume 2 of the EIS that require clarification or a more completely address the topics discussed in the sections.
RESPONSE
The EIS has been modified to include the additional information requested by the co the discussions in the identified Volume 2 sections.

II II COMMENT

Commentors question whether the environmental restoration activities and alternativ National Engineering Laboratory are consistent with Federal laws governing cleanup Facility Agreement and Consent Order negotiated among DOE, the Environmental Protec the State of Idaho.
RESPONSE
Subject to Congressional funding, DOE is committed to ensuring that applicable Fede the FFA/CO Action Plan, as stated in Volume 2, section 3.1.2.1) for remediation act each alternative except the No Action alternative. The number of new decontaminati decommissioning projects depends on the alternative, but even if new projects are n surveillance and maintenance activities would be conducted in compliance with appli The role of the FFA/CO is discussed further in Volume 2, sections 2.2.6 and 7.2.5.

II COMMENT

The commentor asks how land-use plans would impact the use of areas covered under t Agreement and Consent Order for the Idaho National Engineering Laboratory.
RESPONSE
Management, closure, and/or remediation of actual disposal sites, depending on the disposed of, are regulated under CERCLA, RCRA, or the Atomic Energy Act. The regul these acts contain provisions to control use of disposal sites, when disposal activ future use of land at any disposal site at INEL following final closure is unknown However, administrative controls, deed restrictions, and institutional controls wou control or prevent certain use of these lands indefinitely.

II COMMENT

The commentor raises the issue that the cleanup decision for Pit 9 materials allows containing transuranic elements to be returned to Pit 9 for disposal and that above wastes was not chosen because it "would pose a potential radiological hazard to the environment." The commentor also raises questions about complete reliance on high- air filters for preventing emissions of radioactive particulates.
RESPONSE
Specific cleanup decisions, such as the one made for the Pit 9 interim action clean CERCLA based on the INEL FFA/CO between DOE, EPA Region X, and the State of Idaho a within the scope of this EIS. The objective of cleanup decisions under CERCLA and for Pit 9, is to reduce the potential for exposure to contamination to ensure that environment are adequately protected. This is done by establishing cleanup objecti specifically to ensure adequate protection and compliance with applicable environme guidance. Approximately half of the soil and other material in Pit 9 is estimated nanocuries per gram of transuranic elements; after initial excavation, this materia pit following assay commensurate with current disposal practices for low-level radi RWMC, as regulated by DOE Order 5820.2A, Radioactive Waste Management. The remaini would be removed and treated, both to reduce transuranic concentrations to less tha

gram and to satisfy risk-based cleanup criteria established in the ROD. Following other materials meeting these criteria will be returned to Pit 9 as low-level radio concentrate would be in a stable vitrified form. Although an in-depth analysis of for the aboveground storage alternative, it was not preferred because the waste wou untreated and potentially unstable form for an undetermined period of time until an method could be found.
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 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 will be measured continuously to detect formation of any holes or insecure f 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 the statement in Volume 2 of the Draft EIS that project-sp Engineering Laboratory environmental restoration activities will be quantified and Comprehensive Environmental Response, Compensation, and Liability Act should be mod the Federal Facilities Agreement/Consent Order.
RESPONSE
The commentor is correct. Project-specific impacts of environmental restoration ac quantified and evaluated in the future as part of CERCLA, in accordance with the FF been modified to incorporate the change.

II COMMENT

The commentor states that new remedial designs and remedial actions will be conduct of Decision under the FFA/CO that requires a remedial action. The Draft EIS, in Vo implies that remedial design and remedial action can only occur as a result of a re feasibility study. This implication should be corrected.
RESPONSE
The commentor is correct. The Final EIS has been modified to clarify that new reme remedial actions would be implemented if remedial action is determined necessary by CERCLA process and the FFA/CO for each interim action or remedial investigation and completed.

II II COMMENT

The commentor asks how 1 million cubic yards of imported waste compares to the quan will be generated at the Idaho National Engineering Laboratory from environmental r management activities, what portion of the imported waste will be treated and what disposed of, and what the impacts of storage of these wastes are once the Radioacti Complex reaches capacity.
RESPONSE
As discussed in Volume 2, section 3.1, under the Maximum Treatment, Storage, and Di approximately one million cubic yards (770,000 cubic meters) of low-level waste wou treatment and disposal at INEL. That volume of waste is approximately 10 to 15 tim activities, depending on the alternative used for comparison. Portions of this wa

and disposed of, treated without disposal, and retrievably stored for all alternati
Volume 2, Figure 3.1-27. As indicated in this figure and discussed in Volume 2, se
low-level waste would have been disposed of onsite under the Maximum Treatment, Sto
alternative. Most of the waste received under all but the Maximum Treatment, Stora
alternative would be stored safely pending completion of a proposed new treatment
As soon as these facilities are operational beyond 2005, they would
allow the waste to be handled under appropriate procedures developed at that time.
is outside the scope of this EIS; however, NEPA review would be performed on such s
The evaluation in Volume 2 bounds environmental impacts from environmental restorat
activities at INEL. However, specific decisions related to cleanup at INEL are gen
an enforceable agreement executed by DOE, EPA Region X, and the State of Idaho on D
the FFA/CO. The FFA/CO establishes a comprehensive process that integrates the rem
requirements of CERCLA and the corrective action requirements of RCRA and the State
Hazardous Waste Management Act. Cleanup activities are conducted under the process
established in the FFA/CO. RODs under the FFA/CO process are signed by all three a
represent a joint determination that protectiveness will be achieved through implem
remedy.

II COMMENT

The commentor notes that remediation of the Transuranic Storage and Retrieval Area
waste does not consider the implications of additional waste volumes due to contami
RESPONSE
Volume 2, Table 5.15-2 includes impacts from newly generated waste, including conta

II II COMMENT

The commentor expresses doubts about the cleanup methods chosen at Idaho National E
Laboratory.
RESPONSE
The environmental restoration program at INEL is specifically discussed in Volume 2
7.2.5. The evaluation in Volume 2 of this EIS bounds environmental impacts from en
restoration (or cleanup) activities at INEL. However, specific decisions related t
generally addressed under an enforceable agreement executed by DOE, EPA Region X, a
Idaho on December 9, 1991, the FFA/CO. The FFA/CO establishes a comprehensive proc
the remediation requirements of CERCLA and the corrective action requirements of RC
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.

II COMMENT

The commentor states that the EIS fails in its Volume 2-stated goal of making decis
store and dispose of waste, manage spent nuclear fuel, and conduct environmental re
the Idaho National Engineering Laboratory in an environmentally safe manner."
RESPONSE
Improvements throughout the Final EIS evidence DOE's efforts to respond to this gen
public by publishing as thorough a study as possible.

II II COMMENT

The commentor states that the EIS does not address decontamination and decommission
National Engineering Laboratory tanks VES-WM-182 through -186, from which heels are
along with tanks VES-WM-100, -101, and -102.
RESPONSE

The EIS does not address decontamination and decommissioning (D&D) of the tanks ref that would not be within the scope of the Tank Farm Heel Removal Project. The purp to remove liquid and solid wastes remaining in the tanks after they have been empti installed transfer jets. This supplemental transfer operation is anticipated to ta 2015. Thus, D&D would occur after 2015, which is after the 10-year planning period the INEL waste management part of this EIS. Such proposals would be addressed by a documentation.

II COMMENT

The commentor states that the EIS should include data that fully characterizes the Engineering Laboratory Decontamination and Decommissioning Program waste volumes an
RESPONSE
INEL D&D program is discussed in Volume 2, section 2.2.6. Major D&D projects antic within the 10-year period of this EIS are discussed in more detail in Volume 2, App Summaries. It is impossible to fully characterize D&D waste streams prior to imple at the facilities being decontaminated and decommissioned.

Limited characterization of facilities prior to D&D provides sufficient information decisions, but cannot fully characterize or anticipate all wastes. Wastes generate managed in accordance with applicable DOE guidelines and environmental regulations. characterization of these wastes would be completed during D&D implementation as ne proper management of D&D wastes.

II COMMENT

The commentor asserts that decontamination and decommissioning of facilities are su under the Federal Facilities Agreement/Consent Order, and the EIS should incorporat
RESPONSE
The decontamination and decommissioning of facilities is not part of the current IN programs at INEL are described in Volume 2, section 2.2.6, including the process by accomplished while meeting regulatory requirements and guidelines.

II COMMENT

The commentor identifies a statement describing the decontamination and decommissio the Maximum Treatment, Storage, and Disposal alternative as different from those un alternative. The statement appears in the Volume 2 summary and the Summary.
RESPONSE
The commentor is correct, and the statement has been changed in the EIS.

II II II COMMENT

The commentor indicates that the cost of environmental restoration at the Idaho Nat Laboratory will be billions of dollars.
RESPONSE
Whereas it may ultimately take several billion dollars to complete environmental re INEL and other DOE sites, the scope of INEL environmental restoration activities in the period 1995 to 2005. The cost of environmental restoration activities during t be a function of Congressional funding allocations for the cleanup projects discuss EIS. Cleanup activities at INEL are conducted under the process and schedules esta FFA/CO, as agreed upon by DOE, EPA, and the State of Idaho.

II 7.3 Regulatory Compliance

II COMMENT

The commentor recommends that Volume 2 of the EIS provide additional information co Federal Facilities Agreement and Consent Order at the Idaho National Engineering La 28, 1993, Court Order; the State of Idaho's hazardous waste program; and all agreem National Engineering Laboratory has entered into with the State of Idaho pursuant t
RESPONSE
Volume 2, Chapter 7 provides a summary of the information requested. The Court Ord administrative record and is appended to the Implementation Plan. The commitments identified in those documents will be carefully considered in arriving at the ROD f

II COMMENT

The commentor requests that the EIS discuss the Antidegradation Policy (40 CFR 131.
RESPONSE
A discussion of the Antidegradation Policy, which is an EPA policy requiring states statewide antidegradation policies to prevent degradation of surface waters has not INEL has only intermittent surface waters, none of which is utilized either a sourc activities or discharges from INEL facilities. Therefore, a discussion of the poli information for decisionmakers.

II 7.4 Miscellaneous

II COMMENT

Commentors express opinions that nuclear waste production should be reduced and eve until a means for safe management and disposal are available. Time and resources s
RESPONSE
General discussions of waste management procedures and plans are in Volume 2, Chapt Therein, it is noted that DOE is committed to a strategy emphasizing waste minimiza with the goal being that most newly generated radioactive waste will be created dur activities and decommissioning of contaminated facilities that no longer serve esse complex-wide management and cleanup of wastes associated with those activities, inc resources required, is outside the scope of this EIS. However, complex-wide manage currently is being addressed in the forthcoming DOE Waste Management Programmatic E 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 evaluation in Volume 2 of this EIS bounds environmental impacts f restoration (or cleanup) activities at INEL. However, specific decisions related t generally addressed under an enforceable agreement executed by DOE, EPA Region X, a Idaho on December 9, 1991, the FFA/CO. The FFA/CO establishes a comprehensive proc integrates the remediation requirements of CERCLA, and the corrective action requir the State of Idaho's Hazardous Waste Management Act. Cleanup activities are conduc process and schedule established in the FFA/CO. RODs under the FFA/CO process are agencies and represent a joint determination that protectiveness will be achieved t of the selected remedy.
The generation and storage of SNF are discussed in Volume 1, section 1.1. Therein DOE's SNF was generated in DOE production and experimental reactors that have cease considerable source reduction has already occurred. In addition, the Navy has been development of longer-lived Naval reactor cores, thereby reducing the amount of SNF Eliminating the source of SNF altogether, however, is outside the scope of this EIS While DOE is committed to developing permanent Federal geologic repositories for is high-level wastes, technologies for final SNF disposition cannot be specified in ad repository performance and associated acceptance criteria of SNF and high-level was has acknowledged these challenges by allowing up to 40 years for a suitable reposit operational. The 40-year period is not needed for preparation of SNF for final disp

be an upper limit on the time needed for a repository to be available. Until such available, DOE is committed to provide for safe and environmentally sound storage a SNF.

07.04 (003) Miscellaneous

COMMENT
The commentor states that DOE should review impacts of long-term storage of transur National Engineering Laboratory because transuranic waste shipments will not occur years.
RESPONSE
The transuranic waste management program at INEL is described in Volume 2, section transuranic waste facilities, which meet the State of Idaho, EPA and RCRA requireme constructed to replace the existing storage facilities. The potential impacts of t impacts of long-term transuranic storage at INEL, were evaluated in Environmental Retrieval and Restorage of Transuranic Storage Area Waste. In addition, the receip at INEL for the 10-year period was analyzed in the Volume 2, Maximum Treatment, Sto alternative. The long-term receipt of transuranic waste at INEL is being analyzed forthcoming DOE Waste Management Programmatic EIS.

07.04 (004) Miscellaneous

COMMENT
Commentors want DOE to responsibly manage the radioactive materials, including unsp radioactive wastes, and spent nuclear fuel that DOE helped to create. Other commen opinions that there is no way that anything like radioactive waste can be handled s waste management practices and policies.
RESPONSE
DOE acknowledges its responsibility to safely manage radioactive materials, includi wastes. DOE's policy is to comply with applicable Federal and state laws and regul and interagency agreements governing SNF and radioactive and hazardous wastes. DOE includes research, development, and demonstration activities for the safe managemen radioactive materials at each of the sites considered in this EIS. General solutio including storage, are discussed in Volume 1, section 1.1.3 and Appendix J. Curren for radioactive wastes are described in section 2.2.7, which is specific to INEL bu wastes at other DOE sites. DOE also has adopted a policy emphasizing waste minimiz as discussed in Volume 2, Chapters 1 and 2 of the EIS. Most new radioactive waste unavoidable cleanup activities and decommissioning of contaminated facilities that essential national missions. Residual radioactive wastes may also result from clea under CERCLA pursuant to the INEL FFA/CO. Volume 2, Chapter 2 references two progr that are being prepared regarding DOE Spent Nuclear Fuel Programs: Volume 1 of thi Management Programmatic EIS, a separate forthcoming document. This EIS was prepare accordance with NEPA and follows the Council on Environmental Quality (CEQ) impleme regulations.

07.04 (006) Miscellaneous

COMMENT
The commentor requests that the EIS provide additional information on waste managem projects or facilities that are in preliminary planning stages.
RESPONSE
Anticipated projects have been included in the EIS to give readers as comprehensive projects as is currently possible. These anticipated projects have been conservat to bound the reasonably foreseeable environmental impacts from such projects. NEP performed on such activities where applicable, prior to initiation. At such time, secondary waste generation would be available for an assessment of impacts on waste status of environmental restoration and waste management projects contemplated for the Summary (see box titled Projects Related to Alternatives in section on Alternat

Table 3.1-1.
The evaluations in Volume 2 of this EIS bound 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 the RC 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.

07.04 (007) Miscellaneous

COMMENT
Commentors request specific information on secondary wastes to be produced from pot activities or not-yet-existent facilities related to possible processing of SNF, in Processing Project, fuel subassemblies, and high-level liquid wastes from the Spent Project.
RESPONSE
Anticipated projects have been included in the EIS to present readers with as compr foreseeable projects as is currently possible. Information and preliminary estimat rates from the Blanket Processing Project, fuel subassemblies, high-level wastes fr Processing Project, and other potential future projects and facilities are in Volum information was used to determine the potential impacts of each alternative, as dis Chapter 5. If ultimately proposed, these projects or facilities will require addit they come closer to reality. At such time, more information on secondary waste gen and schedules will be provided for an assessment of impacts on waste management.

07.04 (008) Miscellaneous

COMMENT
The commentor requests that DOE begin training its work force for the day when the dedicated to waste management.
RESPONSE
Funding priorities and work-force retraining to meet those changing priorities are this EIS.

8. NAVAL PROGRAM SPECIFIC

8.1 Preferences

08.01 (001) Preferences

COMMENT
Some persons expressed general opposition to one or more of the alternatives consid identifying technical reasons for the opposition. Some of these expressions of opp following concerns: Storage could last longer than planned. The EIS and Record of completed by June 1995. Litigation over the sufficiency of this EIS could delay im alternative allowing removal from the shipyards might not be selected.
RESPONSE
Some individuals oppose one or more of the alternatives identified by DOE and the N transportation, receipt, processing, and storage of spent nuclear fuel. Neverthele be selected since DOE has a considerable amount of spent nuclear fuel in existence. alternative, the Navy is cooperating with DOE in this comprehensive EIS on spent nu management, including Naval spent nuclear fuel. This EIS evaluates alternatives fo management pending ultimate disposition. Some of the alternatives which are being EIS will allow routine Naval spent nuclear fuel shipments to be resumed promptly. means certain that storage at shipyards will be extended.

08.01 (002) Preferences

COMMENT
Some persons expressed support for one or more of the alternatives considered witho technical reasons for their support. Some of these expressions of support were bas Navy's expertise, the amount of information and technology presented in the EIS, th effectiveness of the alternative supported, and the commentors' personal knowledge problems with Naval spent nuclear fuel and safety in the Naval Nuclear Propulsion P
RESPONSE
DOE and the Navy must make a selection of an alternative for transportation, receip storage of spent nuclear fuel and the support from the public is acknowledged.

08.01 (003) Preferences

COMMENT
Some persons expressed general satisfaction with the safety of the Naval Nuclear Pr Examples of these expressions of support include:
"I have a high confidence in the Navies (sic) ability to store the fuel at PSNS in secure manner."
"My feeling is that I believe that the Navy has a good record of safety, I believe back of the Navy and let them do their work."
"I just want everyone to understand that the Navy's nuclear program is safe and the are very, very safe."
"As for transporting spent fuel the Navy has been transporting fuel safely across t years."
"Proper examination of the fuel will help ensure the safety of the servicemen opera maintain a technical advantage by continually improving the reactor cores."
"The safety record for the navy nuclear program has been good."
"I've read the EIS and I'm in favor of the Navy being a good steward of the land, c and I think it is within what we would call acceptable risk."
RESPONSE

Commentors provided statements of personal knowledge and conviction that the safety in servicing nuclear-powered vessels and in handling and shipping Naval spent nucle the Navy's statements in this EIS. Some commentors affirmed the relationship betwe spent nuclear fuel and ensuring the safety of nuclear-powered vessels and the sailo them.
These comments support the Naval Nuclear Propulsion Program and its continuing effo safety and minimize the risks associated with operation of the nuclear fleet. Prot and service nuclear-powered vessels, the public, and the environment has always bee priorities of the Navy.

08.01 (004) Preferences

COMMENT
Some persons expressed opposition to one or more of the alternatives considered and their opposition. Some of these expressions of opposition were based on such thing providing new facilities for Naval spent nuclear fuel management, the number of shi existing pollution problems in the area, or the difficulty of evacuating an area.
RESPONSE
Some individuals oppose one or more of the alternatives identified by DOE and the N transportation, receipt, processing, and storage of spent nuclear fuel. Neverthele be selected since DOE has a considerable amount of spent nuclear fuel in existence. alternative, the Navy is cooperating with DOE in this comprehensive EIS on spent nu management, including Naval spent nuclear fuel. This EIS evaluates alternatives f management pending ultimate disposition. Analyses of the matters of concern and t opposition identified have been considered in this EIS.
Analyses of the impacts associated with managing Naval spent nuclear fuel show that health or the environment would be small for all of the alternatives considered. T to normal operations or hypothetical accident conditions for management of Naval sp present little risk for all of the alternatives considered.

08.01 (005) Preferences

COMMENT
Some persons expressed support for one or more of the alternatives considered and p reasons for their support. Some of these expressions of support were based on such nature of the existing Naval spent nuclear fuel management program, the lack of nee practices, or the unsuitable nature of some sites considered in comparison to other
RESPONSE
DOE and the Navy must make a selection of an alternative for transportation, receip storage of spent nuclear fuel and the support from the public is acknowledged. An concern and the reasons for opposition identified have been considered in this EIS.

II 08.01 (006) Preferences

COMMENT
Some persons expressed general opposition to one or more of the alternatives consid that some of the alternatives to be evaluated in the Environmental Impact Statement site specific NEPA reviews, which would prevent prompt implementation.
RESPONSE
Appendix D to Volume 1 of this EIS includes in Chapters 3 and 5 and Attachments D a evaluation of methods and facilities for storage of Naval spent nuclear fuel at Nav alternatives considered. Chapters 3 and 5 and Attachment F provide detailed inform and potential health effects associated with each method of Naval spent nuclear fue shipyards and Navy prototype sites, as well the effects associated with examination fuel at DOE sites. In all of these cases, it is assumed that the facilities used f management would be properly designed for the weather, seismic, and other condition particular site evaluated.
This EIS provides the information necessary to show that all three methods of stora

Navy prototype considered (dry storage, storage in shipping containers, and storage practical and could be accomplished safely and with very small risks. This level o select a management alternative for Naval spent nuclear fuel. Further NEPA review construction of specific facilities, but this review could easily be conducted with allotted for facility and equipment design and construction.

II 08.01 (007) Preferences

COMMENT
Some persons expressed general opposition to use of one or more of the Navy sites f nuclear fuel from other locations.
RESPONSE
Under the No Action and Decentralization alternatives, Navy sites would be used to fuel which was removed from reactors during servicing at the site performing the se exception of Norfolk Naval Shipyard, which would accept Naval spent nuclear fuel fr Shipbuilding and Drydock Company. This transfer would be necessary because Newport Shipbuilding and Drydock is a private facility. The EIS states that the Navy's pre resume shipment of Naval spent nuclear fuel to INEL for examination and storage pen disposition.

II 08.01 (008) Preferences

COMMENT
All U. S. citizens benefitted from the protection provided by nuclear-powered Naval vicinity of those who derived the benefits of its use.
RESPONSE
As stated by the commentor, the argument that spent nuclear fuel should be stored a is removed during reactor servicing in order to keep it in the locality of those wh associated with its use does not apply to Naval spent nuclear fuel. The commentor citizens benefitted from the operation of the Navy's submarines and surface ships. Section 3.9 of Appendix D to Volume 1 of this EIS discusses the fact that storing o nuclear fuel at Naval sites is not the Navy's preferred alternative. The Navy has alternative for Naval spent nuclear fuel: namely, transport to INEL for examinatio ultimate disposition.

II 08.01 (009) Preferences

COMMENT
Governor Andrus refused to allow spent nuclear fuel into Idaho. DOE with the court to circumvent Governor Andrus for Naval spent nuclear fuel shipments to INEL.
RESPONSE
This statement is inaccurate. In August 1993, the Secretary of the Navy, the Secre Governor Andrus signed an agreement allowing 19 specific shipments of Naval spent n while this EIS was being prepared and allowing for additional shipments if the Secr certified they were needed for National Defense. In December 1993, the court accep modifying its order to provide for the additional shipments while the EIS was prepa Naval spent nuclear fuel have been conducted in full compliance with this order.

II 8.2 NEPA-Related Comments

II COMMENT

Commentors stated that, a public hearing was poorly handled by the government repre public review process should be different.
RESPONSE

The public hearings on this EIS were designed to provide members of the public an o questions and obtain information as well as provide comments. To accomplish these consisted of a presentation summarizing the information contained in this EIS, a se room during which questions from those in attendance were answered, and a period in attendance could state their comments on the content of the EIS. In addition, a sm recorder and a representative of DOE or the Navy was provided for those who did not front of the audience or who did not want to wait to make their comments. Informal sessions were also conducted to provide an additional opportunity for members of th detailed questions.
The hearings began with brief summaries of the alternatives and the associated impa officials. These summaries were intended to provide background on the nature of th the alternatives considered, and the results of the evaluations of potential impact environment.
The summary presentations were followed by a "question and answer" period to permit to obtain information they might desire concerning the alternatives, supporting ana the evaluation of impacts. These sessions were intended to allow those in attendan additional information on the EIS or the process that they might consider useful. answer during this session was recorded in its entirety as part of the permanent re After the question and answer sessions, those in attendance were provided an opport statement providing their comments on this EIS. Each person's statement was record the permanent record of the hearings. At the same time, a court recorder and an of available in a small, separate room to allow those who did not wish to speak in fro audience or who did not wish to wait for an opportunity to address the full hearing their statements recorded verbatim. DOE and Navy officials were also made availabl setting to answer additional questions from those in attendance.
Written statements were also accepted at each hearing location from those who wishe comments in that form. In addition, a toll-free "800 number" telephone service was wished to submit comments orally or by facsimile. Of course, written comments were All written and oral comments, regardless of whether they were provided before the recorded and analyzed, with no greater weight given to the manner in which the comm The goals and intentions of the Navy and DOE in designing and carrying out the publ including the public hearings, was to make it as simple, easy, and convenient as po the public to be fully informed and then provide their comments in the manner they

II COMMENT

Construction of the new dry cell at the Expended Core Facility was started without documentation.
RESPONSE
This comment is not accurate. Adequate NEPA documentation existed at the time the Facility dry cell expansion construction was initiated. Nonetheless, the dry cell in Volume 2, Part B of the EIS to ensure that this EIS would be a comprehensive doc information on all projects expected during the period which Volume 2 of the EIS co

II COMMENT

The discussion of the new Expended Core Facility dry cell in the EIS does not chara the facility.
RESPONSE
Annual releases of radioactivity from Expended Core Facility are identified in Tabl Appendix D to Volume 1 of the EIS. Analysis of the environmental impacts of these in Appendix D. Volume 2, Appendix C, of the EIS correctly states that emissions f Core Facility would not be expected to change significantly due to the construction Instead, operations now conducted in other parts of the Expended Core Facility woul operations in the new dry cell if the new dry cell becomes operational. Appendix C modified to clarify this point.

II 8.3 Policy

II II COMMENT

Operation of the Navy's nuclear-powered vessels should be stopped immediately or sh
a specified condition (such as a decision on ultimate disposition of spent nuclear
RESPONSE
Decisions on whether to operate nuclear-powered Naval vessels and the numbers of su
by the Congress and the President of the United States. Therefore, they are beyond
Environmental Impact Statement.
Further, as discussed in the Environmental Impact Statement, spent nuclear fuel alr
require safe management at some location. The EIS considers management of spent nu
2800 metric tons of heavy metal, 2700 metric tons of which is already in existence.
metric tons of the total of 2800 metric tons of heavy metal is Naval spent nuclear
use of nuclear power for Navy ships will not eliminate the need for safe management

II COMMENT

A decision on the method for managing Naval spent nuclear fuel should be postponed
ultimate disposal of spent nuclear fuel is in place.
RESPONSE
As discussed in the Environmental Impact Statement, Naval spent nuclear fuel alread
require safe management at some location. There is no way to defer a decision on h
Naval spent nuclear fuel until permanent storage is available.

II COMMENT

The Naval Nuclear Propulsion Program should be regulated by some other federal or i
RESPONSE
The Naval Nuclear Propulsion Program is subject to regulation by many other agencie
applicable laws, executive orders, and regulations. For example, the Naval Nuclear
subject to regulation under the Resource Conservation and Recovery Act (RCRA), the
Control Act (TSCA), the Comprehensive Environmental Response Compensation and Liabi
(CERCLA), the Superfund Amendments and Reauthorization Act (SARA), the Safe Drinkin
the Clean Water Act, the Clean Air Act, and many others. All of these laws have ei
Environmental Protection Agency or appropriate departments in the host states as th
Nuclear Propulsion Program's compliance with these laws is actively monitored by th
and since 1980 there have been more than 300 inspections, examinations, and audits
agencies under these laws. This monitoring has been facilitated by the efforts of
Propulsion Program in the 1980's to ensure that the regulators received security cl
Decisions on the appropriate regulating agencies and the type, extent, and nature o
operations of nuclear-powered Naval vessels and the Naval Nuclear Propulsion Progra
Congress and the President of the United States. Therefore, this issue is beyond t
Environmental Impact Statement.

II COMMENT

The Environmental Impact Statement should consider ways to reduce the amount of Nav
fuel produced, including reducing the number of nuclear powered warships in operati
RESPONSE
The EIS explains the need for examination of spent Naval fuel to support achieving
the life of a ship, thus avoiding the need for refueling, and reducing the amount o
created. However, the draft EIS does not consider reducing the number of nuclear p
operation or to be built. Such matters are directed by Congress and the President
fundamental Federal responsibilities under the Constitution in providing for the co
be inappropriate and unfeasible for this EIS to consider what the military force st
States should be. Rather, the EIS analysis supports accomplishment of the Navy's f
established and funded by Congress.

II COMMENT

Some commentors indicated that DOE or the Navy is not providing complete, accurate, information.
RESPONSE
The Navy has provided a large amount of information on the shipment of Naval spent types and amounts of radiation or radioactive material involved in releases from no postulated accidents in Appendix D. Appendix D also includes descriptions of the E and Naval spent nuclear fuel operations. The Navy has attempted to provide enough radiation, radioactivity, and other aspects of operations or hypothetical accidents calculation of the environmental impacts. This is intended to permit independent a of the estimated impacts calculated by the Navy. Every effort has been made during EIS to see that the best available information on impacts has been included, includ accordance with the requirements of the Act.
In this EIS, the Navy has clearly stated its preferred alternative and discussed ho support the Navy's mission, as established by Congress. In Appendix D, the environ Navy's proposed action and alternatives are evaluated in accordance with NEPA, the Environmental Quality regulations, and Navy regulations.

II COMMENT

Analyses of the alternatives should be performed by independent groups or individua
RESPONSE
The process specified under NEPA provides opportunities for independent evaluation impacts associated with alternatives for actions such as the subject of this EIS. the draft EIS has been provided to a wide range of state, federal, and local agenci private groups and individuals. This is intended to permit them to perform their o analyses and the conclusions.
Many of these independent reviewers submitted the results of their reviews as comme were used to prepare the final EIS which is provided to the person deciding upon th selected.
The Navy has provided a large amount of information on the shipment of Naval spent types and amounts of radiation or radioactive material involved in releases from no postulated accidents for all of the alternatives in Appendix D to Volume 1. The Nav provide enough information on the radiation, radioactivity, and other aspects of op foreseeable accidents to allow independent calculation of the environmental impacts information is intended to permit independent analysis and verification of the esti by the Navy.

II COMMENT

The risks associated with the management of Naval spent nuclear fuel are unacceptab
RESPONSE
The risks associated with all of the alternatives considered for management of DOE including Naval spent nuclear fuel have been calculated and presented in this EIS. be small. The risks associated with the normal operations involved in management o fuel and a broad range of hypothetical accidents are summarized in Chapter 3 of App For example, as summarized in Chapter 3 and described in more detail in Chapter 5 a and F to Appendix D, the risk resulting form normal operations or accidents associa nuclear fuel management during the 40 years covered by this EIS would be far less t cancer fatality or radiation-related health effect over the entire time. This risk to the other risks of daily life.

II COMMENT

The Navy and DOE have already made up their minds on the action they plan to choose seriously considering all of the alternatives presented or they plan to implement s in this EIS.
RESPONSE
In accordance with NEPA, no decision on the alternative to be implemented has been made until the final EIS is issued and no actions are being taken in the meantime w that decision. The final decision and the basis for it will be documented in the R will be published in the Federal Register in June 1995.
In this EIS, the Navy has stated its preferred alternative and discussed how this a the Navy's mission, as established by Congress. In Volume 1, Appendix D, the envir the Navy's proposed action and all alternatives, including those which would not su mission, are evaluated in accordance with NEPA, the Council on Environmental Qualit DOE and Navy regulations.

II COMMENT

The Navy or DOE will decide on the alternative to be implemented based on faulty or
RESPONSE
NEPA requires the preparation of an EIS for major federal actions as a means to ass evaluation of the impacts associated with the alternatives. It also provides for r public and other agencies in order to develop assurance that important aspects have that pertinent information has not been omitted. Every effort has been made during EIS to see that the best available information on impacts has been included, includ accordance with the requirements of the Act.
The risks associated with all of the alternatives considered were found to be very effort was made to use the best available information on the effects of the actions methods for calculating effects which could not be measured. A wide range of disci to assure that any important effects were not overlooked. The results of independe comments have been carefully considered. It would appear that the potential enviro alternatives considered have been evaluated thoroughly and the information is adequ required decision.
As a part of this effort, the Navy has provided a large amount of information on th spent nuclear fuel and the types and amounts of radiation or radioactive material i normal operations and postulated accidents for all of the alternatives in Appendix Navy has attempted to provide enough information on the radiation, radioactivity, a normal operations or hypothetical accidents to allow independent calculation of the impacts. All of this information is intended to permit independent analysis and ve estimated impacts calculated by the Navy.

II COMMENT

The Navy should analyze the effects of a reactor accident at the Kesselring Site.
RESPONSE
Such matters are outside the scope of this EIS. The EIS deals with the alternative transporting, examining, and storing spent nuclear fuel, including Naval spent nucl been removed from nuclear reactors. It does not include any information to be used decisions related to the start-up, shutdown, or continued operation of reactors. C intended to include analyses of the effects of reactor accidents.

II COMMENT

The health, safety, and welfare of citizens should be considered in reaching any de action to be used for management of spent nuclear fuel.
RESPONSE
This EIS is devoted to analysis of all effects on human health and the environment operations or reasonably foreseeable accidents associated with DOE and Navy managem

nuclear fuel. The details of the analyses for Naval spent nuclear fuel management Attachments A and F of Appendix D to Volume 1. Chapters 3 and 5 summarize the resu analyses and the detailed results are described in the Attachments to Appendix D. Every effort has been made to include all possible affected areas, including any id review of this EIS. It is believed that no important area of potential human healt impact has been omitted from this EIS.
The health, safety, and welfare of citizens will be considered carefully in reachin course of action to be used for management of spent nuclear fuel.

II COMMENT

If the Navy and DOE decide to manage spent nuclear fuel at a location for the perio that location will become a permanent site for storage of spent nuclear fuel.
RESPONSE
It is not correct that a site selected for management of Naval spent nuclear fuel d EIS will become a permanent site for storage of spent nuclear fuel. Congress has d Nuclear Waste Policy Act, as amended, that spent nuclear fuel and high-level waste geologic repository, independent of the location where DOE or commercial spent nucl The Navy supports selecting and implementing an approach for final disposition of N fuel as soon as possible. There is no benefit to the Navy to store Naval spent nuc is necessary to implement the method selected for ultimate disposition. The Navy's reinforced by the Navy's bearing the cost of storing Naval spent nuclear fuel pendi The 40-year period considered in this EIS is intended to provide enough time for se implementing a method for ultimate disposition. In this EIS, the Navy has clearly alternative for management of Naval spent nuclear fuel during the 40 year interim p how this alternative would support the Navy's mission, as established by Congress. Appendix D, the environmental impacts of the Navy's proposed action and all alterna that would not support the Navy's mission, are evaluated in accordance with NEPA, t Environmental Quality regulations, and DOE and Navy regulations.
See also the response to comment 08.03.03 (001).

II COMMENT

The Navy should reconsider its policy of not notifying emergency response organizat Naval spent nuclear fuel passing through their areas of responsibility.
RESPONSE
The Naval Nuclear Propulsion Program does not announce the times or routes of shipm make it more difficult for terrorists, saboteurs, or hijackers to plan and execute shipments. This is in accordance with federal government policy and regulations go shipments. The Navy's policy on notification is also in full compliance with the a federal regulations for such shipments containing highly enriched weapons-grade ura rugged design of Naval spent nuclear fuel and the shipping containers, which comply Department of Transportation and Nuclear Regulatory Commission requirements, make i unnecessary for emergency response personnel to maintain any extraordinary level of movement of shipments.
As a practical matter, such notification would not improve emergency response or re risks for these shipments. Every shipment is accompanied at all times by escorts w contact the Naval Nuclear Propulsion Program emergency control center and federal o response personnel in the event of a problem. When notified, emergency response pe existing emergency response plans and capabilities, if needed.
The risks associated with the complete range of accidents which might occur during analyzed in detail in Attachment A of Appendix D to Volume 1 and were shown to be v

II COMMENT

The Naval Nuclear Propulsion Program refused to be included in the assessment of vu nuclear fuel storage performed by DOE.
RESPONSE

This comment is incorrect. The Naval Nuclear Propulsion Program participated in th potential vulnerabilities in DOE spent nuclear fuel facilities. Facilities at the Plant and the Expended Core Facility at INEL used for the management of Naval spent included in the study and are discussed in both the summary (Volume I) and the deta sections (Volume II and III) of the final report.
DOE's Vulnerability Assessment states on pages 22 and 32 of Volume 1 that no vulner with the storage of Naval spent nuclear fuel were identified.

II COMMENT

The risks and costs associated with the period of transition to a new alternative f Naval spent nuclear fuel are unacceptable.
RESPONSE
The risks associated with all of the alternatives considered for management of DOE' including Naval spent nuclear fuel have been calculated and presented in this EIS. be small. The risks associated with the normal operations involved in management o fuel and a broad range of hypothetical accidents are summarized in Volume 1, Append For example, as summarized in Chapter 3 and described in more detail in Chapter 5 a Attachments A and F, the risk resulting from normal operations or accidents associa nuclear fuel management during the 40 years covered by this EIS would be less than fatality or radiation-related health effect over the entire time. This risk is ver other risks of daily life.
As discussed in the EIS, it is true that selection of an alternative which would in current practice of sending Naval spent nuclear fuel to the Expended Core Facility higher costs and could require a transition period during which Naval spent nuclear at the sites where it is removed from reactors. Even though the Navy does not pref alternatives, the impacts on human health and the environment associated with such have been considered in Volume 1, Appendix D and were found to be very small.

II COMMENT

The alternatives for management of DOE and Naval spent nuclear fuel should be recon years or possibly even five years instead of forty years.
RESPONSE
The alternatives for management of spent nuclear fuel will be reconsidered in the f or circumstances show a need for changes in the strategy for management of spent nu

II COMMENT

The Navy has disregarded the requirements of NEPA by identifying a preferred altern
RESPONSE
The statement that the Navy has disregarded the requirements of NEPA by identifying alternative in the Draft EIS is incorrect. To the contrary, the regulations issued Environmental Quality to implement NEPA require an agency to identify in the Draft alternative if one exists (40 CFR 1502.14(e)). This preferred alternative may be a substantive issues are identified during public review of the Draft EIS. Therefore alternative in the Draft EIS does not imply that a decision has already been made o any lack of regard for the public process specified by NEPA or the value of the pub Identification of a preferred alternative in the Draft EIS is not a violation of th is it prejudicial to public or technical review. It simply provides a clear indica preference based on the information available at the time the Draft EIS is issued a include this factor in their review of the Draft EIS. Indeed, most draft environme contain preferred alternatives to serve this purpose.

II COMMENT

The risks associated with defueling of nuclear-powered warships should be included
RESPONSE
Refueling and defueling of Naval nuclear reactors are considered to be part of the reactor operations. The purpose of this EIS is to evaluate alternatives for and th environment and human health associated with the management of spent nuclear fuel, spent nuclear fuel, after it has been removed from reactors. Indeed, Nuclear Regul regulations and DOE Orders define spent nuclear fuel as "fuel which has been withdr reactor following irradiation, the constituent elements of which have not been sepa All of the alternatives considered would require removal of spent nuclear fuel from ships, so analyses of accidents associated with such work would not assist in the e alternatives for management of spent nuclear fuel. This the case for other types o well, and refueling of university or research reactors is similarly not within the

II COMMENT

The Navy should pay the costs for storage and disposal of Naval spent nuclear fuel.
RESPONSE
Under current federal policy, the Navy does pay the costs of storage for Naval spen pay the costs of disposal for Naval spent nuclear fuel once those costs are establi

II COMMENT

Disruption of the process of deactivations and refuelings of nuclear-powered Naval Navy's mission and affect the national security of this country.
RESPONSE
None of the alternatives considered in detail in this EIS would impact the Navy's a defuel nuclear-powered warships because each alternative provides for a transition facilities would be procured or constructed. The Navy's preferred alternative best broader mission by allowing examination of all Naval spent nuclear fuel. The impor of Naval spent nuclear fuel to the Navy's mission is discussed in Section 3.7 of Ap this EIS.

II COMMENT

Operation of reactors at the Kesselring Site should be stopped immediately or shoul specified condition (such as a decision on ultimate disposition of spent nuclear fu
RESPONSE
Cessation or continuation of reactor operations at the Kesselring Site is not one o evaluated in this EIS. The continued operation of these reactors will not remove t a method for safely managing spent nuclear fuel until a method for ultimate disposi Therefore, the continued operation of the reactors at the Kesselring Site is beyond Environmental Impact Statement.
As discussed in this Environmental Impact Statement, spent nuclear fuel already exi management at some location. This EIS considers management of spent nuclear fuel c metric tons of heavy metal, 2700 metric tons of which is already in existence. App tons of the total of 2800 metric tons of heavy metal is Naval spent nuclear fuel an this will be generated at the Kesselring Site in the coming years. Thus, stopping reactors at the Kesselring Site will not eliminate the need for safe management of

II COMMENT

A commentor was skeptical that the transition to any new method for management of N fuel could be implemented in time to prevent accumulation of spent nuclear fuel at
RESPONSE

Section 3.8 of Appendix D to Volume 1 of the EIS states that most of the alternativ period of implementation while facilities were constructed and equipment was procur and equipment would be employed to the fullest extent to manage Naval spent nuclear six years of the transition to ensure refueling and defueling of nuclear-powered wa necessary during this period. Naval spent nuclear fuel would be transported to the at INEL during the transition should an alternative be selected requiring construct facility or procurement of additional shipping containers for dry storage at Navy s alternative, Naval spent nuclear fuel would be shipped to INEL for approximately th alternatives requiring replacement of the Expended Core Facility, the transition wo six years. After the transition period, the new facilities would be completed to t begin to accept Naval spent nuclear fuel.
These transition periods represent the best estimate of the time needed to execute given the need for federal budgeting, procurement, and construction.

II II COMMENT

Some persons alleged that the storage of Naval spent nuclear fuel at Pearl Harbor N violate a provision of the state constitution of Hawaii.
RESPONSE
The state constitution of Hawaii prohibits the disposal of radioactive waste within approval of the state legislature. Regardless of the applicability of that require disposal of spent nuclear fuel in Hawaii is considered in this EIS. Under all of t Naval spent nuclear fuel would be monitored and maintained at the interim storage l method for ultimate disposition is being identified and implemented, consistent wit direction, such as disposal in a geologic repository. Currently, Congress has dire Yucca Mountain site in Nevada as a candidate geologic repository.

II COMMENT

The Office of State Planning for the state of Hawaii has requested submittal of a C consistency plan if an alternative involving the storage of Naval spent nuclear fue selected.
RESPONSE
In accordance with the Coastal Zone Management Act (16 USC 1453), the Pearl Harbor as part of the Pearl Harbor Naval Base, is excluded from the coastal zone since it the Federal Government. Therefore, a Coastal Zone Management consistency determinat for storage of Naval spent nuclear fuel at Pearl Harbor Naval Shipyard.
It should be noted that the impacts of the alternatives involving storage of spent shipyard would be very small, so no impact on Hawaii's Coastal Zone would be expect alternative were selected.

II II COMMENT

The Environmental Impact Statement should provide a description of the impacts on t resulting from not removing spent nuclear fuel from ships.
RESPONSE
Section 3.6.3 of Appendix D to Volume 1 provides a description of the impacts to th to the environment) that would arise from storing Naval spent nuclear fuel on inact storing Naval spent nuclear fuel aboard inactive ships would use up the limited spa skilled shipyard workers when the shipyards ran out of ship servicing work and room up highly trained Navy nuclear ship operators. In return, this concept would not p environmental impacts than the alternatives considered in detail in this EIS and mi environmental impacts.
It is physically possible to retain spent fuel in the reactors in nuclear-powered v shipyards until a decision on the ultimate disposition of spent nuclear fuel is rea Russian nuclear-powered submarines have been tied up at shipyards without removing After a decision on ultimate disposition is made and implemented, the fuel could be ships and transported to the permanent disposal facility.

Implementing this alternative would require extensive modifications to facilities a increasing the number of piers and the availability of waterfront utilities to supp moorings. Other shipyard facilities also might have to be modified or replaced as waterfront space to moor the numbers of ships involved during the 40-year period. piers and other needed facilities would cause impacts on the waterfronts and harbor local ecology. The radiological effects on the environment or people in the vicini long as the nuclear-powered vessels and propulsion plants were maintained under the discipline used for operating ships, since the environmental effects of operating U vessels are well documented and known to be small.

This method for storing Naval spent nuclear fuel would cause some increase in const in the long run it would result in the idling of skilled workers as the shipyards r schedules were disrupted by the loss of ship servicing work. Mooring the ships wit Naval spent nuclear fuel would also utilize highly trained Navy nuclear ship operat task of watching over shut down ships. The resources dedicated to providing the ad would produce no improvements in a shipyard's ability to perform its mission and wo its capabilities.

In addition, the costs and impacts on national security resulting from such an appr would affect the ability of the U.S. Navy to carry out its mission. Further, the c ships with spent nuclear fuel remaining installed under Navy operating procedures a additional piers and waterfront services and utilities would be large. The costs o high both for ships which are to be decommissioned and for ships which would normal returned to duty. In the case of ships which are being decommissioned at the end o cost of this alternative would be to maintain qualified nuclear operators, shipboar associated shipyard support, including security, to ensure nuclear and radiological and the public. This would be more costly than removal of the spent fuel for stora to maintain operating personnel aboard the ships until they are defueled. Failure nuclear fuel from Navy ships which are still needed for service would result in the unavailable once their currently installed reactor fuel reaches the end of useful l even more expensive than leaving the spent fuel in decommissioned ships because the be replaced or the Navy would be forced to operate without the full complement of s execute national policies.

In summary, this alternative would be costly and would involve extensive actions wh effect on the environment due to construction activities. This alternative would a service of many Navy ships and only postpone decisions on a satisfactory storage lo these considerations, this alternative was eliminated from detailed analysis.

Storing Naval spent nuclear fuel on inactive ships would also prevent examination o nuclear fuel. The EIS explains that the inspections currently performed are import provide data on current reactor performance, to validate models used to predict fut support research to improve reactor design (See Sections 2.4.1, 3.1, 3.9 and B.2 of 1).

Naval fuel examinations provide real data on reactor cores installed in ships curre Fleet. This information is essential to validate calculational models and analyses Naval Nuclear Propulsion Program has built a substantial technical database from ex reactor core types. The Program predicts the performance of current core types wit supported by this database. Essentially no information exists yet on core types th of the nuclear fleet for the foreseeable future (Trident-class submarines, LOS ANGE and NIMITZ-class aircraft carriers). Data from these reactor core types are necess assumptions of current models, provide a measure of variability which exists betwee within a single core, and identify any unanticipated effects of operation that have accounted for in current models.

Confidence in the validity of engineering models is essential for assurance that sh continue without restriction. Since reactors operating in the Fleet are not taxed during peacetime operations, the Program requires a technically-sound basis for con have a robust design. Prototype reactors can not by themselves provide this inform is not identical to that of a warship. The fact that a core operated satisfactoril problem during a normal shipboard lifetime does not guarantee that the core would h under the worst case conditions for which it was designed. The examination of spen each core provides the assurance needed that there are no unexpected technical issu addressed in the models that would affect continued unrestricted operation.

Data from examinations also contributes significantly to improvements in reactor de calculational models and analyses have enabled the Program to increase both the lif performance of reactor cores. For example, the reactor cores installed in the USS 1950's operated for two years. Current reactor cores are designed to last over 20 technical accomplishment unique to Naval fuel. The Navy is seeking to develop a li

core for the New Attack Submarine which is still in the design stages. This core w amount of spent nuclear fuel generated in the long-term, as ships will not require lifetime. Continuing data from current core types is essential if this effort is t In the final analysis, examination of spent Naval fuel absorbs considerable resourc extremely tight budgets, the Navy would not be performing such examinations unless be necessary to support the conduct of technical work. Examinations done over the played a key role in achieving over 4400 reactor-years of safe nuclear reactor oper years. The record shows there is no reason for reducing the technical basis upon w design and operation are founded -- and that basis includes as a key cornerstone th spent nuclear fuel.

II COMMENT

The EIS should explain further why examination of all Naval spent nuclear fuel is e of the Navy.

RESPONSE

The EIS explains that these inspections are important for three reasons: to provid performance, to validate models used to predict future performance, and to support reactor design (See Volume 1, Appendix D, sections 2.4.1, 3.1, 3.9, and B.2). The for full examination of Naval spent nuclear fuel and one site for limited examinati Facility at INEL is the only existing facility with the capability for performing e nuclear fuel.

Naval fuel examinations provide real data on reactor cores installed in ships curre Fleet. This information is essential to validate calculational models and analyses Naval Nuclear Propulsion Program has built a substantial technical data base from e reactor core types. The Program predicts the performance of current core types wit supported by this data base. Essentially no information exists yet on core types t backbone of the nuclear fleet for the foreseeable future (Trident-class submarines, submarines, and NIMITZ-class aircraft carriers). Data from these reactor core type validate basic assumptions of current models, provide a measure of variability that individual cores and within a single core, and identify any unanticipated effects o been evaluated or accounted for in current models.

Confidence in the validity of engineering models is essential for assurance that sh continue without restriction. Because reactors operating in the Fleet are not taxe design during peacetime operations, the program requires a technically sound basis conclude we have a robust design. Prototype reactors can not by themselves provide their operation is not identical to that of a warship. The fact that a core operat indication of a problem during a normal shipboard lifetime does not guarantee that been acceptable under the worst case conditions for which it was designed. The exa nuclear fuel from each core provides the assurance needed that there are no unexpec not evaluated and addressed in the models that would affect continued unrestricted Data from examinations also contribute significantly to improvements in reactor des calculational models and analyses have enabled the program to increase both the lif performance of reactor cores. For example, the reactor cores installed in the USS operated for 2 years. Current reactor cores are designed to last more than 20 year accomplishment unique to Naval fuel. The Navy is seeking to develop a life-of-the- the New Attack Submarine which is still in the design stages. This core will furth spent fuel generated in the long-term, as ships will not require refueling during t data from current core types is essential if this effort is to succeed.

In the final analysis, examination of spent Naval fuel absorbs considerable resourc extremely tight budgets, the Navy would not be performing such examinations unless be necessary to support the conduct of technical work. Examinations done over the played a key role in achieving more than 4,400 reactor-years of safe nuclear reacto nuclear-powered warships steam more than 100 million miles, and increasing core lif more than 20 years. The record shows there is no reason for reducing the technical Naval reactor design and operation are founded -- and that basis includes as a corn of Naval spent nuclear fuel.

Language has been added to Volume 1 and Volume 1, Appendix D, Chapter 3 of the EIS matter further.

II COMMENT

The EIS should explain how much Naval spent nuclear fuel receives more than just vi why that is essential to meet the Navy's mission.
RESPONSE
The EIS explains that all Naval spent nuclear fuel is visually examined on exterior (See sections 2.4.1 and B.2 of Appendix D to Volume 1). These examinations require structural material first be removed from the fuel cells, an operation which is cur one location, the Expended Core Facility at INEL. About 10 to 20 percent of the sp receive additional examination in the form of detailed dimensional measurements to changes in fuel cell or fuel element dimensions, measurements to determine the amou corrosion on fuel elements which could impede heat transfer, and more intrusive sam internal performance characteristics of the fuel. The examinations are essential i continued safe operation of Naval reactors and design of new, improved fuel having sections 3.1 and 3.9 of Appendix D).
Naval fuel examinations provide real data on reactor cores installed in ships curre Fleet. This information is essential to validate calculational models and analyses Naval Nuclear Propulsion Program has built a substantial technical database from ex reactor core types. The program predicts the performance of current core types wit supported by this database. Essentially no information exists yet on core types th of the nuclear fleet for the foreseeable future (Trident-class submarines, LOS ANGE and NIMITZ-class aircraft carriers). Data from these reactor core types are necess assumptions of current models, provide a measure of variability which exists betwee within a single core, and identify any unanticipated effects of operation that have accounted for in current models.
Confidence in the validity of engineering models is essential for assurance that sh continue without restriction. Since reactors operating in the Fleet are not taxed during peacetime operations, the program requires a technically-sound basis for con have a robust design. Prototype reactors can not by themselves provide this inform is not identical to that of a warship. The fact that a core operated satisfactoril problem during a normal shipboard lifetime does not guarantee that the core would h under the worst case conditions for which it was designed. The examination of spen provides the assurance needed that there are no unexpected technical issues not eva the models that would affect continued unrestricted operation.
Data from examinations also contributes significantly to improvements in reactor de calculational models and analyses have enabled the program to increase both the lif performance of reactor cores. For example, the reactor cores installed in the USS 1950's operated for two years. Current reactor cores are designed to last over 20 technical accomplishment unique to Naval fuel. The Navy is seeking to develop a li core for the New Attack Submarine which is still in the design stages. This core w amount of spent nuclear fuel generated in the long-term, as ships will not require lifetime. Continuing data from current core types is essential if this effort is t In the final analysis, examination of spent Naval fuel absorbs considerable re sour extremely tight budgets, the Navy would not be performing such examinations unless be necessary to support the conduct of technical work. Examinations done over the played a key role in achieving over 4400 reactor-years of safe nuclear reactor oper nuclear-powered warships steam over 100,000,000 miles, and increasing core lifetime years. The record shows there is no reason for reducing the technical basis upon w design and operation are founded -- and that basis includes as a key cornerstone th spent nuclear fuel.
Section 2.4.1 of Appendix D to Volume 1 has been revised to include information on spent nuclear fuel which receives additional examination.

II COMMENT

Some Naval fuel inspection is performed in facilities other than ECF; this seems to navy's assertion that all its spent fuel is examined at ECF. Complete information shipments to or from several laboratories and test facilities" mentioned at A.2.4 o A detailed description of all fuel examination and testing facilities available to provided.

RESPONSE
This EIS correctly states that all spent nuclear fuel removed from Naval nuclear-po prototypes is transported to the Expended Core Facility at INEL. This EIS in Volum Sections 2.4.1 and B.2, describes how all Naval fuel modules are visually examined pools to verify that the spent fuel has performed as expected. Some modules are se examination or analysis. These more extensive examinations, which include destruct nondestructive operations on the fuel and structural regions of the modules, are pe Core Facility water pools and shielded cells.
The Naval Nuclear Propulsion Program evaluates small specimens of both fuel and non possible use in Naval reactor systems. As discussed in EIS Volume 1, Appendix D, S specimens are irradiated at the INEL Test Reactor Area and then returned to the Exp for examination. A typical specimen undergoes several cycles of irradiation and ex of months or years. The examination includes nondestructive and destructive operat Core Facility water pools and shielded cells. The destructive operations may inclu sectioning of specimens for additional testing or analysis.
Certain specimens may require specialized testing or examination not available at t Facility. After the initial inspections at ECF, these specimens are shipped off- s Atomic Power Laboratory or the Bettis Atomic Power Laboratory, for further inspecti cells and glove boxes.
In summary, all Naval spent nuclear fuel and test specimens are examined at the Exp INEL. Nearly all of the individual tests and examinations are performed in the Exp water pools and shielded cells. There are currently no other facilities available perform this work, but alternatives to the use of the Expended Core Facility at INE EIS. Specialized tests and examinations may be performed at off-site locations and associated with the transportation of these specimens are included in this EIS (ref provide a complete and comprehensive evaluation for all alternatives considered.

II COMMENT

There is a need to examine Naval spent nuclear fuel to maintain the safety of the n vessels and to promote improvements in that fuel, including longer-lived cores whic nuclear fuel for a given amount of energy produced.
RESPONSE
The observation that examination of Naval spent nuclear fuel is important to mainta Navy's nuclear power program and to improving the performance of future designs, al the amount of spent nuclear fuel which must be managed, supports the Navy's evaluat in this EIS. The ability to examine all Naval spent nuclear fuel is a factor in th preferred alternative for the management of spent nuclear fuel. The examination of absorbs considerable resources. In a time of extremely tight budgets, the Navy wou such examinations unless they were judged to be necessary to support the conduct of Examinations done over the last 37 years have played a key role in achieving over 4 safe nuclear reactor operations, having nuclear-powered warships steam over 100,000 increasing core lifetimes from 2 years to over 20 years. The record shows there is the technical basis upon which safe Naval reactor design and operation are founded includes as a key cornerstone the examination of Naval spent nuclear fuel.

II II COMMENT

The possibility that Native American, Native Hawaiian, or other groups, including l might suffer disproportionately high human health effects or environmental impacts alternatives considered for management of spent nuclear fuel should be evaluated.
RESPONSE
Analyses of the impacts associated with management of Naval spent nuclear fuel show on human health or the environment would be small for all of the alternatives consi impacts due to normal operations or hypothetical accident conditions associated wit Naval spent nuclear fuel present little or no significant risk and do not constitut to the surrounding population. Therefore, the impacts of Naval spent nuclear fuel constitute a disproportionately high and adverse impact to any particular segment o minorities and low-income groups included.
A description of the composition of the populations surrounding the sites considere

Naval spent nuclear fuel and the results of evaluation of the potential for disprop adverse impacts on subgroups of these populations has been added to Chapters 4 and Volume 1.

II II COMMENT

Some persons stated that they believed that past environmental practices of the Nav contamination of the water or soil in a location. Most of these statements did not practices involved and in some cases did not identify a specific location, but one Kitsap County, Washington, another mentioned pollution of Puget Sound, and some men Kahoolawe and Waikane Valley areas of Hawaii.

RESPONSE

The Navy complies with all applicable federal, state, and local environmental laws protection of the environment. Some of the federal laws and regulations which appl include the Resource Conservation and Recovery Act (RCRA), the Toxic Substances Con the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), t Amendments and Reauthorization Act (SARA), the Safe Drinking Water Act, the Clean W Clean Air Act, among many others. All of these laws have either the U. S. Environm Agency or appropriate departments in the host states as the regulator. The Naval N Program's compliance with these laws is actively monitored by the EPA and the state there have been more than 300 inspections, examinations, and audits by state and fe these laws with no significant findings.

Some concerns expressed about past environmental practices were not specific enough evaluation. Others do not relate to the activities of the Naval Nuclear Propulsion Superfund sites in Kitsap County and the pollution of the Chesapeake Bay.

The Kahoolawe and Waikane Valley areas of Hawaii were target ranges. These areas h affected by the operation or servicing of nuclear-powered Naval vessels. Similarly effects of past environmental practices at Pearl Harbor do not appear to be specifi activities of the Naval Nuclear Propulsion Program. However, the Pearl Harbor Nava Environmental Protection Agency, and the state of Hawaii recently entered into a Fe Agreement under Section 120 of the Comprehensive Environmental Response Compensatio Act (CERCLA). This agreement has as its purpose the investigation and remediation impacts of past and present Navy activities at Pearl Harbor and assurance of the ef actions by coordination with federal and state authorities.

Some of the issues identified in comments may appear to be related to the Naval Nuc Program, but review of these cases has shown that they are not caused by the Progra following are examples of such matters:

1. The report in the Seattle Post-Intelligencer of March 9, 1994, that low levels detected in the water around Puget Sound Naval Shipyard apparently did not include where Iodine-131 was identified is located near the outfall of the Bremerton sewage Iodine-131 is commonly used for therapeutic purposes in the treatment of medical pa thyroid disorders and it is not unusual to detect Iodine-131 in sanitary sewer effl patients' excreta. Consequently, the most likely source of the Iodine-131 found in medical applications.

Activities associated with Naval nuclear operations at the shipyard do not result i any radioactive liquid effluent. In addition, Iodine-131 is a product of fission in Iodine-131 produced from Naval nuclear operations at the shipyard is totally contai fuel and could not escape to the reactor coolant or the environment. Frequent rout coolant confirms that Iodine-131 is not released from the fuel. Consequently, the iodine in the waters of Puget Sound was not released from activities associated wit vessels.

2. The reason Saratoga County was fined by the State of New York for problems in K during work on the Northline Bridge was not related to material released from the K the fine had nothing to do with the sediment in the creek or material from the Kess site along the streams involved. This has been confirmed by the Director of the Sa Environmental Management Services.

There is a memorandum of understanding between the New York State Department of Env Conservation and Saratoga County covering work in watercourses and wetlands associa maintenance or renovation. The New York State Department of Transportation request to perform some work to prevent erosion or undercutting of the approaches to the No performing the requested modifications to the Northline Bridge approaches, Saratoga scope of work allowed by the memorandum of understanding. The New York State Depar

Environmental Conservation believed that the County should have obtained additional perform the work and consequently fined Saratoga County.
Annual sampling of Glowegee Creek upstream and downstream from the Kesselring Site there is no significant difference between radioactivity upstream and downstream. sampling and other routine environmental sampling at and around the Kesselring Site year to state, county, and local officials.
None of the issues raised in such comments are related to the management of Naval s the actions considered in this EIS.

II COMMENT

Some persons stated or implied that they believe that the Navy has not made reports available to the public, has incorrectly represented the conclusions of these repor pollutants to the environment in violation of laws or regulations.
RESPONSE
This comment has no basis. Navy Nuclear Propulsion Program work is subject to and applicable Federal, state, and local regulations for protection of the environment, Conservation and Recovery Act (RCRA), the Toxic Substances Control Act (TSCA), the Environmental Response Compensation and Liability Act (CERCLA), the Superfund Amend Reauthorization Act (SARA), the Safe Drinking Water Act, the Clean Water Act, and t and others. The U. S. Environmental Protection Agency or state agencies regulate N Propulsion Program work in accordance with these statutes.
Compliance with these laws for Naval Nuclear Propulsion Program work is actively mo and the states and over the last 14 years there have been more than 200 inspections audits by state and Federal agencies under these laws with no significant problems or penalties imposed. The reports of the monitoring and inspections performed by t obtained from the agency involved, and the Navy has provided copies of many of thes to requests from the public.
The Navy has provided a large amount of information on the shipment of Naval spent types and amounts of radiation or radioactive material involved in releases from no postulated accidents in Appendix D to Volume 1. Appendix D also includes descripti Core Facility and Naval spent nuclear fuel operations, including transportation (Se 2 and 3 and Attachments A, B, and F). The Navy has attempted to provide enough inf radiation, radioactivity, and other aspects of operations or hypothetical accidents calculation of the environmental impacts. This is intended to permit independent a of the estimated impacts calculated by the Navy. Every effort has been made during EIS to see that the best available information on impacts has been included.

II COMMENT

The commentor suggests that INEL's Radioactive Waste Management Information System Master Database under-reports the curie content of Navy wastes sent to the Radioact Management Complex, and that the wastes were buried in a manner that does not compl regulations. The commentor further states that items in the database in question w deleted during a database validation conducted in fiscal year 1992.
RESPONSE
This comment is inaccurate. The Navy has complied and continues to comply with all state, and local regulations for protection of the environment and handling and dis waste. The commentor's reference to burial of 8 million curies at INEL appears to data in a 1989 unvalidated version of the database, later corrected by DOE personne During the approximately 40 years of operation of the Navel Reactors Facility at IN Propulsion Program has shipped approximately 4 million curies of low-level radioact Radioactive Waste Management Complex for disposal in accordance with all applicable stringent controls. Burial of low-level radioactive waste is the method for dispos Nuclear Regulatory Commission for waste under its jurisdiction. Sampling of the so the vicinity of INEL has shown that the material buried at INEL for the Naval Nucl has had no detectable effect on air or water quality and has had no effect on the e boundaries of the burial ground.
Examination of the database revealed that the entry proposed by the commentor as be database was, in fact, present in the database.

II COMMENT

The commentor stated concern that Pearl Harbor Naval Shipyard already holds some la radioactive waste and that the Navy claims such storage poses little threat to the
RESPONSE
This comment apparently refers to the use of shipping containers to store Naval spe recently defueled ships at Pearl Harbor Naval Shipyard during the period required f EIS. The storage of these containers is covered under the Environmental Assessment Storage of Naval Spent Fuel, dated December 1993, and issued by the U.S. Department the associated finding of No Significant Impact. Section 3.1 of the Environmental results of analyses of the environmental impacts associated with the storage of a containers at Pearl Harbor until the Record of Decision supported by this EIS is is Volume 1, Appendix D, Section F.1.4.1.5 of the EIS presents the radiation exposure storage of many more containers. The results of both analyses show that risks to w from the storage of Naval spent nuclear fuel in shipping containers at the Pearl Ha very low.

II COMMENT

The Southeastern Public Service Authority power plant located on the Norfolk Naval dioxin. The operation of the plant has not demonstrated a community good faith app
RESPONSE
Although this comment is not related to Naval spent nuclear fuel management, a resp provided.
The Southeastern Public Service Authority (SPSA) is a public agency created by the Sewer Authority Act. In October 1992, SPSA assumed responsibility for operation an refuse-derived fuel plant, operating the plant under contract to the Navy. Solid w communities including Norfolk, Portsmouth, Chesapeake, Suffolk, Isle of Wight, Virg and Southhampton are shredded after sorting and removal of recyclable materials and to produce steam for the Norfolk Naval Shipyard and electricity to supplement the s Virginia Electric Power. The SPSA plant at Norfolk Naval Shipyard does not violate the Clean Air Act since the U. S. Environmental Protection Agency (EPA) does not re with any standard for dioxin emissions until 1996. In the absence of a federal sta emissions, in 1989 the state of Virginia, with Navy agreement, incorporated into th permit a dioxin standard consistent with the dioxin limit the EPA plans to implemen agreed to this standard at the time based on test data which was collected when the new, but that data apparently was not representative of the long- term, steady-stat because monitoring later showed dioxin levels exceeded these limits. When the emis exceed the permit levels, the Navy, SPSA, and the Virginia Department of Environmen established an agreement which resulted in a multimillion dollar contract, initiate state of the art pollution control equipment which exceeds EPA criteria. The plant with the Clean Air Act requirements in September 1995, two months ahead of the EPA In the meantime, a unique spray water system operating in the flues for all boilers proven to reduce the dioxin and furan emissions by 95%. Risk exposure studies by t Department of Health have concluded that there is no unacceptable risk associated w the SPSA plant and sampling in the vicinity of the plant has found no dioxin or fur background levels.
On a related point raised by the commentor, there is no record of a 1972 Supreme Co the SPSA and the subject of dioxins at the refuse-derived fuel plant.

II COMMENT

Commentors provided statements of personal knowledge and conviction that the safety in servicing nuclear-powered vessels and in handling and shipping Naval spent nucle the Navy's statements in this EIS. Some commentors affirmed the relationship betwe spent nuclear fuel and ensuring the safety of nuclear-powered vessels and the sailo them.

RESPONSE
These comments support the Naval Nuclear Propulsion Program and its continuing effo safety and minimize the risks associated with operation of the nuclear fleet. Prot and service nuclear-powered vessels, the public, and the environment has always bee priorities of the Navy.

II 8.4 Proposed Action and Alternatives

II COMMENT

The Navy should consider some different alternatives than those in the Environmenta
RESPONSE
The Navy has considered in this Environmental Impact Statement all alternatives con required by NEPA (42 USC 4332) and Federal regulations (40 CFR 1502.14).

II COMMENT

The "no action" alternative should be revised to consider the cessation of nuclear refueling and defueling to make it a true "no action" alternative.
RESPONSE
Spent nuclear fuel and nuclear-powered warships currently exist, so there can be no involves no action. The No Action alternative defined in the EIS represents the mi of action which can be taken with respect to spent nuclear fuel.
Ceasing the refueling and defueling of nuclear powered warships would entail substa than the description of the "no action" alternative currently in the EIS. Specific to: (a) provide additional pier space to tie up ships which would have otherwise be (b) keep more Naval personnel on duty as crew members for ships which were schedule decommissioned; (c) rearrange operating schedules to reflect for the unavailability warships planned for refueling; (d) substantially reduce the work at Naval shipyard of thousands of workers with commensurate serious economic impacts to the communiti (e) remove some ships from operation thus reducing the fleet size below the level n national policies. For these reasons, as discussed in Section 3.6.3 of Appendix D alternative of leaving nuclear fuel aboard nuclear-powered warships was not examine

II COMMENT

Storage for periods of the length considered in the EIS is not seen by some as "tem
RESPONSE
Volume 1 of this EIS considers alternative approaches to safely, efficiently, and r existing and projected quantities of spent nuclear fuel until the year 2035. This required to make and implement a decision on the ultimate disposition of spent nucl provides the environmental information to support decisions that will facilitate a current practices and ultimate disposition of spent nuclear fuel. The Navy and DOE transition from fuel management under the alternatives considered in this EIS to ul quickly as practicable.

II COMMENT

Navy plans for dealing with the transition from current practices for management of fuel to one of the other alternatives should be discussed.
RESPONSE
The transition period required if certain alternatives were selected is described i D to Volume 1. As described in Section 3.8, the transition would make use of exist transportation methods described under the alternatives considered. The risks asso alternatives considered for management of Naval spent nuclear fuel, summarized in C

D are small, so the risks associated with the transition period would be just as sm

II COMMENT

A commentor advocated storage of Naval spent nuclear fuel at the Expended Core Faci number of reasons.
RESPONSE
Long-term storage of spent nuclear fuel at the Expended Core Facility is not among evaluated in the EIS because such storage would result in no reduction in environme those for the alternatives considered and it would have a severe impact on the Navy mission. Storage in the water pools at the Expended Core Facility would effectivel of Naval spent nuclear fuel at that facility because storage would use up the space for machinery and examination equipment. This would require the construction of ne examination of Naval spent nuclear fuel or the loss of the ability to perform exami nuclear fuel. The impact on the Navy's mission that would result from the loss of Naval spent nuclear fuel is described in Chapter 3 of this EIS.
Analyses of the impacts associated with storage of the Naval spent nuclear fuel at the appendices to the EIS for each site. For example, section 5 of Volume 1, Appen impact of storing Naval spent nuclear fuel in water pools at INEL.
Attachment F to Appendix D, Section F.1.4.1.4, does present the impacts of performi examination at Expended Core Facility. In addition, the impacts of spent nuclear f DOE sites and Puget Sound Naval Shipyard and the impacts of water pool storage at t sites are presented. Results of analyses of the impacts for dry storage at all of this EIS are also provided. These results are shown in Section F.1.4.1.5 of Attach analysis, a site near the Expended Core Facility at the Naval Reactors Facility was

II COMMENT

According to a commentor, one hundred Naval spent nuclear fuel shipments to INEL pl transition from current practices for management of Naval spent nuclear fuel to one alternatives make the No Action alternative a misnomer.
RESPONSE
The scope of this EIS is somewhat unique in that it evaluates ongoing operations; i of an action not yet initiated. Accordingly, each alternative evaluated in this EI must involve some period of transition and implementation while new facilities are During the transition periods, which range from about three years for the No Action 20 years for Centralization of all DOE spent nuclear fuel, existing facilities woul managing spent nuclear fuel. Under the No Action alternative, Naval spent nuclear transported to INEL while shipping containers are procured for storage at Navy site 40 year period, so a three year transition period is not excessive. Alternatives w transportation for Naval spent nuclear fuel to INEL during a transition are untenab would be unable to refuel and defuel naval vessels, thereby greatly impacting natio explained below and in Volume 1, Appendix D, Section 3.6.3. Moreover, such an appr actually involve substantially more action and environmental impacts than shipment INEL because all of the containers available to store Naval spent nuclear fuel at s sites have been filled during the period while this EIS was being prepared.
Of particular importance in this regard is the refueling of the aircraft carrier US USS NIMITZ is scheduled to begin in 1998, but refueling preparations are already un These preparations entail emptying, by late 1995, spent nuclear fuel from the earli refueling of the USS ENTERPRISE and defueling of the USS LONG BEACH. This spent nu Newport News Shipbuilding and Drydock Company in a special support facility which i NIMITZ Class refuelings. Once the facility is emptied, it would then be reconfigur refurbishment, maintenance, and extensive training of refueling personnel.
If the facility cannot be emptied, the USS NIMITZ cannot be refueled. The result i have fewer carriers than congressionally mandated to fulfill its national security conflicts (such as Operation Desert Storm) and peacekeeping (such as Somalia and Ha security need to ensure that the USS NIMITZ is refueled on schedule was certified b Defense in October 1994 and accepted by the Governor of Idaho in January 1995, when shipment of naval spent nuclear fuel from the Newport News Shipbuilding and Drydock continue. Additional shipments would be required after the Record of Decision is i

June 1995 to complete unloading the facility by late 1995.
Volume 1, Appendix D, Section 3.6.3 provides a description of the impacts to the Na environment) that would arise from storing naval spent nuclear fuel on inactive shi naval spent nuclear fuel aboard inactive ships would use up the limited space at sh shipyard workers when the shipyards ran out of ship servicing work and room to do w trained Navy nuclear ship operators. In return, this concept would not produce low impacts than the alternatives considered in detail in this EIS and might actually i impacts.

II COMMENT

The selection of the preferred alternative for the Navy should be based on a combin and the lowest cost.
RESPONSE
Section 3.9 of Appendix D to Volume 1 of this EIS states that the selection of the alternative was based on consideration of several important issues, including consi small environmental impacts associated with all of the alternatives considered. Tw issues are cost and risk. Section 3.7.4 provides a summary of how the cost and ris alternatives.
A comparison of the change in the number of potential cancer fatalities that might population for each year of operation for each Naval spent nuclear fuel alternative 3.7.1.1, Table 3-1, in Appendix D to Volume 1. This comparison is broken down to s associated with normal operations, the highest risk facility accident, and transpor risks due to Naval Nuclear Propulsion Program activities for any of the alternative small. In all cases, thousands of years of repetition would be required before a s fatality would occur. These risks are all so small that there is no real differenc from the standpoint of risk.
The costs associated with each Naval spent nuclear fuel alternative are summarized 3.7.4 of Appendix D to Volume 1. The costs to the Navy for the alternatives consid $1.5 billion and $5.7 billion over 40 years.

II COMMENT

Naval spent nuclear fuel shipping containers are ill-suited for storage.
RESPONSE
Naval spent nuclear fuel shipping containers are designed to withstand the rigors o hypothetical accidents which might occur during shipping. As a result, the certifi Naval spent nuclear fuel are rugged enough to endure the far less demanding conditi storage at Navy sites. This fact is borne out by the Navy's Environmental Assessme spent nuclear until this EIS is completed and by the analyses provided in Attachmen Volume 1 of this EIS.
As stated in Appendix D, a long-term seal would be needed to replace the rubber sea containers if an alternative utilizing the shipping containers for storage for 40 y result of this EIS. However, the existing seal is designed to last many years and until that decision is made. The current shipping container seals are designed to material during frequent loading and unloading operations and during shipment, requ and reusable. Design of a seal for long-term storage would be simpler because repe closing of the container lid would not occur during storage, allowing use of such m container shut.

II COMMENT

Naval spent nuclear fuel is being left indefinitely in shipping containers at shipy
RESPONSE
Naval spent nuclear fuel is being stored in sealed shipping containers at Navy site required for preparation of this EIS and selection of an alternative for management fuel. The environmental impacts associated with this storage were evaluated in an Assessment and Finding of No significant Impact issued in early 1994. An Environme

prepared and a Finding of No significant Impact was issued because the impacts of t alternative for this short period of storage were found to be small. The alternati certified shipping containers at the sites which would continue to perform servicin through June 1995 was selected as the best means of safely managing Naval spent nuc time needed for completion of this EIS.
The Record of Decision identifying the alternative selected for management of spent will be issued on June 1, 1995. At that time, implementation of the alternative se spent nuclear fuel stored at Navy sites will be transferred to the locations associ selected unless an alternative making use of storage at the Navy sites is selected.

II COMMENT

Management of Naval spent nuclear fuel at a Navy site should not be considered beca population centers.
RESPONSE
Under NEPA, the Navy is required to consider the full range of reasonable alternati alternative of taking no action. The analysis in the EIS demonstrated that the env of the alternatives would be small. This analysis took into consideration populati Therefore, the Navy did not eliminate any locations from consideration based on the Although Naval sites are included in the analysis, the Navy has identified a prefer 3.9, Appendix D, Part A which would not store Naval spent nuclear fuel at Naval sit preferred alternative would resume the historic, technically sound and safe practic and defueling of nuclear-powered warships and prototypes as planned, transporting t spent nuclear fuel to the Expended Core Facility at INEL for full inspection and ex transferring Naval spent nuclear fuel to DOE for storage at that site.

II COMMENT

Management of Naval spent nuclear fuel at a Navy site should not be considered beca the vicinity.
RESPONSE
The analyses in Appendix D to Volume 1 of the EIS specifically considered the locat of the airports in the vicinity of each site (See Attachment F of Appendix D to Vol into account, the risk from an airplane crashing into a shipping container was show resulting risk of injury to the public small. For example, the most limiting accid nuclear fuel is described in Attachment F of Appendix D to be an airplane crash int at the Pearl Harbor Naval Shipyard. This accident would lead to 26 latent fatal ca years in the population within 50 miles of the shipyard. Since the probability of 100,000 per year, the risk would be 0.00026 latent fatal cancer fatalities per year one chance in 4000 of single latent cancer fatality over a year. This risk is shar 820,000 people residing within 50 miles of the shipyard who would be expected to ex cancer fatalities from all other causes every year.

II COMMENT

Management of Naval spent nuclear fuel at Pearl Harbor Naval Shipyard should not be the Honolulu airport is close enough that it might be damaged, making it more diffi assistance to reach the island.
RESPONSE
The most limiting accident involving Naval spent nuclear fuel is described in Attac to Volume 1 to be an airplane crash into a shipping container at the Pearl Harbor N accident would lead to 26 latent fatal cancers over the next fifty years in the pop the shipyard. Since the probability of the event is one chance in 100,000 per year 0.00026 latent fatal cancer fatalities per year or, in other words, about one chanc cancer fatality over a year. This risk is shared among the approximately 820,000 p miles of the shipyard who would be expected to experience over 2000 cancer fataliti causes every year. The analyses in Appendix D of the EIS specifically considered t Honolulu airport relative to Pearl Harbor Naval Shipyard. It also estimated the ex

that might result from hypothetical accidents. The analysis of the impact of hypot
Appendix D of the EIS did not rely on any off-shipyard response.
Taking into account the location of the airport and the effects of hypothetical acc
Honolulu airport could not be used to provide emergency assistance from the mainlan
and the resulting risk to the public small. Further, the Navy has significant emer
on Oahu and does not rely on the mainland, State, or local resources for emergency
existing emergency plans and resources.

II COMMENT

Management of Naval spent nuclear fuel at a Navy site should be ruled out because o
or other water in the vicinity.
RESPONSE
Although the Navy's preferred alternative is not to store Naval spent nuclear fuel
NEPA, the Navy is required to consider the full range of reasonable alternatives, i
of taking no action. The analysis in the EIS demonstrated that the environmental i
alternatives would be small. This analysis took into consideration nearby bodies o
Navy did not eliminate any locations from consideration based on these characterist
managed its spent nuclear fuel for nearly 40 years now without any significant envi
water.

II COMMENT

Management of Naval spent nuclear fuel at a Navy site should be ruled out because o
seismic activity in the vicinity.
RESPONSE
Although the Navy's preferred alternative is not to store Naval spent nuclear fuel
NEPA, the Naval Nuclear Propulsion Program is required to consider the full range o
alternatives, including the alternative of taking no action. The analyses in Appen
Sections F.1.2, F.1.3, and F.1.4) took into consideration accidents which might be
phenomena, including earthquakes equaling or exceeding the design basis of the faci
demonstrated that the impacts were found to be small. Any facility constructed for
fuel management would be designed with adequate strength based on the specific seis
the site. Therefore, the Navy did not eliminate any locations from consideration b
characteristics. See also response 08.04(015).

II COMMENT

Management of Naval spent nuclear fuel at a Navy site should be ruled out because o
severe weather in the vicinity.
RESPONSE
Although the Navy's preferred alternative is not to store Naval spent nuclear fuel
NEPA, the Naval Nuclear Propulsion Program is required to consider the full range o
alternatives, including the alternative of taking no action. The analyses in Appen
Chapter 5 and Attachment F, Section F.1) showed that the environmental impact of an
would be small, including accidents which might be caused by natural phenomena, suc
tsunamis, or tornados. Any facility constructed for Naval spent nuclear fuel manag
designed with adequate strength based on the specific weather characteristics of th
Navy did not eliminate any locations from consideration based on these characterist

II COMMENT

Additional Department of Defense sites should be considered.
RESPONSE
A site selection process was followed which is described in depth in the EIS and in
documents. In view of the range of types of sites analyzed in the EIS (from large

areas to remote, desert-like, sparsely populated areas) and the conclusion that env would be very small at all sites, extrapolation to other sites would be expected to For management of Naval spent nuclear fuel, certain physical requirements, such as roadway, and administrative and support functions needed to safely handle and monit spent fuel are needed. These administrative and support functions include physical spent fuel contains highly enriched uranium), radiological monitoring, and emergenc In view of the very small impacts for the sites considered, providing these adminis functions and the physical facilities at a site which does not have them would prod the environment with no associated reductions in impact.

II COMMENT

The Navy should consider some other site, either specified or not specified in the
RESPONSE
For management of Naval spent nuclear fuel, certain physical requirements, as a rai roadway, and administrative and support functions needed to safely handle and monit spent fuel are needed. These administrative and support functions include physical spent fuel contains highly enriched uranium), radiological monitoring, and emergenc In view of the very small impacts for the sites considered, providing these adminis functions and the physical facilities at a site which does not have them would prod the environment with no associated reductions in impact.

II COMMENT

The Navy should consider some other site which is not specified.
RESPONSE
For management of Naval spent nuclear fuel, certain physical requirements, such as roadway, and administrative and support functions needed to safely handle and monit spent fuel are needed. These administrative and support functions include physical spent fuel contains highly enriched uranium), radiological monitoring, and emergenc In view of the small impacts for the sites considered, providing these administrati and the physical facilities at a site which does not have them would produce greate environment with no associated reductions in impact.

II COMMENT

Management of Naval spent nuclear fuel at a Navy site should not be considered if i scenic area.
RESPONSE
Under NEPA, the Navy is required to consider the full range of reasonable alternati alternative of taking no action. The analysis in the EIS demonstrated that the env of the alternatives would be small. This analysis took into consideration the aest each site and showed that any impacts in this category would be small. Therefore, eliminate any locations from consideration based on these characteristics.
Although Naval sites are included in the analysis, the Navy has identified a prefer 3.9, Appendix D, Part A which would not store Naval spent nuclear fuel at Naval sit preferred alternative would resume the historic, technically sound and safe practic and defueling of nuclear-powered warships and prototypes as planned, transporting t nuclear fuel to the Expended Core Facility at INEL for full inspection and examinat Naval spent nuclear fuel to DOE for storage at that site.

II COMMENT

Management of Naval spent nuclear fuel at a Navy site should not be considered if i environmentally sensitive area.
RESPONSE

Under NEPA, the Navy is required to consider the full range of reasonable alternati alternative of taking no action. The analysis in the EIS demonstrated that the env of the alternatives would be small. This analysis took into consideration possible each site and showed that any impacts in this category would be small. Therefore, eliminate any locations from consideration based on these characteristics.
Although Naval sites are included in the analysis, the Navy has identified a prefer 3.9, Appendix D, Part A which would not store Naval spent nuclear fuel at Naval sit preferred alternative would resume the historic, technically sound and safe practic and defueling of nuclear-powered warships and prototypes as planned, transporting t nuclear fuel to the Expended Core Facility at INEL for full inspection and examinat Naval spent nuclear fuel to DOE for storage at that site.

II COMMENT

Use of the Puget Sound Naval Shipyard Water Pit Facility will preclude the performa refuelings at Puget Sound Naval Shipyard and consequently jobs would be lost at the
RESPONSE
The Decentralization Alternative for Naval Spent Nuclear Fuel Management includes a would utilize the Puget Sound Naval Shipyard Water Pit Facility for examination of stated in this Environmental Impact Statement, the use of this facility for spent n would preclude its use for support of aircraft carrier refuelings. If the option o pool for fuel examination under the Decentralization Alternative were selected, it find other ways to support aircraft carrier refuelings. Due to the limited space a Naval Shipyard, it might prove difficult to find alternate means to provide the nee carrier refueling at that shipyard.
Long range plans have included Puget Sound Naval Shipyard as the west coast locatio aircraft carrier refuelings. This was the basis for constructing the Water Pit Fac currently under construction, the Navy will have at least nine nuclear- powered air near-term refuelings are scheduled for Puget Sound Naval Shipyard, it is expected t overlapping of refuelings and defuelings will require simultaneous servicing of two might require two shipyards to perform the work. The comment presupposes that thes at Puget Sound Naval Shipyard and therefore could be lost, but other variations in make this uncertain.

II COMMENT

Facilities for management of Naval spent nuclear fuel should not be located at site handled or stored.
RESPONSE
Weapons are not handled or stored at any of the Navy sites considered in this EIS. locations, such as the Pearl Harbor or Norfolk Naval Shipyard, other Navy facilitie weapons are in the same general vicinity, but they are separated from the sites con distance that the weapons would not constitute a threat to Naval spent nuclear fuel Even though accidents associated with weapons are not reasonably expected to affect fuel, the consequences of such accidents would be within the limits of other accide weapons analyzed in this EIS. Appendix D to Volume 1 of the EIS includes an evalua of hypothetical accidents which might occur as a result of human error, equipment f phenomena, including fires involving the storage facilities and projectiles strikin results of these analyses are summarized in Chapter 3, tabulated for each individua described in detail in Attachment F. The analyses show that the risks associated w are very low.
Although the Navy's preferred alternative is not to store Naval spent nuclear fuel NEPA, the Naval Nuclear Propulsion Program is required to consider the full range o alternatives, including the alternative of taking no action. The evaluation of pot health and the environment provided in this EIS shows that the risks associated wit and sites considered is very small.

II COMMENT

Storage of Naval spent nuclear fuel at Puget Sound Naval Shipyard might result in t
the shipyard to operate efficiently.
RESPONSE
It is true that space is at the Puget Sound Naval Shipyard must be managed carefull
in Table D-1 in Appendix D to this EIS, between 33,000 and 77,000 square feet woul
three of the four possible methods for storage of Naval spent nuclear fuel at Puget
with the fourth, storage in shipping containers on railcars, requiring 260,000 squa
examining Naval spent nuclear fuel at Naval sites is not the Navy's preferred alter
alternative which would use storage at Navy sites were selected, the needed area co
shipyard without limiting its ability to carry out its mission effectively.
In Section 3.9 of Appendix D to this EIS, the Navy has clearly stated its preferred
management of Naval spent nuclear fuel during the 40 year interim period and discus
alternative would support the Navy's mission, as established by Congress. Appendix
contains an evaluation of the environmental impacts of the Navy's proposed action a
including those which would not support the Navy's mission, in accordance with NEPA
Environmental Quality regulations, and DOE and Navy regulations.

II COMMENT

Management of Naval spent nuclear fuel at a DOE site other than INEL should not be
it would be necessary to construct a new facility similar to the existing Expended
RESPONSE
Under NEPA, the Navy is required to consider the full range of reasonable alternati
alternatives which would relocate the management of Naval spent nuclear fuel to oth
analysis in the EIS demonstrated that the environmental impact of any of the altern
This analysis took into consideration the potential effects of normal operations an
for each site and for transportation of Naval spent nuclear fuel. Therefore, the N
locations from consideration based on these characteristics.
Although sites which would require the construction of a replacement for the existi
Facility at INEL are included in the analysis, the Navy has identified a preferred
Appendix D, Part A which would not examine or store Naval spent nuclear fuel at tho
EIS shows that environmental impacts of constructing and operating an examination f
small, the cost of constructing such a facility would exceed $800,000,000. The Nav
would resume the historic, technically sound and safe practice of conducting refuel
nuclear-powered warships and prototypes as planned; transporting the Naval spent nu
Expended Core Facility at INEL for full inspection and examination; and transferrin
fuel to DOE for storage at that site.

II COMMENT

The water table at Puget Sound Naval Shipyard is just below the ground surface. Th
of a water pit facility at this location might not be possible.
RESPONSE
Construction and operation of a water pool facility at Puget Sound Naval Shipyard i
demonstrated by the existing Water Pit Facility. The groundwater table is relative
the ground in this region and this makes building design and construction more comp
accomplished in a safe manner.

II COMMENT

Management of spent fuel at Puget Sound Naval Shipyard should be ruled out because
inspection facilities are available at the shipyard.
RESPONSE
The Decentralization Alternative for Naval Spent Nuclear Fuel Management includes a
would utilize the Puget Sound Naval Shipyard Water Pit Facility for examination of
stated by the commentor, this alternative would provide only a limited capability f

analysis of Naval spent nuclear fuel and, as described in the EIS, the ability to s of the advanced nuclear reactors needed to ensure the safety and performance superi ships would be jeopardized. However, under NEPA, the Navy is required to consider reasonable alternatives, so this alternative has been included.
Although an alternative involving inspection of a limited amount of Naval spent nuc Sound Naval Shipyard is included in the analysis, the Navy identified a preferred a of Appendix D to Volume 1 which would not involve inspection of Naval spent nuclear shipyard. The Navy's preferred alternative would resume the historic, technically of conducting refueling and defueling of nuclear-powered warships and prototypes as the Naval spent nuclear fuel to the Expended Core Facility at INEL for full inspect and transferring Naval spent nuclear fuel to DOE for storage at that site.

II COMMENT

Any facility for management of spent nuclear fuel should be adequately designed for EIS should present conclusions about the storage options that would be employed at
RESPONSE
Appendix D to Volume 1 of this EIS includes in Chapters 3 and 5 and Attachments D a evaluation of methods and facilities for storage of Naval spent nuclear fuel at Nav alternatives considered. Chapters 3 and 5 and Attachment F provide detailed inform and potential health effects associated with each method of Naval spent nuclear fue shipyards and Navy prototype sites, as well the effects associated with examination fuel at DOE sites. In all of these cases, it is assumed that the facilities used f management would be properly designed for the weather, seismic, and other condition particular site evaluated.
This EIS provides the information necessary to show that all three methods of stora Navy prototype considered (dry storage, storage in shipping containers, and storage practical and could be accomplished safely and with very small risks.

II COMMENT

Commentors express a preference for alternatives that do not result in additional n nuclear fuel being managed in Hawaii. In addition, commentors express one or more opinions:

- That such material be stored in areas of low population, as opposed to ar population
- That better sites are available that present less risk
- That there is a risk to water resources, fragile ecosystems, or the envir

RESPONSE
See responses to comments 08.01 (001) and 08.01 (004).

II 8.5 Technical Issues

II II COMMENT

The Navy will be contributing a large proportion of the future spent nuclear fuel t DOE.
RESPONSE
As stated in the Summary and other sections of Volume 1 of this EIS, spent nuclear approximately 100 metric tons of heavy metal (MTHM) will be added over the next 40 currently being managed by DOE. Of this total, approximately 55 MTHM will be produ Nuclear Propulsion Program. Since DOE currently manages approximately 2700 MTHM of fuel, including about 10 MTHM of Naval spent nuclear fuel, the Naval spent nuclear period evaluated in this EIS would be 65 MTHM, which is approximately 2% of the tot considered.

II COMMENT

The unique nature of Navy fuel is secret and poses a greater threat than convention
RESPONSE
The statement that Naval spent nuclear fuel presents a significantly greater enviro conventional reactor fuel is incorrect and without technical basis.
Sections 2.2, 3.7, A.7, B.2, and F.1 of Appendix D to Volume 1 of this EIS present integrity of Navy fuel. Further details on the nature of Naval spent nuclear fuel evaluate the environmental impact associated with its management are provided in At Appendix D. Although the detailed design of Navy fuel is classified, this EIS cont information concerning its performance characteristics.
These design requirements for Navy fuel include:
a. Battle shock. Navy fuel is designed to withstand the shock encountered in a wa without damage. These shocks are well is excess of the seismic shocks for which ot designed. As an example, Navy fuel can withstand shocks much greater than 50g, or acceleration due to gravity. Civilian reactors are designed only to withstand the which is typically less than 1g.
b. Long life. Navy fuel is designed to operate in a high temperature and high pre many years. Current designs are capable of over 20 years of successful operation. fuel is designed to operate for only a few years.
c. Total containment of fission products. Navy fuel is designed to operate throug any release of fission products. This is essential to minimize radiation exposure the confined space of a submarine for many months at a time. Some civilian reactor operate with releases of fission products and Nuclear Regulatory Commission require allow for a primary coolant radioactivity level equivalent to about 0.1 percent fue operations. This results in detectable fission product activity in the reactor coo
d. Rapid power transients. Navy fuel is designed to operate successfully during r (e.g., achieve full power in seconds) while typical civilian fuel takes many hours ensure it is not damaged. The Navy requirement is based on the need to rapidly cha of a ship, for example, to outrun a torpedo.
All of these very stringent operational requirements for Naval nuclear fuel enable indefinitely under the far less demanding conditions encountered during transportat

II COMMENT

The EIS should include more details on the design and other characteristics of Nava
RESPONSE
Volume 1, Appendix D, sections 2.2, 3.7, A.7, B.2, and F.1 of this EIS present info of Navy fuel. Further details on the nature of Naval spent nuclear fuel which can environmental impact associated with its management are provided in Appendix D, Attachments A and F. Although the detailed design of Navy fuel is classified, this information concerning its performance characteristics.
These design requirements for Navy fuel include:
a. Battle shock. Navy fuel is designed to withstand the shock encountered in a wa without damage. These shocks are well in excess of the seismic shocks for which ot designed . As an example, Navy fuel can withstand shocks much greater than 50g, or acceleration due to gravity. Civilian reactors are designed only to withstand the which is typically less than 1g.
b. Long life. Navy fuel is designed to operate in a high temperature and high pre many years. Current designs are capable of over 20 years of successful operation. fuel is designed to operate for only a few years.
c. Total containment of fission products. Navy fuel is designed to operate throug any release of fission products. This is essential to minimize radiation exposure the confined space of a submarine for many months at a time. Some civilian reactor operate with releases of fission products and Nuclear Regulatory Commission require allow for a primary coolant radioactivity level equivalent to about 0.1% fuel damag operations. This results in detectable fission product activity in the reactor coo
d. Rapid power transients. Navy fuel is designed to operate successfully during r (e.g. achieve full power in seconds) while typical civilian fuel takes many hours t ensure it is not damaged. The Navy requirement is based on the need to rapidly cha

of a ship -- for example, to outrun a torpedo.
All of these very stringent operational requirements for Naval nuclear fuel enable indefinitely under the far less demanding conditions encountered during transportat

II COMMENT

Naval spent nuclear fuel may be unsuitable for a geologic repository and expensive may be needed to prepare it for ultimate disposal.
RESPONSE
Since Naval spent nuclear fuel is very stable and has high structural integrity, it into a geologic repository without processing or destructive disassembly. Under th criteria for accepting spent nuclear fuel for disposal in a geologic repository, Na modules could likely be placed intact into the containers to be used for disposal. geologic repository, the corrosion-resistant characteristics of the Naval spent nuc a stable form which would preclude achieving a critical configuration for a period years, the period specified for analysis in the Nuclear Waste Policy Act, as amend A discussion of the integrity of Navy fuel is presented in Section 2.2 of Appendix EIS. Further details on the nature of Naval spent nuclear fuel which can be used t environmental impact associated with its management are provided in Attachment F to very stringent requirements for Naval nuclear fuel to operate at high temperatures, corrosion in very hot water cause it to be more than adequate to endure the conditi encountered after emplacement in a geologic repository.
Finally, it should be noted that this EIS evaluates safe management of spent nuclea including processing where required to stabilize the fuel for safe storage. No pro nuclear fuel is required for that purpose. In the unlikely event that waste accept established in the future were to require processing of Naval spent nuclear fuel to disposed of, that would be evaluated in accordance with NEPA requirements at that t beyond the scope of this EIS.

II COMMENT

The EIS should include information on the effective power-generating life of Naval
RESPONSE
As discussed in Section 3.7.4 of Appendix D to Volume 1 of this EIS, the life of th used in Naval nuclear-powered vessels is greater than 20 years. The lifetime of Na has increased by a factor of more than ten from the 2 year lifetime of the first co nuclear-powered submarine in the 1950's. This increase in lifetime is in large par examinations of Naval spent nuclear fuel conducted at the Expended Core Facility ov This increase in core life has reduced the environmental impacts associated with op navy, as described in Section 3.7.4.
A discussion of the integrity of Navy fuel is presented in Section 2.2 of Appendix EIS. Further details on the nature of Naval spent nuclear fuel which can be used t environmental impact associated with its management are provided in Attachment F to

II COMMENT

The EIS should include the criteria for determining when defueling of a Naval react
RESPONSE
The most important factor determining the need for refueling or defueling of any nu is the mission of the Navy laid out by the Congress and President of the United Sta requires a ship to continue operating beyond the end of the useful life of the core core must be replaced when it no longer is capable of producing sufficient power fo ship is no longer needed, the nuclear reactor fuel will be removed from the ship, e the end of its useful lifetime.
With the end of the Cold War and the recent changes in the mission of the armed for reducing the number of warships it has in service, including the deactivation of so submarines and surface ships. Information on the recent decreases in the number of Naval vessels and current plans for future reductions in the number of nuclear-powe

in this EIS. However, it should be emphasized that such numbers are subject to cha pursuant to Congressional or Presidential direction.
A discussion of the integrity of Navy fuel is presented in Section 2.2 of Appendix EIS. Further details on the nature of Naval spent nuclear fuel which can be used t environmental impact associated with its management are provided in Attachment F to Information on the operating lifetime of current nuclear reactor cores is provided

II COMMENT

The EIS should include information on how long Naval spent nuclear fuel will remain amount of radioactivity in each core or module.
RESPONSE
Section F.1.4 provides detailed information on the radionuclides present in Naval s half-lives, and the amounts of each present. This section provides all of the data range of postulated accidents at facilities storing or examining Naval spent nuclea provides similar information on the radionuclides and amounts of each for analyses transportation accidents involving Naval spent nuclear fuel. The half-lives of the readily available from standard scientific publications, such as chemistry and phys section includes data on the fractions of each type of radioactive material that mi accident. These data provide a detailed characterization of the kinds and amounts associated with Naval spent nuclear fuel which is adequate to understand the nature fuel and to evaluate the potential environmental impacts associated with all of the in this EIS.

II COMMENT

The life expectancy of shipping containers may not be long enough to store Naval sp for the period considered in this EIS or may be incompatible with the half-lives of present.
RESPONSE
Naval spent nuclear fuel shipping containers are designed to withstand the rigors o hypothetical accidents which might occur during shipping. As a result, the certifi Naval spent nuclear fuel are rugged enough to endure the far less demanding conditi storage at Navy sites. This fact is borne out by the analyses provided in Attachme Volume 1 of this EIS.
As stated in Appendix D, the only change to shipping container design is that a lon used to replace the rubber seal in the shipping containers if an alternative utiliz for storage for 40 years were selected as a result of this EIS. However, the exist many years and is adequate for the period until that decision is made. The current are designed to contain radioactive material during frequent loading and unloading shipment, requiring it to be flexible and reusable. Design of a seal for long-term demanding because repeated opening and closing of the container lid would not occur allowing use of such methods as welding the container shut, if necessary.
The level of detail desired by the commentor for the data analysis is not appropria will be made out of this programmatic document, and would not provide any informati the decision-maker in making this decision. This broad environmental review docume in accordance with NEPA and implementing regulations, that allow for a broad focus subject of the decision. Additional, more specific data, such as the proposed by t provided, if necessary, in further site-specific environmental documents.
Attachment F.1.4 provides detailed information on the radionuclides present in Nava and the amounts of each present. This section provides all of the data needed for postulated accidents at facilities storing or examining Naval spent nuclear fuel. lines radionuclides can be obtained from standard publications such as physics or c Section A.7.1 provides similar information on the radionuclides and amounts of each postulated transportation accidents involving Naval spent nuclear fuel. Each secti fractions of each type of radioactive material that might be released in an acciden detailed characterization of the kinds and amounts of radioactivity associated with to allow understanding the nature of Naval spent nuclear fuel and to evaluate the p impacts associated with all of the alternatives considered in this EIS.

II COMMENT

The use of beta-quenching in the production of Naval nuclear fuel may be a defectiv compromise the storage of Naval spent nuclear fuel.
RESPONSE
The comment is incorrect with respect to Naval nuclear fuel. It apparently refers magazine (Mother Jones) which reported statements to the Nuclear Regulatory Commiss possible causes of defects in commercial nuclear fuel elements and the claims in an lawsuit involved a technician who was suing his former employer over the results of process related to what metallurgists call "alpha treatment" of material containing The concern in the technician's lawsuit involved the results of a test related to o manufacturing the cladding of nuclear fuel used in electrical generating plants ope Navy nuclear fuel material is produced by an entirely different process from that u quenched zirconium fuel cladding used in commercial nuclear plants. As a result, N different properties from commercial fuel. The procedure at issue in the lawsuit a processing steps are not used in the fabrication of Naval nuclear fuel.
The Naval nuclear fuel manufacturing process is backed by extensive testing, years experience, and examinations after reactor shutdown. Examinations of spent Naval n at the Expended Core Facility at INEL on all Naval nuclear fuel after use, as well operating Naval nuclear fuel, have shown that there is no reason to expect failures fuel to occur during storage for more than 100,000 years.

II II COMMENT

The commentor states that Native Hawaiian fishing ponds within the boundaries of Pe Shipyard might be contaminated in the event of an accident involving Naval spent nu shipyard.
RESPONSE
Volume 1, Appendix D, section 5.1.4 of the EIS shows that there would be no impact Hawaiian fishing ponds resulting from routine Naval spent nuclear fuel storage oper Naval Shipyard. This conclusion is supported by the fact that the handling of Nava from Naval vessels, including refueling and defueling operations and operations ver considered in this EIS, have been conducted at Pearl Harbor Naval Shipyard for almo impact on the environment. Report NT-94-1, Environmental Monitoring and Disposal o Wastes from U.S. Naval Nuclear Powered Ships and Their Support Facilities, Washingt 1994, provides additional information on the results of environmental monitoring fo With regard to hypothetical accidents, Volume 1, Appendix D, Chapter 5, section 5.1 Attachment F, section F.1.3.8 provide the results of calculations of radioactive ma deposition calculations for a hypothetical airplane crash into Naval spent nuclear Pearl Harbor Naval Shipyard, the worst-case potential accident for that site. In e case, an area of only about 110 acres might be contaminated to the point where radi the Nuclear Regulatory Commission limit for exposure to the general public (100 mil result for a person living full time on that land. This discussion does not mean t would be made permanently unusable or inaccessible because the calculation assumes taken to clean up the radioactivity or to otherwise mitigate the effects of the acc contamination could and would be removed in order to minimize the affected area and or use.

II COMMENT

Historic sites could be damaged or made inaccessible by accidents associated with N fuel.
RESPONSE
Appendix D of this EIS (See Chapter 5, Section 5.1.4.14.3, and Attachment F, Sectio in detail the potential environmental effects in the event of a number of extremely involving Naval spent nuclear fuel. It should be noted that servicing of nuclear r vessels, including refueling and defueling operations and operations very similar t EIS, have been conducted at Navy sites for almost 40 years without impact on the en

example, Report NT-94-1, Environmental Monitoring and Disposal of Radioactive Waste Nuclear Powered Ships and Their Support Facilities, Washington, D.C., March 1994, p information on the results of environmental monitoring of past operations.
For the most severe of the hypothetical accidents, Volume 1, Appendix D (Chapter 5, Attachment F, section F.1.3.8) shows that in even these extreme cases an area of on acres might be contaminated to the point where radiation doses exceeding the Nuclea Commission limit for exposure to the general public (100 millirem per year) might r full time on that land. Most of this area would be within the boundaries of the DO depending on the site being considered.
This discussion does not mean that an area of such size would be rendered permanent public use since the calculation described in the preceding paragraph assumes that clean up the radioactivity. In reality, radioactive contamination could and would minimize the affected area and impacts on access. Historic Structures would not be altered in the event of any of the hypothetical accidents.

II COMMENT

The commentor states that use of the land at Pearl Harbor Naval Shipyard is not com culture of Native Hawaiians and their perception of the sacred nature of the land,
RESPONSE
As described in Volume 1, Appendix D, section 5.1.4 of this EIS, any facilities req Naval spent nuclear fuel at Pearl Harbor Naval Shipyard would be constructed within industrial area, and no additional land outside the shipyard would be used. Naval management activities would be consistent with the existing activities at the shipy procedures to prevent interference with any cultural activities or artifacts of Nat followed.
With regard to hypothetical accidents, Volume 1, Appendix D, Chapter 5, section 5. Attachment F, section F.1.3.8 provide the results of calculations of radioactive ma deposition calculations for a hypothetical airplane crash into Naval spent nuclear Pearl Harbor Naval Shipyard, the worst case potential accident for that site. In e case, an area of only about 110 acres might be contaminated to the point where radi the Nuclear Regulatory Commission limit for exposure to the general public (100 mil result for a person living full time on that land.
This discussion does not mean that an area of such size would be made permanently u inaccessible since the calculation assumes that no action is taken to clean up the otherwise mitigate the effects of the accident. Radioactive contamination could an order to minimize the affected area and impacts on access or use.

II COMMENT

Storage of Naval spent nuclear fuel at Pearl Harbor Naval Shipyard might conflict w land claims by Native Hawaiians.
RESPONSE
The actions considered in this EIS would not affect the land claims of Native Hawai this EIS (See Chapter 5, Section 5.1.4, and Attachment F, Section F.1.3 and F.1.4) potential environmental effects associated with storage of Naval spent nuclear fuel Shipyard. It should be noted that servicing of nuclear reactors aboard Naval vesse and defueling operations and operations very similar to those considered in this EI at Navy sites for almost 30 years at Pearl Harbor and more than 30 years at other N impact on the environment. For example, Report NT-94-1, Environmental Monitoring a Radioactive Wastes from U.S. Naval Nuclear Powered Ships and Their Support Faciliti D.C., March 1994, provides additional information on the results of environmental m current and past operations.
For the most severe of the hypothetical accidents, Appendix D (See Chapter 5, Secti Attachment F, Section F.1.3.8) shows that, in even these extreme cases, at a Naval about 110 acres might be contaminated to the point where radiation doses exceeding Regulatory Commission limit for exposure to the general public (100 millirem per ye person living full time on that land.
This discussion does not mean that an area of such size would be rendered inaccessi the calculation described in the preceding paragraph assumes that no action is take

radioactivity. In reality, radioactive contamination could and would be removed in affected area and impacts on access. The net result of the analysis in this EIS is claims by Native Hawaiians would not be altered by the alternative selected for man nuclear fuel.
Although the Navy's preferred alternative is not to store Naval spent nuclear fuel NEPA, the Naval Nuclear Propulsion Program is required to consider the full range o alternatives, including the alternative of taking no action. Similarly, the regula on Environmental Quality (40 CFR 1502.14(c)) to implement NEPA require the consider alternatives which may be beyond the jurisdiction of the agency. The analyses in A Chapter 5 and Attachment F, Section F.1) showed that the environmental impact of an would be small.

II II COMMENT

The analyses in the Environmental Impact Statement should consider health effects o fatalities.
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. Section F.1.3.3 of Appendix D to Volume 1 discusses the terminology an the International Commission on Radiological Protection and how these factors were the effects on human health in this EIS. In order to describe the effects of radiat International Commission on Radio logical Protection defines the term "health detri total impact of all fatal cancers, non-fatal cancers, and genetic effects. The hea any exposure to radiation are calculated by taking the sum of all of these effects effect by a weighting factor intended to represent the severity the impact of each health.
Cancer fatalities were used to summarize and compare the results in the EIS since t be of the greatest interest to most people. The EIS states that the number of tota non-fatal cancers, genetic effects, and other impacts on human health) may be obtai latent cancer fatalities by the factor of 1.46 developed by the International Commi Protection.
As a result of this comment, Chapters 3 and 5 of Appendix D to Volume 1 have been r clearly indicate how other health effects are to be calculated.

II COMMENT

The effects of radiation are not well understood.
RESPONSE
The effects of radiation have been studied extensively. There are many publication field of radiation health physics includes a great many professionals who have devo topic. As a result of the widespread efforts to understand the effects of radiatio health believe that the effects of radiation on human health and the mechanisms inv understood than the effects of other chemicals present in modern daily life.
There are many variations in natural background radiation and modern lifestyles. F others, there are some differences of opinion concerning the effects of exposures t and the methods which should be used to extrapolate the results of measurements to exposures which would be involved in the actions considered in this EIS. However, Commission on Radiological Protection, whose reports and methods were used to calcu reported in this EIS, has adopted the "linear method" for producing such estimates conservative method accepted by the scientific community. The standards used by th Commission on Radiological Protection are kept abreast of the most up-to-date resea as necessary to incorporate new results. The methods and standards used in the EIS with the most recent studies and recommendations of the Committee on Biological Eff Radiation (commonly called BEIR V) and the National Academy of Sciences.
The Occupational and Public Health and Safety sections for the Navy sites in Chapte Volume 1 provide a description of a very comprehensive epidemiological study by res Hopkins University of the health of workers at the six Naval ship yards and the two serviced the Navy's nuclear-powered ships. This independent study evaluated a popu 70,000 workers over a period of approximately 25 years to determine whether there w

leukemia or other cancers associated with exposure to low levels of gamma radiation evidence to conclude that the health of the people involved in work on U. S. Naval vessels had been adversely affected by exposure to low levels of radiation incident Some persons have proposed performing epidemiological studies of the people living vicinity of installations performing work associated with atomic energy. However, studies which have been attempted, such as those in Great Britain, the level of rad communities from man-made radionuclides is very low with respect to the variations radiation and other factors introduced by individual lifestyles. This fact, plus o 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.
Based on all of these considerations, the effects of radiation are understood well reasonable evaluation of the alternatives in this EIS. The standards of the Intern Radiological Protection have been used with the exposures for all of the alternativ provide a consistent basis for comparison. However, in order to allow independent effects, Attachment F to Appendix D of Volume 1 provides the amounts of radioactive could be released and the radiation exposures calculated for routine operations and each alternative.

II COMMENT

Human health effects should receive greater consideration than such matters as jobs decision on the course of action for managing spent nuclear fuel.
RESPONSE
This EIS is devoted to analysis of all effects on human health and the environment operations or reasonably foreseeable accidents associated with DOE and Navy managem nuclear fuel. The details of the analyses for Naval spent nuclear fuel management Attachments A and F of Appendix D to Volume 1. Chapters 3 and 5 summarize the resu analyses and the detailed results are described in the Attachments to Appendix D. Every effort has been made to include all possible affected areas, including any id review of this EIS. It is believed that no important area of potential human healt impact has been omitted from this EIS.
The health, safety, and welfare of citizens will be considered carefully in reachin course of action to be used for management of spent nuclear fuel.

II COMMENT

An independent study of the health effects on workers associated with reactor servi be performed.
RESPONSE
The Occupational and Public Health and Safety sections for the Navy sites in Chapte Volume 1 provide a description of a very comprehensive epidemiological study by res Hopkins University of the health of workers at the six Naval shipyards and the two serviced the Navy's nuclear-powered ships. This independent study, published in 19 population of more than 70,000 workers over a period of approximately 25 years (195 determine whether there was an excess of leukemia or other cancers associated with of gamma radiation. This study found no evidence to conclude that the health of th involved in work on U. S. Naval nuclear-powered vessels had been adversely affected levels of radiation incidental to this work.

II COMMENT

A comment identified that the EIS states that storage of spent nuclear fuel at Puge would cause less than one cancer fatality in 100,000 years and questioned whether a achieved such a safety record.
RESPONSE
The comment appears to refer to Section 5.1.1.12 of Appendix D to Volume 1 of the E

values quoted in this EIS for normal operations and accidents conditions at Puget S
may be found in Section 3.7 of Appendix D. Specifically, the EIS states that "it c
member of the population might experience a fatal cancer due to incident-free stora
nuclear fuel at the Puget Sound Naval Shipyard if operations continued for 15,400 y
specifically, Table 3-2 in Appendix D shows that the number of fatal cancers per ye
population that would result from water pool storage of spent fuel at Puget would b
divided by 6.5 x 10-5 fatal cancers per year = 15,400 years).
Regarding the assessment of risks, this EIS is not intended to serve as a compariso
nuclear fuel storage activities and other industrial activities.
The analyses presented in this EIS do show that the environmental impacts associate
alternatives would be very small for both normal operations and accident conditions
alternatives considered would result in radiation exposures to the public which wou
Nuclear Regulatory Commission or Environmental Protection Agency standards and far
risks of daily life.

II COMMENT

Radiation can cause damage to materials such as concrete or metal and this should b
RESPONSE
The commentor is referring to the well-known phenomenon of radiation embrittlement.
condition that can be caused only by intense radiation in an operating nuclear reac
fuel in examination or storage facilities is in a subcritical (shut down) condition
enough neutron radiation present in spent nuclear fuel examination or storage facil
embrittlement. Since the water pool structures or storage containers would not be
radiation comparable to operating reactors, material degradation due to radiation w
examination or storage facilities. This conclusion is borne out by almost 40 years
and storing Naval spent nuclear fuel.
The shipping containers used for Naval spent nuclear fuel are inspected after every
they are acceptable for continued use. They also receive maintenance and more deta
specified periods.

II II COMMENT

Some persons questioned the impact on Pearl Harbor Naval Shipyard if the ability to
reactor servicing work for warships were lost as a result of the alternatives consi
RESPONSE
None of the alternatives evaluated in detail in this EIS would result in Pearl Harb
the ability to service the nuclear reactors aboard Navy vessels. Information on th
associated with the loss of reactor servicing work was not included in this EIS for

II COMMENT

The potential impact on tourism in the vicinity of a Naval spent nuclear fuel manag
discussed in the EIS.
RESPONSE
Since the actual environmental impacts associated with management of Naval spent nu
alternatives considered in the Environmental Impact Statement would be small, there
believe that storage or examination of Naval spent nuclear fuel at any of the locat
have any significant effect on tourism. Even the impacts of hypothetical accidents
small enough that there should be no impact on tourism.
Naval spent nuclear fuel has been managed at Naval shipyards, Navy prototype reacto
almost 40 years, incidental to the refueling and defueling of nuclear-powered warsh
done with no discernible adverse effect on tourism in the vicinity of these facilit

II COMMENT

The effects on the marketability of products produced in the vicinity of a Naval sp management facility should be evaluated.
RESPONSE
Since the environmental impacts associated with management of Naval spent nuclear f alternatives considered in the EIS would be small, there is no reason to believe th products produced in the vicinity of a Naval spent nuclear fuel management site wou the impacts of hypothetical accidents would be small enough that there would not be marketability of products other than temporarily.
Naval spent nuclear fuel has been managed at Naval shipyards, Navy prototype reacto almost 40 years, incidental to the refueling and defueling of nuclear-powered warsh done with no discernible adverse effect on the marketability of products from the v

II COMMENT

The effects on property values in the vicinity of a Naval spent nuclear fuel manage evaluated.
RESPONSE
Since the actual environmental impacts associated with management of Naval spent nu alternatives considered in the Environmental Impact Statement would be small, there believe that storage or examination of Naval spent nuclear fuel at any of the locat have any effect on property values in the locality.
Changes in employment under any of the alternatives considered would be very small demand that would affect housing and property values. The largest impact on proper with the alternatives considered would result from the shutdown of the Expended Cor Naval spent nuclear fuel has been managed at Naval shipyards, Navy prototype reacto almost 40 years, incidental to the refueling and defueling of nuclear-powered warsh done with no discernible adverse effect on property values in the vicinity of these

II COMMENT

The effects on jobs and economic development in the vicinity of a Naval spent nucle facility should be evaluated.
RESPONSE
The EIS does evaluate in detail the socioeconomic effects of each alternative. The for management of Naval spent nuclear fuel are provided in Chapters 3 and 5 of Appe As summarized in Chapter 3 of Appendix D, changes in permanent employment range fro about 10 jobs at each Navy site under the No Action alternative to a loss of 500 jo alternatives which would terminate the use of the Expended Core Facility.
As shown in the Socioeconomics sections for each site in Chapter 5 of Appendix D, t changes with respect to the populations, regional economies, and local job markets Navy sites would be too small to impact local economic development. The largest im or the local economy associated with the alternatives considered would result from Expended Core Facility at INEL.

II COMMENT

The effects of shipments of Naval spent nuclear fuel on the local infrastructure (s should be evaluated.
RESPONSE
Shipments of Naval spent nuclear fuel from the Kesselring Site use multi-wheel tran shipping containers to the nearest railroad siding, where the containers are placed rest of the trip. The many wheels on this vehicle ensure the load on each wheel of maintained below the highway weight limits for the roads used in the movement. As of each wheel of the transporter is less than the wheel loading of a regular commer to prevent damage to the roads or any structures beneath them. Permits which requi exceed posted load limits are obtained from New York State, Saratoga County, and th

Spa.
The company which moves the Naval spent nuclear fuel shipping containers must post damage created during the movement. Repairs to the infrastructure in the municipa route have never been required as a result of Naval spent nuclear fuel shipments ov any damage to the infrastructure in Ballston Spa (such as the sewers system) should by the transport of Naval spent nuclear fuel from the Kesselring Site in the future available to compensate the town for repairs.
An evaluation of alternate routes was completed by the Naval Nuclear Propulsion Pro showed that the route currently used is safe and is the best alternative available. provided to local officials and placed in the Schenectady County Library.

II COMMENT

The impacts and possible mitigative measures associated with Naval spent nuclear fu possible base closures should be evaluated in the Environmental Impact Statement.
RESPONSE
The EIS takes into account the impacts arising from base closures at Charleston Nav Island Naval Shipyard. As of January 1995, Naval spent nuclear fuel has been remov shipyards under an agreement between the Secretaries of Energy and Navy and the Gov addition, the EIS takes into account the most recent plans for fleet size and the i defuelings and inactivations scheduled over the next decade as a result of those pl Since speculation on the Navy sites that might be closed would not be appropriate, how Naval spent nuclear fuel might be handled in the event of closures of bases not closure is not included. In any event, Naval spent nuclear fuel would continue to Federal government and all efforts would be taken to move this material to an opera storing Naval spent nuclear fuel were to be closed. Further NEPA documentation mig address the effects of such an event.

II II COMMENT

The effects of earthquakes or other seismic events on Naval spent nuclear fuel mana be evaluated.
RESPONSE
The effects of a severe seismic event on Naval spent nuclear fuel management facili EIS. Attachment F to Appendix D of Volume 1 provides a discussion of the analyses public health risks which might result from a seismic event at each site where Nava could be stored. The seismic events considered in the analyses included both an ear 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 (b earthquake.)
Appendix D identifies that Naval spent nuclear fuel will retain its integrity even complete draining of a water pool that is being used for storage of Naval spent nuc through the fuel racks and fuel units was shown to be sufficient to prevent claddin any fission products from the fuel in the unlikely event of complete loss of pool w consequences of the loss of pool water would be the potential for increased direct release of corrosion products. The risks and effects of this and seismic events in Naval spent nuclear fuel storage are very small and are included in Appendix D to V With regard to new facilities, Volume 1, Appendix D, identifies that if the Record need for new facilities for the interim storage of Naval spent nuclear fuel, detail evaluations would be conducted for those sites and the results would be incorporate new facilities. The construction of any new facilities for Naval spent nuclear fue strict seismic standards for the interim storage of Naval spent nuclear fuel. The these facilities to seismic standards which take into consideration the seismic cha ensure that structures could withstand a major seismic event. Additional informati design considerations for Naval spent nuclear fuel management activities is provide Appendix D of Volume 1.

II COMMENT

Discussion of a fault in the vicinity of Puget Sound Naval Shipyard (or some other the Environmental Impact Statement.
RESPONSE
Section 4.1.1.6.3 of Appendix D to Volume 1 provides a summary of the seismic hazar Sound area and identifies that the Puget Sound area is prone to seismic activity. T that a detailed seismic evaluation would be conducted and that any facilities const spent nuclear fuel would be designed to seismic criteria for that area. Since the s factored into the seismic design criteria, any facility constructed to that criteri withstand a major seismic event in that area.
The existing Puget Sound Water Pit facility was designed to the seismic design crit area and is expected to withstand a major earthquake in this area. More specific i construction of the Puget Sound Water Pit Facility is provided in Volume 1, Appendi section D.2.
Although failure of spent nuclear fuel management facilities is not anticipated, th of Naval spent nuclear fuel management facilities has been evaluated in the EIS. V Attachment F provides a discussion of the analyses that were performed and the publ might result from a seismic event at each site where Naval spent nuclear fuel would events considered in the analyses included both an earthquake of the magnitude used design of the facility (design basis earthquake) and an earthquake of a magnitude w that for which the facility must be designed (beyond design basis earthquake.)
Appendix D identifies that Naval spent nuclear fuel will retain its integrity even complete draining of a water pool that is being used for storage of Naval spent nuc through the fuel racks and fuel units was shown to be sufficient to prevent claddin of any fission products from the fuel in the unlikely event of complete loss of poo consequences of the loss of pool water would be the potential for increased direct release of corrosion products. The risks and effects of this and seismic events in Naval spent nuclear fuel storage are very small and are included in Volume 1, Appen

II COMMENT

An up-to-date seismic analysis should be performed for any site considered for Nava management.
RESPONSE
An up-to-date seismic evaluation was completed for the Expended Core Facility at IN existing facility. The seismic events considered included both an earthquake magni as the basis for the design of the facility (design basis earthquake), and an earth more severe than that for which the facility must be designed (beyond design basis Any new facilities needed for management of Naval spent nuclear fuel would be evalu hazards. Even though design of the facilities incorporating seismic evaluation wou any catastrophic damage would occur as a result of the most severe earthquakes post includes analyses of the effects of loss of water from the pools at the sites consi complete loss of pool water are reported in Attachment F to Appendix D and identify nuclear fuel will retain its integrity even if an earthquake causes complete draini circulation through the fuel racks and fuel units was shown to be sufficient to pre the release of any fission products from the fuel in the unlikely event of complete primary consequences of the loss of pool water would be the potential for increased some release of corrosion products.
The risks and effects of this, and seismic events involving other types of Naval sp the Expended Core Facility and at other sites, are very small and are included in V The construction of any new facilities for Naval spent nuclear fuel management woul standards at least as good as the current Expended Core Facility.
Volume 1, Appendix D identifies that if the Record of Decision involves the need fo interim storage of Naval spent nuclear fuel, detailed seismic evaluations would be sites. The construction of any new facilities for Naval spent nuclear fuel managem seismic standards for the interim storage of Naval spent nuclear fuel. The design facilities to strict seismic standards (which take into consideration the seismic c ensure that structures will withstand a major seismic event. Additional informatio design considerations for Naval spent nuclear fuel management activities is provide Appendix D, Attachment D.

II COMMENT

A commentor felt that the discussion of hazards associated with volcanoes at the Ex
was misleading because volcanic flows have occurred in the INEL region within the p
years.
RESPONSE
Section 4.2.6 of Appendix D to Volume 1 states that there are no active volcanoes k
Expended Core Facility at INEL. The probability that a volcano might cause a hazar
Core Facility site is very low, estimated to be less than one chance in 100,000 per
The discussion in Section 4.2.6 of Appendix D to Volume 1 to this EIS has been revi
probability of volcanic hazards affecting the Expended Core Facility at INEL.

II COMMENT

Some areas in the vicinity of Puget Sound may be susceptible to liquefaction in the
If the location at Puget Sound Naval Shipyard where railcars containing spent nucle
should liquify, the railcars could sink.
RESPONSE
The Puget Sound area is prone to seismic activity and liquefaction is a possible re
area. The Puget Sound Naval Shipyard performs geotechnical evaluations whenever ne
constructed or as necessary to update information about the site. These studies ar
design of facilities on the shipyard and the shipyard has taken steps in the design
facilities that would prevent or minimize any impacts should an earthquake occur.
Even if such an event were to occur, the analyses in this EIS demonstrate that the
minimal. The shipping containers are watertight and would maintain their integrity
earthquake because they are designed to withstand transportation accidents which co
than a seismic event. Attachments A and F of Appendix D to Volume 1 provide a disc
of the spent fuel shipping containers and the results of analyses of severe acciden
during the various modes of shipping container transportation and storage.
If a railcar containing a shipping container loaded with spent fuel were to tip ove
due to liquefaction, no release of radioactive material to the environment or incre
to any worker or member of the public would occur since the containers are designed
transportation accidents far more severe without breaching. The shipyard would ini
recovery actions using the equipment available within the shipyard or from sources
upright or stabilize the railcar and container as soon as practicable as part of th

II COMMENT

According to a commentor, Appendix D to Volume 1 inaccurately describes the magnitu
Peak earthquake as " 6.9 when it was actually 7.3 on the Richter Scale", and that t
incorrect derivation of the design basis peak ground acceleration value for the Exp
RESPONSE
The comment is inaccurate. Seismologists commonly use one of three scales to descr
an earthquake. These scales are the Richter scale, the Moment Magnitude scale, and
Magnitude scale. Unfortunately, seismologists have not prescribed a universal scal
earthquakes and it is sometimes difficult to convert the units from one scale to an
convert temperature units from Fahrenheit to Celsius.
It should be noted that the Moment Magnitude scale is more widely used by seismolog
the Richter scale when discussing earthquakes. The Moment Magnitude scale reflects
at the source. The Richter scale is the measure of the local ground motion in the
satisfactory up to a magnitude of 6.5. Seismographs saturate at magnitudes exceedi
media typically quote the Surface Wave magnitude of the event and call it the Richt
Wave magnitude is a measure of the ground motion in the 0.05 Hz range and is measur
from the epicenter. The Surface Wave Magnitude scale is also commonly used by some
describe earthquakes at INEL.
Section B.5.2 of Appendix D to Volume 1 states that the 0.24g peak ground accelerat
basis that a moment magnitude 6.9 seismic event centered near Howe on the Lemhi Fau
rupture of approximately 34 kilometers along the Lemhi Fault. The Howe epicenter i

located closest to the Expended Core Facility, and 6.9 was the moment magnitude of earthquake in 1983". The seismologist who evaluated the seismic hazard for the Exp INEL used the Moment Magnitude scale, and not the Richter scale, to describe the ma Peak earthquake and to derive the peak ground acceleration for the Expended Core Fa Peak earthquake was also measured at 7.3 on the Surface Wave Magnitude scale, as id seismologist who evaluated the Expended Core Facility. Some other studies of the B such as that described in the Special Isotope Separator EIS, have cited the magnitu earthquake as 7.3 on the Richter scale (on page 3-15 and in Table 3-2 on page 3-17 are all references to the same magnitude earthquake; they are merely reported on di

II COMMENT

There may be greater than minimal likelihood of a tsunami in the vicinity of Puget due to the possibility of large earthquakes beneath Puget Sound.
RESPONSE
The containers which would be used for dry storage are designed to withstand water severe accident conditions and no deleterious effects would be expected from submer a tsunami.
Storage of Naval spent nuclear fuel in water pools at Navy sites is also considered spent nuclear fuel in water pools would normally be under water and the effects on flooding by a tsunami would be primarily limited to exchanging some pool water bear corrosion products with the flood waters. Such a release would not be expected to most severe tsunamis which raised the level of the waters of Puget Sound many feet. Attachment F to Appendix D of Volume 1 provides analyses of the effects of water po released under accident conditions. The results of these analyses represent an upp releases possible during a tsunami sufficiently severe to flood a water pool contai fuel.
Chapter 4 of Appendix D to Volume 1 has been changed to clarify that a tsunami coul manner described.

II COMMENT

Additional information pertaining to seismicity near some Navy sites should be adde information in the EIS does not reflect the latest geotechnical studies.
RESPONSE
Chapter 4 of Appendix D to Volume 1 contains sections which describe possible seism Navy site, provide general background information regarding the seismicity at these references where more detailed information can be obtained. In addition, the curren Code (UBC) seismic classification for each site is provided as a means for comparin seismic hazards among sites.
The effects of seismic failure of Naval spent nuclear fuel management facilities ha EIS. Chapter 5 and Attachment F of Appendix D to Volume 1 provide summary and det of the analyses that were performed and the public health risks that might result f each site where Naval spent nuclear fuel would be stored. The seismic events consid included both an earthquake of the magnitude used as the basis for the design of th earthquake) and an earthquake of a magnitude which is more severe than that for whi designed (beyond design basis earthquake.) These analyses show that the risks asso events involving Naval spent nuclear fuel are very small for all of the alternative The EIS states that if the Record of Decision identifies a particular site for inte nuclear fuel, a detailed seismic evaluation would be conducted. This evaluation wo geotechnical information available at the time. The EIS has been revised to elimin seismic risk zoning promulgated by the U.S. Coast and Geodetic Survey at the Kessel

II COMMENT

According to a commentor, seismic events up to magnitude 9 might occur in the vicin Naval Shipyard.
RESPONSE

There has recently been speculation by some that earthquakes in the Puget Sound are magnitudes as high as 8.2 to 8.8. On the other hand, some seismologists believe th magnitudes exceeding 7 are unlikely in this region. There is also some disagreemen fault movements that might occur in this area.
Although failure of spent nuclear fuel management facilities during seismic events is not anticipated, the effects of seismic failure of Naval spent nuclear fuel mana evaluated in this EIS. Chapter 5 and Attachment F of Appendix D to Volume 1 provi detailed discussions of the analyses that were performed and the public health risk seismic event at each site where Naval spent nuclear fuel would be stored. The seis the analyses included both an earthquake of the magnitude used as the basis for the (design basis earthquake) and an earthquake of a magnitude which is more severe tha facility must be designed (beyond design basis earthquake.) These analyses show th with seismic events involving Naval spent nuclear fuel are very small for all of th considered.
This EIS states that if an alternative making use of Navy sites for storage of Nava to be selected a detailed seismic evaluation would be conducted. This evaluation w geotechnical information available at the time. The EIS has been revised to clarif magnitudes identified for the Puget Sound area.

II COMMENT

There are significant differences in interpretations of ground motions at INEL and level of the fuel racks is not identified.
RESPONSE
Section F.1.4.2.1.1.3 of Appendix D to Volume 1 of this EIS states that the ground evaluate the stability of the Expended Core Facility water pool and fuel racks in a event is 0.24g.
Section F.1.4.2.1.1.3 of Appendix D to Volume 1 summarizes the bases used by expert determine the 0.24g peak ground acceleration for the Expended Core Facility. The c techniques involved are described in more detail in the reference provided in Secti facilities on INEL are many miles apart. As a result, the distance between a fault Lemhi fault epicenter at Howe, and each facility at INEL differs by a number of mil motion produced by an earthquake decreases as the distance from the epicenter incre magnitude earthquake at the epicenter (for example, a moment magnitude 6.9 quake) different peak ground accelerations at the different facilities.
The references to Appendices B and D to Volume 1 provide more detailed discussions conditions in the vicinity of INEL and the various facilities at this large site.

II COMMENT

The EIS should provide seismic analyses documenting that the superstructure of the Facility has the ability to sustain design basis earthquake and accident scenarios.
RESPONSE
An up-to-date seismic evaluation was completed for the Expended Core Facility at IN 1994 Natural Phenomena Hazard Report referenced in Section F.1.4.2.1.3 of Appendix The analysis concluded that neither the superstructure nor the cranes would collaps members of the superstructure would experience some localized damage.
The seismic analyses included both an 0.24g magnitude earthquake and an 0.40g magni which is more severe than that for which the facility has been designed (beyond des The seismic evaluation is discussed in Section F.1.4.2.1.1 of Appendix D to Volume The seismic analysis also evaluated the water pools. Based on the evaluation of the Facility, damage to Naval spent nuclear fuel is not expected. Section F.1.4.2.1.1 Volume 1 provides the results of analyses for loss of water from the water pools at Facility, even though an earthquake is not expected to produce such an accident. I F.1.4.2.1.3 of Appendix D to Volume 1 provides the results of analyses for a crane analyses show that the risks associated with such postulated accidents would be sma

II II COMMENT

The number of fatal cancers to the general population per year shown in Table 3-2 o Volume 1 should be multiplied by the number of people in the population to obtain t with Naval spent nuclear fuel management.
RESPONSE
The comment is incorrect, apparently resulting from a misreading of the information Table 3-2 of Appendix D to Volume 1 provides the total risk to the entire populatio considered. The values in Table 3-2 should not be multiplied by the number of peop since the number of people affected has already been included in the calculation of the table. An explanation of how risk is calculated is provided in Section F.1.3.1 Volume 1.
The estimates of risk to the entire population from normal operations in Table 3-2 results of detailed analyses provided in Attachment F to Appendix D. The analysis performed by calculating the total number of fatal cancers that might occur in the 50 mile radius of each site evaluated for management of Naval spent nuclear fuel. analyses for the Navy sites and for the Oak Ridge Reservation and the Nevada Test S Section F.1.4.1, including the amounts of radioactivity which might be released to each alternative considered and the number of people within 50 miles of each site.

II COMMENT

Population data for a large area surrounding sites considered should be used in the
RESPONSE
The EIS used population data from the 1990 Census for an area within 50 miles of ea of the potential environmental impact to the general population. (Distributions fo Appendix D, Chapter 4, and those for DOE sites considered are in the Volume 1 Appen Combining this population data with radiological exposures in the 50 mile radius re collective person-rem for all of the people in the region. These results were then fatalities using correlations developed by the International Commission on Radiolog correlations are consistent with the most recent studies and recommendations of the Biological Effects of Ionizing Radiation (commonly called
BEIR V).
The area within 50 miles of each site encompasses all of the people who might be af exposure associated with the alternatives for spent nuclear fuel management. As an analytical results for the most severe hypothetical Naval spent nuclear fuel accide provided in the Facility and Transportation Accidents sections of Chapter 5, show t which might be contaminated with radioactivity to a level which would cause a perso hours a day to exceed the Nuclear Regulatory Commission's limit to the general publ year would be less than about 210 acres for all cases.

II COMMENT

Information on the radionuclides present in Naval spent nuclear fuel and the amount provided in the Environmental Impact Statement.
RESPONSE
Appendix D to Volume 1 provides, in Attachments A and F, a list of radionuclides in fuel and the exposure to human beings and lists the quantity of each nuclide involv provided for both normal operations and accidents.

II COMMENT

All pathways for exposure to human beings to radiation or radioactive material and exposure should be included in the analyses of the impacts of normal operations and
RESPONSE
The EIS includes an evaluation of all significant pathways by which radiation or ra impact human health. These pathways include direct radiation from the spent nuclea exposure from immersion in airborne radioactive material, direct exposure from radi

deposited on the ground, internal exposure from inhalation of radioactive materials ingestion of radioactive materials (both from food and drinking water), and direct of or immersion in contaminated water. The pathways used in the analyses for Naval spent nuclear fuel are described in Attachments A and F of Appendix D to Volu Both latent fatal cancers and other health effects are discussed.

II COMMENT

Some commentors were concerned that an accident involving Naval spent nuclear fuel have disastrous consequences for a region.
RESPONSE
Appendix D to Volume 1 of the EIS includes an evaluation of a broad range of hypoth which might occur as a result of human error, equipment failure, or natural phenome earthquakes or tornadoes. The results of these analyses, which are summarized in C each site in Chapter 5, and described in detail in Attachments A and F, show that t all of the accidents are very low.
The risks are very low even though the analyses included many conservatisms. For e of an airplane crash into a container used to store Naval spent nuclear fuel assume cause the container to be breached even though evaluation had shown that no part of penetrate the container. The analyses used meteorological conditions (such as wind which have only one chance in twenty of actually occurring, but no credit was taken are worse than the actual conditions 95 percent of the time. Further, the analysis assumed that no evacuation of people in nearby residential areas or other mitigativ reduce the effects. As a result of these conservatisms, it is expected that the ac accidents would be 10 to 100 times less than calculated.
Even when the low probability of these accidents is not considered, the consequence measures or planned emergency response would not be so extreme as feared by the com principal reason for this is that Naval nuclear fuel is designed to withstand the c combat and therefore is rugged enough to resist or minimize damage in even the most addition to the rugged nature of Naval spent nuclear fuel by itself, the containmen facilities and transport containers, the precautions and procedures applied to this emergency response capabilities of the Navy sites and the surrounding regions make actual consequences would be much less than calculated.
As described in Attachments A and F of Appendix D to Volume 1 of the EIS, all signi which radiation or radioactive materials released by these accidents could impact h included. Attachments A and F of Appendix D to Volume 1 of the EIS provide all of to calculate the effects of accidents involving Naval spent nuclear fuel so that an use these data to perform calculations to confirm the accuracy of the conclusion th not be as disastrous as some persons feared.

II COMMENT

The potential health effects of exposure to radiation or radioactive material as a or postulated accidents involving Naval spent nuclear fuel and all effects of such included in the EIS.
RESPONSE
The EIS includes an evaluation of the exposure and potential health effects associa nuclear fuel management at all of the sites considered. These analyses include all as direct radiation from the spent nuclear fuel facility, direct exposure from imme radioactive material, direct exposure from radioactive material deposited on the gr from inhalation of radioactive materials, internal exposure from ingestion of radio from food and drinking water), and direct exposure from the surface of or immersion water. The analyses performed for Naval spent nuclear fuel management alternatives described in Attachments A and F of Appendix D to Volume 1 of the EIS. Both latent other health effects are discussed.

II COMMENT

The accident analyses in the EIS for Naval spent nuclear fuel storage facilities sh explosions on Naval vessels at shipyards as initiating events.
RESPONSE
Appendix D to Volume 1 of the EIS includes an evaluation of a broad range of hypoth which might occur as a result of human error, equipment failure, or natural phenome earthquakes or tornadoes. These analyses included fires involving the storage faci striking the storage facilities. The results of these analyses are summarized in C individual site in Chapter 5, and described in detail in Attachment F. The analyse associated with all of the accidents are very low.
Section F.1.2 describes the procedure used to select accidents for detailed analysi possible accidents concluded that accidents initiated at nearby locations, such as shipyards, would not produce more severe effects than the accidents chosen for deta therefore not specifically evaluated. The accidents selected included a hypothetic passenger or cargo aircraft directly on to the fuel storage areas, crashes which wo high energy projectiles, so the effects of such an event would likely far outweigh on a vessel.
The consequences of Naval spent nuclear fuel storage facilities being struck by pro have been specifically considered. This evaluation was performed as part of the an terrorist or military attack. The effects of such an attack have been deter mined accidents analyzed in the EIS, specifically the crash of a large jet or an earthqua Attachment F, Section F.1.2). Attacks using anti-tank weapons or other specialized conventional explosives, were evaluated.
The reasons that the effects of a projectile from an anti-tank weapon striking one would be less severe than the accidents analyzed are: (a) anti-tank weapons would b sealing penetration in the metal of a container, unlike that which is assumed from (impact from a 50 inch diameter engine rotor); (b) there is no explosive material i will not "blow up" as a tank would if hit by such a weapon (in an attack on a tank, inside the turret detonate from the energy injected into the turret by the anti-tan no fire to disperse the radioactivity that is released when the container is breach where the jet fuel might pool, ignite, and create such a fire. The rugged design o containers and the thick walls of water pools, combined with the shock-absorbing na free surface, reduce the effects of other types of explosive charges.
Attachment F of Appendix D of the EIS has been modified to better describe this ana

II COMMENT

The analyses of normal operations and hypothetical accidents should include calcula to the maximum exposed individual for transportation and for each site for each alt
RESPONSE
The EIS does provide an estimate of the exposure for a maximum exposed individual f and postulated accidents for fixed sites and transportation under all alternatives. Appendix D to Volume 1 provide the results of calculations of the potential exposur exposed individual for shipments and facilities for all alternatives, as well as th workers, to a person at the point of nearest public access, and to the population i A.8.2, A.8.3, and A.8.4 in Attachment A provide the detailed results for routine op during transportation and Sections F.1.4.1 and F.1.4.2 in Attachment F provide deta operations and accidents for each site considered. The results tabulated in these risks to the maximum exposed individuals would be very small under all of the alter

II COMMENT

The risks and costs associated with the period of transition to a new alternative f Naval spent nuclear fuel should be analyzed.
RESPONSE
Section 3.8 of Appendix D to Volume 1 of this EIS states that most of the alternati period of implementation while facilities were constructed and equipment was procur and equipment would be employed to manage Naval spent nuclear fuel during the trans nuclear fuel would be transported to the Expended Core Facility at INEL during the alternative be selected requiring construction of a new examination facility or pro

shipping containers for dry storage at Navy sites. Given this use of facilities an are included in alternatives such as the 1992/1993 Planning Basis, the impacts per transition would be the same as given for those alternatives. The potential environmental impacts of actions that would be taken to manage Naval spent nuclear transition period are therefore included in the EIS and all extremely small.

II COMMENT

The airplane crash accident analyses in the EIS for Naval spent nuclear fuel storag include accidents involving shipping containers stored on railcars.
RESPONSE
Analyses of an aircraft crash into shipping containers stored on railcars at Pearl were not included in this EIS because shipping containers are not stored on railcar concrete pads. Ship rather than rail transport is used to move Naval spent nuclear Naval Shipyard. Attachment F (including Table F.3-6) to Appendix D of Volume 1 inc the accidents which might occur for storage of Naval spent nuclear fuel on concrete Naval Shipyard.
If an analysis were included for containers stored on railcars, the only difference to a slight increase in the probability an airplane might crash into a container. area for an array of containers on railcars would be greater than the target area f number of containers on a concrete pad. The dependence of crash probabilities on in Section F.3 of Appendix D to Volume 1. The difference in target areas is listed Appendix D.

II COMMENT

The risks associated with "dry storage" at shipyards and prototype locations should
RESPONSE
Appendix D to Volume 1 of this EIS includes, in Chapters 3 and 5 and Attachments A evaluation of the possible exposures and potential health effects associated with N management at shipyards and Navy prototype sites. These analyses include risks for facility accidents for these alternatives, as well as for all other alternatives co risks from any alternative would be very small. Transportation of Naval spent nucl alternative involving the largest number of shipments was shown to produce less tha fatality for the entire 40 year period considered. Under the Decentralization alte storage at shipyards and Navy prototype reactor locations are considered: dry stor containers, and storage in water pools. The risks associated with dry storage are this EIS.
This EIS shows that the risk associated with the transportation of Naval spent nucl associated with storage at any location would be so small for all the alternatives not provide a basis for choosing among the alternatives.

II COMMENT

The risks associated with ships carrying Naval spent nuclear fuel to the Mainland s this EIS.
RESPONSE
Appendix D to Volume 1 of this EIS includes, in Chapters 3 and 5 and Attachments A evaluation of the possible exposures and potential health effects associated with t spent nuclear fuel from the Pearl Harbor Naval Shipyard in Hawaii to Puget Sound Na the only movement of Naval spent nuclear fuel by ship and the only shipping route w Strait of Juan de Fuca and the upper portions of Puget Sound to the Puget Sound Nav Bremerton. No Naval spent nuclear fuel is shipped to the ports of Seattle or Tacom The analyses reported in Appendix D include risks for normal operations and postula these alternatives, as well as for all other alternatives considered, and showed th alternative would be very small. All transportation of Naval spent nuclear fuel fo the largest number of shipments was shown to produce less than one additional fatal year period considered. Under all alternatives but those which do not allow Naval

leave Pearl Harbor, a few shipments (fewer than 25) from Pearl Harbor to Puget Soun would be made.
This EIS shows that the risk associated with the transportation of Naval spent nucl associated with storage at any location would be so small for all the alternatives not provide a basis for choosing among the alternatives. An analysis for a postula result in a serious fire aboard the vessel carrying Naval spent nuclear fuel in cer has been added to this EIS.

II COMMENT

Evaluation of a criticality event could be hampered because no references for ruthe fractions were found.
RESPONSE
The cesium release fraction used is taken from the Nuclear Regulatory Commission's 3.34, as stated in section F.1.4.2.1.2.1 of Appendix D to Volume 1.
The Nuclear Regulatory Commission's Regulatory Guide 3.34 does not include a releas ruthenium. However, ruthenium was added to the postulated releases in order to pro analyses consistent with those reported for other facilities in this EIS. The ruth was obtained from a technical report prepared by Los Alamos National Laboratory. T Guide to Radiological Accident Considerations for Siting and Design of DOE Nonreact Facilities, LA-10294-MS, issued January 1986, was inadvertently omitted from the li Draft EIS and has been added to the list of references in Attachment F of Appendix

II COMMENT

The loss of jobs in Southeastern Idaho should be considered in selecting an alterna Naval spent nuclear fuel.
RESPONSE
Appendix D to Volume 1 includes information on the socioeconomic impacts, such as i decreases in employment at Naval spent nuclear fuel management facilities, for eac considered. The data on socioeconomic impacts are summarized in Table 3-7 and Sect D. The analysis summarized in Table 3-7 shows that selection of an alternative whi practice of shipping Naval spent nuclear fuel to the Expended Core Facility at INEL loss of approximately 500 jobs in Southeastern Idaho.

II COMMENT

One commentor stated that the EIS should include uncertainties on the estimates of probabilities and of the resulting number of latent cancer fatalities.
RESPONSE
The analyses performed for airplane crashes contain a large number of conservative result in a worst case or bounding analysis which is intended to produce results wh exceeded even if all uncertainties were at the most unfavorable limit of their rang Appendix D to Volume 1 provides a description of the analysis of an airplane crash. The risks are very low even though the analyses included many conservatisms. For e of an airplane crash into a container used to store Naval spent nuclear fuel assume cause the container to be breached even though evaluation had shown that no part of penetrate the container. The analyses used meteorological conditions (such as wind which have only one chance in twenty of actually occurring, but no credit was taken are worse than the actual conditions 95% of the time. Further, the analysis of the assumed that no evacuation of people in nearby residential areas or other mitigativ reduce the effects. As a result of these conservatisms, it is expected that the ac accidents would be 10 to 100 times less than calculated.
The conservative assumptions discussed above result in analysis results which are m which would be expected should the accident actually occur. The exposures and late which have been calculated and reported in this EIS for a hypothetical airplane cra hundred times higher than those which would result from a more realistic, best-esti another way, a more realistic analysis would calculate risks which are 10 to 100 ti

contained in the EIS.

II COMMENT

One commentor stated that the formula for the effective crash area on page F-228 ap inconsistent with the description in the text and that the area calculated using th infinite for a crash attitude angle of zero.
RESPONSE
The formula for the effective crash area given in section F.3.2 is valid only for c greater than zero degrees. This is not a problem with the use of the equation beca have to be flying along parallel to the ground at an altitude equal to or greater t "target" for the angle to be zero. In such a case, the airplane would clear the ob crash.
The term in question which contains the cotangent of the angle of the aircraft's de the effective shadow area. The effective shadow area is the area of the projection the horizontal plane behind the target. The formula for the effective shadow area

$$A_{shallow} = (L + A_w) \quad H \quad \cot$$

As can be seen, as the angle of descent () decreases, shadow area increases. For t goes to zero, the aircraft clears the top of the target; hence, the effective shal apply. For the EIS, a value of 15 degrees is used for , based on the recommended v 1983 reference.
Section F.3.2 will be revised to note that the angle of descent during a crash ( ) for the effective crash area formula to be valid.

II COMMENT

One commentor requested that details on perpendicular distances between runways and spent nuclear fuel storage sites be provided in the EIS to allow for calculation of the crash probability expressions in Section F.3.2.
RESPONSE
Perpendicular distances between runways and potential Naval spent nuclear fuel stor determined by interested parties from the aeronautical and site maps obtained for e Federal Aviation Authority referenced in section F.3.3. For Pearl Harbor, the foll used in calculating the airport crash probabilities:

Airport	Runway Designation	Y-miles from end of runway to SNF	X-miles from cente line of runway to
Honolulu Interna-	8 left	0.99	1.75
tional/	8 right	0.93	2.97
Hickam AFB	4 right	0.17	3.32
Barbers Point NAS	29	3.9	6.1
	11	5.6	6.1
	22 left	6.6	1.4
	22 right	6.6	1.5
	4 left	8.4	1.5
	4 right	8.4	1.4

II COMMENT

One commentor presumed that the reason aircraft crash probabilities for potential N management sites are small is due to the exponential decrease in the probability of object on the ground as the distance from airports increases.
RESPONSE
The observation that the probability of an airplane crashing into an object on the as the distance between an airport or airway and the object increase is borne out b

crashes. Objects or buildings near airports or using main air routes are more like than those at greater distances because there are more aircraft in the vicinity of airways and because an aircraft is more likely to crash during takeoff and landing conditions.
The exponential factors which are included in the crash probability formula take in the probability of an aircraft crash striking a specific target decreases exponenti target to the centerline of the runway or airway increases. Further, the rate at w decrease occurs is dependent upon other factors such as the type of aircraft which of flight operation in progress, such as takeoff, landing, or level flight.

II COMMENT

A commentor requested more detailed justification in the EIS for the use of a reduc of 300 feet at shipyards.
RESPONSE
The 300 foot skid distance identified in section F.3.3 is based on a review of seve prototype sites which might contain Naval spent nuclear fuel. This review showed t directions an aircraft could not skid more than a few hundred feet before it would drydock in the crowded confines of a Navy site. Such an obstacle would quickly bri and would thus limit the skid distance.
In addition, a more detailed quantitative analysis was performed for two selected s validity of the use of a 300 foot skid distance. Analysis of these latter site loc maps of the specific sites, locating on these maps the potential site where Naval s kept, and calculating the average of the maximum skid distances for every direction nuclear fuel. In this calculation, it was assumed that an airplane would skid 160 unless the distance it could skid would be limited by an existing building, drydock structure. No credit was taken for reductions in skid distance caused by cranes, h earthen berms. The average skid distances for these two shipyards calculated in t and 314 feet. These results support the use of the 300 foot skid distance in this

II COMMENT

This EIS should present in detail the differences between the Nuclear Regulatory Co methods for calculating aircraft crash probabilities.
RESPONSE
There are several key differences between the Nuclear Regulatory Commission and San which will produce differences in the calculated crash probabilities at spent nucle Nuclear Regulatory Commission method treats crashes during landing and takeoff oper equally probable events. In contrast, the Sandia method distinguishes between the higher probability of occurrence to a crash during landing, which is consistent wit commercial and military aircraft.
Second, the Nuclear Regulatory Commission method calculates the probabilities of cr rings around the airports, whereas the Sandia method employs an approach using two direction of travel and whether the aircraft is landing or taking off. With the Nu Commission method, the probability of an aircraft crash during takeoff or landing i in all directions at a given radius from the airport. Thus, during a takeoff opera the aircraft or off to the side of the aircraft is just as likely to be involved in located ahead of the aircraft. This result is not realistic based on existing cras targets behind the aircraft and off to the sides are seldom, if ever, involved in c contrast, the Sandia crash zone approach identifies two distinct crash zones: one one off to the sides of the runway. Different crash probability values are used fo calculating probabilities for unrealistic situations such as the one just described Finally, the Sandia method includes terms, not found in the Nuclear Regulatory Comm which adjust the aircraft crash probability based on the angle between the centerli line which extends from the end of the runway to the target, and aircraft type. C follow a straight approach or departure route so this feature increases the crash p located along the runway centerline or at small angles from the runway centerline. performance aircraft, similar crash probability adjustments are made during landing made during takeoff operations since military aircraft typically do not follow a st These angular adjustments in crash probability are consistent with crash data for b

military aircraft.

II COMMENT

The effects on endangered or threatened species in the vicinity of a Navy site as a operations or accidents associated with Naval spent nuclear fuel management operati evaluated.
RESPONSE
The EIS considers in detail the potential environmental effects of each alternative and accident conditions. The results of these analyses show, and past experience d spent nuclear fuel can be managed safely and without adverse environmental effects. Appendix D to Volume 1 includes a discussion of the effects of Naval spent nuclear the ecology in the vicinity of the sites considered.
To ensure appropriate protection for protected species, the location for any new Na storage or examination facilities would be selected to avoid ecologically sensitive the vicinity of threatened or endangered species. Construction activities would co laws and regulations, using established procedures for preserving air and water qua impacts as noise and disturbance or destruction of habitat.
No Naval spent nuclear fuel storage or examination facility would release water car hazardous material to the environment. In almost 40 years of receipt, transportati examination of Naval spent nuclear fuel, the Naval Nuclear Propulsion Program has n radioactivity that has had a significant effect on the environment. Based on the o performed and the controls that would be in place, the impacts on air, water, ecolo resources of any Naval facility considered would be small. Furthermore, experience Naval spent nuclear fuel management is a low-intensity industrial activity, its con traffic would be inconsequential. Detailed calculations have shown that the cumula and the health impacts of that exposure, on the human population in the vicinity of fuel facility would be inconsequential; correspondingly, it is judged that the oper would not threaten the existence of any species.
In the unlikely event of a serious accident involving Naval spent nuclear fuel, it most severe case only about 210 acres of land would be affected to an extent that w Nuclear Regulatory Commission public limit of 100 millirem per year. Most of this shipyard or DOE site boundaries. The affected area would require decontamination, mean that an area of such size would be rendered permanently unavailable for use or long periods of time. In reality, radioactive contamination could and would be rem minimize the affected area. Since the radiological effects of accidents on the hum small, the radiological effects on species other than humans would also likely be s

II COMMENT

The effects on endangered or threatened species in the vicinity of a Navy site as a operations or accidents associated with Naval spent nuclear fuel management operati evaluated.
RESPONSE
The EIS considers in detail the potential environmental effects of each alternative and accident conditions. The results of these analyses show, and past experience d spent nuclear fuel can be managed safely and without adverse environmental effects. Appendix D to Volume 1 includes a discussion of the effects of Naval spent nuclear the ecology in the vicinity of the sites considered.
To ensure appropriate protection for protected species, the location for any new Na storage or examination facilities would be selected to avoid ecologically sensitive the vicinity of threatened or endangered species. Construction activities would co laws and regulations, using established procedures for preserving air and water qua impacts as noise and disturbance or destruction of habitat.
No Naval spent nuclear fuel storage or examination facility would release water car hazardous material to the environment. In almost 40 years of receipt, transportat examination of Naval spent nuclear fuel, the Naval Nuclear Propulsion Program has n radioactivity that has had a significant effect on the environment. Based on the o performed and the controls that would be in place, the impacts on air, water, ecolo resources of any Naval facility considered would be small. Furthermore, experience

Naval spent nuclear fuel management is a low-intensity industrial activity, its con traffic would be inconsequential. Detailed calculations have shown that the cumula and the health impacts of that exposure, on the human population in the vicinity of fuel facility would be inconsequential; correspondingly, it is judged that the oper would not threaten the existence of any species.
In the unlikely event of a serious accident involving Naval spent nuclear fuel, it most severe case only about 210 acres of land would be affected to an extent that w Nuclear Regulatory Commission public limit of 100 millirem per year. Most of this shipyard or DOE site boundaries. The affected area would require decontamination, mean that an area of such size would be rendered permanently unavailable for use or long periods of time. In reality, radioactive contamination could and would be rem minimize the affected area. Since the radiological effects of accidents on the hum small, the radiological effects on species other than humans would also likely be s

II COMMENT

The effects of hurricanes or tsunamis should be analyzed in this EIS and considered
RESPONSE
While hurricanes can have high winds, hurricane winds normally cannot generate the missiles analyzed for tornadoes. For example, tornado winds of 360 miles per hour the wind-driven missiles used in evaluating storage in shipping containers, as desc Appendix D to Volume 1. These winds are the same as those specified for design of Hurricanes very infrequently produce winds that could generate such missiles, so th tornadoes in Appendix D provide an upper limit for the effects of hurricanes. Exam caused by recent severe hurricanes shows that robust structures can withstand hurri considerations, the analysis of wind-driven missiles in the EIS is reasonable and a The containers used for storage are designed to withstand water immersion under sev conditions and no deleterious effects would be expected from submersion of a contai containers used for storage would be highly unlikely to be penetrated during a hurr Storage of Naval spent nuclear fuel in water pools at Navy sites is also considered Decentralization alternative. The Naval spent nuclear fuel in water pools would no and the effects on the environment due to flooding by a hurricane or tsunami would exchanging some pool water bearing radioactive corrosion products with the flood wa would not be expected to occur except for the most severe hurricanes or tsunamis. Appendix D of Volume 1 provides analyses of the effects of releases of water contai material. The results of these analyses represent an upper limit on the effects of hurricane or tsunami sufficiently severe to flood a water pool containing Naval spe results show that the risks of such releases would be small under all of the altern Some commentors expressed concern about the depth of flooding of drydocks during su However, this is not a concern because Naval spent nuclear fuel facilities would no since they are needed for ship maintenance and repair.

II COMMENT

Hurricanes can have winds like the 212 miles per hour measured during Hurricane Ini hurricanes are more common than tornadoes, the probability for a wind-driven missil tornado probability given in the EIS.
RESPONSE
The analysis presented in section F.1.4.2.2. of Attachment F to Volume 1, Appendix missile driven by the winds of a tornado impacted upon a dry storage container. Th because winds produced by tornados are higher than hurricane winds and thus the imp be traveling with higher velocity and would have higher kinetic energy. Even at th analysis has shown that the missile would not penetrate the container. The probabi the lower velocity of a hurricane (212 miles per hour) would be even smaller than t penetration for a missile propelled by the winds of a tornado (traveling at 360 mph While hurricanes can have high winds, hurricane winds normally cannot generate the missiles analyzed for tornadoes. While hurricanes may occur more frequently than t risk from a hurricane is lower because of the lack of penetration of the container. The analysis of wind damage using missiles propelled by the winds of tornados is th design of nuclear power plants. Hurricanes very infrequently have winds that could

so the analyses provided for tornados in Appendix D provide an upper limit for the
Examination of damage caused by recent severe hurricanes shows that robust structur
hurricanes. Based on these considerations, the analysis of wind-driven missiles in
and adequate.

II COMMENT

Accidents could be caused by human error during handling or storage of Naval spent
RESPONSE
The range of hypothetical accidents analyzed in Appendix D to Volume 1 (more than t
accidents) include those which might be caused by human error, failures of equipmen
phenomena, such as earthquakes or tornados. The analyses provide calculations of t
consequences which might be caused by reasonably foreseeable accidents.
The accidents analyzed include those caused by persons working with Naval spent nuc
improper crane operation, and by others, such as aircraft crashes, which could be c
The analyses and some of the possible initiating causes are described in detail in
D.

II COMMENT

The effects of routine Naval spent nuclear fuel management operations on water cons
should be evaluated.
RESPONSE
For each of the locations considered for management of Naval spent nuclear fuel, co
surface water and groundwater has been evaluated. (See the Water Resources section
Appendix D to Volume 1) As stated in the EIS, consumption or usage of water is exp
small change at all of the sites.
For example, current freshwater usage at the Puget Sound Naval Shipyard is identifi
Appendix D to Volume 1 as 676 million gallons annually. At Norfolk Naval Shipyard,
consumption is 823 million gallons yearly. None of the alternatives for Naval spen
management would involve an increase in current water usage at any location of more
gallons yearly.

II COMMENT

The effects on groundwater resulting from routine operations or accidents associate
nuclear fuel management should be evaluated.
RESPONSE
The effects of Naval spent nuclear fuel management on groundwater are addressed in
D. During routine operations associated with spent nuclear fuel there would be no
or hazardous liquid effluents under any of the alternatives at any of the sites. T
current Naval spent nuclear fuel management practices.
The effects of accidents on groundwater are also addressed in Appendix D, Attachmen
consider exposure and risk associated with direct release of radioactivity to surfa
ground water, as well as potential for air releases which affect ground or surface
analyses are summarized in Attachment F.

II COMMENT

The effects on the ocean of routine operations or accidents associated with Naval s
management should be evaluated.
RESPONSE
The effects on the ocean of routine operations and accidents associated with Naval
management are addressed in Attachment F to Appendix D. Table F.1.3.8-2 addresses
resources in the vicinity of locations involved with spent nuclear fuel operations.
to radioactive material documented in Attachment F and the impacts of various Naval

management alternatives include those due to any radioactivity entering the ocean n
effects of both deposition of airborne radioactivity and liquid effluent releases w
to activities on and in the ocean (boating and swimming) as well as ingestion of se
the evaluations.
From the start of the Naval Nuclear Propulsion Program, the policy of the U.S. Navy
the minimum practicable amount the amounts of radioactivity released into harbors.
accomplish this have been reviewed with DOE, the U.S. Nuclear Regulatory Commissio
Environmental Protection Agency.
The total amount of long-lived gamma radioactivity released into harbors and seas w
shore has been less than 0.002 curie during each of the last twenty-three years. T
from U.S. Naval nuclear-powered ships and from the supporting shipyards, tenders, a
and at operating bases and home ports in the U.S. and overseas, and all other U.S.
were visited by Navy nuclear-powered ships. (Refer to Report NT-94-1, Environmental
Disposal of Radioactive Wastes from U.S. Naval Nuclear Powered Ships and Their Supp
Washington, D.C., March 1994). To put this small quantity of radioactivity into pe
the quantity of naturally occurring radioactivity in the volume of ocean water occu
There are no fission product releases to the ocean from nuclear fuel on board opera
because the fuel is designed to contain fully any fission products in order to prot

II COMMENT

The Draft EIS does not account for severe water leaks from the Expended Core Facili
RESPONSE
There is no evidence that any leakage is occurring from the Expended Core Facility
Each time water is added to the pool at ECF the amount is measured and recorded. A
additions to the ECF pool can be correlated with expected evaporation from the surf
rather than leakage. Nevertheless, section F.1.4.2.1.6 of this EIS presents an acc
water leakage from the ECF water pool. The analysis was based on the largest amoun
from the ECF pool that is reasonably foreseeable. This analysis used the isotopes
shown by measurement to be present in the ECF pool water to represent the radioacti
released to the environment.
In addition to the analysis of minor water leakage, section F.1.4.2.1.1 presented a
where the entire contents of the Expended Core Facility water pool are assumed to l
seismic event. This analysis assumed that the isotopes normally present and those
to shock impact from the seismic event would be present in the water leaking to the
The results of both these analyses indicate that the impact on the environment woul
There have been leaks from the Expended Core Facility on occasion in the past, but
located and corrected when they occurred. Monitoring of the groundwater in the vic
Core Facility has detected no radioactive material released from ECF.

II COMMENT

Storage or management of Naval spent nuclear fuel at a Navy site would make it a mo
attack in the event of war.
RESPONSE
Since Naval spent nuclear fuel is not a strategic asset, the presence or absence of
would not be expected to alter the strategy of an aggressor with respect to attacki
Information has been added to Appendix D of Volume 1 of the EIS which provides furt
the effects of an attack on Naval spent nuclear fuel management facilities or equip
terrorism or sabotage. The effect of such an attack is expected to be conservative
accident discussed at each facility under each alternative. For example, the most l
Naval spent nuclear fuel is described in Attachment F of Appendix D to be an airpla
shipping container at the Pearl Harbor Naval Shipyard. This accident would lead to
over the next fifty years in the population within 50 miles of the shipyard. Since
event is one chance in 100,000 per year, the risk would be 0.00026 latent fatal can
in other words, about one chance in 4,000 of a single latent fatal cancer fatality
shared among the approximately 820,000 people residing within 50 miles of the shipy
expected to have over 2,000 cancer fatalities from all causes every year. For an a
terrorist attack, it is likely the risk would be lower than calculated because it s
force would exist to disperse radioactive products into the atmosphere from a weapo

motive force of the fire assumed in the case of an airplane crash.

II COMMENT

Storage or management of spent nuclear fuel at a Navy site would make it a more att terrorist attack or sabotage.
RESPONSE
Naval spent nuclear fuel would be stored or examined only within the secure areas o The security precautions in effect at these sites, in addition to the extremely rug walls of water pools, would make the Naval spent nuclear fuel management facilities for terrorists.
Information has been added to Appendix D of Volume 1 of the EIS which provides furt the effects of an attack on Naval spent nuclear fuel management facilities or equip terrorism or sabotage. The effect of such an attack is expected to be conservative accident discussed at each facility under each alternative. For example, the most l Naval spent nuclear fuel is described in Attachment F of Appendix D to be an airpla shipping container at the Pearl Harbor Naval Shipyard. This accident would lead to over the next fifty years in the population within 50 miles of the shipyard. Since event is one chance in 100,000 per year, the risk would be 0.00026 latent fatal can in other words, about one chance in 4,000 of a single latent fatal cancer fatality shared among the approximately 820,000 people residing within 50 miles of the shipy expected to have over 2,000 cancer fatalities from all causes every year.
For an act of war, sabotage or terrorist attack, it is likely the risk would be low airplane crash because it should be less probable that a force would exist to dispe into the atmosphere from a weapon as compared to the motive force of the fire assum airplane crash. For example, anti-tank weapon attacks on containers would be less accidents analyzed because: (a) anti-tank weapons would cause a self-sealing penetr container, unlike that which is assumed from the airplane crash (impact from a 50 i rotor); (b) there is no explosive material inside the container, so it will not "bl by such a weapon (in a tank attack, the tank shells inside the turret detonate); (c disperse the radioactivity that is released when the container is breached, unlike jet fuel will burn creating such a fire. The rugged design of containers and the t combined with the shock-absorbing nature of water with a free surface, reduce the e explosive charges. Attachment F of Appendix D of the EIS has been modified to bett analysis.

II COMMENT

The EIS should describe the consequences of a terrorist attack on Naval spent nucle facilities.
RESPONSE
The consequences of such an attack have been considered and determined to be less t accidents analyzed in the EIS, specifically the crash of a large jet or an earthqua Attachment F, Section F.1.2). Attacks using anti-tank weapons or other specialized conventional explosives, were evaluated.
The reasons that anti-tank weapon attacks on containers would be less severe than t are: (a) anti-tank weapons would cause a self-sealing penetration in the metal of a which is assumed from the airplane crash (impact from a 50 inch diameter engine rot explosive material inside the container, so it will not "blow up" as a tank would i a tank attack, the tank shells inside the turret detonate); (c) there would be no f radioactivity that is released when the container is breached, unlike an aircraft c might pool, ignite, and create a fire. The rugged design of containers and the thi combined with the shock-absorbing nature of water with a free surface, reduce the e explosive charges. It is not credible that a terrorist attack would result in a cr nuclear fuel; however, in Section F.1.4.2.1.2 the consequences of a hypothetical cr presented. The risks associated with an accidental criticality are less than those water pool or an airplane crash into dry storage containers. Attachment F of Appen been modified to better describe this analysis.
Terrorist attacks on Naval spent nuclear fuel during shipment were also evaluated. of the shipping containers used for Naval spent nuclear fuel makes them an unlikely

attack. No such attacks have occurred in the nearly 40 years of rail shipments, wh about 2 million kilometers. Thus, the probability of a terrorist attack on a shipm more than the probability of a rail accident which is listed in section A.7.1.2.1 o Appendix D of the EIS. The consequences of a terrorist attack are also judged to b those listed for transportation accidents. Therefore the same conclusions reached accidents apply to the risk to the extremely rugged shipping containers from terror shipment. In addition, during shipment, all Naval spent nuclear fuel containers ar who remain in contact with headquarters. In the event of an emergency, state and f be quickly summoned to stabilize the situation.

II COMMENT

The effects of a terrorist attack using a nuclear weapon should be evaluated for Na management facilities.
RESPONSE
Naval spent nuclear fuel would be stored or examined only within the secure areas o The security precautions in effect at these sites would make the Naval spent nuclea facilities unattractive targets for terrorists. Although a detailed analysis of th attack has not been included in the EIS, such a scenario would not cause an uncontr explosion in Naval spent nuclear fuel. The only effect that might occur from a nuc would be damage or dispersion of the spent nuclear fuel. The immediate death and d from detonation of the nuclear weapon itself would be of much greater concern than effects associated with Naval spent nuclear fuel.

II COMMENT

The weight of the Naval spent nuclear fuel shipping containers may be greater than existing buildings or structures.
RESPONSE
The weight of shipping containers can be readily accommodated on any well construct ground. This is illustrated by the fact that they are within the weight limits for transported over the standard rail lines and handled at the Navy shipyards and INEL arrangements or structures. Containers used in transport of Naval spent nuclear fu approximately 40 years without causing damage to existing buildings or structures.

II II COMMENT

It would be impossible (or very difficult) to evacuate Oahu in the event of an acci Naval Shipyard involving Naval spent nuclear fuel stored there.
RESPONSE
Evaluation of the results in this EIS shows that evacuation of Oahu should not be r severe accident postulated for Naval spent nuclear fuel were to occur.
In order to help understand why this is the case for even severe hypothetical accid Chapter 5, section 5.1.4.14.3, and Attachment F, section F.1.3.8) provides the resu radioactive material dispersion and deposition calculations for a hypothetical airp spent nuclear fuel storage containers at Pearl Harbor Naval Shipyard. (As one meas of the analyses, such a crash is not expected to breach a container, but in the EIS an accident would occur nonetheless.) This is the worst case potential accident fo show that even under this extremely severe case, an area of only about 110 acres co the point where radiation doses exceeding the Nuclear Regulatory Commission public per year might result for a person living full-time on that land. Most of this are boundaries. The potentially contaminated area would be small owing to the relative spent nuclear fuel in a storage container and the robust nature of the container an These results mean that the maximum area which might be considered for possible eva severe case would be very small and localized. It should be kept in mind that the the preceding paragraph assumes that no action is taken to clean up the radioactivi would occupy the land full time for at least a year without any action to mitigate effects of exposure. In reality, radioactive contamination could and would be remo

minimize the affected area and reduce impacts on any people involved.

II COMMENT

It would be difficult to obtain emergency aid from the Mainland in the event of an Naval Shipyard involving Naval spent nuclear fuel stored there.
RESPONSE
As discussed in this EIS (See Appendix D, Section 5.8.4), the Navy has significant capability on Oahu and does not rely on resources from the Mainland for emergency r Furthermore, the analysis of the impact of hypothetical accidents in the EIS did no addition, the State of Hawaii plans in place to deal with natural emergencies such are sufficient to deal with any public response necessary in the unlikely event of spent nuclear fuel. Thus, any off-shipyard emergency response would reduce the pot below the levels calculated in the EIS.

II COMMENT

Emergency planning for accidents involving Naval spent nuclear fuel should be descr Environmental Impact Statement.
RESPONSE
As discussed in Appendix D (Section 5.8.4), the Navy has significant emergency resp of its sites and does not rely on the State or local resources for emergency respon analysis of the impact of hypothetical accidents in the EIS did not rely on any off of the states hosting Navy sites have radiological emergency response procedures. defense plans in place to deal with natural emergencies are sufficient to deal with necessary in the unlikely event of a problem involving Naval spent nuclear fuel. As a further point, the analyses of hypothetical accidents in Appendix D are conser assume that no off-site emergency response actions are taken. Thus, any off-site e protect the public would reduce the potential health impacts below the levels calcu

II COMMENT

The State of Hawaii's Department of Health would not be capable of responding to a radioactive material at Pearl Harbor.
RESPONSE
The analyses of hypothetical accidents in Appendix D to Volume 1 assume that no off response actions are taken in the event of even the most severe accidents. Thus, i response occurred, it would reduce the potential health impacts below the levels ca As discussed in Appendix D (Section 5.8.4), the Navy has significant emergency resp of its sites, including Pearl Harbor, and does not rely on the State of Hawaii or l emergency response beyond existing emergency plans and resources. Nonetheless, the all of the states hosting Navy sites, has emergency response procedures already est other civil defense plans in place to deal with natural emergencies are sufficient response necessary in the unlikely event of a problem involving Naval spent nuclear Navy and local emergency response capabilities is tested periodically in drills sim accidents at the shipyard.

II COMMENT

The existence of emergency plans and the state of readiness maintained by emergency indication that an accident is likely.
RESPONSE
Maintaining preparedness for emergencies has been judged by most people in the Unit prudent step. This does not mean that all of the emergencies for which preparednes highly probable or even likely, but reflects the belief that it is more prudent to equipment that might be needed in emergencies if they occur. Experience has also s

preparedness can be of great value in less severe accidents or in natural disasters Preparedness for the most severe accidents has been a basic tenet of the Navy and t Propulsion Program from the very beginning of the use of nuclear power in warships. more than 100,000,000 miles and accumulating over 4400 reactor years of operation w accident or any problem having a significant effect on the environment, the Navy ha personnel how to respond a full range of accidents and has tested the preparedness with periodic exercises. These exercises include interaction with appropriate stat continue to form a cornerstone of the safety philosophy of the Naval Nuclear Propul The Navy's efforts to maintain vigilance and preparedness do not in any way indicat expected or accepted.

II COMMENT

There is no warning system in place in the vicinity of Puget Sound Naval Shipyard t the event of a radiological accident at the shipyard (and no funding mechanism exis system).
RESPONSE
The EIS shows that the maximum area in the vicinity of Puget Sound Naval Shipyard considered for possible evacuation in the most severe radiological accident involvi management would be very small and localized. Consequently, the normal methods for public, such as the Emergency Broadcast System, commercial radio and television and address systems, are adequate. In addition, the Navy has significant emergency res its sites. These resources also would be available to provide public assistance if In order to help understand why this is the case for even severe hypothetical accid Volume 1 (See Chapter 5, Section 5.1.1.14.3, and Attachment F, Section F.1.3.8) pro calculations of radioactive material dispersion and deposition calculations for a h into Naval spent nuclear fuel storage containers at Puget Sound Naval Shipyard. It conservative nature of the analyses in the EIS that an accident assuming breach of included in the EIS even though such an airplane crash involving the largest aircra be expected to penetrate the containers. This is the worst case potential accident results show that even under this extremely severe case an area of only about 110 a contaminated to the point where radiation doses exceeding the Nuclear Regulatory Co limit of 100 millirem per year might result for a person living full time on that l this area would be within shipyard boundaries. The potentially contaminated area w to the relatively small amount of spent nuclear fuel in a storage container and the container and the fuel.

II COMMENT

The citizens in the vicinity of Puget Sound Naval Shipyard are not prepared to resp emergency.
RESPONSE
Representatives of the Puget Sound Naval Shipyard have met a number of times in the County Emergency Management (KDEM) Agency to address emergency planning related mat including Shipyard assistance of response to off-site radiological accidents and em discussions, the representatives of the Kitsap County Emergency Management Agency h intention to familiarize citizens and businesses with emergency planning concepts s Sound Naval Shipyard will continue to work with local emergency planning organizati adequate response capabilities exist in the remote event of a radiological accident

II COMMENT

The Puget Sound Naval Shipyard does not share emergency response plans or conduct local emergency management organizations.
RESPONSE
This statement is inaccurate. Over the years, the Puget Sound Naval Shipyard has c many formal meetings with the representatives of local emergency preparedness organ examples of the information exchanged during these meetings include: notification p

response and assistance for radiological accidents at locations other than the ship
Emergency Plan revision, information for shipyard annexes to the Washington and Kit
Emergency Management Plans, radiation monitoring instrumentation, public informatio
communication equipment, monitoring beyond the boundaries of the shipyard, aerial m
scenarios, shipment of radioactive material, training for county firefighters and E
Technicians, Event Category and Protective Action Recommendations, and an overview
Naval vessels, the reactors installed in them, and Naval nuclear fuel. The shipyar
also presented overviews of the Navy Environmental Monitoring Program and the Navy
Disposal Program.
Over the past 18 years, the Shipyard has met with the Kitsap Department of Environm
(KDEM) approximately 30 times and has provided information for potential inclusion
emergency plans. In January, 1992, the Shipyard assisted the Kitsap Department of
Management in reviewing and revising parts of the draft revision to the 1973 County
County Plan reflects information provided by the shipyard. The Shipyard will conti
technical assistance to the County as applicable information from the County's oper
added to the County's plan.
Many tours of the Shipyard Emergency Control Center and the control center to be us
accident have been conducted for state and local officials. The Kitsap county emer
agencies have been involved with planning and conducting joint exercises.

II COMMENT

It would be very difficult to evacuate the area in the vicinity of Norfolk Naval Sh
accident due to the large population and the poor highway system.
RESPONSE
The results of the analyses of postulated accidents in this EIS show that no evacua
required even if the most severe accident postulated for Naval spent nuclear fuel w
the sites considered.
In order to help understand why this is the case for even severe hypothetical accid
Attachment F, Section F.1.3.8 provides the results of calculations of radioactive m
deposition calculations for all hypothetical accident scenarios analyzed. For the
accident at Navy sites, the results show that an area of less than about 110 acres
the point where radiation doses exceeding the Nuclear Regulatory Commission public
per year might result for a person living full time on that land for an entire year
be within shipyard boundaries.
These results mean that the maximum area which might be considered for possible eva
severe case would be very small and localized. It should be kept in mind that the
the preceding paragraph assumes that no action is taken to clean up the radioactivi
would occupy the land full time for at least a year without any action to mitigate
In reality, radioactive contamination could and would be removed in order to minimi
and reduce impacts on any people involved.

II II COMMENT

The cumulative impacts of radiation and other carcinogens should be analyzed.
RESPONSE
The radiological and non-radiological cumulative health impacts associated with eac
Naval spent nuclear fuel are addressed in Volume 1, Section 5.3 and in more detail
Impacts section for each site in Chapter 5 of Appendix D to Volume 1. The results
performed in support of the EIS demonstrate that implementing any of the alternativ
would not produce significant cumulative impacts. As discussed in Volume 1, Append
the fact that release of radioactive materials is strictly controlled at minute lev
small compared to the amounts of radioactivity present in the environment from natu
the only chemical releases associated with routine Naval spent nuclear fuel operati
amounts of combustion products associated with heating boiler operations and occasi
operations.
Radiological and non-radiological cumulative health impacts associated with carcino
separately in the EIS because, with few exceptions such as cigarette smoke, increas
known carcinogens caused by combination with exposure to radioactive materials or r
been quantified or conclusively identified by the scientific community. Further, a

nuclear fuel operations release only a small level of combustion exhaust in additio radioactive material releases. In addition, considerably less is known about the h chemical carcinogens so quantitative tools for assessing these risks are either not accepted. Consequently, combining risks associated with radiological and non-radio would introduce considerable unnecessary uncertainty into the calculations for risk radioactivity.

II II COMMENT

The Navy should identify how it expects to manage greater-than-class C low-level wa
RESPONSE
U.S. Nuclear Regulatory Commission 10 CFR 61 identifies three classes of low-level generally suitable for near-surface disposal: namely, Classes A, B and C. Wastes greater than those specified for Class C for certain short and long-lived isotopes generally suitable for near surface disposal. These wastes are classified as "grea In May 1989, the Nuclear Regulatory Commission promulgated a rule that requires dis commercially generated Low-Level Waste with concentrations of radioactivity greater deep geologic repository, unless disposal elsewhere is approved by the Nuclear Regu Currently, a small amount (about 25 cubic meters) of greater than Class C Low-Level removed from the ends of Naval spent nuclear fuel modules over the years is being s Reactors Facility pending availability of a disposal facility licensed by the Nucle This material has been collected and held at the Expended Core Facility for many ye 0.02 cubic meters of test specimens are being stored at the Expended Core Facility Low-Level Waste pending availability of a permanent disposal facility. This practi continue over the period of time covered by this EIS.
This description of how greater than Class C Low-Level Waste is stored at the Expen been added to Volume 1, Appendix D of the EIS.

II COMMENT

The quantity and character of Naval Reactors Facility specimens irradiated at INEL that ultimately are sent to the Radioactive Waste Management Complex for shallow la provided in this EIS since the data in this EIS suggest Greater than Class C waste.
RESPONSE
This EIS provides in Section A.7.3 of Appendix D to Volume 1 enough information on shipments of specimens from Naval Reactors Facility and the amounts of radioactivit information related to these shipments to allow an independent analyst to perform c potential impacts of these shipments. These specimen shipments have been included of possible cumulative impacts even though they are not part of the action evaluate The statement that Greater than Class C waste is sent to the Radioactive Waste Mana INEL for shallow land burial is inaccurate. Specimens which contain nuclear fuel a Radioactive Waste Management Complex at INEL. Only those specimens which meet the Waste Management Complex acceptance criteria are ultimately sent to that facility f than Class C radioactive waste from Navy operations has been held at the Naval Reac continue to be held there until a site for ultimate disposition is designated.

II COMMENT

The Navy should consider the material removed from the ends of fuel modules during Expended Core Facility as spent nuclear fuel.
RESPONSE
This EIS relies on definitions and classifications of nuclear materials set forth i Act, as amended, and regulations issued by the Environmental Protection Agency (40 Nuclear Regulatory Commission (10 CFR 61). The categories set forth in these regul Nuclear Fuel", "High Level Waste", "Transuranic Waste", "Low-Level Waste", "Low-Lev "Greater than Class C Waste", and "Hazardous Waste".
Volume 1, Appendix H sets forth the definition of spent nuclear fuel used in this E withdrawn from a nuclear reactor following irradiation, the constituent elements of

separated." The definition of High-Level Waste in Appendix H to Volume 1 is "highl material that results from the reprocessing of spent nuclear fuel, including liquid reprocessing and a solid waste derived from the liquid....". Transuranic Waste is containing more than 100 nanoCuries of alpha-emitting transuranic isotopes, with ha years, per gram of waste, ...". Low-Level Waste is defined as "waste that contai classified as high-level waste, transuranic waste, or spent nuclear fuel".
The ends of the fuel modules removed from Naval spent nuclear fuel modules at the E Facility are structural material which provides support and directs the flow of coo operation. This structural material is removed by cutting through portions of the contain no fuel. The material removed from the ends of the fuel modules does not c fission products from fuel and therefore cannot be considered "spent nuclear fuel". transuranic elements or fission products and thus cannot be considered High Level W Waste. The amounts of radioactivity in the end boxes cause them to be classified a Consequently the material removed from the ends of the modules at the Expended Core rized as Low-Level Waste due to the amount of radioactivity present in it. The di material at the Radioactive Waste Management Complex at INEL is accomplished in acc applicable regulations. As indicated in Section 5.2.15 of Appendix D, Part A of Vo amount of Low-Level Waste generated each year at the Expended Core Facility is 425 radioactive isotopes which represent 99% of the activity in the material removed fr modules are identified in the following table:

ISOTOPE	HALF LIFE
Fe55	2.73 years
Co60	5.271 years
Ni59	76000 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 of the EIS.

II COMMENT

The impacts of the waste generated at ECF are understated and the facts, as present misleading.
RESPONSE
Section 5.2.15 of Appendix D, Part A of Vol. 1 of the EIS states that the amount of generated each year at ECF is approximately 425 cubic meters. The primary constitu waste is the material removed from the ends of Naval spent nuclear fuel modules at for visual examination of the spent fuel internal surfaces. These ends of the fuel material which provide support and direct the flow of cooling water during operatio material is removed by cutting through portions of the fuel modules which contain n process does not expose nuclear fuel, leaving it completely encased in zirconium.
The structural material removed from the modules does not contain any fuel or fissi and therefore is not "spent nuclear fuel". It does not contain transuranic element thus is not High Level Waste or Transuranic Waste. The amounts of radioactivity in from the ends of the Naval spent nuclear fuel modules allow them to be classified a Their disposal at the Radioactive Waste Management Complex at INEL is accomplished with all applicable regulations. The radioactive isotopes which represent 99% of t boxes removed from fuel modules are identified in the following table:

ISOTOPES CONTAINED IN CORE STRUCTURALS

ISOTOPE	HALF LIFE	PRIMARY MODE OF DECAY
Fe55	2.73 years	Electron Capture (x-ray)
Co60	5.271 years	Beta & Gamma
Ni59	76000 years	Electron Capture
Ni63	100 years	Beta

A description of the composition of the material removed from the ends of Naval spe modules during examination has been added to Volume 1, Appendix D of the EIS.
The analyses performed in the EIS include all phases of spent nuclear fuel manageme generation, handling , and disposal or storage of Low-Level Waste. The conclusion that the normal operations associated with the management of spent nuclear fuel at very small exposures to humans and the environment. Consequently, the radioactivit Low-Level Waste is managed and disposed of under stringent controls so that the env are very small.

II COMMENT

According to the commentor, this EIS fails to include information on all radioactiv Expended Core Facility at INEL using Nuclear Regulatory Commission classifications.
RESPONSE
This EIS does characterize all radioactive waste streams from Naval spent nuclear f Expended Core Facility. Volume 1, Appendix D, section 5.2.15 of the EIS provides a the waste streams from the Expended Core Facility at INEL. Appendix D, section 5.2 volumes of low-level radioactive waste and transuranic wastes produced each year an there is no high-level radioactive waste produced at the Expended Core Facility. T applicable radioactive waste categories defined by the Nuclear Regulatory Commissio also describes how all of the waste streams from the Expended Core Facility would b the alternatives considered.
The analyses performed in the EIS include all phases of spent nuclear fuel manageme generation, handling, and disposal or storage of low-level waste. The conclusion f that the normal operations associated with the management of spent nuclear fuel at very small exposures to humans and the environment. Consequently, although the rad with low-level waste is managed and disposed of under all applicable regulations an that the environmental impacts are very small.
A description of the composition of the material removed from the ends of Naval spe modules during examination has been added to Volume 1, Appendix D of the EIS in res of public comments. This information may help to understand the nature of the low- at the Expended Core Facility and why it classified as low-level waste.

II II COMMENT

The range of dose rates at 1 meter from loaded Naval spent nuclear fuel shipping co provided in the EIS.
RESPONSE
This EIS states in Section I-4.1 of Appendix I to Volume 1 (page I-45 of the Draft 1 millirem per hour at one meter (3.28 feet) was used for Naval-type SNF shipments, dose rate from previous Naval SNF shipments." The value of 1 millirem per hour at obtained from the values measured from navy shipments in the past. As described in Appendix D to Volume 1, the dose rate values used in the calculations for Naval spe shipments ranged from 0.1 to 1.8 millirem per hour at one meter.
For fuel types which had been shipped in the past, the values used in the analyses averaging the measured values. For the fuel types which had not been shipped in th rates from the applicable Safety Analysis Reports for Packaging were used, with sui reflect a lower level of uncertainty than is used in such documents. This lower le justified by the extensive measurements of exposure levels from past shipments. To technique reliably produced values which would not be exceeded in practice, it was the values used in the Safety Analysis Reports for Packaging for spent fuel types a same manner and comparing them to measurements. In all cases, the estimated values measured values so this method is conservative.
Department of Transportation regulation for shipment of spent nuclear fuel limit th meter from the surface of the shipping container to 10 millirem per hour for any sh above, the exposure rates for Naval spent nuclear fuel shipments are well below thi

II COMMENT

A commentor did not understand how the consequences of an accident involving shipme radioactive waste could be considered to be insignificant.
RESPONSE
This EIS states in Section A.5 of Appendix D to Volume 1 that the consequences of a shipment of low-level radioactive waste from shipyards would be insignificant compa analyzed for spent nuclear fuel. The probability of an accident and the severity (etc.) of an accident involving radioactive waste would be similar to spent nuclear radioactive material which might be available for release would be many tens of tim

small amount of fuel available for release from spent nuclear fuel. Therefore, the insignificant compared to those of spent nuclear fuel.
Sections A.8.3 and A.8.4 of Appendix D provide the risk and maximum consequences of transportation accidents involving spent nuclear fuel and the risks for all of the very small. The risks associated with a low-level radioactive waste shipment woul these very low risks.

II COMMENT

A commentor expressed concern about the nature of the radionuclides which might be accident involving Naval spent nuclear fuel.
RESPONSE
Table A-14 in Appendix D to Volume 1 of this EIS provides the list of isotopes and each isotope which would be released in an accident from an average shipment of Nav The two columns on the left in Table A-14 list the radionuclides and amount of radi be released by the most severe accidents which might cause both radioactive nuclide from fission of atoms and radionuclides in corrosion products to be released. The list the radionuclides and activities for the less severe accidents which could onl material present in the corrosion on the outside of the fuel elements to be release Radioactive material in the very thin film of corrosion formed on the exterior of f released by the shock of an accident such as a collision. The materials referred t are not corrosive. The radionuclides resulting directly from fission of atoms occu elements and are completely contained by the cladding of the fuel. They could only forces of the accident are severe enough to break the fuel elements open or to melt The radionuclides listed could only be released as a result of an accident during t therefore they would not increase exponentially with the storage of shipments. The might be released during a postulated accident while Naval spent nuclear fuel is in are addressed in detail in Attachment F of Appendix D to Volume 1.

II COMMENT

The term "person-rem" would be more appropriate than "rem" in some locations in Att Appendix D of Volume 1.
RESPONSE
The text in the locations identified has been changed to use "person-rem" in all lo estimated dose to the general population. A check of the remainder of Attachment A Volume 1 has been conducted to assure that the use of this term is consistent throu

II COMMENT

More detail concerning the neutron reduction factor used in the Naval spent nuclear calculations used for the analyses in this EIS should be provided.
RESPONSE
Section A.7.1.1.9 of Appendix D to Volume 1 of this EIS states that a more realisti factor was used for Naval spent nuclear fuel instead of the factor supplied in the program. This more realistic factor used the same basic equation used in RADTRAN 4 the RADTRAN 4 Technical Manual, Volume II [Neuhauser and Kanipe 1993]). The basic

$$DRn(r) = K \times e^{-ux} \times (1 + a1r + a2r2 + a3r3 + a4r4) / r2$$

where:
- DRn(r) = neutron dose rate at distance r
- r = distance from source (m)
- K = constant
- u = linear attenuation coefficient (m-1)
- a1,a2,a3,a4 = dimensionless coefficients

The difference is that a value of 2.0 x 10-10 was used for a4 in lieu of 0. This w reproduced the results of measurements of the neutron exposure from Naval spent nuc and yielded a higher exposure from each shipment than the standard value. Attachme of Volume 1 has been revised to provide this detail.

II COMMENT

The Navy plans to make a few more shipments of Naval spent nuclear fuel than stated
RESPONSE
The number of planned shipments has not changed from those presented in the Draft E shipments of Naval spent nuclear fuel identified in this EIS represent the best ava on long-term military force estimates during the next 40 years.
The commentor referred to information provided to him separately by the Naval Nucle Program that stated that the number of shipments of Naval spent nuclear fuel over t revised to 599 instead of the 584 identified in Appendix D to Volume 1. This chang of reviews of records of historic shipments, where one shipment sometimes included container, and updates necessary to reflect all shipments expected to be completed has been revised to reflect 599 shipments of Naval spent nuclear fuel in the years considered in this EIS. This change results in less than a 1 percent change in the to the public and the results in the EIS have been changed accordingly. However, t affect any of the comparison or analyses of environmental impacts provided in the E

II COMMENT

The text in Section A.7.1.2.4 and the entries in Table A-13 in Appendix D to Volume inconsistent.
RESPONSE
Section A.7.1.2.4 of Appendix D to Volume 1 provides release fractions to be used i the consequences and risks for postulated transportation accidents involving Naval section states that "from the modal study, the release fraction in lower left regio evaluation". Later it states "For the maximum consequence evaluation, 1% of the co be released for the lower left region, R(1,1)". Table A-13 provides a summary of t to be used for risk analyses so the value of 0.0 as described in the text and above The document which describes the methodology used in the analyses of postulated acc spent nuclear fuel shipments provides more details on the use of the risk matrix an the application of the analytical technique. See U.S. Nuclear Regulatory Commissio NUREG/CR-4829, Shipping Container Response to Severe Highway and Railway Accident C UCID-20733, prepared by Lawrence Livermore National Laboratory for the Division of Safety and issued by the Office of Nuclear Regulatory Research, Washington, D.C., i in Attachment A to Appendix D.

II COMMENT

The Navy has stated that approximately 580 to 600 shipments of Naval spent nuclear be required under the alternatives which would continue inspection of Naval spent n existing Expended Core Facility, but section A.7.2 of Attachment A to Appendix D to appears to indicate that 728 shipments would be required.
RESPONSE
There is no contradiction between the number of shipments used by the Navy in the E meetings or reviews.
Under the alternatives which would continue inspection of Naval spent nuclear fuel Expended Core Facility, approximately 600 container shipments would be needed over period to move the Naval spent nuclear fuel from shipyards and Navy prototype react Core Facility at INEL. These shipments would travel by the commercial rail system a few ocean shipments from Pearl Harbor Naval Shipyard to Mainland, whereupon rail used, and a few miles traveled overland by a limited number of shipments of prototy to reach a railhead). Section A.7.1 provides a discussion of the detailed basis fo Section A.7.2 provides information concerning the transfer, within the boundaries o Naval spent nuclear fuel from the Expended Core Facility to the DOE storage facilit transfers (less than 5 miles, one way) would use roads not accessible to the genera shipments were included in the EIS to provide a complete evaluation of the possible aspects of movement of Naval spent nuclear fuel. It is planned that all alternativ the examination of Naval spent nuclear fuel to other DOE sites would also involve s

conducted entirely within the boundaries of the new site.

II COMMENT

The EIS states that Norfolk Naval Shipyard is about 10 miles from Newport News Ship rail distance between the two facilities is 250 miles. A commentor questioned wheth correct.
RESPONSE
The information on the rail distance between Newport News and Norfolk is correct. Shipyard and Newport News Shipbuilding and Drydock Company are on opposite sides of about ten miles apart, but the two locations have no direct rail connection. Rail t must be routed through Richmond, Virginia, Petersburg, Virginia, and a portion of N to reach Norfolk. The total distance traveled by a Naval spent nuclear fuel shipmen and this value was used in the analyses performed for this EIS.

II COMMENT

The railroad tracks may not be in good condition to carry spent nuclear fuel.
RESPONSE
The requirements for railroad track inspections and the standards for track conditi established by the Federal Railroad Administration, a part of the Department of Tra forth in federal regulations (49 CFR 213). In advance of each shipment of Naval sp Navy provides railroad companies who will move the Naval spent nuclear fuel with th and the weight of each railcar. The railroad companies ensure that locomotives, tr capable of accommodating the shipment and completing it safely.
Naval spent nuclear fuel has been shipped from the various Navy sites by rail for 3 release of radioactive material. Nevertheless, as described in Section A.4.1.4 of of this EIS, each shipment of Naval spent nuclear fuel is accompanied by escorts wh with headquarters. In the event of an emergency, state and federal resources would to stabilize the situation. Moreover, Naval spent nuclear fuel is shipped in large containers which are designed to withstand accidents which might occur during shipm Appendix D provides descriptions and photographs of the shipping containers used fo fuel.

II COMMENT

The commentor states that DOE presents no information on the characteristics of the code or the value in selecting it.
RESPONSE
The SPAN4 computer code was developed as an analysis tool specifically suited to th characteristics of Naval SNF, therefore providing conservative yet more realistic v index to exposure rate conversion factors presented in Volume 1, Appendix D, Attach Volume 1, Appendix D, Attachment F, section F.1.3.6 provides additional discussion computer code.

II II COMMENT

The costs of Naval spent nuclear fuel management could be very high.
RESPONSE
The costs associated with each alternative for the management of Naval spent nuclea Appendix D of this EIS in Section 3.7.4 (See Table 3.8) and in Attachment D (See Se costs to the Navy for the alternatives considered range between $1.5 Billion and ab years.

II COMMENT

The costs of Naval spent nuclear fuel management at INEL should include the costs o existing Expended Core Facility.
RESPONSE
The Expended Core Facility at INEL is a modern facility which has been continuously expanded during its lifetime. It meets all the requirements for accomplishment of protection of human safety and the environment. Engineering evaluation of the faci has shown that it possesses more than adequate strength for earthquakes which migh location. A full engineering evaluation completed in 1994 showed that, even though the facility were constructed in the 1950's, the entire facility meets the current been well-maintained, it is not deteriorating (please see the photographs in Append and it has adequate capacity for the foreseeable workload throughout the period cov need to replace the Expended Core Facility is foreseen for the period covered by th replacement have not been included.

II COMMENT

The Barnwell Nuclear Fuel Plant adjacent to the Savannah River Site could be modifi spent nuclear fuel as an alternative to the Expended Core Facility at INEL.
RESPONSE
It is correct that management of Naval spent nuclear fuel at the Barnwell Nuclear F possible without large impacts on the environment. The use of the Barnwell Nuclear capabilities for Naval spent nuclear fuel management similar to those at the Expend INEL is discussed in Chapter 3 of Appendix D to Volume 1. This discussion includes associated with the use of this facility for management of Naval spent nuclear fuel Barnwell Nuclear Fuel Plant is included in Chapter 4, Affected Environment (Section Environmental Consequences (Section 5.3). The results of analyses of normal operat the at facility are included with the results for the Savannah River Site in Attach and F.1.4.2) and are presented explicitly where they differ appreciably from the re nuclear fuel examination facility located on the Savannah River Site proper.
A brief description of the modifications needed to duplicate capabilities provided Facility at INEL is presented in Section E.2 of Appendix D to Volume 1. This descr be sufficient for the purposes of evaluating environmental impacts for this EIS, bu engineering work would be needed to determine the proper course of action if an alt relocation of Naval spent nuclear fuel management to the Savannah River Site were t costs associated with use of this facility for Naval spent nuclear fuel management discussion in Section 3.7.4 of Appendix D, with the conclusion that, while close to needed to modify the facility, additional funds would be needed to buy it from the

II COMMENT

The costs for the ultimate disposition of Naval spent nuclear fuel should be includ
RESPONSE
Since the final method for ultimate disposition of Naval spent nuclear fuel or any under DOE cognizance has not been selected, the costs have not been included in the process. The costs associated with the method finally selected for the ultimate di nuclear fuel will be incorporated into the federal budget at the appropriate time i established federal budgeting procedures.

II COMMENT

It is doubtful that the Expended Core Facility can be operated economically until t covered by this EIS, when it would be nearly 80 years old.
RESPONSE
The Expended Core Facility at INEL has been upgraded many times since its original

needed to provide the capabilities and capacity required by the Naval Nuclear Propu ensure the safety of the people who work there, the people of Idaho, and the enviro current facility is safe and capable of fulfilling the Navy's mission. It meets or seismic events and radiological protection, even for those portions built in the 19 The costs of operating and maintaining the Expended Core facility throughout the pe provided in Section 3.7 of Appendix D to Volume 1. These costs include future impr facility, based on the assumption that it would need maintenance and modifications schedule as in the past. There is no reason to arbitrarily retire the facility sim years have elapsed since its construction.

II COMMENT

The costs for normal operations and cleanup after accidents at the Pearl Harbor Nav higher than on the Mainland.
RESPONSE
The costs of constructing and operating a Naval spent nuclear fuel storage area for Navy sites are presented in detail in Attachment D to Appendix D of Volume 1 and su 3.7 of Appendix D to Volume 1 and the details are provided in other parts of Append estimates show that management of Naval spent nuclear fuel at Navy sites would be h operations and lower for others. The important point is that it would not be possi examination of all Naval spent nuclear fuel using only Navy sites. The principal differences in costs is related to the differences between the Navy sites and DOE s The analyses in Volume 1, Appendix D, Section F.1.3.8, for postulated accidents inv nuclear fuel storage at Navy sites show that for the worst case potential accident acres could be contaminated to the point where radiation doses exceeding the Nuclea Commission public limit of 100 millirem per year might result for a person living f an entire year. Most of this area would be within shipyard boundaries. Consequent might be considered for possible cleanup in the most severe case would be very smal therefore, the cost of cleanup would not be appreciably different at any of the Nav should be noted that this is the most severe accident; reasonably foreseeable acci less area.
Although Naval sites are included in the analysis, the Navy has identified a prefer 3.9 of Appendix D to Volume 1 which would not store Naval spent nuclear fuel at Nav preferred alternative would resume the historic, technically sound and safe practic and defueling of nuclear-powered warships and prototypes as planned, transporting t nuclear fuel to the Expended Core Facility at INEL for full inspection and examinat Naval spent nuclear fuel to DOE for storage at that site.

II COMMENT

The costs for dry storage of Naval spent nuclear fuel in immobile casks at Navy sit storage at INEL if the Multi-Purpose Containers being developed by DOE were used.
RESPONSE
As acknowledged by the commentor, Naval spent nuclear fuel can be safely and secure the sites considered in this EIS. The costs of constructing and operating a Naval area for three types of storage at Navy sites, as well as costs for other alternati spent nuclear fuel, are presented in detail in Attachment D to Appendix D of Volume Section 3.7 of Appendix D. The costs for dry storage in immobile casks were develo from currently available dry storage casks licensed by the Nuclear Regulatory Commi spent nuclear fuel from commercial reactors. Allowances were included for some add designing new inserts to hold and cool Naval spent nuclear fuel, which would differ for commercial spent nuclear fuel, and for installation of additional radiation shi within the confines of a shipyard. All other costs associated with such storage, s phase-in and facility closure costs, construction of concrete pads, and procurement load and unload the containers were included.
DOE is currently developing Multi-Purpose Containers which could be used for storag and disposal. DOE placed a contract for design of the first Multi-Purpose Containe and plans to place the contract for manufacture of the first ones in the middle of first Multi-Purpose Container would be available in early 1998 and, even then, the not be destined for Naval spent nuclear fuel. The licensing of these containers by

Commission for use in storage of spent nuclear fuel and issue of the Certificate of shipping are planned to be completed in 1997. The dry storage casks used to develo Appendix D are currently licensed and in use, making their costs reasonably well-kn It is possible that the Multi-Purpose Containers could be used for Naval spent nucl the future, but they would not be available inn time to support a change in the met spent nuclear fuel. These containers are estimated at this early stage of developm $350,000 to $430,000 for the 125-ton containers which would be needed for Naval spe some uncertainty in this estimate exists since the containers have not yet been des D.1.3.1 of Appendix D to Volume 1 states that about 290 containers would be needed, loading of the containers. A special insert for Naval spent nuclear fuel would hav Multi-Purpose Containers. Design and separate licensing for this insert would be r costs of using the Multi-Purpose Containers for storage of Naval spent nuclear fuel greater than stated in the comment.

When the costs of concrete overpacks required for the Multi-Purpose Containers, any for this method of storage, and the equipment to load and unload them are included, the uncertainties in costs at this point in their development, that the costs for M might not be less than those for immobile dry storage provided in the EIS. If in t Multi-Purpose Containers for immobile dry storage were found to be less than those they might well be adopted, but the total costs associated with the Multi-Purpose C design and licensing, and their availability would have to be considered.

It should be remembered that the primary reason the Navy prefers not to store Naval Navy sites is that full examination of all Naval spent nuclear fuel would not be po reason that the Navy prefers an alternative which would resume the historic, techni practice of transporting Naval spent nuclear fuel to the Expended Core Facility at and examination and transferring Naval spent nuclear fuel to DOE for storage at tha allow the continued examination of all Naval spent nuclear fuel at the lowest cost stated in this EIS. Examination of all Naval spent nuclear fuel is an important pa the Naval Nuclear Propulsion Program which has allowed the nuclear Navy to steam mo 100,000,000 miles and accumulate over 4400 reactor years of operation without a rea problem having a significant effect on the environment. Examination of Naval spent provided an important contribution to increasing the lifetime of Navy reactor cores than 10, reducing the amount of Naval spent nuclear fuel which must be managed.

II COMMENT

The commentor indicates that the Navy downplays the benefits of reduced costs and r from decreased transportation, and the costs of necessary facility enhancements at storage of its spent nuclear fuel at the point of origin due to cost. The Navy has the need to examine all of its spent nuclear fuel. It was stated that the Navy is cost-benefit analysis that they may have prepared to justify their preference for t keeping activities at INEL.

RESPONSE

Appendix D to Volume 1 of the EIS evaluates the environmental impacts of a reasonab alternatives for the management of Naval spent nuclear fuel, including the No-Actio environmental impacts would be small, there are no clear environmental discriminato alternatives. The Navy's preferred alternative is justified on the basis of Navy p full examination of spent nuclear fuel, as well as the relative costs between alter comment 8.5.11.(1)]. The relative cost of transportation is low compared to the co management of spent nuclear fuel, as discussed in section 3.3 of Volume 1 (see resp 6.7.(1)). The discussion of the Navy's preferred alternative does not dismiss any evaluated in the EIS.

Section 2.4.1 of Appendix D to Volume 1 of the EIS has been expanded to more fully full inspection of Naval spent nuclear fuel. See also response to comment 8.3.3.(2 for full examination of spent nuclear fuel.

Regarding a cost-benefit analysis, the commentor has specifically cited to 40 CFR 8 that a cost-benefit analysis be prepared. A cost-benefit analysis is not generally Environmental Quality requirements, but may be used "as an aid in evaluating enviro consequences". Because all evaluated environmental consequences are small and beca of developing generally accepted equivalency factors between different types of imp monetary value should be place upon the loss of 35 acres of sagebrush habitat? DOE not developed a cost-benefit analysis. The range of estimated costs for implementi summarized in Volume 1, section 3.3.6.

II 8.6 Miscellaneous

II COMMENT

Some persons felt that the term "spent nuclear fuel" is misleading because they bel which has no power to destroy or no power to do work.
RESPONSE
The term "spent nuclear fuel" is used in legislation, such as the Nuclear Waste Pol amended (42 USC 10101), and in regulations governing nuclear material and work (for 191, "Environmental Radiation Protection Standards for Management and Disposal of S High-Level Waste, and Transuranic Waste", and 10 CFR 53, "Criteria and Procedures f Adequacy of Available Spent Nuclear Fuel Storage Capacity") to define a specific ca material and specify the manner in which it must be controlled. All three of these definition (for example, see 42 USC 10101 (23)) of spent nuclear fuel as "fuel that from a nuclear reactor following irradiation, the constituent elements of which hav reprocessing". This category is used to denote fuel which has been used in a react usable for its original purpose.
This terminology is not intended to convey the impression that such fuel is no long longer requires careful management. Because of its use as fuel in a reactor, spent highly radioactive. DOE, the Navy, the Nuclear Regulatory Commission, and other or devoted much effort to the proper handling of spent nuclear fuel and protecting hum environment from the effects by ensuring that it is properly managed.

II COMMENT

Some persons felt that the term "spent nuclear fuel" is misleading because they bel fuel should be classified as waste.
RESPONSE
The term "spent nuclear fuel" is used in legislation, such as the Nuclear Waste Pol amended (42 USC 10101), and in regulations governing nuclear material and work (for 191, "Environmental Radiation Protection Standards for Management and Disposal of S High-Level Waste, and Transuranic Waste", and 10 CFR 53, "Criteria and Procedures f Adequacy of Available Spent Nuclear Fuel Storage Capacity") to define a specific ca material and specify the manner in which it must be controlled. All three of these definition (for example, see 42 USC 10101 (23)) of spent nuclear fuel as "fuel that from a nuclear reactor following irradiation, the constituent elements of which hav reprocessing". This category is used to denote material which must be handled in a procedures and requirements.
This terminology is not intended to mislead or confuse. On the contrary, the categ should help understanding since it conforms to the terminology commonly used in pub technical and regulatory circles to clearly denote the special characteristics, con associated with this particular class of material and how spent nuclear fuel differ radioactive material.

II COMMENT

It appears that there is a plan for the same site at Puget Sound Naval Shipyard to Naval spent nuclear fuel storage facility and for another proposed Navy facility.
RESPONSE
This comment is an erroneous conclusion drawn from a map in the EIS. The map on pa 1 Appendix D shows the conceptual location of the interim storage site at Puget Sou The designated area in this figure approximates the general location where the inte would be located. The other facility referred to by the commentor is Puget Sound N proposed mixed waste storage building. The spent nuclear fuel storage location wou exact same location. However, it is possible that they would be located in close p

II COMMENT

Some persons have confused the Navy's Environmental Assessment on the Short-Term St Spent Fuel with this Environmental Impact Statement, which deals with the managemen other DOE spent nuclear fuel until a method for ultimate disposition can be impleme

RESPONSE

Two NEPA documents considering aspects of Naval spent nuclear fuel management exist and the other is the Navy's Environmental Assessment on the Short-Term Storage of N A 1993 ruling by the Federal District Court for Idaho limited the number of shipmen nuclear fuel which could be sent to INEL for examination until this EIS is complete Decision on the storage of DOE spent nuclear fuel is issued in June 1995. This mea some Naval spent nuclear fuel had to be accomplished by means other than shipment t period from the time of the court's order until the Record of Decision is issued. with the requirements of NEPA, and as ordered by the Idaho court, an Environmental prepared to evaluate the alternatives for accomplishing safe storage during the bri and assess the impacts associated with each alternative considered. This document Environmental Assessment on the Short- Term Storage of Naval Spent Fuel.

An Environmental Assessment was prepared because the impacts of the preferred alter period of storage were found to be small, as documented in the Finding of No Signif early in 1994 after a period of public review. The alternatives considered in the were necessarily limited to those which could be implemented immediately and would through June 1995. The Environmental Assessment chose a No Action alternative whic certified shipping containers at the sites which would continue to perform servicin through June 1995 as the best means of safely managing Naval spent nuclear fuel dur for completion of this EIS. The evaluation included Newport News Shipbuilding and that location for servicing nuclear-powered aircraft carriers.

This Environmental Impact Statement considers alternatives for managing all DOE spe including Naval spent nuclear fuel, until a method for ultimate disposition can be period which begins after its completion and the issue of the associated Record of The period considered extends 40 years from June 1995 because of the time needed to implement a method for final disposition of the spent nuclear fuel. This EIS consi alternatives than the Navy's Environmental Assessment because more time would be av new facilities or implement other long-term actions and because more types of spent be considered.

The conclusions concerning the preferred alternative in its Environmental Assessmen naturally differ because of the different periods of time available for beginning t management of Naval spent nuclear fuel, the amounts of spent nuclear fuel, the long Navy's mission, and the effects on the environment considered in the two documents. management of Naval spent nuclear fuel can be accomplished safely and with very sma impacts.

Some of the differences which result from the different time periods considered in been noted by commentors. For example, the longer period covered in this EIS requi out storage at Newport News Shipbuilding and Drydock Company because it is a privat to be purchased by the Federal government and currently plays an important role in infrastructure. For the same reason, management of Naval spent nuclear fuel in wat evaluated in this EIS but was not in the Environmental Assessment because there was construct or modify (as in the case of the water pool at Puget Sound Naval Shipyard Similarly, no modifications to the certified shipping containers were needed for st period ending in June 1995, but if an alternative involving management of Naval spe shipping containers were to be selected for the longer period covered by the EIS, c modification of facilities at Navy sites would have to be completed. Finally, exam nuclear fuel can continue until June 1995 due to an existing backlog of fuel so the mission was not a determining factor in the Environmental Assessment.

II COMMENT

Some persons identified differences between the results of analyses presented in th Assessment on the Short-Term Storage of Naval Spent Fuel and the results of the an Environmental Impact Statement, which deals with the management of Naval and other fuel until a method for ultimate disposition can be implemented.

RESPONSE
Two NEPA documents evaluating the environmental impacts of alternatives for managin nuclear fuel exist: one is this EIS and the other is the Navy's Environmental Asses Storage of Naval Spent Fuel. As identified by the commentor, there are some differ the analyses performed for these separate documents. This occurs because the Envir covers the period from the end of 1993 to June 1, 1995 and this EIS covers the peri 1995 and extending up to 40 years into the future. As a result, substantially less is considered in the Environmental Assessment than in this EIS and the cores from n ships until well after June 1, 1995.
For example, as cited by the commentor, the probability that an airplane might cras container stored at Pearl Harbor Naval Shipyard is smaller for the Environmental As EIS because there are fewer containers (6 by June 1, 1995, versus 42 by the year 20 number of containers and the smaller area covered by the containers would reduce th airplane could strike a container. The dependence of the probability on the effect described in Section F.3.2 of Attachment F to Appendix D to Volume 1 of the EIS.
Similarly, as pointed out by the commentor, the calculations of fatalities if an ai container produce fewer potential deaths in the Environmental Assessment than in th because the amounts of radioactivity involved in the hypothetical accidents in the Assessment were based on storage of smaller cores from earlier generation submarine removed from ships prior to June 1, 1995. The similar calculations in this EIS are cores which might be stored at each location during the next 40 years.

II COMMENT

Information on the quantities and types of Naval spent nuclear fuel stored at the E should be included in this EIS.
RESPONSE
Naval spent nuclear fuel is not stored at the Expended Core Facility. As described components from the first Naval spent nuclear fuel modules, or from modules which s pronounced effects of use, for designs currently in the fleet are retained in the w Core Facility for assisting in diagnosis of any problem which may occur. However, design types are replaced in fleet service, the fuel components related to the fuel removed from the library and transferred to ICPP. Although these components do not amount of spent nuclear fuel, they are included in the analyses in this EIS.

II COMMENT

A commentor concluded that data reported in the EIS as being used in analyses were analyses.
RESPONSE
The commentor misinterpreted information provided in the EIS, concluding that data results of the analyses. The commentor apparently thought the number of residents rural, suburban, and urban localities was the number of potential fatalities which accident involving shipment of Naval spent nuclear fuel. The number of residents p suburban, and urban localities was used to calculate the number of people living al routes. This misinterpretation caused the commentor to conclude that the risks ass transportation of Naval spent nuclear fuel would be much higher than they actually Section A.7 provides detailed descriptions of the input values used in the analyses spent nuclear fuel in order to allow independent individuals or groups to evaluate own calculations. Section A.7.1.2.9 shows the number of people per square mile for rural areas along transportation routes. These are the numbers cited by the commen The results of the analyses of risks for Naval spent nuclear fuel shipments show th would be caused by transportation accidents or routine operations under any of the in this EIS. These results are tabulated in Section A.8.

II COMMENT

The commentor thought that the Navy stated in Volume I, Appendix D, Section 4.1.1.7

of the Draft EIS that there are no radioactive airborne emissions from operations a Shipyard and questioned the accuracy of such a statement.
RESPONSE
The commentor misinterpreted the information presented in Volume I, Appendix D, Sec page 4.1.1-12 concerning radioactive airborne emissions at Puget Sound Naval Shipya missed a key word in the first sentence in Section 4.1.1.7.3 which states that "Rad Naval shipyards are designed to ensure that there are no uncontrolled discharges of airborne exhausts." This section and Section F.1.4.1 in Attachment F present the r the radioactive releases published in Naval Nuclear Propulsion Program Report NT-93 available to the public. The specific airborne releases used in the analyses for P are listed in Tables F.1.4.1.1-1 and F.1.4.1.1-2 on pages F-50 and F-52 of Attachme As stated in Section 4.1.1.7.3, the results of the analyses show that emissions of shipyard result in an effective dose equivalent of less than 0.1 millirem per year general public, which is 1% of the Clean Air Act standard promulgated by the Enviro Agency in 40 CFR 61, Subparts H and I. The analyses demonstrate that the risks ass the alternatives for management of Naval spent nuclear fuel are very small.

II COMMENT

A commentor stated that impact analyses for long term storage of spent nuclear fuel Facility were not present in the EIS.
RESPONSE
Long-term storage of spent nuclear fuel at the Expended Core Facility is not an alt this EIS. Some alternatives result in the Expended Core Facility being shut down a Expended Core Facility continuing spent nuclear fuel examinations. There are no al the Expended Core Facility as a storage facility. In all alternatives, Naval spent shipped to either the Idaho Chemical Processing Plant at INEL or some other site af completed. The sole exception is the small amount of library storage of Naval reac is covered under the impact analyses for fuel examination provided in this EIS.
Storage of spent nuclear fuel in water pools at the Expended Core Facility would ef examination of Naval spent nuclear fuel at that facility because storage would use pool needed for machinery and examination equipment. This would require the constr facilities for the examination of Naval spent nuclear fuel or the loss of the abili of Naval spent nuclear fuel. The impact on the Navy's mission that would result fr to examine Naval spent nuclear fuel is described in Chapter 3 of this EIS.
Analyses of the impacts associated with storage of the Naval spent nuclear fuel at included in the appendices to the EIS for each site. For example, Section 5 of Vol includes the impact of storing Naval spent nuclear fuel in water pools at INEL.
Attachment F to Appendix D, Section F.1.4.1.4, does present the results of analyses performing spent nuclear fuel examination at the Expended Core Facility. In additi fuel examination at all of the DOE sites and Puget Sound Naval Shipyard and the imp storage at the Naval shipyard sites are presented. Results of analyses of the impa the Navy sites considered in this EIS are also provided. These results are shown i Attachment F. For INEL analysis, a site near the Expended Core Facility at the Na was selected.

II COMMENT

The commentor requested clarification of information in the EIS which presents the accidents on close-in workers.
RESPONSE
The results of an evaluation of the impact to close-in workers involved in Naval sp management that might occur due to the various radiological accidents postulated in handling and storage are presented in Section F.1.4.3 of Appendix D to Volume of th F.1.4.3.2.2 provides information on the effects of a hypothetical airplane crash in The commentor asked whether the statements in this section are intended to apply to extinguishing the fire associated with the postulated crash.
As stated in Section F.1.4.3, the evaluation in this section includes workers at th management site working with the fuel or working very close to the scene of postula contrasted with the worker located 100 meters from the radioactive material release

Section F.1.3.2, for which exposures have been calculated and presented throughout normal operations and postulated facility accidents. Discussions of emergency prep exercises and the bases for calculating individual exposure times are presented in

II COMMENT

A commentor thought that the water pool at Puget Sound Naval Shipyard was identifie this EIS as not in use but the commentor had heard that it was in use.
RESPONSE
Section 1.1.2.4 of Volume 1 of this EIS (page 1-11 of the Draft EIS) states that an facility, constructed to support the refueling of nuclear-powered aircraft carriers industrial zone of the Puget Sound Naval Shipyard. This section further states tha has been used for refueling equipment demonstrations and testing. The facility has aircraft carrier servicing work.

II COMMENT

A commentor identified what appeared to be an inconsistency in the peak ground acce reported for ECF. A value of 0.35g is quoted on page D-32 of Volume 1, Appendix D, Water Pit Facility and a value of 0.24g is quoted on page F-73 of Appendix D.
RESPONSE
There is no inconsistency in the peak ground acceleration data provided in Appendix 0.35g peak ground acceleration value provided on page D-32 refers to the Puget Soun at Puget Sound Naval Ship yard. The 0.24g peak ground acceleration quoted on page Expended Core Facility at INEL.

II COMMENT

A commentor requested that the EIS identify whether other modes of transportation b used to ship Naval spent nuclear fuel to INEL.
RESPONSE
The EIS presents detailed descriptions of past and future shipments of Naval spent Attachment A to Appendix D of Volume 1. Section A.2 of Appendix D provides the des on shipment of Naval spent nuclear fuel.
The only method used to ship Naval spent nuclear fuel to INEL in the past and the o for future shipments is by rail. The only exceptions to this are that Naval spent Harbor Naval Shipyard is transported by ship from Hawaii to Puget Sound Naval Shipy shipping containers are transferred to railcars for the journey to INEL and the use to move Naval spent nuclear fuel in shipping containers a few miles to the nearest Kesselring and Windsor sites.

II COMMENT

One commentor stated the water pit facility at Puget Sound Naval Shipyard was to be expressed this concern due to the proximity of the water pit facility to the city b
RESPONSE
The statement that the water pit is to be doubled in size is incorrect. In Volume the EIS states that "Expansion of the Water Pit Facility to accommodate simultaneou examination operations is undesirable due to the proximity of other shipyard facili why Puget Sound would no longer have the capability to refuel nuclear-powered aircr the Decentralization, Limited Examination alternate be chosen.

08.06 (016) Miscellaneous

COMMENT
One commentor stated that the shipment of radioactive waste from the shipyards had the EIS.
RESPONSE
Current practices for the management of radioactive waste at each of the shipyards are described in Sections 4.1.1.14, 4.1.2.14, 4.1.3.14, and 4.1.4.14 of Appendix D environmental consequences of waste management associated with each alternative for Naval spent nuclear fuel are described for each shipyard in Sections 5.1.1.15, 5.1. 5.1.4.15 of Appendix D to Volume 1.

08.06 (017) Miscellaneous

COMMENT
Environmental Monitoring information from the 1985 EPA survey of Pearl Harbor was m addition, there are limitations in the EPA analysis that should make one cautious a conclusions.
RESPONSE
The misquotation cited on page 4.1.4-14 of Appendix D to Volume 1 has been correcte of the Draft EIS, the word "greatly" was inadvertently substituted for "significant The conclusions in Section 4.1.4.8.3 of Volume 1, Appendix D pertaining to the EPA quotation from page 11 of the EPA report (with the exception of the inadvertent edi above) titled "Radiological Surveys of the Pearl Harbor Naval Shipyard and Environs only other discussion in the EIS related to this EPA report directly precedes the s conclusions and states that the purpose of the monitoring performed in the vicinity Shipyard is "to confirm that the general public is not affected by operations of Pe Shipyard". This statement of purpose has been revised to directly quote the EPA's purpose of the survey was to determine if operations related to U.S. Navy nuclear w resulted in releases of radionuclides which could contribute to significant populat contamination of the environment". Consequently, the discussion in the EIS is con report.

08.06 (018) Miscellaneous

COMMENT
The EIS incorrectly referred to the Environmental Protection Agency regulations in "National Emission Standards for Hazardous Air Pollutants", as Nuclear Regulatory C regulations.
RESPONSE
Appendix D to Volume 1 of this EIS was revised to properly identify that 40 CFR 61 and more specifically refer to Subpart H of the regulation.

08.06 (019) Miscellaneous

COMMENT
The description for the Kesselring Site in Section 4.1.5 of Appendix D to Volume 1 surrounding the site is either wooded or is used for farming. There are also resid the site.
RESPONSE
Section 4.1.5.2 of Appendix D to Volume 1 states that "most of the land surrounding used for farming" and this characterization is correct. The site is not surrounded are many residences in the area. The characterization was not intended to imply th residences in the vicinity, so Section 4.1.5.2 of Appendix D to Volume 1 has been r statement that some of the land is used for residential purposes.

08.06 (020) Miscellaneous

COMMENT
A commentor stated that she thought that the disposal of reactor compartments remov decommissioned nuclear-powered Naval vessels at the Hanford Site violates some requ shipments to Hanford might be hazardous.
RESPONSE
The Naval Nuclear Propulsion Program conducts the shipment and disposal of the reac from decommissioned Naval nuclear-powered vessels at the Hanford Site in compliance safety and environmental regulations. This procedure was evaluated a number of yea Environmental Impact Statement prior to initiation of any shipments. That Environm Statement demonstrated that the risks and impacts to human health or the environmen shipment and disposal of these reactor compartments are very small.
No Naval spent nuclear fuel is shipped by barge up the Columbia River to the Hanfor beyond the scope of this EIS.

PAGE TOC FIGURES TABLES PAGE

9. MISCELLANEOUS

09 (010) Miscellaneous

COMMENT
The commentor states that secretive practices of DOE and its predecessor agencies h improper health experimentation on human subjects, inadequate National Environmenta evaluation of DOE spent nuclear fuel, inadequate identification of Fort St. Vrain N Commission licensed storage, and inadequate characterization of zirconium cladding commercial fuel.
RESPONSE
This EIS considers interim storage of DOE spent nuclear fuel (SNF); thus, health ex possible zirconium cladding problems are not discussed. This EIS does respond to t National Environmental Policy Act review for DOE SNF management actions. Volume 1, and Volume 2, Appendix C, SNF5 describe storage at Fort St. Vrain.

09 (021) Miscellaneous

COMMENT
The commentor states that the U.S. Public Health Service Agency for Toxic Substance Registry was asked to review the EIS, but the agency declined comment.
RESPONSE
The U.S. Public Health Service Centers for Disease Control and Prevention did comme DOE responds to those comments in this document.

9.1 Unrelated Comments

09.01 (003) Unrelated Comments

COMMENT
Commentors reviewed the EIS and have no comments.
RESPONSE
DOE appreciates the reviews.

09.01 (004) Unrelated Comments

COMMENT
Some commentors make statements and others express opinions that require no respons
RESPONSE
No response is required.

09.01 (007) Unrelated Comments

COMMENT
The commentor requested information on the amount of wastes going to geologic repos Mountain and the Waste Isolation Pilot Plant.
RESPONSE
These geologic repositories have not been opened due to siting, permitting, and pol wastes are going to Yucca Mountain or the Waste Isolation Pilot Plant.

09.01 (008) Unrelated Comments

COMMENT
The commentor states that Tennessee should create a local citizen's advisory board oversight program.
RESPONSE
This issue is outside the scope of the EIS.

09.01 (010) Unrelated Comments

COMMENT
The reviewer had no comments based on review of the Draft EIS.
RESPONSE
DOE appreciates the review.

DOE Programmatic Spent Nuclear Fuel Management and INEL Environmental Restoration and Waste Management Programs Final Environmental Impact Statement VOLUME III

VOLUME III Part A

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 A
April 1995
U.S Department of Energy
Office of Environmental Management
Idaho Operations Office

COVER SHEET

RESPONSIBLE AGENCIES: Lead Federal Agency: U.S. Department of Energy
Cooperation Federal Agency: U.S. Department of the Navy
TITLE: Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho Na
Engineering Laboratory Environmental Restoration and Waste Management Programs Fina
Environmental Impact Statement.
CONTACT: For further information of this Environmental Impact Statement call or co
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208-526-0833
For general information on the U.S. Department of Energy NEPA process call 1-800-47
leave a message or contact:
Carol Borgstrom, Director
Office of NEPA Policy and Assistance (EH-42)
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585
202-586-4600
ABSTRACT: This document analyzes at a programmatic level the potential environment
consequences over the next 40 years of alternatives related to the transportation,
and storage of spent nuclear fuel under the responsibility of the U.S. Department
analyzes the site-specific consequences of the Idaho National Engineering Laborator
anticipated over the next 10 years for waste and spent nuclear fuel management and

restoration. For programmatic spent nuclear fuel management, this document analyze no action, decentralization, regionalization, centralization and the use of the pla 1992/1993 for the management of these materials. For the Idaho National Engineerin this document analyzes alternatives of no action, ten-year plan, and minimum and ma treatment, storage, and disposal of U.S. Department of Energy wastes.

VOLUME 3, PART A: CONTENTS

INTRODUCTION ix
How DOE Considered Public Comments in the NEPA Process. . .x
Changes to the EIS Resulting from Public Comments x
How to Use Volume 3 to Locate Responses xii
How to find Reference Documents. xiii
ACRONYMS. xv
COMMENT SUMMARIES AND RESPONSES. 1-1
1. PREFERENCE FOR ALTERNATIVES 1-1
1.1 Specific Preferences 1-1
1.1.1 SNF management 1-1
1.1.1.1 Action Alternatives. 1-1
1.1.1.2 Siting Alternatives. 1-8
1.1.2 INEL ER&WM Programs 1-18
1.1.3 Others. 1-21
1.2 General Preferences 1-21
1.2.1 SNF Management. 1-22
1.2.1.1 Action Alternatives. 1-23
1.2.1.2 Siting Alternatives. 1-25
1.2.2 INEL ER&WM programs. 1-31
1.2.3 Others 1-33
1.3 Miscellaneous 1-34
2. NEPA-RELATED COMMENTS 2-1
2.1 EIS Presentation and Distribution 2-1
2.2 Segmentation. 2-13
2.3 Scope 2-15
2.3.1 Scoping Process and Hearings 2-25
2.4 Adequacy of the Draft EIS 2-28
2.5 Record of Decision. 2-62
2.6 Out of Scope Issues 2-63
2.7 Hearings. 2-71
2.8 Miscellaneous 2-76
3. POLICY. 3-1
3.1 Mission 3-1
3.2 Authority and Responsibility. 3-5
3.3 Credibility 3-6
3.4 Legal/Regulatory. 3-9
3.4.1 Compliance with the Court Order. 3-18
3.5 Government Policy 3-19
3.5.1 Not used. 3-27
3.5.2 Not used. 3-27
3.5.3 Reactor Programs/Nuclear Power. 3-27
3.5.4 Energy Development. 3-28
3.5.5 Recycling and Reprocessing. 3-28
3.6 Foreign Research Reactor Return Policy. 3-31
3.7 Equity and Environmental Justice. 3-32
3.8 Miscellaneous 3-36
4. PROPOSED ACTION AND ALTERNATIVES. 4-1
4.1 Purpose and Need. 4-1
4.2 Proposed Action 4-5
4.3 Alternatives Analyzed 4-6
4.3.1 Siting Alternatives 4-25
4.3.2 Action Alternatives 4-41
4.3.2.1 No Action 4-42
4.4 Preferred Alternative 4-45

4.4.1 Decision Process 4-47
4.5 Miscellaneous 4-49
5. TECHNICAL ISSUES. 5-1
5.1 Aesthetics and Scenic Resources 5-1
5.2 Air Quality 5-3
5.3 Cultural Resources. 5-26
5.4 Biological Resources. 5-31
5.5 Geology 5-41
5.5.1 Seismic Characteristics. 5-45
5.6 Land Use. 5-69
5.7 Utilities and Infrastructure. 5-74
5.8 Water Resources 5-76
5.8.1 Groundwater. 5-78
5.8.2 Surface Water. 5-105
5.8.3 General. 5-110
5.9 Cumulative Impacts. 5-116
5.10 Safety and Health Effects. 5-128
5.10.1 Worker. 5-155
5.10.2 Public. 5-160
5.11 Accidents/Releases 5-172
5.11.1 Operations 5-173
5.11.2 Transportation 5-179
5.11.3 General. 5-182
5.11.3.1 Not used. 5-204
5.11.3.2 Not used. 5-204
5.11.3.3 Miscellaneous 5-204
5.12 Transportation Issues. 5-204
5.12.1 Not used. 5-211
5.12.2 Rail. 5-211
5.12.3 Waterborne. 5-212
5.12.4 Packaging 5-213
5.12.5 Routes. 5-214
5.12.6 Regulations 5-215
5.12.7 Not used. 5-217
5.12.7.1 Accidents 5-217
5.12.8 Need. 5-219
5.12.8.1 Cost/Shell Game 5-220
5.13 Emergency Preparedness 5-221
5.13.1 Facilities. 3-221
5.13.2 Transportation. 5-223
5.13.3 Not used. 5-225
5.13.4 Infrastructure/Coordination 5-225
5.14 Not used 5-226
5.15 Socioeconomics 5-226
5.16 Safeguards and Security. 5-234
5.17 Monitoring 5-237
5.18 General Operations 5-238
5.18.1 Waste Management. 5-240
5.18.2 SNF Management. 5-246
5.18.3 Not used. 5-246
5.18.4 Past Practices. 5-246
5.18.5 Mitigation. 5-248
5.19 Miscellaneous. 5-248
END VOLUME 3, PART A CONTENTS
SEE PART B FOR CHAPTERS 6 THROUGH 9 AND APPENDICES A THROUGH C.

#INTRODUCTION

DOE added Volume 3, Response to Public Comments, to the Department of Energy Pro Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environm Restoration and Waste Management Programs Environmental Impact Statement (EIS) t address and respond to public comments on the Draft EIS. In addition, DOE consi

comments, along with other factors such as programmatic need, technical feasibil arriving at DOE's preferred alternatives. During the public comment period for than 1,430 individuals, agencies, and organizations provided comments. This vol broad spectrum of private citizens; businesses; local, state, and Federal offici Tribes; and public interest groups. Comments were received from all affected DO communities.
Volume 3 summarizes the comments on the EIS that DOE received during the public period, and provides responses to those comments. In addition, this volume incl how public comments influenced the identification of the preferred alternatives, public comments led to changes to the EIS, and a description of how to find spec summaries and responses in this volume.

Responses to comments consist of two parts. The first summarizes the comment(s) responds to the comment(s). Frequently, identical or similar comments were prov one commentor; in such cases, DOE grouped the comments and prepared a single res group. Summarization of comments was also appropriate because of the large numb received.

In compliance with the provisions of the National Environmental Policy Act (NEPA Environmental Quality (CEQ) regulations, public comments on the Draft EIS were a considered both individually and collectively by DOE and the Navy. Some comment modifications or explanations of why comments did not warrant further response. not requiring an EIS change resulted in a response to correct readers' misinterp or communicate government policy, to clarify the scope of the EIS, to explain th EIS to other related NEPA documentation, to refer commentors to information in t technical questions, or to further explain technical issues.

The Record of Decision will include the decisions made by the Secretary of Energ consider public comments on the Draft EIS.

How DOE Considered Public Comments in the NEPA Process

As required in the CEQ regulations [40 CFR 1502.14(e)], the Final EIS identifies alternatives. The preferred alternatives were identified based on consideratio impacts, regulatory compliance, DOE and spent nuclear fuel (SNF) programmatic mi National Engineering Laboratory (INEL) environmental restoration and waste manag public issues and concerns, national security and defense, cost, and DOE policy. considered in DOE's identification of preferred alternatives included concerns, regarding the activities addressed in the EIS, and expectations of DOE in making complex-wide programmatic SNF management and SNF management, environmental resto waste management programs at INEL.

Public input contributed to the development of performance factors, defined as d or characteristics that measure the relative acceptability of alternatives, whic candidate preferred alternatives. The candidate preferred alternatives then wer technical and nontechnical sensitivities, including public perception of environ indicated stakeholder preferences, implementation flexibility, regulatory risk, potential, environmental justice, potential resistance to implementation, and fa

DOE's preferred alternative for SNF management reflects DOE and public consensus should be actively managed in preparation for ultimate disposition. DOE's prefe SNF management, environmental restoration, and waste management at INEL reflects and the public's desire to have those activities meet DOE's obligations under ag or anticipated with the U.S. Environmental Protection Agency and the State of Id including its preferred alternatives, will be considered by the Secretary of Ene factors, to arrive at a decision to be documented in a formal Record of Decision

Changes to the EIS Resulting From Public Comments

A major purpose of NEPA is to promote efforts that will prevent or eliminate dam environment by ensuring informed decisionmaking on major Federal actions signifi the quality of the human environment. Consideration of public comments on the D ensure that the EIS is an adequate decisionmaking tool; accordingly, this EIS ha appropriate, in response to public comments. However, commentors raise specific concerns, none of the comments identify new reasonable alternatives requiring as in a significant change in the analysis of potential environmental consequences.

Based on review of public comments, coupled with consultations held with comment well as state and tribal governments, the main EIS enhancements include the foll

Seismic and water resource discussions and analyses were reviewed, clarified, an alternative sites, and current data and analyses were added to Volumes 1 and 2, discussion of potential accidents caused by a common initiator was added. The o some of DOE's SNF (specifically from N-Reactor) by processing it at available fa added, thus enhancing processing options discussed in the EIS. DOE added to the barge transportation with respect to the option of shipping N-Reactor fuel to a processing, as well as to support the potential transport of Brookhaven National another site, as appropriate. In addition, DOE added an analysis of shipboard f response to comments related to receiving SNF containing uranium from foreign re

In Volume 2, DOE revised the air quality analysis to upgrade the information on conditions. The analysis compared impacts of each alternative with Prevention o Deterioration increment limits. Additionally, the Waste Experimental Reduction summary was enhanced and clarified. The EIS also was revised to reflect current employment, including the projected downsizing of the INEL work force due to con consolidation.

In response to public comments, a brief summary of a separate cost evaluation of alternatives was added to the EIS, although the cost evaluation was performed in EIS for additional purposes. The discussion about the options regarding manage Vrain SNF currently stored in Colorado was expanded. As committed to in the Dra evaluation and discussion of environmental justice was expanded in Volumes 1 and based on interim DOE guidance in the absence of DOE or interagency policy in thi reflects limited public comments received about environmental justice. Consulta commenting Native American Tribes is reflected in the environmental justice anal various sections of the EIS, as appropriate.

Other enhancements include a clarification that potential shipment of SNF contai U.S. origin from foreign research reactors consists of a bounding estimate of metal. In addition, as a result of public comments, DOE enhanced Volume 1 to in description that clarifies the relationship between other SNF-related DOE NEPA r EIS. In the same regard, the relationship between this EIS and the Spent Fuel V Assessment Action Plans was clarified in the EIS. With regard to Naval SNF, enh Appendix D (Naval Spent Nuclear Fuel Management) include providing additional in the following areas: importance of Naval SNF examination, impacts of not refueli nuclear-powered vessels, the reasons why storage and processing Naval SNF in for not evaluated in detail, environmental justice considerations, the transition pe implement Naval SNF alternatives, potential accident scenarios at Naval shipyard in calculating potential environmental impacts.

Editorial changes were made to the EIS to correct errors, none of which was cons and to clarify discussions deemed by some commentors to be misleading.

How to Use Volume 3 to Locate Responses

Volume 3 is organized into topical sections, which are listed in the Table of Co

Volume 3 also contains three appendices to help readers locate specific comment responses. Appendix A is an alphabetical list of commentors' last names, organi showing for each the associated comment document number and response section num some entries, the word "Anonymous" or "Indeterminate" appears in the left colum entries include comment documents with no names or organizations appearing anywh document, or commentors at public hearings who wished to remain anonymous. "In reflects a name that was illegible due to the commentor's penmanship or poor qua document, or unidentifiable due to a poor recording from the toll-free telephone

Appendix B is a sequential numerical list of comment document numbers showing as commentors and response section numbers. The comment document number is useful information locations listed at the end of the Summary and in Volumes 1 and 2.

Appendix C is a correlation of response section numbers to comment document numb

A comment document can be a mailed letter, facsimile, oral or written testimony questions from a public hearing, or an comment given over the toll-free telephon documents can, and often do, contain multiple individual comments, and each corr response might fall under a different response section.

To find a response to comment(s):

1. Turn to Appendix A and find your name (or organization or agency, if you you represented one of these), and note the response section number(s comment document.

2. Turn to the Table of Contents under the heading Comment Summaries and Re where response section numbers are listed in numerical order, to find the response section number(s) that apply to your comment(s) appear.

3. Turn to the appropriate page(s) to find a response to a summary of your

Use the same process to find another person's or organization's comments.

If your comment document contains more than one comment, repeat steps 2 and 3 fo because each response could fall under a different response section.

How to Find Reference Documents

Technical references and other supporting documentation cited in Volume 3 are av reading rooms and information locations listed at the end of the Summary and in Volumes 1 and 2. Readers can find the document of interest on the alphabetical reading rooms and information locations.

APPENDIX A

Responses to Comments by Individuals, Organizations, or Agencies

COMMENT/RESPONSE DOCUMENT INDEX
Alphabetically By Name

Name	Comment Document Number
Abbott, Dinah	615
Abraham, Naomi	370
Abraham, Naomi	404
Acuff, Brian	271
Adams, Fern	1226
Adrian, Jim	324
Agriculture, U. S. Dept. of	16
Aho, Margaret	559
Ahrens, Patti	734
Ahrens, Peter L.	735
Aiken, Carol	52
Aiken, Carol	368
Aiken, SC; Chamber of Commerce	638
Aiken, SC; Chamber of Commerce	641
Akers, W. H.	1318
Alban, Daniel L.	467
Alban, Susan	466
Albin, Audrey	722
Alexander, Judith L.	68
Allen, Bruce	955
Allen, Donald	1048
Allen, Pat	1274
Allen, Raymond	1190
Alsdorf, Todd	1180
Altier, Leslie	286
Amber, Dave	427
American Friends Service Committee	1119
American Friends Service Committee	402
American Nuclear Society, Idaho Section	1062
Anderson, Anne M.	917
Anderson, Bruce S.	11
Anderson, Bruce S.	371
Anderson, Bruce S.	393
Anderson, Craig P.	917
Anderson, Hilary	969
Anderson, Kristen	598

Anderson, Kristen	707
Andrus, Cecil D.	483
Andrus, Cecil D.	538
Andrus, Cecil D.	538
Anonymous	4
Anonymous	294
Anonymous	319
Anonymous	454
Anonymous	484
Anonymous	502
Anonymous	503
Anonymous	568
Anonymous	660
Anonymous	865
Anonymous	920
Anonymous	1352
Anthony, George	951
Antilla, Everett	260
Apperson, Jerry	1140
Arkoosh, Karen	1133
Armstrong, Ted	1156
Ashley, Reed	628
Austrom, Dawn	35
Austrom, Dawn	128
Axelrod, Daniel M.	184
Aylward, John J.	60
BNFL Inc.	235
BNFL Inc.	291
BNFL Inc.	300
BNFL Inc.	431
Babbitt, Maryellen	353
Bachaud, J. D.	327
Baggett, Chrys	1007
Bahl, Susan	1340
Bailey, Dana	522
Bailey, William M.	3
Bainbridge, Winnifred	122
Bainbridge Communities, Association of	279
Baldocchi, Dennis	1154
Baldwin, Jane	537

Baldwin, June	1291
Baldwin, Paul	297
Baldwin, Paul	298
Ball, Lynn W.	1029
Ball, Patricia	993
Ballard, Carolyn	1367
Banks, Virginia	346
Barber, Brad T.	1076
Barber, Mary C.	57
Barney, Jody	1276
Barringer, John	476
Barrows, Bill	956
Barrows, William F.	992
Barrows, William F.	996
Bartschi, Earl	364
Bartschi, Glenna	364
Baslee, Oradell	1158
Bateman, James	1366
Bates, Albert	1069
Bates, Dorothy	1146
Batey, Gary	1207
Baumgarener, Charlotte	1251
Bazin, Nancy	1309
Bean, Lawrence	829
Beardsley, Robert	142
Beasley, Alton	1246
Bechtel, Dennis	219
Bechtel, Dennis	906
Beem, Stacy	1162
Beeman, Janel	627
Beeman, Janel	944
Begley, Roger	676
Beitel, George A.	1027
Beitel, George A.	1028
Bell, Willard	1223
Bellman Cruz, Laurie J.	359
Bellman-Cruz, Laurie J.	276
Belsey, Dick	250
Belsey, Richard	251
Belsey, Richard	269
Belzer, Fred	1184
Benjamin, Dick	628

Benjamin, Marvel	1301
Benjamin, Richard W.	902
Bennett, Jackie	505
Benson, Betty	604
Benson, Betty	707
Benson, Margaret	1153
Benz, J. A.	47
Berenson, Janet	717
Berentz, Bob	963
Berger, Bonnie	565
Best, Karen	330
Bhide, Manohar	428
Bhide, Manohar	430
Bick, Susan	1185
Biggerstaff CMT, Tere	713
Biggs, Alan	346
Billings, Josh	329
Billingsley, Adron	1208
Bjornsen, Fritz	474
Bjornsen, Fritz	551
Black, Betty	1380
Black Concerned Citizens of Portsmouth	164
Blades, Jonnie	952
Blaine County, ID; Bd. of Commissioners	751
Blair, Joy	1300
Blake, Gary	1423
Blanchard, Florence K.	681
Blanchard, Tom	751
Blanchard, Tom	981
Blood, Tina	1287
Blurton, Eleanor	1299
Bodansky, David	838
Boehm, Mark A.	285
Bogen, Doug	179
Bogen, Douglas	172
Bogen, Douglas	175
Bogen, Douglas	182
Borquist, Robert E.	1005
Boswell, JoAnn	873
Boucher, Tracy	546
Boucher, Tracy	550
Bourner, Darrell	1144
Bowen, Randy L.	1297
Bowers, Katharina	131
Bowlden, Scott	747
Bowman, Bill	1165
Bowman, Tom	556
Boyle, Terry	1182
Boyles, Jean	1401
Bradford, Rand	649

Bradley, Edith	1098
Bradshaw, Ken	941
Bradshaw, Lois	779
Brady, Marcia W.	547
Bragg, William A.	1187
Brailsford, Beatrice	907
Brailsford, Beatrice	1035
Brailsford, Beatrice	1035
Branter, Keith	1114
Bray, Kris	886
Breedlove, Debbie	1177
Brelsford, C. K.	458
Bremerton, WA; Mayor of	842
Briggs, Geoff	26
Briggs, Harrison	1364
Briggs, Mary Jane	1364
Brimas, Patricia	516
Brimas, Patricia A.	517
Brinton, Cora	563
Brinton, Cora	1387
Brodie, Hal	206
Brodie, Hal	216
Brooks, James	1196
Broscious, Chuck	595
Broscious, Chuck	608
Broscious, Chuck	610
Broscious, Chuck	610

Broscious, Chuck	707
Brown, Charles R.	39
Brown, Chris	225
Brown, Chris	226
Brown, Norman C.	1238
Brown, Reatha O.	39
Brown, Robert G.	121
Bruce, Lera G.	837
Bryan, Mary	244
Bryan, Mary	453
Bryant, Chris	320
Bryant, Ronald	197
Bubb, Adella M	508
Buchanan, James	1336
Buel, Austin	883
Buffalo, University of	904
Burgess, Dave	752
Burgess, Ila G.	872
Burgess, Kathy	752
Burris, Betty	1342
Burris, Mary S.	1330
Bush, Janet	1351
Butler, Claudia	1348
Butler, Diane W.	54
Butler, Diane	89
Butler, Julie	936
Buys, Barbara	1135
Bybee, R. V.	434
Bybee, R. V.	1016
Caccia, John	957
Cain, Edith J.	1365
Cain, Vanessa	1366
Caldwell, Lindsey	1041
Caldwell, Lola K.	32
Calverley, Paul H.	2
Calverley, Paul H.	16
Camero, Jane	1408
Camp, George	703
Campbell, Barbara	1241
Campbell, Carroll A.	900
Campbell, Darrel	582
Can We	597
Canan, Craig	774
Canfield, Kerry	297
Canfield, Kerry	314

Canham, Susan	422
Cantrill, Dante	731
Cantrill, Judie	731
Capalbo, Joseph	1175
Carman, Barbara	1382
Carolina, State of	900
Carpenter, Michelle L.	867
Carr, Luther J.	644
Carricato, Mike	426
Carroll, Stevi	222
Carter, Christine	1405
Casebeau, Max	1155
Cassidy, Deirdre	719
Cassidy, Deirdre	719
Cavanaugh, Arlene	1372
Cavanaugh, Fred	628
Champagne, Sherry	583
Chandler, Asa	1003
Chaney, Charlotte	801
Chapman, Frank R.	858
Chenango North Energy Awareness Group	1422
Chisholm, Bill	978
Chisholm, William K.	980
Chretien, Rollin	687
Christ, Margaret	910
Christiansen, Niel	714
Chutter, R. J.	701
Cincinnati Fire Division	1128
Cincinnati, City of	899
Citizen Alert	1119
Citizens for Alt. to Radioactive Dumping	1119
Citizens for Environmental Justice	1119
Citizens of Environmental Coalition	187
Clark, G. Wayne	450
Clark, Patricia	1439
Clark County Dept. of Comp. Plan.	906
Clean Water Action	179
Clean Water Action	172
Clean Water Action	175
Clemens, Johnny	169
Clements, Linda	1171
Clubbe, Brett	602
Coalition for Health Concerns	1119
Coalition for Petition Rights	254

Coates, Hazel	1389
Cogan, Lindy	618
Cogan, Lindy	1081
Cole, Christine N.	366
Cole, Christine N.	1002
Cole, Roger P.	177
Cole, Roger P.	182
Coleman, Marsha	226
Coleman, Peter F.	137
Collins, Arthur L.	846
Collins, Arthur L.	932
Collum, Jeff C.	84
Colorado, Public Service Co. of	939
Commander, John C.	772
Committee for Safe Energy Future	170
Condit, Clay	855
Condit, Clay	897
Conger, Bill	1269
Congress of the U.S. / House of Rep.	211
Congress of the U.S. / House of Rep.	840
Congress of the U.S. / House of Rep.	17
Congressman Solomon	205
Connelly, Joan	1093
Conner, Robert	1337
Conway, John T.	845
Cook, Reena	529
Cooke, Ian M.	40
Cooke, Kerry	921
Coop, Linda	1209
Cooper, Ida Mae	346
Cooper, Ida May	350
Cooper, Kathleen B.	141
Copeland, William E.	171
Copley, Ralph	581
Corr, Cecilia	144
Costner, Brian	631
Costner, Brian	1119
Cowles, Betty	699
Cox, Chris	757
Cox, Chris	1280
Coyle, Gaylord	1263
Craig, Senator Larry E.	1046
Craig, Senator Larry E.	1047
Crandall, Kathryn	297
Crandall, Kathryn	302
Crandall, Kathryn	346
Crandall, Kathryn	355
Crane, Andrew	56
Crawford, A. C.	939

Crawford, Gordon	123
Critchley, Mel	297
Crocker, Nan	154
Cropper, Tom	250
Cropper, Tom	255
Crosslin, Leslie	1320
Csorgo, Alex	1215
Cunningham, Don	992
Curtis, Carol	1358
D'Alessio, David	71
Daly, Amelia	689
Daly, Katherine R.	1060
Daly, Katherine R.	1065
Davenport, Les	236
Davidson, Cora E.	72
Davidson, Fonny	1386
Davidson, Nancy	1273
Davidson, Ray C.	727
Davidson, Velda	727
Davis, Bruce	750
Davis, Elizabeth A.	715
Davis, Julie	512
Davison, Dave	1344
Davison, David I.	279
Day, Heather	1313
Day, Jon	914
Day, Raymond	1160
De Spain, J.	728
DeMarco, Anita	138
Dee, Keith	594
Deegan, Robert	167
Deegan, Robert F.	905
Deegan, Robert F.	1006
Defense Nuclear Facilities Safety Board	845
Delusignan, Dorian	692
Dement, Geraldine B.	1349
Dement, Joe J.	1363
Dempster, Michael	1325
Denton, Marcia	1217
Detmer, Tami	592
Devereaux, Eugene E.	99
Devine, John C.	237
Devine, Shirley	1435
Devlin, Sally	898
Dickinson, Irene P	654
Dicks, Norm	840
Diehl, Don	326
Diepenbrock, Kathleen	986
Dight, Ruth	85

Dilley, Les	866
Dixon, Betty	1384
Dixon, Marjorie	1191
Doersam, Eugene	1198
Dold, Ann	1068
Don't Waste Oregon	258
Donaldson, Jeanne	1212
Donnelly, Tom	316
Donnelly, Tom	351
Donnelly, Tom	764
Donnelly, Tom	764
Donnelly, Tom	1344
Donohue, Brian P.	24
Dougherty, Al	1312
Dougherty, Jenive	1312
Doughty, Jane	553
Dove, Debby	585
Dowd, Joyce	1210
Dowd, Kathy	1362
Downey, Patricia	280
Doyle, Patrick	1433
Draper, Marge	1219
Drewes, Kenneth N.	680
Drewes, Kenneth N.	1042
Driscoll, Cristine	488
Drown, Lynn R.	833
Du Val, Elizabeth H.	733
Duke, Beth M	685
Duke, Judith C.	850
Duke, Robert A.	861
Dunning, Dirk	259
Duplessis, Lee	778
Duplessis, Lee	1033
Duplessis, Lee	1034
Duplessis, Lee	1050
Duplessis, Lee	1371
Duvall, Jami	1270
Dworkin, Mona	20
Dyson, Jessica	297
Dyson, Jessica	311
Dyson, Jessica	346
Dyson, Jessica	354

Dyson, Jessica	587
Eaves, Debbie	1424
Economists Allied for Arms Reductions	1119
Eddy, David C	277
Edelstein, Jan M.	737
Edwards, Carol	1181
Egan, Joseph	159
Egan, Joseph R.	870
Egan, Joseph R.	933
Egan, Joseph R.	938
Eichler, Robert F.	730
Eiden, Max	745
Eigabroadt, Earl E.	771
Ekman, John	190
Elle, Jean	1051
Elle, Jean	1052
Ellis, Cathy	740
Ellis, Thomas	187
Emery, Susan	180
Emery, Susan	181
Emery, Susan	182
Emery, Susan	1412
Energy Authority	206
Energy Authority	216
Energy Research Foundation	631
Energy Research Foundation	1119
Energy Research Foundation	1119
Enquist, Robert W.	156
Env. Mgmt. Site-Specific Advisory Board	1012
Environmental Defense Institute	1119
Environmental Defense Institute	595
Environmental Defense Institute	610
Environmental Protection Agency, U.S.	1120
Erickson, Randee	1183
Erman, Laird	436
Ernst, Carol	1441
Esbeck, Edward S.	59
Esparza, Micah	890
Essin, Christine	775
Everette, Amanda	519
Everson, Rickie	1369
Ewald, Linda	1232
Ewing, Mary Jane	1370
Ewing, Robert	1370
FOCUS on Peace and Justice	531
Falkner, Mark	1361
Farber, Ruth	5
Farmer, Jack	438

Farrell, Russ	250
Farrell, Russ	254
Fauci, Joanie	497
Fay, William M.	133
Federal Managers Association, Ch. 19	378
Fennema, Diane	1228
Ferguson, Ken	261
Fernald Res. for Env. Safety & Health	1119
Ferrara, Russ	635
Fessenden, Loyette	352
Feulner, Anne	725
Feulner, Herb	725
Fields, Charles E.	8
Fincher, Angie	672
Finn, Ellen	1097
Fisk, Edison S.	557
Fisse, Ron	1134
Fist of Fury	321
Flanders, Allen	1415
Fleming, Grace M.	496
Flinn, Alicia	469
Flinn, James	1319
Flint, William	1100
Flory, Brenda	426
Flory, Lynn	693
Flynn, Carol L.	789
Fong, Thelma V.	103
Forck, Jim	82
Fordyce, Philip A.	79
Forrey, Gloria	1391
Fortunoff, Saul	18
Foster, Betty	1438
Foster, Nicki L.	288
Fowler, Corinne	1250
Fowler, Halle	1163
Fowler, Happy	1178
Franden, Janet	1222
Fraser, Bill	804
Frazier, Kathleen	1262
Frazier, M.	929
Frazier, Marilyn	786
Fredenburg, Ed	835
Fredericks, Sally	511
Fredricks, Randall C.	811
Friends of ORNL	454
Fritzler, Loretta	964

Frogner, David	37
Fruing, John	268
Fuller, Margaret	819
Fuller, Robert	1237
Future Free Transportation	613
Gaddy, Claude N.	1429
Gallo, Cathleen	41
Gancio, Ann M.	491
Gannes, Brenda	1353
Gannes, Randall	1354
Ganus, Zada K.	841
Gardner, Edwena	1427
Gardner, Jeanne	328
Gardner, Jenne	346
Gardner, Jenne	346
Gardunia, Brian	471
Gates, Marilyn	385
Gatton, Leslie	1304
Gauer, Madelon	1122
Gauer, Paul	1122
Geddes, Rick L.	629
Geddes, Rick L.	632
Geer, J.	723
Gegner, Bert	345
Gelsey, Rudolph	201
Gelsey, Rudolph	218
George, Coleen	86
George, Roxane	916
Gibbs, Dominic	297
Gibson, Bryce	1399
Giggey, Mary	83
Gilden, Stacy	947
Gilmore, Ginnie	101
Gilmore, Leigh	111
Gimel, Marlin	66
Glaccum, Ellen	960
Glaccum, Ellen	994
Glasseir, Rox	1108
Gleaves, Richard	1200
Gleysteen, Mary	348
Gleysteen, Mary	864
Gleysteen, Rod	312
Golay, Judith	1385
Gonzales, David	705

Gora, Francine H.	386
Gordon, Bart	682
Gordon, Carol	25
Gordon, Kathleen C.	795
Gordon, Margaret	1205
Gorenflo, Louise	1245
Gorham, Sara	959
Gouley, Richard	984
Gouley, Richard	993
Graber, Dorothy	341
Graber, Henry	340
Grainger, Jamie	236
Grainger, Jamie	238
Granlund, Win	839
Granlund, Win	923
Grant, Jane F.	114
Graves, Dallas J.	357
Green, Glenn	628
Green, Jody	1099
Green, Thomas	636
Greer, Beth	256
Gregory, James N.	65
Griffin, James	160
Griffin, Susan B.	1422
Grizzle, Rodney P.	22
Grizzle, Rodney P.	614
Groll, Mary F.	1311
Grover, Jean	901
Gruhl, Wade	1239
Gumenberg, Kathleen	30
Gump, Grace	527
Gyorke, Joseph	1116
HI American Friends Service Committee	414
HI Council of Navy League of U.S.	379
HI Fed. Employee Metal Trades Council	399
HI Fed. Employee Metal Trades Council	382
HI, State of; Department of Health	11
HI, State of; Dept. of Health	371
HI, State of; House of Representatives	12
HI, State of; House of Representatives	13
HI, State of; Office of State Planning	21
HI, Univsty of; Center for HI. Studies	377
Haaz, Nan	1189
Haduke, Forest	1406
Hagerman	1379
Haight, Douglas	1359
Hailey City Council	948
Halfhill, Tom	572
Hall, Dale O.	472
Hall, Dale O.	1377
Hall, David	927
Hall, Jennifer	523
Hall, Pamela	149
Hall, Patricia	544
Hall, Patricia	548
Hall, Theodore R.	168
Hamilton, Bill	176

Hamilton, Bill	182
Hamilton, Sally	1375
Hammons, Dorotha	668
Hampton Roads, Planning District Comm.	846
Haney, Mary	336
Haney, Richard	334
Hanford Education Action League	1119
Hanford Watch	247
Hanford Watch	253
Hangca, Luis	405
Hanggi, Dennis M.	860
Hanggi, Patricia	882
Hansen, Adeline	1265
Hansen, Brent	820
Hanson, Annette	1400
Hanson, Gertie	597
Hanson, Wes	600
Harding, Hilary	297
Harding, Hilary	308
Hardinge, Jeep	803
Hardwick, Doris	657
Harling, Leonard	751
Harper, John	1419
Harrin, Claudia	436
Harrington, Philip S.	420
Harris, Betty	1426
Harris, Lisa	1086
Harrison, John T.	1445
Harsley, Raleigh G.	162
Hart, Andrew	1410
Hart, Ann	1437
Hart, Marcia	998
Hart	831
Hartman, Diania	769
Harvey, Ian	1095
Harvey, William D.	423
Harvey-Marose, Kevin	607
Haskew, Mark	1328
Hassell, Jack N.	580
Hassell, Mike	666
Hastings, Virginia	1159
Haugen, Monna E.	358
Hausrath, Anne	470

Hausrath, Libby 480
Hayball, Brett 1044

Hayball, Brett 1045

Hayball, Brett 1045

Heart of America Northwest 1119
Heart of America Northwest 301
Heart of America Northwest 349
Heart of America Northwest 4
Heart of America Northwest 294
Heckler, Hilde 1015
Hedgepeth, Dave 232

Hedgepeth, Dave 444
Hedgepeth, David 449

Heft, Philip 1089
Heilman, Paul E. 282

Heindsmann, Sandra 1201
Helland, Karen K. 463

Henderson, Clay P. 716
Henderson, Judy 716
Heng, Neda 346

Hensel, David 1058

Hensel, David 1059
Hensel, David 1059

Hensley, Charlie 775
Henton, Thomas E. 90
Herbert, Patricia A. 230

Herring, J. Stephen 626

Hershinow, David 408

Hershinow, David 417

Herudon, Janet 852
Hescheid, Joseph W. 28
Heykamp, Elaine 1167
Hieb, Mary 814

Higginbotham, Jan	624
Hilbert, H.	462
Hill, Crag	242
Hill, Debbie W.	876
Hill, Joy	1141
Hill, Rhonda	656
Hill, Wayne	573
Hilmas, Duane	227
Hilton Head, SC; Town of	858
Hinzelman, John E.	826
Hobbs, Jack	589
Hodge, Mary	1139
Hoffman, Marcus	343
Hogan, Terry	1292
Holce, Leah	1102
Holt, Jane	1392
Holt, Kenneth W.	744
Holtz, Libby	1284
Hondo, Carolyn	531
Honicker, Jeannine	444
Honicker, Jeannine	448
Honicker, Jeannine	1231
Hoover, Elizabeth	1203
Horan, John R.	1043
Horton, Lynn B.	842
Horton, Lynn B.	1123
Horton, Patricia	555
Horton, Peter	555
House, Rupert	751
House of Representatives	682
Howard, Steven	1295
Howell, James	704
Howes, Deborah	252
Hubbard, Lela	403
Huber, Arlene	798
Hudson, Jackie	356
Hudson, John	1315
Hughel, Dan	1326
Hughes, William F.	834
Hulett, Chris	707
Hulett, Chris	916
Hulette, Christin	1161
Hultsch, Roland A.	802
Hungerford, Clark	619
Hungerford, Clark	1115
Hunt, Sandra	670
ID, State of	924

ID, State of 924

Ibele, Margaret R.	112
Idaho State Historical Society	857
Idaho, Office of Attorney General	924
Idaho, State of	483
Idaho, State of	538
Iezza, Cora	373
Inabinett, Nathan	894
Indeterminate, Andrew A.	323
Indeterminate, Clint A.	775
Indeterminate, Illegible	625
Indeterminate, Illegible	816
Indeterminate, Indeterminate,illegible	775
Indeterminate, Kathleen	775
Indeterminate, Michail	775
Indeterminate, Mrs. Richard	760
Indeterminate	775
Indeterminate, Pat	821
Indeterminate, Patricia L.	323
Indeterminate, Richard L.	760
Indeterminate, Teresa	775
Indeterminate,illegible, Indeterminate,illegible	775
Ingalls, Martha	781
Institute for Energy & Env. Research	1119
Integrity Research	296
Inzer, Jo	478
Inzer, Jo	543
Irwin, Donald	494
Iwanski, Myron	868
Janes, Pauline	655
Jaquet, Wendy	990
Jay, Elisabeth	473
Jay, Elisabeth	539
Jay, Richard	1378
Jayne, Gerald A.	1023
Jayne, Jerry	1022
Jentry, Boyd	1220
Jessen, Neal	1390
Jobe, Lowell A.	874
Johnson, Barry L.	287
Johnson, Elaine	1248
Johnson, Heather	342
Johnson, Heather	524
Johnson, Helen G.	684
Johnson, Leroy	500
Johnson, Leroy	664
Johnson, Norma	1402
Johnson, Sally	1249
Johnston, Anne	310
Jolley, Robert B.	440

Jolley, Robert B.	443
Jones, Eleanor	1092
Jones, Jewel	1227
Jones, Michael	411
Jones, Michael	415
Jones, Michael	849
Jones, Michael	849
Jordan, Evonne	662
Jordan, Thomas	887
Jull, Paula	869
Ka Lahui Hawaii	1345
Ka Lahui Hawaii	369
Ka Lahui Hawaii, Oahu Island Caucus	372
Ka Lahui Hawaii, Oahu Island Caucus	410
Kadak, Andrew C.	848
Kaeser, Norma D.	7
Kahunahana Castro Howell, Anna Marie	398
Kain, Helene	318
Kaiser, Justine	616
Kakalia, Clara	380
Kalbus, Richard	1436
Kanouff, J. M.	812
Kaufmann, Theresa M.	1036
Kaufmann, Theresa M.	1037
Kay, Jerome	593
Keeney, Harold S.	96
Keisel, Allison	966
Kellam, Janet K.	213
Kellam, Janet K.	853
Kelly, Elizabeth	679
Kelly, Elizabeth	871
Kelly, Mary T.	915
Kelly-Lind, Ellen	194
Kelly-Lind, Ellen	212
Kempthorne, Dirk	1053
Kempthorne, Dirk	1054
Kennedy, Alexandra	785

Kennedy, Nancy	6
Kenney, Dick	1026
Kepano, Virginia A.	409
Kepano, Virginia A.	418
Kerrigan, Laurie	1105
Kessler, Marc A.	464
Kessler, Peter	1244
Kimball, Matthew	1420
Kimmich, Scott	1004
Kinard, Deborah	1243
Kincheloe, Karen	1266
King, David	1333
King, Joan O.	148
King, Marilee	1148
King, Neil	437
King, Neil	993
Kipping, David	965
Kirk, Amy	925
Kirkpatrick, B. J.	935
Kitsap County, WA; Bd. of Commissioners	839
Kitsap County, WA; Dept. of Emerg. Mgmt.	765
Klein, Richard F.	761
Klein, Robin	264
Kleinklof, Karl	1149
Knapp, Malcolm R.	1125
Knapp, Wynne	922
Knecht, Dieter	1302
Knight, Carol	683
Knight, Carol	1091
Knight, Glendel	1355
Knight, Joseph	1347
Knight, Paige	247
Knight, Paige	250
Knight, Paige	253
Knight, Paige	268
Knight, Paige	270
Knolls Action Project	1119
Knolls Action Project	188
Knolls Action Project	202
Knolls Action Project	194
Knolls Action Project	212
Knotts, Ronald E.	640
Knox, Harry W.	913
Koben, Marcia	1082
Kocher, Ann	824
Kocher, Warren	442
Kocher, Warren	824
Koeberl, Dwight D.	210

Kogut, William	115
Kolb, Catherine	884
Koslowsky, George	919
Kotowicz Lloyd, Ann	653
Kramer, Angela	881
Kresge, Michele	482
Kuhlman, Henry	530
Lachey, Jeanette	775
Lafargue, Genevieve	485
Lagenaur, Mary Beth	1256
Lagergren, Ginna	233
Lagergren, Ken	233
Lambert, James	191
Lambert, James	199
Lambert, James R.	214
Lambert Holenstein, Kathryn (Cherie)	245
Lambert Holenstein, Kathryn (Cherie)	266
Lambolot, James	200
Lamotte, Christian	1009
Lancaster, Colleen	928
Lane, Lois	1147
Lang, Lance	297
Lang, Lance	305
Langworthy, Helen	1288
Lanigan, Karen	1164
Lanigan, Steve	1275
Larson, Jim	297
Larson, Jim	304
Larson, Lester	665
Laverty, Denise	985
Laverty, Denise	997
Law, Joe M.	818
Lawrence, Linda	490
Lawson, Loretta	1260
Lay, Amanda	775
Lee, James	295
Lee, Janet	698
Lee, John G.	851
Lefcoski, Jack	346
Lefcoski, Jack	347
Lehrad, Klaus	815
Lehto, Kevin	1186
Leichtman, Kal	558
Lein, Ray H.	132
Leistiko, Ron	246
Leistiko, Ron	262
Leming, Earl C.	515

Lenker, John	977
Lenkner, Charles	970
Leslie, Bret	425
Leslie, Bret	425
Leslie, Bret	426
Leusch, Peter	800
Lewallen, Debra J.	673
Lewnow, Richard	221
Liborio, Kevin	400
Lieberman, Bernard	1327
Lindquist, Jeff	775
Lingworthy, Mariel	346
Linnell, William S.	170
Little, Ben	822
Little, Glen	1112
Lloyd, Alan	379
Lockwood, Frank	992
Loeb, Bernard S.	129
Logan, John A.	1008
Long, Everett	790
Longley, Bee	741
Loo, Henry	773
Loosier, Carla	516
Loosier, Carla	518
Loosier, Carla S.	903
Lorella, Kathy C.	100
Lotts, A. L.	186
Lotts, A. L.	452
Lotts, A. L.	452
Lotts, A. L.	455
Louch, Charles D.	134
Lousen, Patti	556
Lowe, Frances E.	1317
Lucas, Pam	369
Lucas, Pamela L.	392
Ludders, Beverly	1281
Lundstedt, Tom	73
Luthy, Louise	78
Luxem, David A	241
Lynch, Janet	663

MClemore, Janis 1278
Mackay, Daniel 188
Mackay, Daniel 202

Maestas, Herman 794
Magee, Joan 117

Mager, Talmon R. 62
Maginnis, Paul 509
Maikmus, Mary 532

Malama, Kaonohi 375
Malan, Linda 110

Mallant, Lisa J. 10

Malone, Mrs. Paul 1176
Malone, Paul 1176
Malone, Terence W. 777

Manheimer, Elaine 147

Manheimer, Elaine 344

Manheimer, Elaine 346

Manheimer, Elaine 1344

Mann, Phylliss A. 765

Manning, Lillian 1357
Manning, Lillian 1432
Manning, Mary 1252
Marcus, Joyce 787

Marmes, Rondel 775
Martensen, Charles 1403
Martensen, Margaret 1403
Martin, Clarence 339
Martin, Marilyn 945
Martin, Pauline 1211
Martin, Terry 566
Mary E. Theler Community Center 136
Masumoto, Harold S. 21
Mathews, James C. 492
Matsu-Pissot, Yuki 1234
Matthews, R. S. 153

Matthews, R. S. 643

Mattulat, Judy 1152
Matz, Joey 889
Mazon, Mike 220
Mazon, Mike 226

McAuley, Mike 1305
McCabe, Amy 444
McCabe, Amy 447

McCabe, Amy 1011

McCann, Anita 1261
McCollen, Lyn 542

McCombs, Patricia A. 678
McConnell, M. R. 878
McCoy, Mildred 1440
McCoy, Nina R. 401

McCoy, Nina R. 402
McCoy, Nina R. 414

McCulloch, Betty 810
McDaniels, Trimelda 1034

McDaniels, Trimelda C. 1049

McDaniels, Trimelda C. 1050

McDaniels, Trimelda C. 1070
McDaniels, Trimelda 1277
McDermott, Vincent 567
McDonald, Tim 1128
McDonald, Timothy 899

McDonald, Timothy 1077

McElhinney, Gwynne 477

McElhinney, Gwynne 541

McEnaney, Robert 545

McEnaney, Robert 549
McFarlane, Harold F. 278
McFaull, David R. 88
McGehee, Connie 1206
McGhee, Charles 1383
McGinnis, Anna 163
McGrath, James 1013
McGrath, Patty 1395
McKnight, Virginia 1397
McLaughlin, Dennis 1314
McLaughlin, Pam 1168
McLaughlin, Pam 1289

McNabb, Harry O. 1322
McReynolds, Susan 1224
McReynolds, Tom 1393
McWhorter, Don 628
McWhorter, Donald L. 823

Meacham, Brian E.	797
Mead, David	992
Medin, M.	74
Medwell, Nancy	118
Megrue, Maxey	19
Megrue, Maxey	53
Meigs, Marilyn F.	235
Meigs, Marilyn F.	291
Meigs, Marilyn F.	300
Meigs, Marilyn F.	424
Meigs, Marilyn F.	431
Mellen, Roz	584
Meltzer, Frank L.	736
Melville, Chi	718
Melville, Loretta	780
Mendoza, Mary	1254
Meyer, Richard	989
Meyers	708
Meza, Patrece	755
Michael, Frank	1104
Millagan, Heston	667
Miller, Dana	1338
Miller, Joseph	80
Miller, Winifred E.	95
Mills, John D.	954
Minear, Karen	691
Minear, Valara	694
Mink, Patsy T.	17
Missin, Meta	799
Missouri Clearinghouse	15
Missouri, University of; Columbia	802
Mitchell, Don	1235
Mitchell, Kelly	888
Mitchell, Thomas	576
Mix, Mary A.	948
Moeller, John	42
Moeller, Mary	1151
Moffett, Ed	807
Moffett, Jennifer	808
Mohtiak, Dan	321
Moore, Emma E.	124
Moore, James F.	243
Moore, Marie	891
Moredock, Elizabeth	1088
Morgan, Elizabeth	217
Morgan, LaRene	1132
Morley, Mary Kay	1197
Morris, Evelyn	397
Morris, Heloise	81
Morris, Mary	1331

Morrison, Anita	909
Morse, Macy	173
Morse, Macy	250
Morse, Macy	265
Mowry, Authur	630
Murphy, David	506
Murphy, Jane	669
Murray, Alexander P.	832
Myers, Brian	1368
Myers, Joy	762
Myers, Joy	1012
NH, State of; Dept. of Environ. Service	127
NY State of; Dept. of Economic Devlopmt	763
Nahoopii, Kawika	372
Nahoopii, Kawika	410
Nakaoka, Charles	700
Nashville Peace Action	232
Nasrah, Sister	525
National Assoc. of Retired Federal Emp.	155
National Center for Environmental Health	744
National Transportation Safety Board	129
Natural Rights Center, The	1069
Navarro, Pat	1324
Nelns, Barbara	702
Nelson, Bruce	754
Nelson, Georgia	754
Neumann, David	562
Neumann, David	588
Neumann, David	1257
Neumann, David	1425
Nevada State Clearinghouse DOA/SPOC	936
Nevadans Opposing Nuclear Extinction	228
Newick, Richard C.	513
Nichols, Mary H.	439
Nichols, Mary H	442
Nickerson, Jack E.	776
Nickerson, Jack	1025
Nickerson, Jack	1070
Nickerson, Russell	155
Noland, Jane	299
Noland, Jane	926
Norfolk Naval Shipyard-Portsmouth Assoc.	818

North Carolina State Clearinghouse	1007
Nuclear Free Port Coalition	246
Nuclear Free Port Coalition	262
Nuclear Safety Campaign	1119
Nuick, Dick	182
Nunnelley, Pamela J.	775
O'Brien, Frank	628
O'Brien, Frank D.	633
O'Connell, Rosemary	31
O'Connor, John	560
O'Connor, Kacee	560
O'Neal, James	441
O'Neal, James	442
OH, State of; OB&M, State Clearinghouse	514
Oak Ridge Environmental Peace Alliance	1119
Oak Ridge Environmental Peace Alliance	244
Oak Ridge Environmental Peace Alliance	453
Oak Ridge Res., Oversight Comm.	447
Oak Ridge, City of Environ. Qual. Advis	868
Oakland, Port of	1013
Oesterhaus, Carole L.	293
Olson, Lynn	275
Ormsby, Bill	696
Osborne, Dan	346
Osorio, Jonathan K.	377
Overman, Robert	1103
Owen, Elizabeth	620
Owen, Robert E.	621
Page, Paul	763
Pahlka, Sharon	9
Palmer, Doug	1110
Pannell, Deborah	1298
Pannell, George	1170
Pardy, Pauline	1360
Parker, Genevieve M.	767
Parker, Ron A.	1374
Parker, Sharon	361
Parks, Steve	1268
Paroni, Genevieve M.	739
Parrette, Joe	1193
Parypa, Andrew	338
Patheal, Colen	942
Patheal, Helen	962
Patrick, Lewis W.	157
Paulsen, William S.	332
Paulson, Steve	706
Pave the Wilderness	603
Peace Action Education Fund	1119
Pearl City Neighborhood Board No. 21	381
Pearl City Neighborhood Board No. 21	390
Pearson, Ernest	1282

Pearson, Esther	1259
Peck, Geraldine	257
Peelle, Robert	825
Penfield, Janet	273
Pense, Margaret	749
Pepper, Lennard J.	12
Person, Dora M.	49
Peters, Gail	875
Peterson, Samara	1131
Petty, Guy	178
Petty, Guy	182
Petty, Guy	183
Pfeiffer, Arden	697
Pfeiffer, Pat	695
Phelps, Jim	1332
Phillips, Keith E.	877
Physicians for Social Responsibility	1119
Physicians for Social Responsibility	269
Picquet, Cheryn	1240
Pineus, Kari E.	775
Pinkerton, Brad	856
Piquet, Margaret	1335
Pittman, Rosemary	109
Poche, Anthony F.	1334
Pocuis, D. Leo	139
Pocuis, D. Leo	333
Podraza, Florence	362
Poe, W. Lee	628
Pohl, Lois	15
Polestar Applied Technology	237
Pollet, Gerald	297
Pollet, Gerald	301
Pollet, Gerald	346
Pollet, Gerald	349
Pollock, Marilyn	374
Pollock, Marilyn	391
Pomeroy, Betsy	1172
Pomeroy, Nelson	1172
Porter, Lynn	268
Porter, Lynn	283

Portsmouth Res. for Env. Safety & Sec.	1119
Pottenger, Bob	911
Pottenger, Gerri	911
Potter, Martha	967
Potter, Roderick	972
Potts, Roxanne M.	775
Powell, Marbeth	1388
Powell, Walbridge J.	14
Powers, Julian	1107
Prater, George	536
Pressan, Doris	51
Pressan, Ray	51
Price, Jo	768
Price, Jo	768
Price, Mariann	645
Price, Schunn	1376
Priolo, John	378
Priolo, John	384
Priolo, John	395
Priolo, John	412
Pritchett, Jane	707
Pritchett, Jane R.	930
Proksa, Dennis J.	561
Proksa, Margo	1055
Proksa, Margo	1056
Proksa, Margo	1070
Pumphrey, Laurel	481
Pumphrey, Laurel	540
Purner, Jeff	205
Qualman, Ronald	590
Quapp, W. J.	817
Questions and Answers, Arlington, VA Afternoon	426
Questions and Answers, Arlington, VA Evening	427
Questions and Answers, Ballston Spa, NY After.	229
Questions and Answers, Ballston Spa, NY Evening	208
Questions and Answers, Boise, ID	551
Questions and Answers, Bremerton, WA Evening	346
Questions and Answers, Idaho Falls, ID Afternoon	1068
Questions and Answers, Idaho Falls, ID. Evening	1070
Questions and Answers, Kingston, TN Evening	442
Questions and Answers, Kittery, ME Evening	182
Questions and Answers, Las Vegas, NV Afternoon	226
Questions and Answers, Moscow, ID Afternoon	608
Questions and Answers, Moscow, ID. Evening	707
Questions and Answers, N. Augusta, SC Afternoon	629

Questions and Answers, N. Augusta, SC Evening	628
Questions and Answers, Oak Ridge, TN Afternoon	444
Questions and Answers, Pasco, WA Evening	236
Questions and Answers, Pearl City, HI Afternoon	367
Questions and Answers, Portland, OR Afternoon	250
Questions and Answers, Portland, OR Evening	268
Questions and Answers, Savannah, GA Afternoon	516
Questions and Answers, Savannah, GA Evening	521
Questions and Answers, Seattle, WA Afternoon	297
Questions and Answers, Twin Falls, ID Afternoon	992
Questions and Answers, Twin Falls, ID Evening	993
Quiakana, Marcus	315
Quiggle, Nancy	759
Quinley, Vickie	1129
Quinn, Tim	1166
Rabin, Stanford	58
Radiation Research Society	227
Ramey, Rochelle	94
Randolph, Sperry	1188
Read, Heidi	475
Read, Heidi	611
Reaves, Whitfield	806
Record, Terry	748
Record, Terry	1085
Reed, David	1316
Reed, Kristi	651
Reed, Ron	1339
Reimers, Diane	742
Reitnour, Michael	263
Reppun, J. I. Frederick	1
Reppun, J. I. Frederick	125
Reppun, J. I. Frederick	552
Rice, Charles M.	1039
Rice, Chuck	1038
Rice, JoAnn	1225
Rice, Kevin	659
Rickards, Peter	979
Rickards, Peter	979
Rickards, Peter	993
Rickards, Peter	1031
Rickards, Peter	1032
Rickards, Peter	1068
Rickards, Peter	1070
Ricketts, W.	1195
Ricketts, W.	1346
Rinehart, Mark A.	479
Risser, Peter	104
Ristow, Steven C.	721

Roberts, Elizabeth A.	809
Roberts, Jean C.	61
Roberts, Lucy	1428
Roberts, Randy	1090
Robinowitz, Mark	427
Robinowitz, Mark	432
Robinowitz, Mark	433
Robinson, Enders A.	429
Rodgers, Patricia M.	93
Rogers, Albert W.	346
Rogers, Kris	958
Rogers, Mary Grace	1323
Roland, Russ	690
Romane, Richard R.	185
Romane, Richard	346
Romane, Richard R.	766
Ronic, Bill	629
Roth, Char	995
Rouirere, Carol	709
Rowe, Jennifer	1083
Runstein, Helen	1204
Ruppe, Maryann	1421
Russell, Donald	1174
Russell, Rosemary	50
SC, State of; League of Women Voters	915
SC, State of; Office of the Governor	22
SC, State of; Office of the Governor	614
STAND of Amarillo, Inc.	1119
Saccoman, Bill	1111
Saccoman, Joe	1106
Saccoman, Patty	1111
Salaegs, Peggy	1173
Salazar, Hallette R.	863
Sanders, James E.	209
Sanders, Pat	1356
Sanderson, Richard E.	1080

Sanderson, Richard E. 1120

Sanderson, Richard E. 1120

Sanderson, Richard E. 1126

Sanderson, Richard E. 1126

Sattgast, Leah W. 1294
Saunders, Mary 805
Scannella, Joe 1308
Scarborough, Leslie 982
Schalck, D. Kate 599

Schalck, D. Kate 609

Schedin, Todd 106

Schierloh, Brooke 240

Schimdt, Helena	1307
Schmalz, Bruce L.	44
Schmatjen, Jeff	892
Schmidt, Gail	564
Schmidt, Peter W.	844
Schmidt, Peter W.	931
Schneider, Laurie	242
Schrade, Jeff	1047
Schrader, Kathi	461
Schryrer, Laurie	436
Schwarz, Ted M.	98
Schwarz, Ted M.	98
Scott, Frank	487
Scudder, Gary	1236
Seaman, Thomas	606
Seaman, Thomas	707
Seattle City Council	926
Seels, Phyllis	758
Senate, U.S.	1046
Senate, U.S.	642
Seperich, Yvonne	1310
Shane, Chris	648
Shannon, Beth L.	387
Shannon, John	193
Shannon, John	195
Sharpe, Roberta R.	746
Sharpe, Roberta R.	1087
Shaver, Lale	1345
Shea, Donald R.	70
Shelton	650
Shepard, Kathy	579
Sherrerd, Bill	988
Shim, Julie	498
Shipley, Diana	1019
Shipley, Diana Y.	1020
Shootman, Charles	658
Shortt, Timothy	1233
Shoshone-Bannock Tribal Dept. of Energy	1044
Shoshone-Bannock Tribes, The	847
Shotwell, Cornelia	1137
Shotwell, Evelyn	1113
Shroy, Edna E.	753
Sickles, Linda	107
Siegel, Taggart	946
Sieger, Karyn	1267
Sierra Club	167
Sierra Club, Hawaii Chapter	385
Sierra Club, Sawtooth Group	1286
Sierra Club, Virginia Chapter	905
Sifnas, Martha	1413
Silverman, Larry	1242
Sims, Lynn	146

Sims, Lynn	258
Sipp, Pete	634
Sirhall, Emma L.	1285
Sixth Sense Sound Peace	351
Skinner, Lawrence	224
Skinner, Lawrence	226
Skinner, Lawrence	228
Skinner, Robert	1062
Skinner, Robert L.	1063
Slansky, Cyril M.	729
Slatin, Alfred	297
Slifer, B.	130
Slifer, Betty	1001
Smiley, Jane	1145
Smith, Arthur P.	535
Smith, Ben L.	158
Smith, Ben L.	446
Smith, Clyde	647
Smith, Deanna	468
Smith, Desmond F.	281
Smith, Eric	1296
Smith, Gus	445
Smith, Matt	510
Smith, Matt	949
Smith, Ruth A.	535
Smith, Susan	710
Smith, Tony	289
Smith, Vicki	880
Smithhart, Lorne R.	591
Snake River Alliance	907
Snake River Alliance	1035
Snake River Alliance	1119
Snake River Alliance	468
Snake River Alliance	976
Snell, Jim	1373
Snow, Dickey	1199
Snow, Renee	1350
Soderquist, Linda	1404
Solomon, Gerald B.	211
Somers-Gulsvig, Julie A.	284
Sonnenberg, Mark	937
Sorosua, Adrian	346
Southland, Robert E.	325
Southwest Research & Information Center	1119
Souza, Jerry	381

Souza, Jerry G.	390
Sowdon, Doug	1303
Sower, Bob W.	1130
Spark M. Matsunaga Instit. for Peace	413
Species, Scott	309
Spencer, Harvey G.	830
Sperry, Carolyn W.	67
Spiers, Christopher	775
Spies, Robert D.	43
Spies, Robert D.	92
Spitalny, Paul	97
Spitzer, Debra A.	720
Spitzer, Debra A.	720
Spore, Suzanne	1396
Springer, Elizabeth	292
Stark, Jenny	895
Stauffer, Carrie L.	782
Steele, Jen	250
Steele, Selma A.	239
Steele, William K.	108
Steffens, Veronica	961
Stein, Karen	738
Stennet, Clint	1014
Stevens, Alexander R.	140
Stevens, Ed	1417
Stevenson, Elizabeth	677
Stewart, Brenda	569
Stewart, Margaret M.	465
Stewart, Margaret M.	971
Stewart, Margaret M.	976
Stewart, Margaret M.	992
Stewart, Margaret M.	993
Stewart, Mark	968
Stewart, Mark	992
Stibal, Shirley	836
Stireman, James	1084
Stockard, Joe L.	456
Stockdale, Jeri	145
Stohr, Joe	303
Stoke, Jonathan	1286
Stokes, Don R.	126
Stoknes, Kjell	1218
Stoknes, Marilyn	1218
Stone, Bettie J.	36

Stone, Bettie J.	331
Stone, Gary	1101
Stori, Mary	577
Story, Marty	775
Stout, Dean	1216
Stranahan, Lori	250
Strandell, Amy J.	120
Stratten, Betty	770
Strausbaugh, Cindy	991
Straw, Owen	317
Strawser, Mary	1192
Streeter, Jack	726
Strong, T. R.	843
Strong, Tye	1143
Stuart, Ivan F.	520
Stuart, Ivan	526
Students for Environmental Action	471
Stume, Betty Ann	1271
Suhr, Debbie	1138
Sujka, Mike	629
Sujka, Mike F.	639
Surielo, Carrie	297
Sutton, Barry	274
Sutton, Richard	376
Sutton, Shelley	77
Sutton, Thomas B.	267
Suzuki, Nathan	13
Swan, Kerrigan A.	601
Swanson, John R.	854
Swanson, Mary	346
Swanson, Mary	586
Swartzman, Margaret	1293
Sweet, Sallie	116
Swenson, Pamela	912
Switzer, Susan	1341
Swords, Marcella	567
TN, State of; Dept. of Envir. & Conserv.	515
Takahashi, Dana	1258
Takaro, Tim	346
Talkington, John	406
Talkington, John	419
Tanner, John B.	1040
Tate, Deborah	1064
Tauscher, Carol	459
Taylor, Larry L.	859
Taylor, Steve T.	87
Teasley, Marlese	950
Teitge, Thomas	943
Tennessee State Planning Office	158
Tennessee, State of	446

Tenpenny, Peggy Sue	1431
Tenpenny, Ray	1430
Teuksbury, Ross	268
Teusher, Meryle	1150
Tewell, Joanna C.	792
Tewksbury, Ross	272
Theriot, Pierre	335
Thomas, Tim	987
Thompsen, Angle	712
Thompson, Blake	603
Thompson, Blake	603
Thompson, Blake	707
Thurmond, Senator Strom	642
Tillett, Jackie	501
Tillett, Jackie	571
Tinno, Keith	847
Tippett, Verna L.	1264
Tockman, Jason	605
Tockman, Jason	707
Todd, Lisa R.	457
Todd, Megan	893
Todd, Paul	1000
Toler, Stuart	1283
Topik, Mrs. Fred	495
Toyama, Ben	399
Treichel, Judy	223
Trenor, Dorothy L.	119
Trieble, Wilbur	204
Trigsted, Todd	596
Trigsted, Todd	707
Trost, Charles H.	879

Troxel, Doris G.	64
Troxel, Sarajane M.	151
Tschirgi, Scott	1157
Tuck, Frank	1321
Tumlin, Gary	1329
Turchik, Sandy	346
Turchinetz, Tildy	1411
Turnbill, Johnnie	674
Turner, Kaye	1066
Turner, Kaye	1067
Turner, Roger	908
Turner, Roger	908
Turner, Roger	1021
Turner, Roger	1024
Tylan, Mark	182
Tyler, Nancy	1306
Tyler, William A.	1381
Ulahwti	983
Ulbright, Edgar P.	296
Ulbright, Edgar	297
Ulbright, Edgar P.	306
Unger, Richard	1169
Union River Basin Protection Association	147
Union River Basin Protection Association	344
Union River Basin Protection Association	1344
Union River Protection Association	142
Usrey, Elgan H.	1444
Utah Peace Test	797
Uyehara, Richard F.	382
Uyehara, Richard F.	383
Uyehara, Richard F.	394
Uyehara, Richard	416
VA, State of; Off. of Envir. Impact Rev.	844
Vail, Stephen	652
Van Der Harst, John	1109
Van Every, Robert	1094
Van Fleet, Janet	724
Van Niel, Sally J.	113
Van Zandt, Stephen C.	827
Vance, Jesse	1221
Vanderbilt, Gloria	575
Vanderven, Peter	1229
Varney, Margaret	75
Varney, Robert W.	127
Varriacchio, Louis	675
Varricchio, Louis	152

Varricchio, Louis	622
Varricchio, Marilyn	152
Vaughan, Edna R.	1434
Vegwert, Mark	435
Velasco, Steve	1272
Vieten, Vincent	1409
Viglielmo, Frances	407
Viglielmo, Frances	413
Von Tressenhussen, Englebrecht	226
Von Want, Bob	1414
Voras, Phil	719
WA, State of; Dept. of Health	843
Waber, Don	486
Wade, Marty	1017
Wade, Marty	1018
Wade, Mike	1057
Wagner, Paul	828
Wagner, Robert J.	904
Wagner, Shirley	828
Walker, Amy	974
Walker, Authur	646
Walker, John	638
Walker, John	641
Wallace, Ann	489
Wallbaum, Gary	1136
Walters, Barbara	444
Walters, Curtis	578
Walton, Barbara A.	1279
Wanzenried, Fred	756
Wanzenried, Maxine	756
Ward, Eric	628
Ward, Sonne	613
Ward, Sonne	623
Ward, Sonne	791
Ward, Sonne	1030
Ward, Sonne	1068
Warner, Sharon	1416
Warren, Jeffrey	896
Warren, Jeffrey	1179
Washburn, Charlotte	743
Washburn, James	743
Washington, Jim	528
Washington Democratic Council	313
Washington Peace Action	312
Washington, State of; Dept. of Ecology	303
Washington, State of; Dept. of Ecology	877
Watkins, Karen	1096
Watson, Brian E.	76
Watson, Brian E.	918

Watson, Carole	1202
Watson, Jackson L.	1194
Watson, Kelley	975
Watters, Brad	143
Watteyne, Marilyn J.	784
Watts, Frances	231
Waud, Carol S.	23
Weagel, Charles R.	27
Weatherley-White, Matthew	1290
Weaver, Larry W.	514
Webb, Chuck	102
Webb, David R.G	135
Weeg, Steven	1061
Weeks, Constance	55
Wegman, Jerry	1253
Welborne, Sally	1407
Wells, Matthew	363
Wells, Matthew	365
Wells, Matthew	999
Wentlandt, Carol	136
Werth, Robert	793
Werth, Wendy	796
Wesley, R. L.	1343
Wessner, Peggy	688
Western States Legal Foundation	1119
Wheeler, Paige	1247
Whitaker, O'Kelley	165
White, C. E.	1442
White, Michael	436
White, Sue	436
Wicks, Frank	189
Wicks, Kirk	617
Widener, Judith E.	360
Wiethorn, Richard E.	862
Wiggins, Thomas	499 08.01 (001),
Wiggins, Tom	46
Wilcox, Bernard	290
Wile, Charles H.	788
Wiles, B.	322
Wilkinson, Leah	783
Willcox, Bernard	297
Williams, Emily	732
Williams, Leroy	337
Williams, Linda	198
Williams, Linda	203
Williams, Linda	215
Williams, Paul	574
Williams, Terry	732

Williams, Theresa E.	732
Williams, Woodie	91
Williams, Woodie	166
Williams, Xenia	973
Wills, Steve	953
Wilson, Christopher B.	38
Wilson, George	297
Wilson, George	307
Wilson, Kay W.	554
Wilson, Randi	436
Wimberly, Jan	1142
Windham, Craig	612
Windham, Craig	612
Wison, Hazel	1214
Witlock, Brenda	671
Witte, Beverly J.	934
Wolf, Evelyn	711
Wolf, Kathy	182
Wood, Marlene Y.	150
Woodland, Wade	1394
Woodward, Karen	570
Wornum, George	512
Worth, Annie	48
Worthington, Marjorie	63
Wrenn, Jane	493
Wright, Alden	661
Wright, Catherine	940
Wright, Creed	1398
Wright, Russell	707
Wurster, Connie	1213
Wyman, Don	34
Wyndham, Harald	421
Yandell, Forrest	628
Yandell, Forrest	637
Yankee Atomic Electric Company	848
Yeoman, Margaret M.	33
Yohe, Robert M.	857
Young, Diana G.	533
Young, Richard S.	534
Young, Tin Hu	388
Young, Tin Hu	389
Zaidi, Rafiq	164
Zajac, Nell	1230
Zanover, Sally	1255
Zayha, Al	813
Zepeda, Barbara	313
Zimmerman, Madeline M.	686
Zimsen, Andrew	346
Zimsen, William D.	346
Zink, David CA	69
Zollo, Frank	192

Zollo, Frank 207
Zurmuhlen, Edward 196
Zuvela, Anthony J. 885

APPENDIX B

Responses to Comments by Comment Document Number

The following document numbers are not included in the sequence of document numbers due to administrative reasons. The numbers not used are: 29, 45, 105, 161, 174, 2 346, 396, 451, 460, 504, 507, 1010, 1071, 1072, 1073, 1074, 1075, 1078, 1079, 1117, 1118, 1121, 1124, 1127, 1418, and 1443.

COMMENT/RESPONSE DOCUMENT INDEX
By Comment Document Nu

Comment Document No.	Name	Response Section Numbers
1	Reppun, J. I. Frederick	06.06 (003), 08.05.01 (007
2	Calverley, Paul H.	09.01 (003)
3	Bailey, William M.	04.05 (001), 08.01 (001)
4	Anonymous	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
5	Farber, Ruth	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
6	Kennedy, Nancy	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
7	Kaeser, Norma D.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
8	Fields, Charles E.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
9	Pahlka, Sharon	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
10	Mallant, Lisa J.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
11	Anderson, Bruce S.	(001), 08.04 (010), 08.05.07 (002)
12	Pepper, Lennard J.	08.01 (001), 08.04 (010),
13	Suzuki, Nathan	08.01 (001), 08.03.02 (001 08.04 (014), 08.04 (015), 08.05.11 (001), 08.05.11 (
14	Powell, Walbridge J.	08.05.05 (001)
15	Pohl, Lois	09.01 (003)
16	Calverley, Paul H.	02.03 (001)
17	Mink, Patsy T.	08.01 (001), 08.01 (002), 08.05.07 (002), 08.06 (004
18	Fortunoff, Saul	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
19	Megrue, Maxey	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
20	Dworkin, Mona	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
21	Masumoto, Harold S.	08.01 (001), 08.03.02 (001
22	Grizzle, Rodney P.	09.01 (004)
23	Waud, Carol S.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
24	Donohue, Brian P.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
25	Gordon, Carol	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
26	Briggs, Geoff	01.01.01.01 (008), 02.06 (03.05.05 (001), 04.03 (001
27	Weagel, Charles R.	08.01 (004), 08.05.06 (005

28	Hescheid, Joseph W.	05.10 (013), 05.11.01 (006
30	Gumenberg, Kathleen	08.01 (001), 08.02 (001),
31	O'Connell, Rosemary	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
32	Caldwell, Lola K.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
33	Yeoman, Margaret M.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
34	Wyman, Don	08.01 (002)
35	Austrom, Dawn	08.04 (010), 08.04 (014)
36	Stone, Bettie J.	01.01.01.02 (006), 01.02.0
		04.01 (005), 04.03 (033),
37	Frogner, David	08.05.06 (005), 08.05.11 (
38	Wilson, Christopher B.	08.06 (004)
39	Brown, Charles R.	08.01 (004)
39	Brown, Reatha O.	08.01 (004)
40	Cooke, Ian M.	08.01 (001), 08.04 (010), 08.05.06 (028)
41	Gallo, Cathleen	08.03.01 (009)
42	Moeller, John	08.04 (001)
43	Spies, Robert D.	01.02.03 (002), 05.12.08.0
44	Schmalz, Bruce L.	02.01 (002), 02.03 (011), 08.03.03 (002)
46	Wiggins, Tom	08.01 (001), 08.04 (010),
47	Benz, J. A.	08.04 (010), 08.05.06 (005
48	Worth, Annie	08.05.06 (028)
49	Person, Dora M.	01.01.02 (005), 03.04 (008
50	Russell, Rosemary	08.04 (010), 08.04 (014)
51	Pressan, Doris	08.04 (010), 08.05.06 (030
51	Pressan, Ray	08.04 (010), 08.05.06 (030
52	Aiken, Carol	08.01 (001), 08.03.01 (005
53	Megrue, Maxey	03.08 (010)
54	Butler, Diane W.	08.04 (010), 08.05.07 (001
55	Weeks, Constance	01.02.01.02 (006), 03.05 (
56	Crane, Andrew	01.01.01.02 (006), 05.08.0
57	Barber, Mary C.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
58	Rabin, Stanford	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
59	Esbeck, Edward S.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
60	Aylward, John J.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
61	Roberts, Jean C.	03.01 (001), 08.01 (001), 08.04 (015), 08.05.06 (023
62	Mager, Talmon R.	02.06 (032), 06.09 (007)
63	Worthington, Marjorie	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
64	Troxel, Doris G.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
65	Gregory, James N.	02.07 (002), 03.08 (011),
65	Gregory, James N.	08.04 (009), 08.04 (014)
66	Gimel, Marlin	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
67	Sperry, Carolyn W.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
68	Alexander, Judith L.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
69	Zink, David CA	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
70	Shea, Donald R.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
71	D'Alessio, David	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)

72	Davidson, Cora E.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
73	Lundstedt, Tom	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
74	Medin, M.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
75	Varney, Margaret	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
76	Watson, Brian E.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014
77	Sutton, Shelley	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
78	Luthy, Louise	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
79	Fordyce, Philip A.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
80	Miller, Joseph	04.03 (005)
81	Morris, Heloise	02.07 (002), 03.08 (011),
81	Morris, Heloise	08.04 (009), 08.04 (014)
82	Forck, Jim	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
83	Giggey, Mary	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
84	Collum, Jeff C.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
85	Dight, Ruth	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
86	George, Coleen	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
87	Taylor, Steve T.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
88	McFaull, David R.	08.04 (010)
89	Butler, Diane	08.01 (001), 08.06 (002)
90	Henton, Thomas E.	08.04 (010), 08.04 (013)
91	Williams, Woodie	06.09 (011), 08.01 (002),
92	Spies, Robert D.	02.08 (024)
93	Rodgers, Patricia M.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
94	Ramey, Rochelle	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
95	Miller, Winifred E.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
96	Keeney, Harold S.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
97	Spitalny, Paul	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
98	Schwarz, Ted M.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
99	Devereaux, Eugene E.	02.07 (002), 03.08 (011),
99	Devereaux, Eugene E.	08.04 (009), 08.04 (014)
100	Lorella, Kathy C.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
101	Gilmore, Ginnie	08.04 (010), 08.04 (014)
102	Webb, Chuck	08.04 (010), 08.04 (014)
103	Fong, Thelma V.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
104	Risser, Peter	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
106	Schedin, Todd	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
107	Sickles, Linda	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
108	Steele, William K.	02.07 (002), 03.0 08.04 (009), 08.04 (014)

109	Pittman, Rosemary	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
110	Malan, Linda	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
111	Gilmore, Leigh	08.01 (001), 08.03.01 (005 08.04 (013), 08.04 (014),
112	Ibele, Margaret R.	06.05 (011), 08.01 (001)
113	Van Niel, Sally J.	02.07 (002), 03.08 (011),
114	Grant, Jane F.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
115	Kogut, William	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
116	Sweet, Sallie	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
117	Magee, Joan	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
118	Medwell, Nancy	02.07 (002), 03.08 (011),
118	Medwell, Nancy	08.04 (009), 08.04 (014)
119	Trenor, Dorothy L.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
120	Strandell, Amy J.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
121	Brown, Robert G.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
122	Bainbridge, Winnifred	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
123	Crawford, Gordon	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
124	Moore, Emma E.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
125	Reppun, J. I. Frederick	08.04 (003), 08.04 (010),
126	Stokes, Don R.	03.05 (023), 03.05.03 (003
127	Varney, Robert W.	08.01 (002)
128	Austrom, Dawn	08.04 (010), 08.04 (014)
129	Loeb, Bernard S.	09.01 (003)
130	Slifer, B.	01.01.01.02 (006), 05.08.0
131	Bowers, Katharina	02.07 (012), 03.08 (010), 08.05.06 (004), 08.05.06 (
132	Lein, Ray H.	08.05.04 (004)
133	Fay, William M.	05.02 (004), 05.08.01 (054
134	Louch, Charles D.	02.06 (025), 08.04 (010),
135	Webb, David R.G	08.01 (001)
136	Wentlandt, Carol	08.01 (001)
137	Coleman, Peter F.	01.01.01.02 (006), 04.03.0 05.10.02 (016), 05.12 (001
138	DeMarco, Anita	08.03.01 (005), 08.03.01 (
139	Pocuis, D. Leo	08.04 (010)
140	Stevens, Alexander R.	05.11.02 (006), 08.04 (010
141	Cooper, Kathleen B.	08.01 (002)
142	Beardsley, Robert	08.03.01 (002), 08.03.01 (
143	Watters, Brad	08.04 (010)
144	Corr, Cecilia	06.09 (007), 06.09 (013),
145	Stockdale, Jeri	08.04 (010), 08.04 (013),
146	Sims, Lynn	01.02.01.02 (008), 03.08 (05.18.04 (002), 06.05 (001 08.01 (002), 08.03.01 (003
147	Manheimer, Elaine	03.03 (008), 04.01 (005), 08.03.01 (008), 08.03.03 (08.03.05 (001), 08.04 (026 08.05.03 (001), 08.05.05 (08.05.06 (028), 08.06 (003
148	King, Joan O.	02.07 (013), 03.08 (010)
149	Hall, Pamela	08.01 (004), 08.04 (010)
150	Wood, Marlene Y.	08.05.06 (004), 08.05.06 (

		08.05.06 (025)
151	Troxel, Sarajane M.	01.02.01.02 (006), 08.01 (
152	Varricchio, Louis	01.01.02 (007)
152	Varricchio, Marilyn	01.01.02 (007)
153	Matthews, R. S.	02.08 (023), 04.03 (057), 08.05.11 (003)
154	Crocker, Nan	01.01.01.02 (006), 05.12 (
155	Nickerson, Russell	08.02 (001), 08.04 (010)
156	Enquist, Robert W.	08.01 (002)
157	Patrick, Lewis W.	04.03.01 (001)
158	Smith, Ben L.	02.02 (002), 02.08 (025), 04.03 (003), 04.03.01 (005 06.05 (028), 06.07 (001)
159	Egan, Joseph	08.03.01 (008)
160	Griffin, James	08.01 (004), 08.03.01 (005
162	Harsley, Raleigh G.	08.04 (010)
163	McGinnis, Anna	08.04 (010)
164	Zaidi, Rafiq	08.03.05 (005), 08.05.04 (
165	Whitaker, O'Kelley	08.04 (011), 08.05.06 (025
166	Williams, Woodie	08.04 (001), 08.04 (018)
167	Deegan, Robert	01.02.01.02 (006), 02.08 (05.12.03 (002), 06.03 (001 08.04 (002), 08.04 (016),
168	Hall, Theodore R.	08.03.01 (005), 08.05.06 (
169	Clemens, Johnny	08.04 (010), 08.04 (015),
170	Linnell, William S.	05.10.02 (017), 05.19 (016
171	Copeland, William E.	08.03.01 (005), 08.03.01 (
172	Bogen, Douglas	08.01 (001), 08.03.01 (004
173	Morse, Macy	02.08 (007), 04.03 (001),
175	Bogen, Douglas	05.10 (029), 08.01 (001),
176	Hamilton, Bill	02.07 (012), 08.01 (001), 08.03.01 (006)
177	Cole, Roger P.	06.01 (002), 08.03.01 (004 08.03.01 (014), 08.05.03 (
178	Petty, Guy	02.03 (010), 08.04 (018), 08.05.06 (028), 08.05.06 (
179	Bogen, Doug	08.01 (001), 08.03.01 (004 08.04 (001)
180	Emery, Susan	08.03.01 (004), 08.04 (010 08.05.04 (002)
181	Emery, Susan	08.03.01 (004), 08.04 (013
182	Bogen, Douglas	05.10 (021)
182	Cole, Roger P.	05.10 (021)
182	Emery, Susan	05.10 (021)
182	Hamilton, Bill	05.10 (021)
182	Nuick, Dick	05.10 (021)
182	Petty, Guy	05.10 (021)
182	Questions and Answers, Kittery, ME Evening	05.10 (021)
182	Tylan, Mark	05.10 (021)
182	Wolf, Kathy	05.10 (021)
183	Petty, Guy	08.05.02 (002), 08.05.04 (08.05.06 (002), 08.05.06 (
184	Axelrod, Daniel M.	03.01 (009), 06.09 (016)
185	Romane, Richard R.	08.05.06 (032)
186	Lotts, A. L.	01.01.01.01 (029), 04.03 (06.09 (005)
187	Ellis, Thomas	08.01 (006), 08.03.01 (005 08.05.07 (003)
188	Mackay, Daniel	04.03 (019), 04.04 (008),
189	Wicks, Frank	06.05 (017)
190	Ekman, John	04.03 (001)
191	Lambert, James	05.10.02 (017), 05.10.02 (08.03.05 (001), 08.05.06 (

192	Zollo, Frank	05.10.01 (004), 08.01 (001
193	Shannon, John	02.08 (041), 03.04.01 (005
194	Kelly-Lind, Ellen	02.07 (012), 02.08 (002), 08.03.01 (001), 08.03.01 (08.03.01 (005)
195	Shannon, John	02.08 (041), 05.11.01 (002
196	Zurmuhlen, Edward	08.01 (001), 08.04 (018),
197	Bryant, Ronald	08.01 (002)
198	Williams, Linda	03.08 (010), 08.03.01 (003
199	Lambert, James	05.10.02 (017), 06.09 (014
200	Lambolot, James	08.01 (002)
201	Gelsey, Rudolph	08.03.01 (001), 08.03.01 (08.05.08 (001)
202	Mackay, Daniel	02.03.01 (003), 03.03 (008 06.02 (021), 06.05 (001)
203	Williams, Linda	03.08 (010), 08.03.01 (003
204	Trieble, Wilbur	08.05.04 (002)
205	Purner, Jeff	08.01 (002)
206	Brodie, Hal	03.08 (016)
207	Zollo, Frank	01.02.03 (002), 08.03.01 (
208	Questions and Answers, Ballston Spa, NY Ev	02.07 (001), 03.04 (010), 08.05.06 (001)
209	Sanders, James E.	01.02.03 (002), 04.03 (001
210	Koeberl, Dwight D.	03.03 (013), 08.01 (001)
211	Solomon, Gerald B.	08.01 (002)
212	Kelly-Lind, Ellen	01.02.03 (002), 02.08 (002 08.03.01 (003)
213	Kellam, Janet K.	01.01.01.02 (006), 04.03 (
214	Lambert, James R.	05.10.02 (017), 05.10.02 (08.03.05 (001), 08.05.06 (
215	Williams, Linda	03.03 (008), 03.08 (010),
216	Brodie, Hal	03.08 (016)
217	Morgan, Elizabeth	08.01 (004)
218	Gelsey, Rudolph	03.01 (001), 05.10.02 (023 08.03.01 (004)
219	Bechtel, Dennis	01.01.01.01 (015), 05.12 (
220	Mazon, Mike	03.08 (019), 06.05 (004)
221	Lewnow, Richard	01.01.01.02 (004)
222	Carroll, Stevi	01.01.01.02 (006), 03.03 (
223	Treichel, Judy	01.01.01.01 (022), 01.02.0 05.11.03 (003)
224	Skinner, Lawrence	05.16 (006)
225	Brown, Chris	01.01.01.01 (022), 02.01 (05.10.02 (018), 05.11.03 (06.07 (001), 08.03.01 (005
226	Brown, Chris	09.01 (004)
226	Coleman, Marsha	09.01 (004)
226	Mazon, Mike	09.01 (004)
226	Questions and Answers, Las Vegas, NV Aftern	09.01 (004)
226	Skinner, Lawrence	09.01 (004)
226	Von Tressenhussen, Englebrecht	09.01 (004)
227	Hilmas, Duane	09.01 (003)
228	Skinner, Lawrence	05.16 (006)
229	Questions and Answers, Ballston Spa, NY Af	09.01 (004)
230	Herbert, Patricia A.	01.01.02 (002), 01.02.03 (04.01 (005), 05.08.01 (025
231	Watts, Frances	01.01.01.01 (022)
232	Hedgepeth, Dave	01.01.01.01 (022), 01.01.0 03.08 (012), 04.03 (001),
233	Lagergren, Ginna	05.08.01 (014), 05.09 (004
233	Lagergren, Ken	05.08.01 (014), 05.09 (004
235	Meigs, Marilyn F.	06.02 (010), 06.04 (010)

236	Davenport, Les	09.01 (004)
236	Grainger, Jamie	09.01 (004)
236	Questions and Answers, Pasco, WA Evening	09.01 (004)
237	Devine, John C.	06.01 (008), 06.02 (010)
238	Grainger, Jamie	02.01 (006), 03.07 (007),
239	Steele, Selma A.	04.03 (018), 05.10.02 (016
240	Schierloh, Brooke	04.03.01 (019), 06.09 (013
241	Luxem, David A	01.01.01 (002), 05.12 (001
242	Hill, Crag	02.01 (030), 04.03 (001)
242	Schneider, Laurie	02.01 (030), 04.03 (001)
243	Moore, James F.	02.08 (001), 05.08.01 (014
244	Bryan, Mary	01.01.01.01 (015), 02.04 (02.08 (052), 03.08 (012), 05.11.01 (008), 06.05 (002
245	Lambert Holenstein, Kathryn (Cherie)	02.06 (001), 02.08 (033), 04.03 (021), 06.07 (001)
246	Leistiko, Ron	03.08 (001), 05.11.02 (001 05.12.06 (002), 05.13 (001
247	Knight, Paige	01.01.01.01 (022), 04.03 (
247	Knight, Paige	08.03.01 (013)
250	Belsey, Dick	01.01.01.02 (020), 06.09 (
250	Cropper, Tom	01.01.01.02 (020), 06.09 (
250	Farrell, Russ	01.01.01.02 (020), 06.09 (
250	Knight, Paige	01.01.01.02 (020), 06.09 (
250	Morse, Macy	01.01.01.02 (020), 06.09 (
250	Questions and Answers, Portland, OR Afern	01.01.01.02 (020), 06.09 (
250	Steele, Jen	01.01.01.02 (020), 06.09 (
250	Stranahan, Lori	01.01.01.02 (020), 06.09 (
251	Belsey, Richard	02.01 (026), 02.03 (014), 03.08 (023), 04.04 (017), 06.01.01 (001), 08.03.01 (
252	Howes, Deborah	03.05 (024), 04.03 (031), 05.12.03 (002)
253	Knight, Paige	01.01.01.01 (022), 01.01.0 06.09 (043), 08.03.01 (013
254	Farrell, Russ	02.07 (001), 03.08 (010), 08.03.01 (004)
255	Cropper, Tom	05.18.04 (002)
256	Greer, Beth	01.02.01 (005), 02.08 (046
257	Peck, Geraldine	01.02.03 (002), 02.08 (002
258	Sims, Lynn	01.02.03 (002), 03.05 (008 05.12.08 (001), 06.09 (013
259	Dunning, Dirk	05.10.02 (002), 05.10.02 (06.03 (008), 06.09 (009),
260	Antilla, Everett	02.06 (001), 03.05 (008),
261	Ferguson, Ken	01.01.01.02 (006), 01.02.0 03.05.05 (002), 03.06 (001
262	Leistiko, Ron	02.04 (001), 03.08 (001), 05.10.02 (016), 05.11.02 (05.12.03 (001), 05.12.06 (
263	Reitnour, Michael	01.02.03 (002), 02.01 (026
263	Reitnour, Michael	05.12 (001), 05.12.07.01 (
264	Klein, Robin	02.04 (010), 03.07 (003), 05.11.02 (001), 05.12.08 (06.02 (028), 06.05 (016),
265	Morse, Macy	01.01.01.02 (006), 03.05 (05.10 (021), 05.12.06 (003 08.03.01 (005), 08.03.01 (
266	Lambert Holenstein, Kathryn (Cherie)	02.06 (001), 04.03 (001),
267	Sutton, Thomas B.	02.08 (020)
268	Fruing, John	09.01 (004)

268	Knight, Paige	09.01 (004)
268	Porter, Lynn	09.01 (004)
268	Questions and Answers, Portland, OR Evenin	09.01 (004)
268	Teuksbury, Ross	09.01 (004)
269	Belsey, Richard	01.01.01.01 (004), 02.03 (05.10 (029), 05.10.01 (004 05.10.02 (017), 05.13 (005 05.12.07.01 (002), 05.12.0 06.07 (001), 08.03.01 (013
270	Knight, Paige	01.01.01.01 (022), 02.01 (03.01 (001), 03.01 (008), 05.09 (002), 05.10 (021), 05.15 (024), 05.16 (001), 06.05 (016), 06.05 (030)
271	Acuff, Brian	05.12.06 (002)
272	Tewksbury, Ross	01.02 (001), 05.11.02 (001
273	Penfield, Janet	08.03.01 (008)
274	Sutton, Barry	03.05.05 (003)
275	Olson, Lynn	06.09 (007)
276	Bellman-Cruz, Laurie J.	08.04 (009), 08.04 (010), 08.05.04 (002)
277	Eddy, David C	05.10.01 (004), 08.03.01 (
277	Eddy, David C	08.04 (020)
278	McFarlane, Harold F.	01.01.01.01 (002), 01.01.0
279	Davison, David I.	08.04 (010), 08.04 (014), 08.05.05 (002), 08.05.06 (08.05.06 (027), 08.05.06 (
280	Downey, Patricia	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
281	Smith, Desmond F.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
282	Heilman, Paul E.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
283	Porter, Lynn	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
284	Somers-Gulsvig, Julie A.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
285	Boehm, Mark A.	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
286	Altier, Leslie	02.07 (002), 03.08 (011), 08.04 (009), 08.04 (014)
287	Johnson, Barry L.	09 (021)
288	Foster, Nicki L.	01.01.01.01 (022), 01.01.0
289	Smith, Tony	03.08 (010)
290	Wilcox, Bernard	03.05.05 (003)
291	Meigs, Marilyn F.	02.04 (004), 04.03 (027),
292	Springer, Elizabeth	03.04 (021), 05.04 (020), 05.11 (001), 05.12.03 (003 08.04 (010), 08.05.06 (008
293	Oesterhaus, Carole L.	08.01 (005), 08.03.05 (001
294	Anonymous	01.01.01.02 (003), 02.06 (05.12 (001), 05.12.03 (002 05.13.04 (001), 06.02 (011
295	Lee, James	02.07 (001), 02.07 (012)
296	Ulbright, Edgar P.	02.01 (026), 02.04 (002)
297	Baldwin, Paul	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Canfield, Kerry	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Crandall, Kathryn	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Critchley, Mel	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)

297	Dyson, Jessica	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Gibbs, Dominic	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Harding, Hilary	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Lang, Lance	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Larson, Jim	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Pollet, Gerald	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Questions and Answers, Seattle, WA Afterno	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Slatin, Alfred	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Surielo, Carrie	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Ulbright, Edgar	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Willcox, Bernard	02.06 (037), 02.07 (012), 05.13 (001), 06.09 (013)
297	Wilson, George	02.06 (037), 02.07 (012),
297	Wilson, George	05.13 (001), 06.09 (013)
298	Baldwin, Paul	02.07 (012), 02.08 (045),
299	Noland, Jane	01.01.01 (002), 01.01.01.0 05.09 (001), 05.10.01 (005 05.12.06 (002), 05.12.07.0 06.09 (013)
300	Meigs, Marilyn F.	04.03 (027)
301	Pollet, Gerald	01.01.01.01 (015), 03.04 (05.10.02 (003), 05.11.02 (05.12 (001), 05.12.03 (002 08.04 (016), 08.05.06 (008
302	Crandall, Kathryn	02.03 (024), 02.07 (012), 05.10.02 (017), 06.09 (013 08.03.01 (014), 08.03.05 (
303	Stohr, Joe	01.01.01.01 (042), 02.08 (06.02 (005), 08.01 (002), 08.03.01 (015)
304	Larson, Jim	02.07 (012), 05.08.02 (010
305	Lang, Lance	02.06 (037), 03.03 (008),
306	Ulbright, Edgar P.	02.04 (060), 04.03 (001),
307	Wilson, George	01.01.01.01 (022), 01.02.0 03.03 (008), 05.11.02 (006
308	Harding, Hilary	02.07 (012)
309	Species, Scott	02.04 (002), 03.08 (010),
310	Johnston, Anne	03.05 (018), 03.08 (011), 06.09 (013)
311	Dyson, Jessica	02.07 (012), 02.08 (002), 08.04 (014), 08.04 (016)
312	Gleysteen, Rod	02.07 (012), 03.03 (002),
313	Zepeda, Barbara	02.06 (010), 03.01 (001), 08.05.11 (004)
314	Canfield, Kerry	03.08 (012), 04.03 (027),
314	Canfield, Kerry	06.09 (013)
315	Quiakana, Marcus	01.02.01 (005), 02.06 (004 07.04 (004)
316	Donnelly, Tom	02.04 (010), 03.03 (008), 09 (010)
317	Straw, Owen	03.08 (013)
318	Kain, Helene	08.04 (010)
319	Anonymous	02.07 (001)
320	Bryant, Chris	03.08 (013)

321	Mohtiak, Dan	03.08 (013)
322	Wiles, B.	08.01 (002)
323	Indeterminate, Andrew A.	08.03.01 (005), 08.04 (010
323	Indeterminate, Patricia L.	08.03.01 (005), 08.04 (010
324	Adrian, Jim	01.02.03 (002), 08.01 (002
325	Southland, Robert E.	05.19 (011)
326	Diehl, Don	02.08 (001), 03.01 (001)
327	Bachaud, J. D.	01.02.01.02 (006)
328	Gardner, Jeanne	02.06 (001), 06.04 (005)
329	Billings, Josh	02.07 (012), 04.04 (008),
330	Best, Karen	08.01 (001), 08.04 (010), 08.05.03 (003)
331	Stone, Bettie J.	04.01 (005), 05.10.02 (017
332	Paulsen, William S.	08.04 (010), 08.04 (014)
333	Pocuis, D. Leo	08.04 (010)
334	Haney, Richard	08.04 (010)
335	Theriot, Pierre	05.12 (001), 08.01 (004),
336	Haney, Mary	08.04 (010), 08.05.06 (005
337	Williams, Leroy	05.11 (002), 06.07 (001), 08.05.04 (004), 08.05.04 (
338	Parypa, Andrew	08.01 (002), 08.01 (003)
339	Martin, Clarence	08.01 (001), 08.01 (002),
340	Graber, Henry	01.02.03 (002)
341	Graber, Dorothy	08.01 (001), 08.01 (002), 08.04 (013), 08.05.04 (005
342	Johnson, Heather	08.01 (001), 08.04 (010), 08.04 (019)
343	Hoffman, Marcus	06.05 (011), 08.01 (001), 08.04 (010), 08.04 (013)
344	Manheimer, Elaine	02.04 (010), 03.05 (005), 06.05 (014), 06.05 (016), 08.03.01 (012), 08.03.01 (08.04 (014), 08.04 (022), 08.05.01 (009), 08.05.03 (08.05.06 (026), 08.05.06 (08.05.10 (003), 08.05.10 (08.06 (008), 08.06 (011),
345	Gegner, Bert	08.03.01 (016)
346	Banks, Virginia	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Biggs, Alan	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Cooper, Ida Mae	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Crandall, Kathryn	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Dyson, Jessica	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Gardner, Jenne	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Heng, Neda	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Lefcoski, Jack	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Lingworthy, Mariel	02.06 (037), 08.01 (001),
346	Lingworthy, Mariel	08.05.01 (009)
346	Manheimer, Elaine	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Osborne, Dan	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Pollet, Gerald	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Questions and Answers, Bremerton, WA Eveni	02.06 (037), 08.01 (001), 08.05.01 (009)

346	Rogers, Albert W.	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Romane, Richard	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Sorosua, Adrian	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Swanson, Mary	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Takaro, Tim	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Turchik, Sandy	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Zimsen, Andrew	02.06 (037), 08.01 (001), 08.05.01 (009)
346	Zimsen, William D.	02.06 (037), 08.01 (001), 08.05.01 (009)
347	Lefcoski, Jack	01.02.03 (002), 06.05 (020
348	Gleysteen, Mary	02.01 (032), 02.07 (012), 08.03.01 (009), 08.03.01 (
349	Pollet, Gerald	02.07 (012), 04.03 (005), 05.10.02 (003), 05.12.06 (08.05.06 (008)
350	Cooper, Ida May	01.02.03 (002), 08.01 (001
351	Donnelly, Tom	01.02.01.02 (006), 02.04 (08.03.01 (008), 08.05.06 (
352	Fessenden, Loyette	08.03.05 (001), 08.04 (021
353	Babbitt, Maryellen	08.01 (001), 08.01 (004), 08.05.06 (031)
354	Dyson, Jessica	01.02.01.02 (006), 01.02.0
355	Crandall, Kathryn	04.03 (005), 04.04 (008), 08.01 (001), 08.03.01 (005
356	Hudson, Jackie	08.01 (001), 08.03.01 (005
357	Graves, Dallas J.	05.19 (001), 08.03.01 (009
358	Haugen, Monna E.	02.07 (012), 04.01 (005), 08.03.01 (009), 08.05.06 (08.05.06 (006)
359	Bellman Cruz, Laurie J.	08.03.05 (004), 08.04 (010 08.04 (021), 08.05.04 (002
360	Widener, Judith E.	01.01.01.01 (008), 04.03 (
361	Parker, Sharon	01.01.01.02 (006), 04.03 (
362	Podraza, Florence	08.05.06 (005)
363	Wells, Matthew	03.03 (008), 03.05 (008),
364	Bartschi, Earl	01.01.01.02 (006), 02.04 (
364	Bartschi, Glenna	01.01.01.02 (006), 02.04 (
365	Wells, Matthew	03.03 (008), 03.05 (008),
366	Cole, Christine N.	01.01.01.02 (006), 04.03 (
367	Questions and Answers, Pearl City, HI Afte	08.03.02 (001)
368	Aiken, Carol	02.08 (001), 03.08 (007),
369	Lucas, Pam	08.01 (001), 08.03.02 (001 08.05.03 (003), 08.05.05 (08.05.06 (023)
370	Abraham, Naomi	05.11.03 (026), 08.03.01 (08.05.06 (005)
371	Anderson, Bruce S.	08.03.01 (004), 08.03.01 (
371	Anderson, Bruce S.	08.04 (012), 08.05.04 (006
372	Nahoopii, Kawika	08.01 (001)
373	Iezza, Cora	08.03.01 (018), 08.03.02 (08.05.04 (001), 08.05.04 (
374	Pollock, Marilyn	05.15 (003), 08.04 (010), 08.05.06 (031)
375	Malama, Kaonohi	08.01 (004), 08.04 (010),
376	Sutton, Richard	01.02.03 (002), 08.01 (001 08.05.06 (025)

377	Osorio, Jonathan K.	08.01 (001), 08.03.01 (005 08.05.02 (001), 08.05.02 (
378	Priolo, John	08.05.04 (001)
379	Lloyd, Alan	08.04 (010), 08.04 (018)
380	Kakalia, Clara	08.01 (001), 08.01 (002), 08.03.05 (001), 08.05.02 (
381	Souza, Jerry	08.01 (001), 08.03.01 (001
382	Uyehara, Richard F.	08.01 (001), 08.01 (002)
383	Uyehara, Richard F.	08.01 (001), 08.01 (002)
384	Priolo, John	02.06 (001), 08.01 (002),
385	Gates, Marilyn	05.10 (010), 05.10 (021), 08.03.01 (004), 08.03.01 (08.03.05 (002), 08.04 (010 08.05.06 (005), 08.05.06 (08.05.07 (001)
386	Gora, Francine H.	08.04 (010), 08.04 (020)
387	Shannon, Beth L.	08.01 (001)
388	Young, Tin Hu	04.05 (021), 08.04 (018)
389	Young, Tin Hu	08.04 (013), 08.04 (018)
390	Souza, Jerry G.	08.04 (010)
391	Pollock, Marilyn	08.03.01 (012), 08.04 (010 08.05.06 (031)
392	Lucas, Pamela L.	02.08 (001), 08.01 (001),
392	Lucas, Pamela L.	08.05.06 (023)
393	Anderson, Bruce S.	08.01 (001), 08.04 (010), 08.05.07 (002)
394	Uyehara, Richard F.	08.01 (001), 08.01 (002)
395	Priolo, John	02.06 (001), 08.01 (002),
397	Morris, Evelyn	08.01 (001), 08.04 (010), 08.05.07 (002)
398	Kahunahana Castro Howell, Anna Marie	08.01 (001)
399	Toyama, Ben	08.01 (003)
400	Liborio, Kevin	08.01 (003)
401	McCoy, Nina R.	03.01 (001), 08.01 (001), 08.04 (010), 08.04 (011), 08.04 (015), 08.05.02 (004
402	McCoy, Nina R.	03.08 (010)
403	Hubbard, Lela	08.01 (001), 08.01 (004), 08.03.01 (011), 08.03.05 (
404	Abraham, Naomi	08.01 (001)
405	Hangca, Luis	08.05.06 (025), 08.05.07 (
406	Talkington, John	08.03.01 (001), 08.03.01 (
407	Viglielmo, Frances	03.03 (008), 03.04 (011), 08.01 (001), 08.01 (004), 08.05.06 (025)
408	Hershinow, David	04.03 (001), 05.10.02 (016 08.04 (008), 08.05.06 (023
409	Kepano, Virginia A.	08.01 (001), 08.03.02 (001
410	Nahoopii, Kawika	08.01 (001), 08.03.02 (001 08.05.06 (005)
411	Jones, Michael	03.03 (008), 08.03.01 (022 08.04 (001), 08.05.04 (002 08.05.06 (028), 08.06 (005
412	Priolo, John	08.05.04 (001)
413	Viglielmo, Frances	08.01 (004), 08.03.01 (005
413	Viglielmo, Frances	08.05.06 (005), 08.05.06 (08.05.06 (025)
414	McCoy, Nina R.	08.01 (004), 08.03.01 (001 08.04 (013), 08.04 (014),
415	Jones, Michael	03.03 (008), 08.03.01 (022 08.05.06 (007), 08.05.06 (
416	Uyehara, Richard	08.01 (001), 08.01 (002)
417	Hershinow, David	04.03 (001), 05.10.02 (016

		08.04 (008), 08.05.06 (023
418	Kepano, Virginia A.	05.11.03 (026), 08.01 (001
419	Talkington, John	08.03.01 (007), 08.03.05 (
420	Harrington, Philip S.	04.03 (001), 08.04 (010),
421	Wyndham, Harald	01.01.01.02 (006), 05.05 (
422	Canham, Susan	05.10 (006), 05.12.06 (002
423	Harvey, William D.	01.02.01.02 (006), 03.02 (
424	Meigs, Marilyn F.	02.04 (004), 04.03 (027),
425	Leslie, Bret	02.04 (060), 04.01 (002), 05.10.01 (009), 06.05 (001 08.03.03 (002), 08.04 (019
426	Carricato, Mike	09.01 (004)
426	Flory, Brenda	09.01 (004)
426	Leslie, Bret	09.01 (004)
426	Questions and Answers, Arlington, VA After	09.01 (004)
427	Amber, Dave	09.01 (004)
427	Questions and Answers, Arlington, VA Eveni	09.01 (004)
427	Robinowitz, Mark	09.01 (004)
428	Bhide, Manohar	02.06 (028), 03.05.05 (007 06.03.02 (003)
429	Robinson, Enders A.	05.10.01 (003), 06.09 (024
430	Bhide, Manohar	02.06 (028), 03.05.05 (007 06.09 (022)
431	Meigs, Marilyn F.	02.04 (004), 06.02 (010),
432	Robinowitz, Mark	02.01 (031), 02.06 (009), 03.08 (011), 04.03 (001), 07.01.03 (001)
433	Robinowitz, Mark	02.06 (009), 02.06 (035), 09.01 (004)
434	Bybee, R. V.	01.01.01.02 (006), 04.03 (
435	Vegwert, Mark	01.01.01.02 (006), 05.05 (
436	Erman, Laird	01.01.01.02 (006), 03.08 (
436	Harrin, Claudia	01.01.01.02 (006), 03.08 (
436	Schryrer, Laurie	01.01.01.02 (006), 03.08 (
436	White, Michael	01.01.01.02 (006), 03.08 (
436	White, Sue	01.01.01.02 (006), 03.08 (
436	Wilson, Randi	01.01.01.02 (006), 03.08 (
437	King, Neil	01.02.03 (002), 02.08 (002 05.05.01 (016)
438	Farmer, Jack	03.03 (002), 03.08 (011),
439	Nichols, Mary H.	01.01.01.02 (011), 03.03 (05.18.04 (002)
440	Jolley, Robert B.	01.01.01.01 (019), 01.01.0 05.10 (034)
441	O'Neal, James	02.07 (001)
442	Kocher, Warren	09.01 (004)
442	Nichols, Mary H	09.01 (004)
442	O'Neal, James	09.01 (004)
442	Questions and Answers, Kingston, TN Evenin	09.01 (004)
443	Jolley, Robert B.	01.01.01.01 (019), 01.01.0 05.10 (034)
444	Hedgepeth, Dave	09.01 (004)
444	Honicker, Jeannine	09.01 (004)
444	McCabe, Amy	09.01 (004)
444	Questions and Answers, Oak Ridge, TN After	09.01 (004)
444	Walters, Barbara	09.01 (004)
445	Smith, Gus	01.02.03 (002)
446	Smith, Ben L.	01.01.01.01 (029), 01.01.0 02.04 (037), 02.06 (025), 04.03 (001), 04.03 (003),

		05.08.01 (004), 06.05 (028
447	McCabe, Amy	01.01.01.02 (011), 02.03 (
		02.07 (007), 03.04 (008),
		04.03.01 (002), 04.03.01 (
		06.07 (015)
448	Honicker, Jeannine	03.07 (004), 04.03 (021),
449	Hedgepeth, David	01.01.01.01 (022), 01.01.0
		03.08 (012), 04.03 (001),
450	Clark, G. Wayne	03.08 (011), 06.07 (012),
452	Lotts, A. L.	04.03.02 (006), 04.05 (019
		06.09 (005)
453	Bryan, Mary	02.03.01 (001), 02.03.01 (
		04.03.01 (003), 05.10.01 (
		05.16 (001), 06.05 (002),
454	Anonymous	01.02.03 (002)
455	Lotts, A. L.	01.01.01.01 (029), 04.03 (
		06.09 (005)
456	Stockard, Joe L.	02.04 (019), 02.04 (062),
		06.02 (020)
457	Todd, Lisa R.	08.03.01 (011), 08.03.05 (
458	Brelsford, C. K.	01.01.01.02 (008), 01.02.0
		06.09 (013)
459	Tauscher, Carol	08.04 (010), 08.04 (013),
461	Schrader, Kathi	01.01.01.02 (006)
462	Hilbert, H.	01.01.01.02 (006)
463	Helland, Karen K.	01.02.01.02 (016), 03.07 (
		06.05 (016), 08.01 (001)
464	Kessler, Marc A.	01.01.01.01 (008), 01.02.0
465	Stewart, Margaret M.	01.02.03 (002), 02.01 (023
		03.07 (004), 05.12 (008),
		08.03.01 (005), 08.05.10 (
466	Alban, Susan	01.01.01.02 (006)
467	Alban, Daniel L.	05.05 (017)
468	Smith, Deanna	01.02.03 (002), 02.08 (008
		04.03 (005), 06.01 (013),
469	Flinn, Alicia	01.01.01.02 (006), 01.02.0
		05.08.01 (014), 05.10 (014
		06.07 (001), 06.09 (024)
470	Hausrath, Anne	01.02 (001), 03.03 (008),
471	Gardunia, Brian	01.02 (001), 04.03 (042)
472	Hall, Dale O.	08.05.06 (025)
473	Jay, Elisabeth	02.01 (003), 03.03 (008),
		06.01.01 (001)
474	Bjornsen, Fritz	01.01.01.01 (015), 01.01.0
		04.03 (001), 06.06 (001),
475	Read, Heidi	03.03 (008)
476	Barringer, John	01.01.01.02 (006), 01.02.0
477	McElhinney, Gwynne	04.03 (001), 05.05 (014),
		05.08.01 (014), 06.05 (002
478	Inzer, Jo	02.01 (003), 03.02 (002),
		05.11.03 (037), 06.07 (009
479	Rinehart, Mark A.	05.08.01 (014)
480	Hausrath, Libby	01.01.01.01 (022)
481	Pumphrey, Laurel	03.03 (008)
482	Kresge, Michele	01.02.03 (002), 05.10 (014
		06.05 (002)
483	Andrus, Cecil D.	01.01.01.01 (004), 01.02.0
		02.03 (014), 02.04 (007),
		02.08 (002), 03.01 (002),
483	Andrus, Cecil D.	04.01 (009), 04.03 (061),
		05.10.02 (002), 05.10.02 (
		05.15 (002), 05.18.04 (002
		06.09 (008), 07.02.01 (001
		08.03.01 (017)

484	Anonymous	08.01 (001)
485	Lafargue, Genevieve	08.01 (001)
486	Waber, Don	08.01 (004)
487	Scott, Frank	05.15 (002)
488	Driscoll, Cristine	08.01 (001)
489	Wallace, Ann	08.01 (001)
490	Lawrence, Linda	08.04 (010), 08.04 (013)
491	Gancio, Ann M.	08.01 (001)
492	Mathews, James C.	08.01 (001)
493	Wrenn, Jane	08.01 (001)
494	Irwin, Donald	01.01.01.01 (022)
495	Topik, Mrs. Fred	01.01.01.01 (022), 03.05 (
496	Fleming, Grace M.	08.01 (001), 08.04 (010)
497	Fauci, Joanie	01.01.01.01 (015), 01.01.0 02.01 (026), 04.01 (005), 05.10.01 (009), 06.07 (001
498	Shim, Julie	08.05.06 (005)
499	Wiggins, Thomas	08.01 (001), 08.04 (010),
500	Johnson, Leroy	08.01 (002)
501	Tillett, Jackie	08.01 (001)
502	Anonymous	08.01 (001)
503	Anonymous	08.04 (010)
505	Bennett, Jackie	09.01 (004)
506	Murphy, David	08.01 (002)
508	Bubb, Adella M	08.01 (001)
509	Maginnis, Paul	08.01 (001)
510	Smith, Matt	02.08 (002), 03.03 (008),
510	Smith, Matt	05.08.01 (014), 05.08.01 (
511	Fredericks, Sally	05.05 (015), 05.08.01 (014 08.04 (003)
512	Davis, Julie	03.05 (008), 05.12 (001),
512	Wornum, George	03.05 (008), 05.12 (001),
513	Newick, Richard C.	03.03 (008), 03.08 (020), 08.03.01 (001), 08.03.01 (08.05.06 (031)
514	Weaver, Larry W.	09.01 (003)
515	Leming, Earl C.	01.01.01.01 (005), 01.02 (02.01 (011), 02.02 (001), 03.06 (001), 04.03.01 (005 05.04 (018), 05.05 (011), 05.05 (028), 05.06 (001), 05.08.01 (003), 05.08.01 (05.08.01 (008), 05.08.01 (05.08.01 (035), 05.08.01 (05.11.02 (005), 05.12.05 (05.19 (014), 06.01.01 (001 06.03 (001), 06.03 (003), 06.07 (001), 08.04 (025)
516	Brimas, Patricia	05.10 (030)
516	Loosier, Carla	05.10 (030)
516	Questions and Answers, Savannah, GA Aftern	05.10 (030)
517	Brimas, Patricia A.	03.07 (004), 03.08 (010), 06.09 (024)
518	Loosier, Carla	05.04 (019), 05.12.08 (001
519	Everette, Amanda	02.01 (026), 02.07 (001), 04.01 (005), 04.03 (001), 06.02 (021), 06.05 (002), 07.01.02 (001)
520	Stuart, Ivan F.	05.12.04 (002)
521	Questions and Answers, Savannah, GA Evenin	09.01 (004)
522	Bailey, Dana	01.01.01.01 (005)
523	Hall, Jennifer	01.01.01.01 (005), 05.11.0

524	Johnson, Heather	05.16 (002)
525	Nasrah, Sister	02.08 (002)
526	Stuart, Ivan	05.12.04 (002)
527	Gump, Grace	03.08 (013), 08.01 (001)
528	Washington, Jim	08.04 (013), 08.04 (014),
529	Cook, Reena	08.04 (010), 08.04 (013),
530	Kuhlman, Henry	02.07 (001), 08.01 (001),
531	Hondo, Carolyn	01.01.01.02 (006), 03.01 (
532	Maikmus, Mary	01.01.01.01 (008), 01.01.0 05.05.01 (016), 05.12 (001
533	Young, Diana G.	05.08.01 (014), 05.09 (001
534	Young, Richard S.	01.01.01.02 (006), 05.12 (
535	Smith, Arthur P.	08.04 (010)
535	Smith, Ruth A.	08.04 (010)
536	Prater, George	05.05 (026), 08.04 (014)
537	Baldwin, Jane	01.01.01.02 (006), 05.10.0 05.15 (014)
538	Andrus, Cecil D.	01.01.01.01 (004), 01.02.0 02.03 (014), 02.04 (007), 02.08 (002), 03.01 (002), 04.03 (006), 04.03 (061), 05.10.01 (009), 05.10.02 (05.10.02 (017), 05.15 (002 06.09 (008), 07.02.01 (001
539	Jay, Elisabeth	02.01 (003), 03.03 (008), 06.01.01 (001)
540	Pumphrey, Laurel	03.03 (008), 03.04 (018),
541	McElhinney, Gwynne	04.03 (001), 05.05 (014),
541	McElhinney, Gwynne	05.08.01 (014), 06.05 (002
542	McCollen, Lyn	03.08 (010), 05.09 (001), 05.12 (001), 05.13.04 (001
543	Inzer, Jo	03.02 (002), 05.05 (017), 05.10.02 (017), 05.11.03 (06.07 (009)
544	Hall, Patricia	01.01.01.02 (006), 03.03 (
545	McEnaney, Robert	02.04 (001), 04.01 (005), 06.01 (005), 06.01.01 (001 06.06 (006), 07.01 (004)
546	Boucher, Tracy	02.01 (002), 02.08 (034),
547	Brady, Marcia W.	03.08 (013), 05.08.01 (014
548	Hall, Patricia	01.01.01.02 (006), 03.03 (
549	McEnaney, Robert	06.01.01 (001), 06.02 (007
550	Boucher, Tracy	02.01 (002), 02.08 (034),
551	Bjornsen, Fritz	09.01 (004)
551	Questions and Answers, Boise, ID	09.01 (004)
552	Reppun, J. I. Frederick	06.09 (004), 08.01 (002), 08.05.01 (007), 08.05.03 (
553	Doughty, Jane	02.08 (002), 04.03 (001), 08.04 (014), 08.04 (021),
554	Wilson, Kay W.	08.04 (010)
555	Horton, Patricia	08.04 (010)
555	Horton, Peter	08.04 (010)
556	Bowman, Tom	05.08.01 (014), 05.09 (001
556	Lousen, Patti	05.08.01 (014), 05.09 (001
557	Fisk, Edison S.	08.04 (010)
558	Leichtman, Kal	08.01 (005)
559	Aho, Margaret	03.04.01 (002), 03.05 (008 06.05 (002)
560	O'Connor, John	01.01.01.02 (006), 01.02.0
560	O'Connor, John	05.08.01 (014), 05.08.01 (
560	O'Connor, Kacee	01.01.01.02 (006), 01.02.0 05.08.01 (014), 05.08.01 (
561	Proksa, Dennis J.	05.09 (001), 05.12 (001),

		07.04 (004)
562	Neumann, David	06.04 (001)
563	Brinton, Cora	01.01.01 (002), 05.10.02 (
564	Schmidt, Gail	08.01 (004), 08.04 (010),
565	Berger, Bonnie	08.01 (001)
566	Martin, Terry	05.12 (001)
567	McDermott, Vincent	08.04 (013)
567	Swords, Marcella	08.04 (013)
568	Anonymous	02.08 (002)
569	Stewart, Brenda	08.01 (001)
570	Woodward, Karen	08.04 (010)
571	Tillett, Jackie	08.04 (010), 08.05.06 (005
572	Halfhill, Tom	08.01 (001)
573	Hill, Wayne	08.01 (001)
574	Williams, Paul	01.01.01.01 (022)
575	Vanderbilt, Gloria	08.01 (001)
576	Mitchell, Thomas	08.04 (010)
577	Stori, Mary	01.01.01.02 (006)
578	Walters, Curtis	08.04 (018), 08.05.06 (005
579	Shepard, Kathy	01.01.01.02 (006), 08.04 (
580	Hassell, Jack N.	08.04 (010)
581	Copley, Ralph	08.03.05 (001), 08.05.06 (
582	Campbell, Darrel	06.01 (002), 08.01 (001),
583	Champagne, Sherry	08.01 (001)
584	Mellen, Roz	08.04 (010)
585	Dove, Debby	08.01 (001), 08.01 (004),
586	Swanson, Mary	06.09 (013), 08.04 (011)
587	Dyson, Jessica	02.07 (012)
588	Neumann, David	06.05 (020)
589	Hobbs, Jack	03.04.01 (002), 03.05 (008 04.03 (031), 06.06 (003), 08.04 (013), 08.05.06 (005
590	Qualman, Ronald	01.01.01.02 (006), 08.04 (
591	Smithhart, Lorne R.	08.01 (001)
592	Detmer, Tami	08.04 (013)
593	Kay, Jerome	08.01 (002)
594	Dee, Keith	08.01 (001)
595	Broscious, Chuck	02.02 (003), 02.03 (025), 02.06 (021), 02.06 (024 03.04.01 (001), 04.01 (001 05.08.01 (021), 05.09 (008 05.11.03 (013), 05.16 (003 06.03.02 (001), 06.09 (002 08.01 (001), 08.03.01 (005 08.05.01 (003), 08.05.01 (08.05.09 (005)
596	Trigsted, Todd	02.01 (030), 02.07 (001)
597	Hanson, Gertie	01.01.01.01 (022), 01.01.0 05.05.01 (016), 05.09 (001 05.10 (021), 05.10.02 (016
598	Anderson, Kristen	01.01.01.02 (006), 05.08.0
599	Schalck, D. Kate	05.05 (012), 05.05.01 (01 05.05.01 (039), 05.11.03 (06.02 (019), 08.03.01 (005
600	Hanson, Wes	03.05 (022), 03.08 (011), 05.09 (009), 05.18(018), 0
601	Swan, Kerrigan A.	01.01.01.01 (005), 01.01.0 02.07 (001), 05.09 (001)
602	Clubbe, Brett	01.01.01.02 (006), 02.01 (
602	Clubbe, Brett	03.03 (008), 03.08 (020), 05.04 (020), 05.04 (021), 05.10 (012), 05.11.01 (001 06.01 (009), 06.02 (012)
603	Thompson, Blake	02.08 (042), 03.05.05 (003

		05.10 (054), 05.10 (059), 08.05.06 (014)
604	Benson, Betty	01.01.01.02 (006)
605	Tockman, Jason	03.03 (002), 03.03 (008),
606	Seaman, Thomas	04.03 (001), 04.03.01 (017
607	Harvey-Marose, Kevin	01.01.01.02 (006), 02.04 (05.04 (002), 05.08.01 (014
608	Broscious, Chuck	09.01 (004)
608	Questions and Answers, Moscow, ID Afternoon	09.01 (004)
609	Schalck, D. Kate	05.05.01 (016), 05.05.01 05.05.01 (039), 05.08.01 (07.04 (001), 08.03.01 (005
610	Broscious, Chuck	01.01.01.01 (029), 01.02.0 01.02.03 (002), 01.03 (003 02.03 (004), 02.03 (007), 02.04 (026), 02.04 (027), 02.04 (060), 02.05 (001), 02.08 (040), 03.01 (005), 05.02 (054), 05.05.01 (00 05.05.01 (034), 05.05.01 05.08.01 (021), 05.08.01 (05.08.03 (009), 05.09 (008 05.10.01 (009), 05.11.03 (06.02 (002), 06.02 (015), 06.03 (008), 06.03 (009), 06.05 (026), 06.05 (031), 06.09 (021), 07 (003), 07. 07.01.03 (004), 07.01.03 (07.02 (001), 07.02.03 (001 07.04 (006), 07.04 (007), 08.03.05 (002), 08.03.05 (08.05.05 (006), 08.05.05 (08.05.06 (029), 08.05.09 (08.05.09 (003), 08.05.09 (08.06 (002)
611	Read, Heidi	03.03 (008)
612	Windham, Craig	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
613	Ward, Sonne	06.04 (001)
614	Grizzle, Rodney P.	09.01 (004)
615	Abbott, Dinah	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
616	Kaiser, Justine	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
617	Wicks, Kirk	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
618	Cogan, Lindy	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
619	Hungerford, Clark	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
620	Owen, Elizabeth	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011),
621	Owen, Robert E.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
622	Varricchio, Louis	01.01.02 (007)
623	Ward, Sonne	06.04 (001)
624	Higginbotham, Jan	03.03 (008), 04.03 (001),
625	Indeterminate, Illegible	01.01.01.01 (005), 01.01.0
625	Indeterminate, Illegible	03.05 (009), 03.08 (011)
626	Herring, J. Stephen	01.02.03 (002), 04.01 (005 06.05 (003), 06.09 (006),
627	Beeman, Janel	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)

628	Ashley, Reed	09.01 (004)
628	Benjamin, Dick	09.01 (004)
628	Cavanaugh, Fred	09.01 (004)
628	Green, Glenn	09.01 (004)
628	McWhorter, Don	09.01 (004)
628	O'Brien, Frank	09.01 (004)
628	Poe, W. Lee	09.01 (004)
628	Questions and Answers, N. Augusta, SC Eveni	09.01 (004)
628	Ward, Eric	09.01 (004)
628	Yandell, Forrest	09.01 (004)
629	Geddes, Rick L.	02.08 (019), 06.08 (001),
629	Questions and Answers, N. Augusta, SC After	02.08 (019), 06.08 (001),
629	Ronic, Bill	02.08 (019), 06.08 (001),
629	Sujka, Mike	02.08 (019), 06.08 (001),
630	Mowry, Authur	02.06 (023), 03.02 (002), 06.04 (001), 06.05 (003),
631	Costner, Brian	02.04 (042), 02.08 (016), 04.03.01 (023), 04.05 (001
632	Geddes, Rick L.	02.01 (026), 04.01 (005),
633	O'Brien, Frank D.	02.02 (003), 02.04 (034),
634	Sipp, Pete	03.05 (007), 04.05 (011)
635	Ferrara, Russ	03.05 (008), 03.08 (003),
636	Green, Thomas	01.01.01.02 (008), 03.03 (
637	Yandell, Forrest	01.01.01.02 (008), 01.02.0
638	Walker, John	05.15 (016)
639	Sujka, Mike F.	01.02.03 (002)
640	Knotts, Ronald E.	01.02.01.02 (014), 03.05 (
641	Walker, John	05.15 (016)
642	Thurmond, Senator Strom	01.01.01.02 (008), 05.13.0
643	Matthews, R. S.	02.08 (023), 04.03 (057), 08.05.11 (003)
644	Carr, Luther J.	02.08 (042)
645	Price, Mariann	01.01.01.02 (011)
646	Walker, Authur	01.01.01.02 (011), 05.12 (
647	Smith, Clyde	06.09 (014)
648	Shane, Chris	01.01.01.02 (011), 05.19 (
649	Bradford, Rand	01.01.01.02 (011), 03.05 (
650	Shelton	01.01.01.02 (011), 05.10.0
651	Reed, Kristi	01.01.01.02 (014)
652	Vail, Stephen	01.01.01.02 (011), 01.02.0
653	Kotowicz Lloyd, Ann	01.01.01.02 (011)
654	Dickinson, Irene P	01.01.01.02 (011), 03.05 (
655	Janes, Pauline	01.01.01.02 (011)
656	Hill, Rhonda	01.01.01.02 (011)
657	Hardwick, Doris	05.10.02 (016)
658	Shootman, Charles	01.01.01.02 (011), 05.10.0
659	Rice, Kevin	01.01.01.02 (011)
660	Anonymous	01.01.01.02 (011)
661	Wright, Alden	01.01.01.02 (011)
662	Jordan, Evonne	02.07 (012)
663	Lynch, Janet	02.07 (012)
664	Johnson, Leroy	08.01 (002), 08.03.05 (006
665	Larson, Lester	01.01.01.02 (011), 03.03 (
666	Hassell, Mike	01.01.01.02 (011), 06.09 (
667	Millagan, Heston	01.01.01.02 (011), 06.09 (
668	Hammons, Dorotha	01.01.01.02 (011)
669	Murphy, Jane	06.05 (016), 08.01 (001),
670	Hunt, Sandra	08.01 (001), 08.04 (010)
671	Witlock, Brenda	01.01.01.02 (011)
672	Fincher, Angie	01.01.01.02 (011)
673	Lewallen, Debra J.	01.01.01.02 (011), 05.10 (
674	Turnbill, Johnnie	01.01.01.02 (011)

675	Varriacchio, Louis	01.01.02 (007)
676	Begley, Roger	01.01.01.02 (011), 02.08 (
677	Stevenson, Elizabeth	01.01.01.02 (006), 05.08.0
678	McCombs, Patricia A.	08.04 (010)
679	Kelly, Elizabeth	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
680	Drewes, Kenneth N.	01.01.01.01 (002), 06.05 (
681	Blanchard, Florence K.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
682	Gordon, Bart	01.01.01.01 (022), 04.01 (06.09 (013)
683	Knight, Carol	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
684	Johnson, Helen G.	05.10.02 (007), 05.18.01 (
685	Duke, Beth M	05.11.03 (020), 08.04 (013
686	Zimmerman, Madeline M.	08.01 (004), 08.04 (010),
687	Chretien, Rollin	06.04 (001)
688	Wessner, Peggy	01.01.01.01 (022)
689	Daly, Amelia	08.01 (001)
690	Roland, Russ	01.01.01.01 (022), 08.01 (
691	Minear, Karen	08.01 (001)
692	Delusignan, Dorian	01.01.01.01 (022), 08.01 (
693	Flory, Lynn	08.01 (001)
694	Minear, Valara	08.04 (010)
695	Pfeiffer, Pat	08.04 (010), 08.05.04 (002
696	Ormsby, Bill	08.01 (002)
697	Pfeiffer, Arden	08.04 (010), 08.04 (013),
698	Lee, Janet	08.01 (004)
699	Cowles, Betty	08.01 (001)
700	Nakaoka, Charles	08.04 (013), 08.05.06 (005
701	Chutter, R. J.	08.01 (002), 08.04 (010),
702	Nelns, Barbara	01.01.01.01 (022)
703	Camp, George	08.01 (001)
704	Howell, James	08.01 (001)
705	Gonzales, David	08.01 (001)
706	Paulson, Steve	02.01 (030), 05.08.01 (014 06.05 (026)
707	Anderson, Kristen	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Benson, Betty	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Broscious, Chuck	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Hulett, Chris	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Pritchett, Jane	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Questions and Answers, Moscow, ID. Evening	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Seaman, Thomas	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Thompson, Blake	02.01 (012), 02.01 (030), 0 05.10.02 (026), 07.04 (001
707	Tockman, Jason	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Trigsted, Todd	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
707	Wright, Russell	02.01 (012), 02.01 (030), 05.10.02 (026), 07.04 (001
708	Meyers	01.01.01.01 (005), 01.01.0
708	Meyers	03.05 (009), 03.08 (011)
709	Rouirere, Carol	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
710	Smith, Susan	01.01.01.01 (005), 01.01.0

		03.05 (009), 03.08 (011)
711	Wolf, Evelyn	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
712	Thompsen, Angle	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
713	Biggerstaff CMT, Tere	01.01.01.01 (005), 01.01.0
		03.04 (010), 03.05 (009),
714	Christiansen, Niel	01.01.01.01 (002), 01.01.0
715	Davis, Elizabeth A.	04.03.01 (021), 06.05 (017
716	Henderson, Clay P.	08.04 (010)
716	Henderson, Judy	08.04 (010)
717	Berenson, Janet	01.01.01.02 (006)
718	Melville, Chi	01.01.01.02 (006), 02.04 (
		06.05 (002), 08.03.01 (004
719	Cassidy, Deirdre	02.04 (010), 03.08 (007),
		06.01 (002), 06.05 (002)
719	Voras, Phil	02.04 (010), 03.08 (007),
		06.01 (002), 06.05 (002)
720	Spitzer, Debra A.	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
721	Ristow, Steven C.	02.03 (028), 02.04 (060),
722	Albin, Audrey	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
723	Geer, J.	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
724	Van Fleet, Janet	01.01.03 (001), 04.03 (001
725	Feulner, Anne	08.04 (010), 08.04 (014),
725	Feulner, Herb	08.04 (010), 08.04 (014),
726	Streeter, Jack	01.02.03 (002), 02.08 (042
727	Davidson, Ray C.	08.01 (004)
727	Davidson, Velda	08.01 (004)
728	De Spain, J.	02.03 (002), 03.08 (011),
729	Slansky, Cyril M.	01.02.01.02 (006), 03.05.0
		08.03.05 (006)
730	Eichler, Robert F.	01.01.01.02 (005), 04.05 (
		06.05 (007), 08.03.01 (005
731	Cantrill, Dante	01.01.01.02 (006), 02.08 (
731	Cantrill, Judie	01.01.01.02 (006), 02.08 (
732	Williams, Emily	01.01.01.02 (006), 05.12 (
732	Williams, Terry	01.01.01.02 (006), 05.12 (
732	Williams, Theresa E.	01.01.01.02 (006), 05.12 (
733	Du Val, Elizabeth H.	01.01.01.01 (005), 01.02.0
		04.05 (020)
734	Ahrens, Patti	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
735	Ahrens, Peter L.	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
736	Meltzer, Frank L.	03.08 (007)
737	Edelstein, Jan M.	01.01.01.02 (006), 04.01 (
		05.18.01 (011), 06.05 (002
738	Stein, Karen	02.07 (014), 02.08 (001),
		06.02 (008)
739	Paroni, Genevieve M.	01.01.01.01 (004), 01.01.0
		01.01.02 (001), 05.19 (003
		08.04 (007)
740	Ellis, Cathy	02.03 (002), 03.08 (011),
741	Longley, Bee	02.06 (001), 02.08 (001)
742	Reimers, Diane	01.02 (001), 03.05 (008),
743	Washburn, Charlotte	03.05 (008), 04.01 (005)
743	Washburn, James	03.05 (008), 04.01 (005)
744	Holt, Kenneth W.	02.01 (018), 02.03 (017),
		04.04 (010), 05.02 (007),
		05.02 (043), 05.10 (035),
		05.10 (063), 05.10.02 (002

745	Eiden, Max	02.04 (006), 04.01 (005), 06.07 (001), 08.03.01 (009
746	Sharpe, Roberta R.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
747	Bowlden, Scott	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
748	Record, Terry	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
749	Pense, Margaret	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
750	Davis, Bruce	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
751	Blanchard, Tom	01.01.01.01 (008), 01.01.0
751	Harling, Leonard	01.01.01.01 (008), 01.01.0
751	House, Rupert	01.01.01.01 (008), 01.01.0
752	Burgess, Dave	01.01.01.01 (022), 03.03 (05.10 (006)
752	Burgess, Kathy	01.01.01.01 (022), 03.03 (05.10 (006)
753	Shroy, Edna E.	08.04 (010)
754	Nelson, Bruce	03.08 (010), 08.04 (010),
754	Nelson, Georgia	03.08 (010), 08.04 (010),
755	Meza, Patrece	01.01.02 (005)
756	Wanzenried, Fred	01.01.01.02 (006), 03.08 (
756	Wanzenried, Maxine	01.01.01.02 (006), 03.08 (
757	Cox, Chris	03.07 (003), 06.09 (013)
758	Seels, Phyllis	01.01.01.02 (011), 03.08 (
759	Quiggle, Nancy	01.01.01.02 (011), 03.08 (
760	Indeterminate, Mrs. Richard	01.02.03 (002), 03.08 (011
760	Indeterminate, Richard L.	01.02.03 (002), 03.08 (011
761	Klein, Richard F.	08.04 (018)
762	Myers, Joy	01.01.01.01 (008), 01.01.0 06.07 (001), 08.03.03 (002
763	Page, Paul	01.01.01.01 (004), 01.01.0 08.01 (002), 08.01 (004),
764	Donnelly, Tom	03.03 (008), 03.08 (011), 08.03.01 (006), 08.03.01 (08.05.06 (005), 08.05.06 (
765	Mann, Phylliss A.	01.02.01.02 (011), 08.01 (08.05.05 (002), 08.05.06 (08.05.07 (006), 08.05.07 (
766	Romane, Richard R.	08.05.06 (031)
767	Parker, Genevieve M.	08.04 (010), 08.04 (014),
768	Price, Jo	01.01.01.02 (006), 01.02.0 05.05.01 (016), 06.02 (033
769	Hartman, Diania	02.03 (002), 03.08 (011),
770	Stratten, Betty	05.05.01 (016), 05.08.01 (
771	Eigabroadt, Earl E.	01.02.01.02 (020), 08.01 (
772	Commander, John C.	01.01.01.01 (038)
773	Loo, Henry	01.01.03 (001), 06.09 (003
774	Canan, Craig	01.01.01.02 (011), 03.08 (
775	Essin, Christine	08.01 (001)
775	Hensley, Charlie	08.01 (001)
775	Indeterminate, Clint A.	08.01 (001)
775	Indeterminate, illegible	08.01 (001)
775	Indeterminate, Kathleen	08.01 (001)
775	Indeterminate, Michail	08.01 (001)
775	Indeterminate	08.01 (001)
775	Lachey, Jeanette	08.01 (001)
775	Lay, Amanda	08.01 (001)
775	Lindquist, Jeff	08.01 (001)
775	Marmes, Rondel	08.01 (001)
775	Nunnelley, Pamela J.	08.01 (001)
775	Pineus, Kari E.	08.01 (001)

775	Potts, Roxanne M.	08.01 (001)
775	Spiers, Christopher	08.01 (001)
775	Story, Marty	08.01 (001)
776	Nickerson, Jack E.	05.12 (001), 06.04 (001),
777	Malone, Terence W.	04.01 (005), 08.01 (002), 08.04 (014), 08.04 (027),
778	Duplessis, Lee	02.08 (011), 05.10.02 (021
779	Bradshaw, Lois	01.02.03 (002), 03.05 (007
780	Melville, Loretta	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
781	Ingalls, Martha	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
782	Stauffer, Carrie L.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
783	Wilkinson, Leah	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
784	Watteyne, Marilyn J.	01.01.01.01 (005), 01.02 (03.08 (011)
785	Kennedy, Alexandra	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
786	Frazier, Marilyn	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
787	Marcus, Joyce	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
788	Wile, Charles H.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
789	Flynn, Carol L.	01.01.01.02 (006), 05.08.0
790	Long, Everett	01.01.01.01 (022), 03.08 (
791	Ward, Sonne	06.04 (003)
792	Tewell, Joanna C.	01.02.01.02 (006), 01.02.0 05.13.01 (003)
793	Werth, Robert	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
794	Maestas, Herman	01.02.03 (002)
795	Gordon, Kathleen C.	04.03 (001), 05.12.08 (001
796	Werth, Wendy	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
797	Meacham, Brian E.	01.01.01.01 (004), 01.02.0 03.05 (008), 04.03 (001), 06.01 (002), 06.02 (035),
798	Huber, Arlene	01.01.01.02 (006)
799	Missin, Meta	01.01.01.01 (022), 05.12 (
800	Leusch, Peter	01.01.01.02 (006), 05.12 (
801	Chaney, Charlotte	01.01.01.02 (006)
802	Hultsch, Roland A.	01.01.01.01 (004), 01.02.0
803	Hardinge, Jeep	01.01.01.01 (005), 01.02 (03.08 (011)
804	Fraser, Bill	01.01.01.02 (006), 01.02.0 05.08.01 (014)
805	Saunders, Mary	01.01.01.02 (006), 02.04 (
806	Reaves, Whitfield	01.01.01.02 (006), 01.02.0
807	Moffett, Ed	01.01.01.02 (006), 02.04 (
808	Moffett, Jennifer	01.01.01.02 (006), 02.04 (
809	Roberts, Elizabeth A.	03.07 (004), 04.03 (001)
810	McCulloch, Betty	08.04 (013), 08.04 (014)
811	Fredricks, Randall C.	01.01.01.02 (006), 01.01.0 05.05.01 (016), 05.08.01 (
812	Kanouff, J. M.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
813	Zayha, Al	01.01.01.01 (005), 01.01.0
813	Zayha, Al	03.05 (009), 03.08 (011)
814	Hieb, Mary	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
815	Lehrad, Klaus	01.01.01.01 (005), 01.01.0

		03.05 (009), 03.08 (011)
816	Indeterminate, Illegible	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
817	Quapp, W. J.	01.02.03 (002), 06.04 (001
818	Law, Joe M.	01.02.03 (002), 08.03.05 (
819	Fuller, Margaret	01.02.03 (002), 05.05.01
820	Hansen, Brent	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
821	Indeterminate, Pat	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
822	Little, Ben	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
823	McWhorter, Donald L.	02.01 (014), 02.03 (018),
		04.04 (001), 05.10.02 (002
		08.05.11 (003), 08.05.11 (
824	Kocher, Ann	03.07 (003), 05.08.02 (009
824	Kocher, Warren	03.07 (003), 05.08.02 (009
825	Peelle, Robert	01.01.01.01 (002), 01.01.0
		01.01.01.02 (033), 01.02 (
		01.02.03 (002), 02.01 (020
		03.05 (003), 03.07 (002),
		05.09 (015), 05.10 (033),
		05.10.02 (020), 05.12 (002
		05.15 (006), 05.18.01 (006
		06.03 (011), 06.05 (001),
826	Hinzelman, John E.	08.01 (002)
827	Van Zandt, Stephen C.	02.06 (006), 03.05 (007),
827	Van Zandt, Stephen C.	05.16 (007), 05.18.04 (002
828	Wagner, Paul	01.01.01.01 (022), 01.01.0
		05.05.01 (016), 05.08.01 (
		07 (001)
828	Wagner, Shirley	01.01.01.01 (022), 01.01.0
		05.05.01 (016), 05.08.01 (
		07 (001)
829	Bean, Lawrence	01.01.01.01 (022), 01.01.0
		05.05.01 (016), 05.08.01 (
		07 (001)
830	Spencer, Harvey G.	01.01.01.01 (004), 02.08 (
831	Hart	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
832	Murray, Alexander P.	02.01 (017), 02.04 (034),
		04.03 (053), 04.03 (056),
		05.18.02 (001), 06.02 (005
		06.06 (011), 06.07 (006)
833	Drown, Lynn R.	01.01.01.01 (022), 01.01.0
		05.05.01 (016), 05.08.01 (
		07 (001)
834	Hughes, William F.	05.05.01 (016)
835	Fredenburg, Ed	05.10.01 (030)
836	Stibal, Shirley	01.01.01.02 (006), 03.05 (
		05.09 (003), 08.04 (016)
837	Bruce, Lera G.	01.02.03 (002), 05.08.01 (
838	Bodansky, David	05.02 (003), 05.10 (049),
839	Granlund, Win	08.04 (010), 08.05.06 (005
840	Dicks, Norm	06.05 (021), 06.07 (001),
		08.04 (024)
841	Ganus, Zada K.	08.01 (001)
842	Horton, Lynn B.	08.04 (014)
843	Strong, T. R.	08.01 (001), 08.01 (002),
844	Schmidt, Peter W.	02.01 (008), 04.04 (008),
		08.04 (010), 08.04 (028)
845	Conway, John T.	02.01 (027), 02.04 (042),
846	Collins, Arthur L.	01.02.03 (002)
847	Tinno, Keith	01.01.01.01 (022), 01.01.0

		01.01.02 (003), 01.02.03 (02.04 (007), 02.04 (026), 02.04 (038), 02.04 (057), 02.08 (013), 02.08 (021), 03.07 (001), 03.07 (005), 03.08 (017), 04.03 (002), 04.03 (015), 04.03 (021), 04.03.01 (009), 04.03.01 (04.03.01 (020), 04.03.01 (04.03.02 (004), 04.03.02 (05.01 (001), 05.01 (002), 05.02 (040), 05.02 (044), 05.03 (003), 05.03 (005), 05.04 (007), 05.06 (006), 05.06 (011), 05.06 (012), 05.08.01 (025), 05.08.01 (05.08.03 (015), 05.09 (001 05.10 (025), 05.10 (029), 05.11.03 (008), 05.12.06 (05.15 (009), 05.15 (010), 05.15 (015), 05.15 (022), 06.07 (001), 06.08 (004), 07 (001), 07.01.04 (001), 08.05.06 (009), 08.05.06 (
848	Kadak, Andrew C.	02.03 (015), 06.08 (000),
849	Jones, Michael	02.01 (002), 02.01 (013),
849	Jones, Michael	05.19 (019), 08.03.01 (005 08.03.03 (001), 08.03.03 (08.04 (001), 08.04 (004), 08.05.01 (004), 08.05.04 (08.05.06 (007), 08.05.06 (08.05.06 (016), 08.05.06 (08.05.06 (019), 08.05.06 (08.05.06 (024), 08.05.10 (08.05.10 (007), 08.06 (005 08.06 (017)
850	Duke, Judith C.	08.04 (010), 08.04 (013), 08.05.06 (005), 08.05.06 (
851	Lee, John G.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
852	Herudon, Janet	01.01.01.02 (006), 08.04 (
853	Kellam, Janet K.	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
854	Swanson, John R.	05.19 (011)
855	Condit, Clay	05.11.01 (007)
856	Pinkerton, Brad	03.03 (008), 03.05 (024),
857	Yohe, Robert M.	05.03 (001)
858	Chapman, Frank R.	02.07 (005), 04.03 (001), 05.05.01 (005), 05.08.02 (05.12 (001), 05.19 (011), 06.05 (011), 06.06 (003),
859	Taylor, Larry L.	03.05 (007), 06.04.01 (003 06.09 (006), 08.03.01 (019
860	Hanggi, Dennis M.	01.01.01.01 (022), 01.01.0 05.05.01 (016), 05.08.01 (07 (001)
861	Duke, Robert A.	08.04 (010), 08.04 (013),
861	Duke, Robert A.	08.05.06 (005), 08.05.06 (
862	Wiethorn, Richard E.	01.01.01.02 (006), 01.01.0 03.07 (004), 05.05 (017), 06.06 (003)
863	Salazar, Hallette R.	06.09 (019), 08.01 (004),
864	Gleysteen, Mary	08.03.01 (005), 08.03.05 (08.05.05 (001), 08.05.06 (

865	Anonymous	08.01 (004), 08.01 (005), 08.03.05 (006), 08.04 (005
866	Dilley, Les	01.01.01.02 (006)
867	Carpenter, Michelle L.	08.01 (001), 08.04 (010),
868	Iwanski, Myron	01.01.01.01 (040), 02.01 (
869	Jull, Paula	01.01.01.01 (022), 01.01.0
870	Egan, Joseph R.	02.03 (024), 02.04 (033), 04.03.02.01 (004), 05.12.0 05.19 (002)
871	Kelly, Elizabeth	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
872	Burgess, Ila G.	01.01.01.02 (006), 02.08 (05.08.01 (014), 05.12 (001
873	Boswell, JoAnn	01.01.01.02 (006)
874	Jobe, Lowell A.	01.02.03 (002), 02.07 (001 06.05 (026), 06.07 (001)
875	Peters, Gail	01.01.03 (001), 08.01 (001
876	Hill, Debbie W.	01.01.01.02 (011), 01.02.0
877	Phillips, Keith E.	01.01.01.01 (042), 02.01 (03.04 (001), 03.04 (008), 06.01 (011), 06.01 (017), 06.07 (001), 06.09 (028),
878	McConnell, M. R.	08.04 (010)
879	Trost, Charles H.	01.01.01.02 (006), 05.05.0
880	Smith, Vicki	01.01.01.01 (022), 01.01.0
880	Smith, Vicki	05.05.01 (016), 05.08.01 (07 (001)
881	Kramer, Angela	05.10 (006), 05.10.02 (010 08.04 (014)
882	Hanggi, Patricia	01.01.01.01 (022), 01.01.0 05.05.01 (016), 05.08.01 (07 (001)
883	Buel, Austin	06.09 (019), 08.03.01 (007
884	Kolb, Catherine	08.01 (001), 08.04 (010),
885	Zuvela, Anthony J.	08.01 (001)
886	Bray, Kris	08.01 (001), 08.05.06 (005
887	Jordan, Thomas	08.01 (001), 08.04 (010)
888	Mitchell, Kelly	08.04 (010)
889	Matz, Joey	08.01 (001), 08.04 (014)
890	Esparza, Micah	08.04 (014)
891	Moore, Marie	08.04 (014)
892	Schmatjen, Jeff	08.01 (001), 08.04 (011)
893	Todd, Megan	08.04 (014)
894	Inabinett, Nathan	03.05 (007), 08.01 (001)
895	Stark, Jenny	08.01 (001), 08.04 (010)
896	Warren, Jeffrey	02.04 (024), 03.05 (002),
897	Condit, Clay	05.11.01 (007)
898	Devlin, Sally	05.12.07.01 (002), 05.15 (
899	McDonald, Timothy	05.12.06 (002), 05.12.07.0 08.03.01 (013)
900	Campbell, Carroll A.	02.02 (002), 04.03 (001),
901	Grover, Jean	03.05 (002), 08.01 (001),
902	Benjamin, Richard W.	02.01 (026), 02.02 (003), 06.04 (001), 06.05 (023),
903	Loosier, Carla S.	02.04 (010), 02.06 (033), 05.10.02 (007), 05.18 (002
904	Wagner, Robert J.	01.01.01.01 (004), 01.02.0
905	Deegan, Robert F.	01.02.01.02 (006), 02.08 (06.03 (001), 08.03.04 (001
906	Bechtel, Dennis	01.01.01.02 (004), 01.02 (04.03 (020), 05.12 (011)
907	Brailsford, Beatrice	01.02.01.02 (002), 01.02.0 02.03 (006), 02.04 (004), 03.07 (003), 03.07 (004),

		04.03.01 (002), 04.03.01 (
		05.10.02 (016), 06.01 (002
		06.06 (005), 07.01.05 (002
908	Turner, Roger	01.01.01.02 (006), 02.03 (
		02.06 (008), 02.08 (018),
		03.07 (003), 04.03 (049),
		06.02 (016), 06.03 (013),
		07.02.03 (002), 08.04 (001
909	Morrison, Anita	01.01.01.02 (006)
910	Christ, Margaret	05.12 (001)
911	Pottenger, Bob	01.01.01.02 (006)
911	Pottenger, Gerri	01.01.01.02 (006)
912	Swenson, Pamela	05.05.01 (016), 05.08.01 (
913	Knox, Harry W.	05.05.01 (016)
914	Day, Jon	08.05.06 (005)
915	Kelly, Mary T.	02.06 (034), 02.07 (006),
		04.01 (008), 06.02 (003)
916	George, Roxane	01.01.02 (006), 01.02 (001
		04.03 (001), 04.03.01 (017
		05.13.01 (002), 08.01 (002
916	Hulett, Chris	01.01.02 (006), 01.02 (001
		04.03 (001), 04.03.01 (017
		05.13.01 (002), 08.01 (002
917	Anderson, Anne M.	03.03 (002), 08.01 (001),
917	Anderson, Craig P.	03.03 (002), 08.01 (001),
918	Watson, Brian E.	03.05 (008), 03.08 (011),
919	Koslowsky, George	04.03 (001), 08.01 (007),
920	Anonymous	01.01.01.02 (011)
921	Cooke, Kerry	06.05 (016)
922	Knapp, Wynne	04.03 (017)
923	Granlund, Win	08.04 (010), 08.05.06 (005
924	ID, State of	02.01 (024), 02.01 (030),
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924	ID, State of	05.05.01 (024), 05.05.01
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		06.02 (028), 06.02 (030),
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924	ID, State of	06.06 (007), 06.06 (009),
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		08.05.10 (004), 08.05.10 (
		08.05.11 (008), 08.06 (009
925	Kirk, Amy	01.01.01.01 (022), 01.01.0
		05.05.01 (016), 05.08.01 (
		07 (001)
926	Noland, Jane	02.04 (056), 05.04 (006),
		05.12.03 (002), 05.13.02 (
927	Hall, David	01.01.01.01 (005), 02.04 (
928	Lancaster, Colleen	01.02.03 (002), 03.05 (006
		06.06 (003), 07 (001)
929	Frazier, M.	01.01.01.02 (006), 02.08 (
		04.03.01 (017)
930	Pritchett, Jane R.	01.01.01.02 (006), 02.01 (
		03.07 (003), 05.05 (017),
		05.12 (005), 05.12 (010),
		06.05 (017), 06.05 (029),
931	Schmidt, Peter W.	02.01 (008), 04.04 (008),
		08.04 (010), 08.04 (028)
932	Collins, Arthur L.	01.02.03 (002)
933	Egan, Joseph R.	03.04 (013), 05.10 (002),
		05.19 (002)
934	Witte, Beverly J.	02.07 (002), 03.08 (011),
934	Witte, Beverly J.	08.04 (009), 08.04 (014)
935	Kirkpatrick, B. J.	02.07 (002), 03.08 (011),
		08.04 (008), 08.04 (009),
936	Butler, Julie	03.08 (009), 04.03.01 (001
		05.05.01 (015), 05.09 (008
937	Sonnenberg, Mark	06.04 (001)
938	Egan, Joseph R.	02.01 (010), 05.10 (002),
		05.13.02 (002), 05.19 (001
939	Crawford, A. C.	02.08 (032), 03.08 (002),
		05.19 (013), 06.02 (023),

		06.08 (008), 06.09 (026),
940	Wright, Catherine	05.08.01 (014), 07.01.02 (
941	Bradshaw, Ken	03.03 (008), 05.08.01 (014
942	Patheal, Colen	05.12 (001)
943	Teitge, Thomas	01.01.01.02 (006), 03.05 (
944	Beeman, Janel	01.02.03 (002), 05.09 (002
945	Martin, Marilyn	01.02.03 (002), 05.12 (001
946	Siegel, Taggart	01.01.01.02 (006), 05.08.0
947	Gilden, Stacy	01.01.01.02 (006), 03.05.0
		05.08.01 (014), 05.12 (001
		06.09 (041), 08.03.01 (001
948	Mix, Mary A.	05.08.01 (014), 05.09 (005
949	Smith, Matt	02.08 (002), 03.03 (008),
		05.08.01 (014), 05.08.01 (
950	Teasley, Marlese	01.01.01.02 (006), 03.07 (
951	Anthony, George	01.01.01.02 (025), 02.04 (
		06.06 (003), 08.01 (002)
952	Blades, Jonnie	01.01.01.02 (006), 05.12 (
953	Wills, Steve	03.07 (003), 05.08.01 (014
954	Mills, John D.	01.01.01.01 (022), 05.05.0
955	Allen, Bruce	03.03 (008), 05.12 (001),
955	Allen, Bruce	08.03.03 (003)
956	Barrows, Bill	01.01.01.01 (008), 01.02.0
		03.05 (009), 03.08 (011),
		08.03.01 (005)
957	Caccia, John	02.03 (019), 03.05 (007),
958	Rogers, Kris	01.01.01.01 (022), 01.01.0
		03.05 (007), 03.05 (008),
		05.11.03 (020)
959	Gorham, Sara	05.08.01 (014), 05.11.03 (
960	Glaccum, Ellen	01.01.01.01 (022), 01.01.0
		02.08 (052), 05.05.01 (01
961	Steffens, Veronica	01.01.01.02 (006)
962	Patheal, Helen	01.01.01.02 (006)
963	Berentz, Bob	03.05 (008), 03.07 (003),
964	Fritzler, Loretta	01.02.03 (001), 03.05 (007
		05.11.03 (020), 07.01.01 (
965	Kipping, David	01.01.01.01 (022), 06.06 (
966	Keisel, Allison	01.01.01.01 (022), 03.05 (
967	Potter, Martha	01.02.03 (002)
968	Stewart, Mark	03.03 (008), 08.04 (001)
969	Anderson, Hilary	01.01.01.02 (006), 05.10.0
970	Lenkner, Charles	02 (001), 03.07 (004), 03.
971	Stewart, Margaret M.	01.02.03 (002), 02.01 (023
		03.03 (008), 03.07 (003),
		06.03 (002), 08.05.10 (006
972	Potter, Roderick	02.07 (004), 03.03 (008),
		04.01 (005), 04.03 (058),
973	Williams, Xenia	02.08 (002), 05.05 (015),
974	Walker, Amy	01.01.01.01 (022), 01.01.0
		05.08.01 (014), 05.08.01 (
		05.12.08 (001)
975	Watson, Kelley	01.01.01.01 (039), 01.01.0
975	Watson, Kelley	03.03 (008), 03.07 (003),
		05.18.04 (002)
976	Stewart, Margaret M.	01.01.01.01 (022), 02.08 (
		06.01 (002), 06.04.01 (001
		08.03.01 (003), 08.03.01 (
977	Lenker, John	03.05.05 (012)
978	Chisholm, Bill	01.01.01.01 (022), 01.01.0
		01.02 (001), 01.02.01.01 (
		03.03 (008), 03.05 (025),
		04.04.01 (002), 04.05 (018
		05.12 (001), 05.18.01 (012

979	Rickards, Peter	07.01.03 (006), 07.04 (004 02.08 (001), 02.08 (002), 05.09 (001), 05.10 (009), 05.11.03 (014), 06.07 (001
980	Chisholm, William K.	08.03.03 (001), 08.05.06 (01.01.01.01 (022), 01.01.0 01.02 (001), 01.02.01.01 (03.03 (008), 03.05 (025), 04.04.01 (002), 04.05 (018 05.12 (001), 05.18.01 (012 07.01.03 (006), 07.04 (004
981	Blanchard, Tom	01.01.01.02 (006), 02.04 (05.08.01 (014), 05.12 (001
982	Scarborough, Leslie	01.01.01.02 (006), 05.08.0
983	Ulahwti	02.02 (003), 02.04 (002), 05.08.01 (024), 05.08.01 (
984	Gouley, Richard	01.01.01.02 (006), 05.04 (05.18.04 (002)
985	Laverty, Denise	01.01.01.01 (022), 05.09 (
986	Diepenbrock, Kathleen	03.05 (008), 04.03 (001),
987	Thomas, Tim	01.01.01.02 (006), 05.05.0
987	Thomas, Tim	05.15 (008)
988	Sherrerd, Bill	03.05 (007), 04.05 (018), 06.08 (003)
989	Meyer, Richard	01.01.01.01 (022), 02.08 (
990	Jaquet, Wendy	01.01.01.02 (006), 05.05 (05.11.03 (024)
991	Strausbaugh, Cindy	01.01.01.02 (006), 01.02.0 04.03 (001), 05.18.04 (002
992	Barrows, William F.	06.03 (002)
992	Cunningham, Don	06.03 (002)
992	Lockwood, Frank	06.03 (002)
992	Mead, David	06.03 (002)
992	Questions and Answers, Twin Falls, ID After	06.03 (002)
992	Stewart, Margaret M.	06.03 (002)
992	Stewart, Mark	06.03 (002)
993	Ball, Patricia	05.11.03 (014)
993	Gouley, Richard	05.11.03 (014)
993	King, Neil	05.11.03 (014)
993	Questions and Answers, Twin Falls, ID Eveni	05.11.03 (014)
993	Rickards, Peter	05.11.03 (014)
993	Stewart, Margaret M.	05.11.03 (014)
994	Glaccum, Ellen	01.01.01.01 (022), 02.03 (05.05.01 (016), 05.12 (001
995	Roth, Char	01.01.01.01 (022), 05.08.0 08.03.01 (001)
996	Barrows, William F.	01.01.01.02 (006), 01.02.0 03.04 (010), 03.05 (009), 05.05.01 (016), 06.09 (030
997	Laverty, Denise	01.01.01.01 (022), 05.09 (
998	Hart, Marcia	01.01.01.01 (022), 01.01.0 05.12 (001), 05.19 (004)
999	Wells, Matthew	03.03 (008), 03.05 (008),
1000	Todd, Paul	01.01.01.01 (008), 03.08 (
1001	Slifer, Betty	01.01.01.02 (006), 03.03 (
1002	Cole, Christine N.	01.01.01.02 (006), 04.03 (
1003	Chandler, Asa	01.01.01.02 (006), 04.01 (05.08.01 (014), 06.01 (002
1004	Kimmich, Scott	01.01.01.01 (005), 01.01.0 03.05 (009), 03.08 (011)
1005	Borquist, Robert E.	08.03.05 (006), 08.04 (010
1006	Deegan, Robert F.	01.02.01.02 (006), 02.08 (

		06.03 (001), 08.03.04 (001
1007	Baggett, Chrys	01.01.01.01 (004), 01.01.0
		01.01.01.02 (008), 01.02 (
		02.08 (039), 04.03 (036),
		05.12.06 (002), 05.13.02 (
1008	Logan, John A.	04.03 (047), 05.08.01 (015
		07.01 (008), 07.01.02 (007
1009	Lamotte, Christian	01.01.01.01 (005), 01.01.0
		03.05 (009), 03.08 (011)
1011	McCabe, Amy	01.01.01.02 (011), 02.03 (
		02.07 (007), 03.04 (008),
		04.03.01 (002), 04.03.01 (
		06.07 (015)
1012	Myers, Joy	01.01.01.01 (002), 01.01.0
		01.02 (001), 01.02.03 (003
		03.04.01 (007), 03.07 (004
		05.03 (002), 05.09 (001),
		05.12.06 (004), 05.12.08 (
		06.07 (001), 06.07 (014),
		08.03.03 (002), 08.05.06 (
1013	McGrath, James	01.01.01.01 (001), 02.08 (
1014	Stennet, Clint	01.01.01.01 (022), 01.02 (
1014	Stennet, Clint	05.05.01 (016), 05.08.01 (
		08.01 (009)
1015	Heckler, Hilde	05.08.01 (014), 05.12 (001
1016	Bybee, R. V.	01.01.01.02 (006), 04.03 (
1017	Wade, Marty	03.05 (029), 05.08.01 (014
		06.05 (002), 08.03.01 (013
1018	Wade, Marty	03.05 (029), 05.08.01 (014
		06.05 (002), 08.03.01 (013
1019	Shipley, Diana	01.01.01.01 (022), 01.01.0
		03.08 (004), 03.08 (010),
1020	Shipley, Diana Y.	01.01.01.01 (022), 01.01.0
		03.08 (004), 03.08 (010),
1021	Turner, Roger	01.01.01.01 (022), 02.01 (
		02.04 (058), 02.06 (030),
		03.07 (003), 04.03 (001),
1022	Jayne, Jerry	03.08 (007), 05.06 (003),
1023	Jayne, Gerald A.	05.06 (003), 05.06 (012),
1024	Turner, Roger	01.01.01.01 (022), 02.01 (
		02.04 (001), 02.06 (030),
		03.07 (004), 04.03 (001),
1025	Nickerson, Jack	05.05.01 (016), 05.11.03 (
		08.01 (001)
1026	Kenney, Dick	01.02.03 (002), 02.07 (001
1027	Beitel, George A.	01.02.03 (002)
1028	Beitel, George A.	01.02.03 (002)
1029	Ball, Lynn W.	05.06 (013)
1030	Ward, Sonne	06.04 (001)
1031	Rickards, Peter	01.01.01.01 (015), 01.01.0
		02.01 (009), 03.08 (014),
		05.11.03 (009), 05.11.03 (
		06.03 (014), 06.05 (001),
1032	Rickards, Peter	02.03.01 (002), 05.08.01 (
1032	Rickards, Peter	05.10 (046), 05.10.02 (008
		05.11.03 (020), 05.15 (015
		08.05.06 (005)
1033	Duplessis, Lee	02.08 (002), 03.08 (011),
		05.10.02 (002), 05.10.02 (
1034	Duplessis, Lee	02.08 (002), 03.08 (011),
		05.10.02 (002), 05.10.02 (
1034	McDaniels, Trimelda	02.08 (002), 03.08 (011),
		05.10.02 (002), 05.10.02 (
1035	Brailsford, Beatrice	01.01.01.02 (006), 01.02.0

		02.07 (008), 02.08 (002), 03.07 (003), 03.07 (004), 04.03.01 (001), 04.03.01 (04.04.01 (007), 06.04.01 (09.01 (004)
1036	Kaufmann, Theresa M.	01.02.03 (002), 04.01 (001 06.05 (002), 06.05 (016),
1037	Kaufmann, Theresa M.	01.02.03 (002), 04.01 (001 06.05 (002), 06.05 (016),
1038	Rice, Chuck	01.01.01.01 (002), 01.01.0
1039	Rice, Charles M.	01.01.01.01 (002), 01.01.0
1040	Tanner, John B.	02.06 (039)
1041	Caldwell, Lindsey	05.10.01 (008)
1042	Drewes, Kenneth N.	07.01.01 (001), 08.03.05 (
1043	Horan, John R.	01.01.01.01 (029), 01.02.0 06.07 (001)
1044	Hayball, Brett	01.01.01.02 (006), 01.01.0 02.04 (007), 02.04 (031), 02.08 (013), 02.08 (026), 04.03 (015), 04.03 (037), 05.02 (044), 05.03 (002),
1044	Hayball, Brett	05.05.01 (036), 05.08.01 (05.10.02 (017), 05.11.02 (05.15 (009), 05.18.04 (002 06.07 (001), 07 (001), 08. 08.03.03 (003), 08.04 (006
1045	Hayball, Brett	01.01.01.02 (006), 01.01.0 02.04 (007), 02.04 (031), 02.08 (013), 02.08 (026), 04.03 (015), 04.03 (037), 05.02 (044), 05.03 (002), 05.05.01 (036), 05.08.01 (05.10.02 (017), 05.11.02 (05.15 (009), 05.18.04 (002 06.07 (001), 07 (001), 08. 08.03.03 (003), 08.04 (006
1046	Craig, Senator Larry E.	01.02.01.02 (013), 06.04 (
1047	Schrade, Jeff	02.02 (005), 06.04 (008),
1048	Allen, Donald	01.01.01.01 (008), 03.05 (05.09 (001), 05.18.04 (002
1049	McDaniels, Trimelda C.	02.04 (011), 03.04.01 (002 05.10.02 (002), 05.11.03 (
1050	Duplessis, Lee	02.04 (011), 03.04.01 (002 (002), 05.11.03 (001), 06.
1050	McDaniels, Trimelda C.	02.04 (011), 03.04.01 (002 05.10.02 (002), 05.11.03 (
1051	Elle, Jean	01.01.01.01 (022), 03.08 (
1052	Elle, Jean	01.01.01.02 (006), 03.08 (
1053	Kempthorne, Dirk	03.01 (014), 06.06 (003),
1054	Kempthorne, Dirk	03.01 (014), 06.06 (003),
1055	Proksa, Margo	01.01.01.01 (005), 01.01.0 02.07 (001), 02.08 (002),
1055	Proksa, Margo	03.04 (017), 03.07 (003), 04.03 (001), 05.08.01 (014 05.12 (003), 05.16 (001), 06.09 (024), 08.03.01 (004
1056	Proksa, Margo	01.01.01.01 (005), 01.01.0 02.07 (001), 02.08 (002), 03.04 (017), 03.07 (003), 04.03 (001), 05.08.01 (014 05.12 (003), 05.16 (001), 06.09 (024), 07 (001), 08.
1057	Wade, Mike	01.01.01.02 (006)
1058	Hensel, David	01.01.01.01 (022), 03.05 (

		04.01 (001), 04.03 (006),
		06.05 (001), 06.05 (002),
1059	Hensel, David	01.01.01.01 (022), 02.04 (
		03.07 (004), 04.01 (001),
		06.03 (013), 06.05 (001),
		08.03.03 (002), 08.03.03 (
1060	Daly, Katherine R.	01.01.01.02 (006), 08.03.0
1061	Weeg, Steven	01.01.01.02 (006), 02.01 (
		04.03 (021), 04.03 (038),
		05.09 (001), 05.10.02 (002
		06.06 (003), 06.07 (001),
1062	Skinner, Robert	01.01.01.02 (006), 01.02.0
		06.07 (001)
1063	Skinner, Robert L.	01.01.01.02 (006), 01.02.0
		06.07 (001)
1064	Tate, Deborah	01.01.01.01 (022), 01.01.0
		02.07 (012), 03.07 (003),
1065	Daly, Katherine R.	01.01.01.02 (006), 08.03.0
1066	Turner, Kaye	01.02.03 (002), 03.05 (008
1067	Turner, Kaye	01.02.03 (002), 03.05 (008
1068	Dold, Ann	05.11.03 (014)
1068	Questions and Answers,	05.11.03 (014)
	Idaho Falls, ID Afte	
1068	Rickards, Peter	05.11.03 (014)
1068	Ward, Sonne	05.11.03 (014)
1069	Bates, Albert	04.03 (004), 04.03 (012)
1070	McDaniels, Trimelda C.	09.01 (004)
1070	Nickerson, Jack	09.01 (004)
1070	Proksa, Margo	09.01 (004)
1070	Questions and Answers,	09.01 (004)
	Idaho Falls, ID. Eve	
1070	Rickards, Peter	09.01 (004)
1076	Barber, Brad T.	09.01 (010)
1077	McDonald, Timothy	05.12.06 (002), 05.12.07.0
		08.03.01 (013)
1080	Sanderson, Richard E.	01.02.01.01 (007), 02.01 (
		03.04 (022), 03.05 (028),
		03.08 (018), 04.03 (043),
		04.04.01 (006), 04.05 (015
		05.02 (053), 05.03 (004),
		05.04 (017), 05.06 (009),
		05.08 (008), 05.08.01 (020
		05.08.01 (050), 05.08.03 (
		05.10 (015), 05.10 (016),
		05.10 (029), 05.10 (032),
		05.10 (042), 05.10 (053),
		05.10.02 (005), 05.10.02 (
		05.11.01 (010), 05.11.01 (
		05.11.03 (014), 05.11.03 (
		05.11.03 (034), 05.11.03 (
		05.12.07.01 (001), 05.16 (
		05.17 (004), 05.18.01 (003
		05.18.01 (013), 05.18.01 (
1080	Sanderson, Richard E.	05.19 (005), 05.19 (018),
		06.02 (037), 06.04 (012),
		06.07 (008), 06.09 (052),
		07.03 (001), 07.03 (002),
		08.06 (019)
1081	Cogan, Lindy	01.02.03 (002)
1082	Koben, Marcia	01.01.01.02 (006)
1083	Rowe, Jennifer	01.01.01.01 (022)
1084	Stireman, James	05.19 (011)
1085	Record, Terry	01.01.01.01 (008), 01.01.0
1086	Harris, Lisa	01.01.01 (002), 08.01 (001

1087	Sharpe, Roberta R.	01.01.01.01 (008), 01.02.0
1088	Moredock, Elizabeth	01.01.01.02 (011), 05.10.0
1089	Heft, Philip	03.07 (003)
1090	Roberts, Randy	01.01.01.02 (011), 02.06 (
1091	Knight, Carol	01.01.01.01 (008), 03.04 (
1092	Jones, Eleanor	08.04 (010), 08.04 (015)
1093	Connelly, Joan	05.12.06 (002), 08.01 (001
1094	Van Every, Robert	01.01.01.02 (006)
1095	Harvey, Ian	01.01.01.02 (006), 05.01 (
1096	Watkins, Karen	01.01.01.02 (011), 05.10.0
1097	Finn, Ellen	08.04 (010)
1098	Bradley, Edith	03.05 (007), 05.16 (007)
1099	Green, Jody	08.01 (004), 08.04 (018),
1100	Flint, William	01.01.01.02 (006)
1101	Stone, Gary	05.08.01 (014), 05.19 (011
1102	Holce, Leah	01.01.01.02 (006), 03.05 (
1103	Overman, Robert	04.01 (005), 06.04 (001), 06.07 (007), 07 (001)
1104	Michael, Frank	01.01.01.01 (022), 01.01.0
1105	Kerrigan, Laurie	01.01.01.02 (006), 04.03 (
1106	Saccoman, Joe	01.01.01.02 (006), 05.08.0
1107	Powers, Julian	02.06 (001), 06.09 (013)
1108	Glasseir, Rox	08.01 (004), 08.04 (013),
1109	Van Der Harst, John	01.02.03 (002)
1110	Palmer, Doug	08.04 (010), 08.04 (014)
1111	Saccoman, Bill	01.01.01.02 (006)
1111	Saccoman, Patty	01.01.01.02 (006)
1112	Little, Glen	06.05 (001)
1113	Shotwell, Evelyn	01.01.01.02 (006)
1114	Branter, Keith	01.02.03 (002)
1115	Hungerford, Clark	01.02.03 (002)
1116	Gyorke, Joseph	01.01.01.02 (011)
1119	Costner, Brian	01.01.01.01 (015), 02.01 (02.04 (009), 02.04 (042), 04.01 (004), 04.03 (001),
1120	Sanderson, Richard E.	01.02.01.01 (007), 02.01 (03.04 (022), 03.05 (028), 03.08 (018), 04.03 (043), 04.04.01 (006), 04.05 (015 05.02 (053), 05.03 (004), 05.04 (017), 05.06 (009), 05.08 (008), 05.08.01 (020 05.08.01 (050), 05.08.03 (05.10 (015), 05.10 (016), 05.10 (029), 05.10 (032), 05.10 (042), 05.10 (053), 05.10.02 (005), 05.10.02 (05.11.01 (010), 05.11.01 (05.11.03 (014), 05.11.03 (05.11.03 (034), 05.11.03 (05.12.07.01 (001), 05.16 (05.17 (004), 05.18.01 (003
1120	Sanderson, Richard E.	05.18.01 (013), 05.18.01 (05.19 (005), 05.19 (018), 06.02 (037), 06.04 (012), 06.07 (008), 06.09 (052), 07.03 (001), 07.03 (002), 08.06 (019)
1122	Gauer, Madelon	05.08.01 (030), 06.05 (016
1122	Gauer, Paul	05.08.01 (030), 06.05 (016
1123	Horton, Lynn B.	08.04 (014) 03.04 (022), 0 03.08 (018), 04.03 (043), 04.04.01 (006), 04.05 (015 05.02 (053), 05.03 (004),

1120	Sanderson, Richard E.	05.04 (017), 05.06 (009), 05.08 (008), 05.08.01 (020 05.08.01 (050), 05.08.03 (05.10 (015), 05.10 (016), 05.10 (029), 05.10 (032), 05.10 (042), 05.10 (053), 05.10.02 (005), 05.10.02 (05.11.01 (010), 05.11.01 (05.11.03 (014), 05.11.03 (05.11.03 (034), 05.11.03 (05.12.07.01 (001), 05.16 (05.17 (004), 05.18.01 (003 05.18.01 (013), 05.18.01 (05.19 (005), 05.19 (018), 06.02 (037), 06.04 (012), 06.07 (008), 06.09 (052), 07.03 (001), 07.03 (002), 08.06 (019)
1122	Gauer, Madelon	05.08.01 (030), 06.05 (016
1122	Gauer, Paul	05.08.01 (030), 06.05 (016
1123	Horton, Lynn B.	08.04 (014)
1125	Knapp, Malcolm R.	09.01 (010)
1126	Sanderson, Richard E.	01.02.01.01 (007), 02.01 (03.04 (022), 03.05 (028), 03.08 (018), 04.03 (043), 04.04.01 (006), 04.05 (015 05.02 (053), 05.03 (004), 05.04 (017), 05.06 (009), 05.08 (008), 05.08.01 (020 05.08.01 (050), 05.08.03 (05.10 (015), 05.10 (016), 05.10 (029), 05.10 (032), 05.10 (042), 05.10 (053), 05.10.02 (005), 05.10.02 (05.11.01 (010), 05.11.01 (05.11.03 (014), 05.11.03 (05.11.03 (034), 05.11.03 (05.12.07.01 (001), 05.16 (05.17 (004), 05.18.01 (003 05.18.01 (013), 05.18.01 (05.19 (005), 05.19 (018), 06.02 (037), 06.04 (012), 06.07 (008), 06.09 (052), 07.03 (001), 07.03 (002), 08.06 (019)
1126	Sanderson, Richard E.	
1128	McDonald, Tim	08.03.01 (013), 08.04 (010
1129	Quinley, Vickie	05.08.01 (014)
1130	Sower, Bob W.	01.01.01.02 (006)
1131	Peterson, Samara	03.07 (004), 05.08.01 (030
1132	Morgan, LaRene	01.01.01.02 (006), 01.01.0
1133	Arkoosh, Karen	01.01.01.02 (006), 05.08.0
1134	Fisse, Ron	01.01.01.02 (006), 01.01.0
1135	Buys, Barbara	08.05.05 (002)
1136	Wallbaum, Gary	01.01.01.02 (011), 05.18.0
1137	Shotwell, Cornelia	01.01.01.02 (006)
1138	Suhr, Debbie	01.01.01.02 (006)
1139	Hodge, Mary	01.01.01.02 (006)
1140	Apperson, Jerry	05.12 (001)
1141	Hill, Joy	05.18.04 (002), 08.01 (001
1142	Wimberly, Jan	01.01.01.02 (006)
1143	Strong, Tye	01.01.01.02 (006), 04.03 (
1144	Bourner, Darrell	05.08.01 (014)
1145	Smiley, Jane	04.03 (001), 05.10.02 (016
1146	Bates, Dorothy	01.01.01.01 (022), 05.12.0

1147	Lane, Lois	08.01 (001)
1148	King, Marilee	01.01.01.02 (006)
1149	Kleinklof, Karl	05.05.01 (016)
1150	Teusher, Meryle	01.01.01.02 (006)
1151	Moeller, Mary	01.01.01.02 (006)
1152	Mattulat, Judy	01.01.01.02 (006)
1153	Benson, Margaret	01.01.01.02 (006)
1154	Baldocchi, Dennis	01.01.01.01 (010), 01.01.0
1155	Casebeau, Max	03.05 (007), 03.05 (008), 05.08.01 (014), 05.11.03 (
1156	Armstrong, Ted	02.08 (009), 05.08.01 (014
1157	Tschirgi, Scott	05.08.01 (014)
1158	Baslee, Oradell	01.01.01.02 (006)
1159	Hastings, Virginia	01.01.01.02 (006)
1160	Day, Raymond	05.08.01 (014), 05.11.03 (
1161	Hulette, Christin	01.02.03 (002), 03.03 (008 05.12 (001), 05.13.01 (002 08.01 (002)
1162	Beem, Stacy	01.01.01.02 (006)
1163	Fowler, Halle	01.01.01.01 (022)
1164	Lanigan, Karen	01.01.01.01 (022), 01.02.0
1165	Bowman, Bill	05.08.01 (014)
1166	Quinn, Tim	08.01 (001)
1167	Heykamp, Elaine	08.01 (001)
1168	McLaughlin, Pam	03.04 (014)
1169	Unger, Richard	01.01.01.01 (015)
1170	Pannell, George	01.01.01.02 (011)
1171	Clements, Linda	05.08.01 (014)
1172	Pomeroy, Betsy	01.01.01.02 (006)
1172	Pomeroy, Nelson	01.01.01.02 (006)
1173	Salaegs, Peggy	01.01.01.02 (006)
1174	Russell, Donald	01.01.01.02 (011), 05.12.0
1175	Capalbo, Joseph	01.01.01.02 (006), 07 (001
1176	Malone, Mrs. Paul	01.01.01.02 (006)
1176	Malone, Paul	01.01.01.02 (006)
1177	Breedlove, Debbie	01.01.01.02 (006)
1178	Fowler, Happy	01.01.01.02 (011)
1179	Warren, Jeffrey	02.08 (001)
1180	Alsdorf, Todd	01.01.02 (007), 01.02.03 (
1181	Edwards, Carol	01.01.01.02 (006), 05.02 (
1182	Boyle, Terry	08.04 (010), 08.04 (013),
1183	Erickson, Randee	05.12 (001), 05.13.04 (001
1184	Belzer, Fred	01.01.01.01 (005), 01.01.0
1184	Belzer, Fred	02.04 (001), 03.05 (008), 04.03 (021), 06.07 (001),
1185	Bick, Susan	01.01.01.02 (006)
1186	Lehto, Kevin	05.12 (001)
1187	Bragg, William A.	01.01.01.01 (008)
1188	Randolph, Sperry	01.01.01.02 (011)
1189	Haaz, Nan	01.01.01.02 (011)
1190	Allen, Raymond	01.01.01.02 (011)
1191	Dixon, Marjorie	01.01.01.02 (006)
1192	Strawser, Mary	01.01.01.02 (006)
1193	Parrette, Joe	01.02.03 (002)
1194	Watson, Jackson L.	01.01.01.02 (006)
1195	Ricketts, W.	01.01.01.02 (011)
1196	Brooks, James	01.01.01.02 (011), 03.08 (
1197	Morley, Mary Kay	08.04 (010)
1198	Doersam, Eugene	01.01.01.02 (011)
1199	Snow, Dickey	01.01.01.02 (011)
1200	Gleaves, Richard	01.01.01.01 (015), 01.01.0
1201	Heindsmann, Sandra	01.01.01.01 (022), 02.04 (
1202	Watson, Carole	01.01.01.02 (006)
1203	Hoover, Elizabeth	01.01.01.02 (011)

1204	Runstein, Helen	08.05.06 (005), 08.05.06 (
1205	Gordon, Margaret	01.01.01.02 (011)
1206	McGehee, Connie	01.01.01.02 (011), 03.03 (
1207	Batey, Gary	01.01.01.02 (011)
1208	Billingsley, Adron	01.01.01.02 (011)
1209	Coop, Linda	01.01.01.02 (011)
1210	Dowd, Joyce	01.01.01.02 (011)
1211	Martin, Pauline	01.01.01.02 (011)
1212	Donaldson, Jeanne	01.02.03 (002)
1213	Wurster, Connie	06.09 (013), 08.01 (001)
1214	Wison, Hazel	01.01.01.02 (011)
1215	Csorgo, Alex	01.01.01.02 (011), 05.12 (
1216	Stout, Dean	01.01.01.02 (011)
1217	Denton, Marcia	01.01.01.02 (011)
1218	Stoknes, Kjell	01.02.02 (002), 07.04 (004
1218	Stoknes, Marilyn	01.02.02 (002), 07.04 (004
1219	Draper, Marge	01.01.01.02 (006)
1220	Jentry, Boyd	01.01.01.01 (022)
1221	Vance, Jesse	01.01.01.02 (011)
1222	Franden, Janet	01.02.03 (002)
1223	Bell, Willard	01.01.01.02 (011)
1224	McReynolds, Susan	01.01.01.02 (011)
1225	Rice, JoAnn	08.04 (013), 08.04 (014)
1226	Adams, Fern	01.01.01.02 (006), 01.01.0
1227	Jones, Jewel	01.01.01.02 (011)
1228	Fennema, Diane	01.01.01.02 (006)
1229	Vanderven, Peter	02.07 (012)
1230	Zajac, Nell	02.07 (012)
1231	Honicker, Jeannine	04.03 (005), 04.03.01 (001
1232	Ewald, Linda	01.01.01.02 (011), 05.12 (
1233	Shortt, Timothy	05.10 (002)
1234	Matsu-Pissot, Yuki	09.01 (004)
1235	Mitchell, Don	01.01.01.02 (011)
1236	Scudder, Gary	01.01.01.02 (006)
1237	Fuller, Robert	01.01.01.02 (011)
1238	Brown, Norman C.	02.07 (012)
1239	Gruhl, Wade	01.01.01.02 (006), 03.05 (
1240	Picquet, Cheryn	05.18.04 (002)
1241	Campbell, Barbara	02.07 (012)
1242	Silverman, Larry	02.07 (012)
1243	Kinard, Deborah	09.01 (004)
1244	Kessler, Peter	02.07 (012)
1245	Gorenflo, Louise	03.03 (008), 05.12 (001),
1246	Beasley, Alton	02.01 (026), 02.04 (005),
1247	Wheeler, Paige	02.07 (012)
1248	Johnson, Elaine	01.02.03 (002)
1249	Johnson, Sally	01.01.01.01 (022)
1250	Fowler, Corinne	01.01.01.01 (015), 05.12 (
1251	Baumgarener, Charlotte	01.01.01.02 (006), 03.08 (
1252	Manning, Mary	08.04 (010), 08.04 (013)
1253	Wegman, Jerry	01.01.01.02 (002), 05.08.0
1254	Mendoza, Mary	02.07 (012)
1255	Zanover, Sally	08.04 (010)
1256	Lagenaur, Mary Beth	01.01.01.01 (022), 01.01.0 05.08.01 (014)
1257	Neumann, David	02.06 (036), 05.19 (001),
1258	Takahashi, Dana	08.01 (001)
1259	Pearson, Esther	01.01.01.02 (006)
1260	Lawson, Loretta	01.01.01.02 (006)
1261	McCann, Anita	01.01.02 (005)
1262	Frazier, Kathleen	01.01.01.02 (006)
1263	Coyle, Gaylord	01.01.01.02 (006)
1264	Tippett, Verna L.	01.01.01.02 (006), 05.08.0
1265	Hansen, Adeline	01.01.01.02 (006)

1266	Kincheloe, Karen	01.01.01.02 (006)
1267	Sieger, Karyn	01.01.01.02 (006), 05.12 (
1268	Parks, Steve	01.01.01.02 (006), 03.07 (
1269	Conger, Bill	01.01.01.02 (011)
1270	Duvall, Jami	05.12 (001), 08.01 (001)
1271	Stume, Betty Ann	01.02.01.02 (005)
1272	Velasco, Steve	05.12.04 (001)
1273	Davidson, Nancy	01.01.01.02 (011)
1274	Allen, Pat	01.01.01.01 (004), 08.03.0
		08.05.06 (005), 08.05.06 (
1275	Lanigan, Steve	03.05 (007), 05.12 (001)
1276	Barney, Jody	01.01.01.02 (011)
1277	McDaniels, Trimelda	01.01.01.02 (006), 02.04 (
1278	MClemore, Janis	01.01.01.02 (020), 06.09 (
1279	Walton, Barbara A.	01.01.01.01 (022), 01.02.0
		06.05 (016)
1280	Cox, Chris	03.07 (003), 06.09 (013)
1281	Ludders, Beverly	01.01.01.02 (006), 07.02.0
1282	Pearson, Ernest	01.01.01.02 (006)
1283	Toler, Stuart	03.05 (007), 05.09 (001)
1284	Holtz, Libby	02.08 (002), 04.03 (001),
1285	Sirhall, Emma L.	05.08.01 (014)
1286	Stoke, Jonathan	03.08 (011), 04.04 (008),
1287	Blood, Tina	01.01.02 (005)
1288	Langworthy, Helen	01.02.03 (002)
1289	McLaughlin, Pam	01.01.01.01 (008), 01.02.0
		05.12 (001)
1290	Weatherley-White, Matthew	08.01 (001)
1291	Baldwin, June	01.01.01.02 (006)
1292	Hogan, Terry	01.01.01.02 (011)
1293	Swartzman, Margaret	01.01.01.02 (020), 05.08.0
1294	Sattgast, Leah W.	03.03 (008), 03.07 (004),
1295	Howard, Steven	01.01.01.02 (011)
1296	Smith, Eric	03.08 (009), 05.11.03 (039
1297	Bowen, Randy L.	01.01.01.01 (015), 05.12 (
1298	Pannell, Deborah	01.01.01.02 (011)
1299	Blurton, Eleanor	01.01.01.02 (006), 01.02.0
1300	Blair, Joy	01.01.01.02 (011)
1301	Benjamin, Marvel	01.01.01.02 (006), 05.08.0
1302	Knecht, Dieter	02.08 (015), 08.01 (005)
1303	Sowdon, Doug	06.01 (011), 06.09 (013),
1304	Gatton, Leslie	03.08 (009), 03.08 (010)
1305	McAuley, Mike	01.01.01.02 (006)
1306	Tyler, Nancy	01.01.01.02 (006)
1307	Schimdt, Helena	01.01.01.02 (011), 05.08.0
1308	Scannella, Joe	01.01.01.02 (011)
1309	Bazin, Nancy	03.05 (008), 08.01 (001)
1310	Seperich, Yvonne	01.01.01.02 (011)
1311	Groll, Mary F.	01.01.01.02 (006)
1312	Dougherty, Al	01.01.01.02 (006)
1312	Dougherty, Jenive	01.01.01.02 (006)
1313	Day, Heather	05.11.02 (006), 06.09 (013
1314	McLaughlin, Dennis	01.01.01.01 (022), 01.01.0
1315	Hudson, John	01.01.01.02 (011)
1316	Reed, David	01.01.01.02 (011), 04.03.0
1317	Lowe, Frances E.	01.01.01.02 (011)
1318	Akers, W. H.	01.02.03 (002)
1319	Flinn, James	09.01 (004)
1320	Crosslin, Leslie	01.01.01.01 (029), 03.07 (
1321	Tuck, Frank	01.01.01.02 (011)
1322	McNabb, Harry O.	01.01.01.02 (011)
1323	Rogers, Mary Grace	01.01.01.02 (011), 05.10.0
1324	Navarro, Pat	01.01.01.02 (011)
1325	Dempster, Michael	02.07 (012)

1326	Hughel, Dan	01.01.01.02 (014)
1327	Lieberman, Bernard	01.02.03 (002)
1328	Haskew, Mark	01.02.03 (002)
1329	Tumlin, Gary	01.01.01.02 (011), 05.18.0
1330	Burris, Mary S.	01.01.01.02 (011), 05.18.0
1331	Morris, Mary	03.07 (003), 05.10.02 (016
1332	Phelps, Jim	01.01.01.01 (022), 01.01.0
1333	King, David	01.01.01.02 (011), 05.18.0
1334	Poche, Anthony F.	01.01.01.02 (011), 03.07 (
1335	Piquet, Margaret	01.01.01.02 (011)
1336	Buchanan, James	01.01.01.02 (011), 05.12 (
1337	Conner, Robert	01.01.01.02 (011), 03.08 (
1338	Miller, Dana	02.07 (001), 03.08 (010), 09.01 (008)
1339	Reed, Ron	02.08 (036), 06.07 (001)
1340	Bahl, Susan	08.04 (010)
1341	Switzer, Susan	01.01.01.01 (015), 03.05 (
1342	Burris, Betty	01.01.01.02 (006), 01.01.0
1343	Wesley, R. L.	01.01.01.02 (011)
1344	Davison, Dave	03.08 (011), 06.06 (003), 08.03.05 (002), 08.04 (010
1344	Donnelly, Tom	03.08 (011), 06.06 (003), 08.03.05 (002), 08.04 (010
1344	Manheimer, Elaine	03.08 (011), 06.06 (003), 08.03.05 (002), 08.04 (010
1345	Shaver, Lale	08.04 (020)
1346	Ricketts, W.	09.01 (004)
1347	Knight, Joseph	01.01.01.02 (011)
1348	Butler, Claudia	01.01.01.02 (006)
1349	Dement, Geraldine B.	01.01.01.02 (011)
1350	Snow, Renee	01.01.01.02 (011)
1351	Bush, Janet	05.09 (001), 08.01 (001)
1352	Anonymous	03.08 (013)
1353	Gannes, Brenda	01.01.01.02 (011)
1354	Gannes, Randall	01.01.01.02 (011)
1355	Knight, Glendel	01.01.01.02 (006)
1356	Sanders, Pat	01.01.01.01 (008), 02.08 (
1357	Manning, Lillian	01.01.01.01 (022), 06.09 (
1358	Curtis, Carol	01.01.01.02 (006), 03.07 (
1359	Haight, Douglas	01.01.01.01 (022), 05.08.0
1360	Pardy, Pauline	01.01.01.02 (011)
1361	Falkner, Mark	01.01.01.02 (006), 05.08.0
1362	Dowd, Kathy	01.01.01.02 (011)
1363	Dement, Joe J.	01.01.01.02 (011)
1364	Briggs, Harrison	01.01.01.02 (011)
1364	Briggs, Mary Jane	01.01.01.02 (011)
1365	Cain, Edith J.	01.01.01.02 (006)
1366	Bateman, James	01.01.01.01 (022), 01.01.0
1366	Cain, Vanessa	01.01.01.01 (022), 01.01.0
1367	Ballard, Carolyn	01.01.01.01 (022), 05.12 (
1368	Myers, Brian	01.01.01.02 (011), 05.09 (
1369	Everson, Rickie	01.01.01.02 (011)
1370	Ewing, Mary Jane	05.12 (001)
1370	Ewing, Robert	05.12 (001)
1371	Duplessis, Lee	03.08 (022), 05.10 (031)
1372	Cavanaugh, Arlene	01.02.01.02 (006), 05.12 (
1373	Snell, Jim	01.02.03 (002), 05.19 (001
1374	Parker, Ron A.	01.01.02 (005)
1375	Hamilton, Sally	01.01.02 (005)
1376	Price, Schunn	05.09 (001), 05.18.04 (002
1377	Hall, Dale O.	01.01.01.02 (006)
1378	Jay, Richard	01.01.01.02 (006)
1379	Hagerman	01.01.01.02 (011), 01.02.0
1380	Black, Betty	01.01.01.01 (022), 01.01.0

1381	Tyler, William A.	01.01.01.02 (011)
1382	Carman, Barbara	01.01.01.02 (006)
1383	McGhee, Charles	01.01.01.02 (011)
1384	Dixon, Betty	01.01.01.02 (011)
1385	Golay, Judith	01.01.02 (005), 05.19 (011
1386	Davidson, Fonny	01.01.02 (005)
1387	Brinton, Cora	05.09 (001), 06.09 (013),
1388	Powell, Marbeth	08.04 (010)
1389	Coates, Hazel	06.09 (013), 08.01 (001)
1390	Jessen, Neal	01.01.01.02 (006)
1391	Forrey, Gloria	01.01.01.02 (006)
1392	Holt, Jane	01.02.03 (002)
1393	McReynolds, Tom	01.01.01.02 (006), 01.01.0
1394	Woodland, Wade	01.01.01.02 (006), 01.01.0
1395	McGrath, Patty	01.01.01.02 (006), 05.08.0
1396	Spore, Suzanne	01.01.01.02 (011)
1397	McKnight, Virginia	01.01.01.02 (011)
1398	Wright, Creed	01.01.02 (005), 01.02.01.0
1399	Gibson, Bryce	01.01.01.02 (006)
1400	Hanson, Annette	01.01.01.02 (006), 01.01.0
		06.06 (003)
1401	Boyles, Jean	01.01.01.01 (022), 05.09 (
1402	Johnson, Norma	06.09 (013), 08.04 (010),
1403	Martensen, Charles	01.01.01.02 (006)
1403	Martensen, Margaret	01.01.01.02 (006)
1404	Soderquist, Linda	01.02.03 (002)
1405	Carter, Christine	08.01 (001)
1406	Haduke, Forest	04.03.01 (017)
1407	Welborne, Sally	07.04 (001)
1408	Camero, Jane	05.09 (001), 05.12 (001),
1409	Vieten, Vincent	08.04 (010), 08.05.04 (007
1410	Hart, Andrew	08.04 (010)
1411	Turchinetz, Tildy	08.01 (001)
1412	Emery, Susan	01.02.01.02 (006), 03.05 (
		08.04 (013), 08.05.04 (002
1413	Sifnas, Martha	08.04 (010), 08.04 (013),
1414	Von Want, Bob	08.05.04 (003)
1415	Flanders, Allen	03.08 (011), 08.03.01 (005
		08.05.06 (005), 08.05.07 (
1416	Warner, Sharon	08.04 (010)
1417	Stevens, Ed	08.04 (010), 08.04 (018)
1419	Harper, John	08.01 (001), 08.05.06 (031
1420	Kimball, Matthew	08.01 (004)
1421	Ruppe, Maryann	08.04 (021)
1422	Griffin, Susan B.	01.01.01.01 (022)
1423	Blake, Gary	02.07 (001), 02.08 (002),
1424	Eaves, Debbie	05.12 (001)
1425	Neumann, David	05.19 (001)
1426	Harris, Betty	01.01.01.02 (011)
1427	Gardner, Edwena	01.01.01.01 (002), 01.01.0
1428	Roberts, Lucy	01.01.01.02 (011)
1429	Gaddy, Claude N.	01.01.01.02 (011), 05.12 (
1430	Tenpenny, Ray	01.01.01.02 (011)
1431	Tenpenny, Peggy Sue	01.01.01.02 (011), 01.02.0
1432	Manning, Lillian	01.01.01.01 (022), 05.09 (
1433	Doyle, Patrick	01.01.01.02 (001), 01.01.0
		05.12 (015), 05.18.04 (002
1434	Vaughan, Edna R.	01.01.01.02 (011)
1435	Devine, Shirley	01.01.01.02 (011)
1436	Kalbus, Richard	01.01.01.02 (006), 01.01.0
1437	Hart, Ann	01.01.01.02 (011), 05.12 (
1438	Foster, Betty	01.01.01.02 (006), 01.01.0
1439	Clark, Patricia	01.01.01.01 (022), 01.01.0
		05.12 (001)

1440	McCoy, Mildred	08.01 (001)
1441	Ernst, Carol	01.01.01.01 (022), 01.01.0
1442	White, C. E.	01.02.03 (002), 02.08 (002
1444	Usrey, Elgan H.	01.01.01.01 (046), 01.01.0 02.03 (004), 02.04 (059), 05.08.01 (004), 05.08.03 (05.09 (015), 05.09 (020), 05.10.02 (028), 05.11 (003 05.12 (010), 05.15 (001)
1445	Harrison, John T.	02.01 (033), 08.03.01 (013
1445	Harrison, John T.	08.03.03 (001), 08.04 (002 08.05.02 (001), 08.05.02 (08.05.03 (001), 08.05.04 (08.05.06 (012), 08.05.06 (

APPENDIX C

Responses - Comment Contributor Correlation

COMMENT/RESPONSE DOCUMENT INDEX
Response - Comment Contributor C

Response Section Numbers	
01.01.01 (002)	241,
01.01.01.01 (001)	1013
01.01.01.01 (002)	278,
01.01.01.01 (004)	269,
01.01.01.01 (005)	515,
	625,
	722,
	780,
	812,
	927,
01.01.01.01 (008)	26, 3
	1091,
01.01.01.01 (010)	1154
01.01.01.01 (013)	1184
01.01.01.01 (015)	219,
01.01.01.01 (019)	440,
01.01.01.01 (022)	223,
	495,
	625,
	710,
	749,
	790,
	825,
	882,
	989,
	1020,
	1104,
	1332,
01.01.01.01 (026)	978,
01.01.01.01 (029)	186,
01.01.01.01 (033)	763
01.01.01.01 (038)	772
01.01.01.01 (039)	975
01.01.01.01 (040)	868
01.01.01.01 (041)	253
01.01.01.01 (042)	303,
01.01.01.01 (043)	847
01.01.01.01 (045)	446
01.01.01.01 (046)	1444
01.01.01.02 (001)	1433
01.01.01.02 (002)	1253
01.01.01.02 (003)	294
01.01.01.02 (004)	221,
01.01.01.02 (005)	730
01.01.01.02 (006)	36, 5
	364,
	497,
	598,
	756,
	828,
	880,

	952,
	984,
	1020,
	1062,
	1111,
	1143,
	1173,
	1219,
	1263,
	1299,
	1361,
	1395,
01.01.01.02 (008)	458,
01.01.01.02 (010)	862
01.01.01.02 (011)	232,
	653,
	671,
	1088,
	1188,
	1206,
	1221,
	1276,
	1317,
	1335,
	1360,
	1384,
	1434,
01.01.01.02 (012)	1012
01.01.01.02 (013)	1314
01.01.01.02 (014)	651,
01.01.01.02 (020)	250,
01.01.01.02 (024)	811
01.01.01.02 (025)	951
01.01.01.02 (026)	847,
01.01.01.02 (028)	958,
01.01.01.02 (033)	825
01.01.01.02 (035)	1444
01.01.02 (001)	714,
01.01.02 (002)	230
01.01.02 (003)	847
01.01.02 (005)	49, 7
	1393,
01.01.02 (006)	916
01.01.02 (007)	152,
01.01.03 (001)	724,
01.02 (001)	272,
	980,
01.02.01 (002)	975
01.02.01 (003)	307
01.02.01 (005)	256,
01.02.01.01 (001)	825
01.02.01.01 (002)	804
01.02.01.01 (003)	978,
01.02.01.01 (005)	802
01.02.01.01 (006)	904
01.02.01.01 (007)	1080,
01.02.01.02 (001)	36, 1
01.02.01.02 (002)	907,
01.02.01.02 (004)	797
01.02.01.02 (005)	1271
01.02.01.02 (006)	55, 1
	991,
01.02.01.02 (008)	146
01.02.01.02 (011)	765

01.02.01.02 (012)	996
01.02.01.02 (013)	1046
01.02.01.02 (014)	640
01.02.01.02 (016)	463
01.02.01.02 (017)	532,
01.02.01.02 (020)	771
01.02.02 (001)	483,
01.02.02 (002)	1218
01.02.02 (004)	560
01.02.02 (005)	610
01.02.02 (006)	610
01.02.03 (001)	964,
01.02.03 (002)	36, 4 340, 465, 779, 876, 1026, 1067, 1212, 1373,
01.02.03 (003)	847,
01.03 (001)	1055,
01.03 (003)	610
02 (001)	907,
02.01 (002)	44, 5
02.01 (003)	473,
02.01 (004)	515
02.01 (005)	515
02.01 (006)	238
02.01 (007)	225
02.01 (008)	844,
02.01 (009)	1031
02.01 (010)	938
02.01 (011)	515
02.01 (012)	707
02.01 (013)	849
02.01 (014)	823
02.01 (015)	610
02.01 (016)	610
02.01 (017)	832
02.01 (018)	744
02.01 (019)	930
02.01 (020)	825
02.01 (021)	1012
02.01 (022)	1080,
02.01 (023)	270,
02.01 (024)	877,
02.01 (025)	877
02.01 (026)	251,
02.01 (027)	845
02.01 (028)	1119
02.01 (029)	1061
02.01 (030)	242,
02.01 (031)	432
02.01 (032)	348
02.01 (033)	1445
02.02 (001)	515
02.02 (002)	158,
02.02 (003)	595,
02.02 (005)	1047
02.03 (001)	16
02.03 (002)	728,

02.03 (004)	483,
02.03 (005)	269,
02.03 (006)	907
02.03 (007)	447,
02.03 (008)	1021,
02.03 (009)	1044,
02.03 (010)	178
02.03 (011)	44
02.03 (012)	924
02.03 (014)	251,
02.03 (015)	251,
02.03 (017)	744
02.03 (018)	823
02.03 (019)	825,
02.03 (020)	908
02.03 (022)	1021,
02.03 (024)	269,
02.03 (025)	595,
02.03 (028)	721
02.03.01 (001)	453
02.03.01 (002)	1032
02.03.01 (003)	202
02.03.01 (004)	453
02.04 (001)	262,
02.04 (002)	296,
02.04 (003)	610
02.04 (004)	291,
02.04 (005)	225,
02.04 (006)	745
02.04 (007)	483,
02.04 (009)	1119
02.04 (010)	264,
02.04 (011)	1049,
02.04 (014)	483,
02.04 (017)	927
02.04 (019)	456,
02.04 (020)	924
02.04 (021)	447,
02.04 (022)	453
02.04 (023)	971
02.04 (024)	896
02.04 (025)	718
02.04 (026)	610,
02.04 (027)	610
02.04 (028)	244,
02.04 (029)	1201
02.04 (030)	924
02.04 (031)	847,
02.04 (032)	595,
02.04 (033)	870
02.04 (034)	633,
02.04 (036)	610
02.04 (037)	446,
02.04 (038)	847,
02.04 (040)	924
02.04 (041)	447,
02.04 (042)	631,
02.04 (043)	924
02.04 (044)	924
02.04 (045)	924
02.04 (046)	924
02.04 (047)	924
02.04 (048)	924
02.04 (049)	924

02.04 (050)	924
02.04 (051)	924
02.04 (052)	924
02.04 (053)	924
02.04 (054)	924
02.04 (055)	1012,
02.04 (056)	926
02.04 (057)	847
02.04 (058)	1021
02.04 (059)	1444
02.04 (060)	244,
02.04 (061)	924
02.04 (062)	456
02.05 (001)	595,
02.06 (001)	245,
02.06 (002)	908
02.06 (003)	294
02.06 (004)	315
02.06 (005)	907
02.06 (006)	827
02.06 (007)	351
02.06 (008)	908
02.06 (009)	432,
02.06 (010)	313
02.06 (016)	294
02.06 (021)	595,
02.06 (023)	630
02.06 (024)	595
02.06 (025)	134,
02.06 (027)	26, 2
02.06 (028)	428,
02.06 (030)	1021,
02.06 (031)	906
02.06 (032)	62
02.06 (033)	903
02.06 (034)	847,
02.06 (035)	432,
02.06 (036)	1257
02.06 (037)	297,
02.06 (039)	1040
02.06 (040)	847
02.07 (001)	208,
	874,
02.07 (002)	4, 5,
	57, 5
	74, 7
	95, 9
	113,
	280,
02.07 (004)	465,
02.07 (005)	858
02.07 (006)	915
02.07 (007)	244,
02.07 (008)	1035
02.07 (012)	131,
	329,
	1241,
02.07 (013)	148
02.07 (014)	738
02.08 (001)	243,
02.08 (002)	194,
	568,
	1034,
02.08 (005)	602

02.08 (006)	167,
02.08 (007)	173
02.08 (008)	468,
02.08 (009)	832,
02.08 (010)	877
02.08 (011)	778
02.08 (012)	610
02.08 (013)	847,
02.08 (015)	1302
02.08 (016)	631
02.08 (018)	908
02.08 (019)	629
02.08 (020)	251,
02.08 (021)	847
02.08 (022)	830
02.08 (023)	153,
02.08 (024)	92
02.08 (025)	158,
02.08 (026)	1044,
02.08 (027)	515
02.08 (029)	847
02.08 (030)	847
02.08 (032)	939
02.08 (033)	245
02.08 (034)	546,
02.08 (035)	721
02.08 (036)	1339
02.08 (037)	924
02.08 (039)	1007
02.08 (040)	610
02.08 (041)	193,
02.08 (042)	603,
02.08 (045)	298
02.08 (046)	256
02.08 (047)	261
02.08 (051)	1061
02.08 (052)	244,
02.08 (054)	744
02.08 (056)	744
02.08 (057)	915
02.08 (058)	845
02.08 (059)	908
03.01 (001)	26, 6
03.01 (002)	483,
03.01 (003)	483,
03.01 (004)	531
03.01 (005)	610
03.01 (008)	270
03.01 (009)	184
03.01 (014)	1053,
03.02 (001)	423
03.02 (002)	478,
03.02 (003)	311
03.03 (002)	312,
03.03 (005)	665
03.03 (008)	147, 411, 548, 955, 1014,
03.03 (012)	949
03.03 (013)	210
03.04 (001)	877
03.04 (002)	930

03.04 (003)	924
03.04 (004)	1119
03.04 (005)	1080,
03.04 (006)	1080,
03.04 (007)	167,
03.04 (008)	49, 4
03.04 (009)	49
03.04 (010)	208,
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	735,
	786,
	821,
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03.04 (012)	825
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03.04 (017)	1055,
03.04 (018)	540,
03.04 (019)	610
03.04 (021)	292
03.04 (022)	1080,
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03.04.01 (002)	559,
03.04.01 (004)	872
03.04.01 (005)	193
03.04.01 (007)	483,
03.05 (002)	896,
03.05 (003)	825
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03.05 (005)	344
03.05 (006)	928
03.05 (007)	495,
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	1283,
03.05 (008)	26, 5
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	999,
	1309,
03.05 (009)	612,
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	787,
	822,
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03.05 (018)	310,
03.05 (022)	600
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03.05 (025)	978,
03.05 (027)	1058,
03.05 (028)	1080,
03.05 (029)	1017,
03.05.03 (003)	126,
03.05.04 (002)	726
03.05.05 (001)	26
03.05.05 (002)	261
03.05.05 (003)	274,
03.05.05 (006)	874
03.05.05 (007)	428,
03.05.05 (010)	947
03.05.05 (011)	1026
03.05.05 (012)	977
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03.07 (001)	847,

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03.08 (002)	847,
03.08 (003)	635
03.08 (004)	1019,
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03.08 (007)	223,
03.08 (008)	313
03.08 (009)	936,
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03.08 (018)	1080,
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03.08 (024)	1251
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04.03 (006)	538,
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04.03 (017)	922
04.03 (018)	239
04.03 (019)	188
04.03 (020)	906
04.03 (021)	245,
04.03 (026)	947
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04.03 (032)	186,
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04.03 (036)	1007
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04.03 (039)	924
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04.03 (045)	847
04.03 (047)	425,
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04.03 (049)	903,
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04.03 (056)	832
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04.03.01 (003)	453
04.03.01 (005)	158,
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04.03.01 (007)	515,
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04.03.01 (010)	847
04.03.01 (012)	737,
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04.03.01 (019)	137,
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04.03.01 (021)	715
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04.03.01 (025)	847

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04.03.02 (004)	847
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05.02 (012)	924
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05.02 (016)	744
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05.02 (056)	924
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05.03 (003)	847
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05.04 (013)	924
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05.08 (007)	1080,
05.08 (008)	610,
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05.08.01 (004)	446,
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05.08.01 (006)	963
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05.08.01 (009)	515
05.08.01 (010)	924
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05.08.01 (020)	924,
05.08.01 (021)	595,
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05.08.01 (024)	847,
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05.08.01 (029)	924
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05.08.01 (032)	924
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05.08.01 (037)	515
05.08.01 (039)	847
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05.08.01 (041)	610,
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05.08.01 (047)	1433
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05.08.01 (054)	133
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05.08.01 (056)	515
05.08.02 (001)	439,
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05.08.02 (003)	858
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05.08.02 (005)	456,
05.08.02 (006)	924
05.08.02 (007)	602
05.08.02 (009)	824
05.08.02 (010)	304
05.08.02 (012)	877
05.08.03 (001)	924
05.08.03 (003)	252
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05.08.03 (006)	825
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05.10 (046)	1032
05.10 (047)	924
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05.10 (052)	924
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05.10 (056)	832
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05.10 (061)	673
05.10 (063)	744,
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05.12.06 (001)	924
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05.19 (006)	881
05.19 (008)	599
05.19 (009)	924
05.19 (011)	325,
05.19 (012)	1044,
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05.19 (014)	515
05.19 (015)	602
05.19 (016)	170
05.19 (017)	924
05.19 (018)	1080,
05.19 (019)	849
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	971,

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06.01 (008)	237
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06.01 (013)	468,
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06.01 (016)	259
06.01 (017)	877
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06.02 (011)	294
06.02 (012)	602
06.02 (013)	515
06.02 (014)	515,
06.02 (015)	482,
06.02 (016)	908
06.02 (019)	599,
06.02 (020)	456
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06.02 (029)	877
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06.02 (031)	924
06.02 (032)	545
06.02 (033)	768
06.02 (034)	729
06.02 (035)	797
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06.02 (037)	1080,
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06.03 (006)	924
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06.03 (014)	610,
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06.04.01 (004)	859,
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06.05 (028)	158,
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08.04 (021)	276,
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