

ACCESSION NUMBER: 0016

DOCUMENT TYPE: RT

TITLE: Fissile Materials Disposition Program Alternative Technical Summary Report:
Ceramic Greenfield Variant

ORIG. DOC. NO.: UCRLID122662; L202181

DOCUMENT DATE: 960826

ORIGINATING AGENCY: Lawrence Livermore National Laboratory, Livermore, CA

PAGES: 0078

REEL: FRAME:

AUTHORS: Gray L W

ABSTRACT: The Department of Energy (DOE) is examining options for placing weapons-usable surplus nuclear materials, principally plutonium (Pu) and highly enriched uranium (HEU), in a form or condition that is inherently unattractive and inaccessible for use in weapons either by the host country or by a subnational group. The potential environmental impacts of technologies to implement this objective for plutonium are described in the Fissile Materials Disposition (MD) Program's *Storage Disposition of Weapons-Usable Fissile Materials Programmatic Environmental Impact Statement* (PEIS). The PEIS is only part of the process of arriving at a Record of Decision (ROD) for the Fissile Materials Disposition Program (FMDP). In Phase I of this process, a number of options were eliminated from further consideration. The surviving options can be grouped into three groups of variants treated as reasonable in the PEIS: 1) Plutonium burning in a once-through reactor cycle as mixed oxide (MOX) fuel followed by disposal in a repository, 2) Immobilization or fixation in an acceptable matrix to create an environmentally benign form for disposal in a repository, and 3) Disposal in deep boreholes (with or without prior fixation). In Phase II of this process, variants of these alternatives are being examined in more detail to provide more complete information desired for an ROD which includes consideration of technical viability, cost, schedule, and other factors.

KEYWORDS: PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS),
NUCLEAR MATERIALS, PLUTONIUM, URANIUM, STORAGE SAFEGUARDS,
CERAMIC FABRICATION

CROSSINDEX:

PROVENANCE:

LOCATIONS: Lawrence Livermore National Laboratory, Livermore, CA

ACCESSION NUMBER: 0017

DOCUMENT TYPE: RT

TITLE: Fissile Materials Disposition Program Alternative Technical Summary Report:
Vitrification Adjunct Melter to DWPF Variant

ORIG. DOC. NO.: UCRLID122660; L202171

DOCUMENT DATE: 960826

ORIGINATING AGENCY: Lawrence Livermore National Laboratory, Livermore, CA

PAGES: 0064

REEL: FRAME:

AUTHORS: Gray L W

ABSTRACT: The Department of Energy (DOE) is examining options for placing weapons-usable surplus nuclear materials, principally plutonium (Pu) and highly enriched uranium (HEU), in a form or condition that is inherently unattractive and inaccessible for use in

weapons either by the host country or by a subnational group. The potential environmental impacts of technologies to implement this objective for plutonium are described in the Fissile Materials Disposition (MD) Program's *Storage Disposition of Weapons-Usable Fissile Materials Programmatic Environmental Impact Statement* (PEIS). The PEIS is only part of the process of arriving at a Record of Decision (ROD) for the Fissile Materials Disposition Program (FMDP). In Phase I of this process, a number of options were eliminated from further consideration. The surviving options can be grouped into three groups of variants treated as reasonable in the PEIS: 1) Plutonium burning in a once-through reactor cycle as mixed oxide (MOX) fuel followed by disposal in a repository, 2) Immobilization or fixation in an acceptable matrix to create an environmentally benign form for disposal in a repository, and 3) Disposal in deep boreholes (with or without prior fixation). In Phase II of this process, variants of these alternatives are being examined in more detail to provide more complete information desired for an ROD which includes consideration of technical viability, cost, schedule, and other factors.

KEYWORDS: PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS), NUCLEAR MATERIALS, PLUTONIUM, URANIUM, STORAGE SAFEGUARDS, VITRIFICATION ADJUNCT MELTER

CROSSINDEX:

PROVENANCE:

LOCATIONS: Lawrence Livermore National Laboratory, Livermore, CA

ACCESSION NUMBER: 0018

DOCUMENT TYPE: RT

TITLE: Fissile Materials Disposition Program Alternative Technical Summary Report: Vitrification Greenfield Variant

ORIG. DOC. NO.: UCRLID122663

DOCUMENT DATE: 960826

ORIGINATING AGENCY: Lawrence Livermore National Laboratory, Livermore, CA

PAGES: 0066

REEL: FRAME:

AUTHORS: Gray L W

ABSTRACT: The Department of Energy (DOE) is examining options for placing weapons-usable surplus nuclear materials, principally plutonium (Pu) and highly enriched uranium (HEU), in a form or condition that is inherently unattractive and inaccessible for use in weapons either by the host country or by a subnational group. The potential environmental impacts of technologies to implement this objective for plutonium are described in the Fissile Materials Disposition (MD) Program's *Storage Disposition of Weapons-Usable Fissile Materials Programmatic Environmental Impact Statement* (PEIS). The PEIS is only part of the process of arriving at a Record of Decision (ROD) for the Fissile Materials Disposition Program (FMDP). In Phase I of this process, a number of options were eliminated from further consideration. The surviving options can be grouped into three groups of variants treated as reasonable in the PEIS: 1) Plutonium burning in a once-through reactor cycle as mixed oxide (MOX) fuel followed by disposal in a repository, 2) Immobilization or fixation in an acceptable matrix to create an environmentally benign form for disposal in a repository, and 3) Disposal in deep boreholes (with or without prior fixation). In Phase II of this process, variants of these alternatives are being examined in more detail to provide more complete information desired for an ROD which includes consideration of technical viability, cost, schedule, and other factors.

KEYWORDS: PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS), NUCLEAR MATERIALS, PLUTONIUM, URANIUM, STORAGE SAFEGUARDS, VITRIFICATION

CROSSINDEX:

PROVENANCE:

LOCATIONS: Lawrence Livermore National Laboratory, Livermore, CA

ACCESSION NUMBER: 0019

DOCUMENT TYPE: RT

TITLE: Fissile Materials Disposition Program Alternative Technical Summary Report: Vitrification Can-in-Canister Variant

ORIG. DOC. NO.: UCRLID122659; L202161

DOCUMENT DATE: 960826

ORIGINATING AGENCY: Lawrence Livermore National Laboratory, Livermore, CA

PAGES: 0077

REEL: FRAME:

AUTHORS: Gray L W

ABSTRACT: The Department of Energy (DOE) is examining options for placing weapons-usable surplus nuclear materials, principally plutonium (Pu) and highly enriched uranium (HEU), in a form or condition that is inherently unattractive and inaccessible for use in weapons either by the host country or by a subnational group. The potential environmental impacts of technologies to implement this objective for plutonium are described in the Fissile Materials Disposition (MD) Program's *Storage Disposition of Weapons-Usable Fissile Materials Programmatic Environmental Impact Statement (PEIS)*. The PEIS is only part of the process of arriving at a Record of Decision (ROD) for the Fissile Materials Disposition Program (FMDP). In Phase I of this process, a number of options were eliminated from further consideration. The surviving options can be grouped into three groups of variants treated as reasonable in the PEIS: 1) Plutonium burning in a once-through reactor cycle as mixed oxide (MOX) fuel followed by disposal in a repository, 2) Immobilization or fixation in an acceptable matrix to create an environmentally benign form for disposal in a repository, and 3) Disposal in deep boreholes (with or without prior fixation). In Phase II of this process, variants of these alternatives are being examined in more detail to provide more complete information desired for an ROD which includes consideration of technical viability, cost, schedule, and other factors.

KEYWORDS: PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS), NUCLEAR MATERIALS, PLUTONIUM, URANIUM, STORAGE SAFEGUARDS, VITRIFICATION, CAN-IN-CANISTER VARIANT

CROSSINDEX:

PROVENANCE:

LOCATIONS: Lawrence Livermore National Laboratory, Livermore, CA

ACCESSION NUMBER: 0020

DOCUMENT TYPE: RT

TITLE: Longitudinal Review of State-Level Accident Statistics for Carriers of Interstate Freight

ORIG. DOC. NO.: ANLESDTM68

DOCUMENT DATE: 940300

ORIGINATING AGENCY: Department of Energy

PAGES: 0041

REEL: FRAME:

AUTHORS: Saricks C, Kvittek T

ABSTRACT: State-level accident rates by mode of freight transport have been developed and refined for application to the U.S. Department of Energy's (DOE's) environmental mitigation program, which may involve large-quantity shipments of hazardous and mixed wastes from DOE facilities. These rates reflect multiyear data for interstate-registered highway carriers, American Association of Railroads member carriers, and coastal and internal waterway barge traffic. Adjustments have been made to account for the share of highway combination-truck traffic actually attributable to interstate-registered carriers and for duplicate or otherwise inaccurate entries in the public-use accident data files used. State-to-state variation in rates is discussed, as is the stability of rates over time. Computed highway rates have been verified with actual carriers of high- and low-level nuclear materials, and the most recent truck accident data have been used, to ensure that the results are of the correct order of magnitude. Study conclusions suggest that DOE use the computed rates for the three modes until (1) improved estimation techniques for highway combination-truck miles by state become available, (2) continued evolution of the railroad industry significantly increases the consolidation of interstate rail traffic onto fewer high-capacity trunk lines, or (3) a large-scale off-site waste shipment campaign is imminent.

KEYWORDS: HAZARDOUS WASTE, TRANSPORTATION, NUCLEAR MATERIALS, ACCIDENT STATISTICS

CROSSINDEX:

PROVENANCE:

LOCATIONS: Argonne National Laboratory, Argonne, IL

ACCESSION NUMBER: 0021

DOCUMENT TYPE: DD, RT

TITLE: Evolutionary/Advanced Light Water Reactor Data Report

ORIG. DOC. NO.: UCRLID123411

DOCUMENT DATE: 960209

ORIGINATING AGENCY: Department of Energy

PAGES: 0084

REEL: FRAME:

AUTHORS: Lawrence Livermore National Laboratory and Oak Ridge National Laboratory

ABSTRACT: The U.S. Department of Energy (DOE), Office of Fissile Material Disposition, is examining options for placing fissile materials that were produced for fabrication of weapons, and now are deemed to be surplus, into a condition that is substantially irreversible and makes its use in weapons inherently more difficult. The principal fissile materials subject to this disposition activity are plutonium and uranium containing substantial fractions of plutonium-239 and uranium-235. The data in this report, prepared as technical input to the fissile material disposition Programmatic Environmental Impact Statement (PEIS) deal only with the disposition of plutonium that contains well over 80% plutonium-239. In fact, the data were developed on the basis of weapon-grade plutonium which contains, typically, 93.6% plutonium-239 and 5.9% plutonium-240 as the principal isotopes. One of the options for disposition of weapon-grade plutonium being considered is the power reactor alternative. Plutonium would be fabricated into

mixed oxide (MOX) fuel and fissioned ("burned") in a reactor to produce electric power. The MOX fuel will contain dioxides of uranium and plutonium with less than 7% weapon-grade plutonium and uranium that has about 0.2% uranium-235. New LWRs could be constructed especially for disposition of plutonium. These would be of the latest U.S. design(s) incorporating numerous design simplifications and safety enhancements. These "evolutionary" or "advanced" designs would offer not only technological advances, but also flexibility in siting and the option of either government or private (e.g., utility) ownership. The new reactor designs can accommodate somewhat higher plutonium throughputs. This data report deals solely with the "evolutionary" LWR alternative.

KEYWORDS: PLUTONIUM, URANIUM, PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS), FISSILE MATERIALS, DISPOSITION, LIGHT WATER REACTOR, SAFEGUARDS, WASTE DISPOSAL

CROSSINDEX:

PROVENANCE:

LOCATIONS: Lawrence Livermore National Laboratory, Livermore, CA; Oak Ridge National Laboratory, Oak Ridge, TN

ACCESSION NUMBER: 0022

DOCUMENT TYPE: DD, RT

TITLE: Fissile Materials Disposition Program Light-Water Reactor PEIS Data Report Revision 3

ORIG. DOC. NO.: ORNLMDLTR42

DOCUMENT DATE: 951221

ORIGINATING AGENCY: Department of Energy

PAGES: 0036

REEL: FRAME:

AUTHORS: Oak Ridge National Laboratory

ABSTRACT: Fissile Materials Disposition Program / Programmatic Environmental Impact Statement data reports: Appendix A - Commercial Light-Water Reactor Operational Characteristics and Appendix B - Commercial Light-Water Reactor Using Mixed Oxide Fuel (Operational Deltas).

KEYWORDS: FISSILE MATERIAL, LIGHT-WATER REACTOR, PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS), MIXED OXIDE FUEL, WASTE MANAGEMENT, TRANSPORTATION, SAFEGUARDS, RADIOACTIVE EFFLUENTS

CROSSINDEX:

PROVENANCE:

LOCATIONS: Oak Ridge National Laboratory, Oak Ridge, TN

ACCESSION NUMBER: 0023

DOCUMENT TYPE: DD, RT

TITLE: Fissile Materials Disposition Program CANDU Programmatic Environmental Impact Statement Data Report Revision 1

ORIG. DOC. NO.: ORNLMDLTR20

DOCUMENT DATE: 950605

ORIGINATING AGENCY: Department of Energy

PAGES: 0027

REEL: FRAME:

AUTHORS: Oak Ridge National Laboratory, Oak Ridge, TN

ABSTRACT: Fissile Materials Disposition Program (FMDP) Programmatic Environmental Impact Statement (PEIS) CANDU Reactor Using Mixed Oxide Fuel Option. One critical assumption incorporated throughout this document is that data supplied by AECL Technologies, Inc., and Ontario Hydro Nuclear from the Plutonium Disposition Study (PDS) is valid in all cases.

KEYWORDS: FISSILE MATERIAL, PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS), MIXED OXIDE FUEL, RADIONUCLIDES, WASTE MANAGEMENT, TRANSPORTATION, RADIOACTIVE EFFLUENTS, SAFEGUARDS
CROSSINDEX:

PROVENANCE:

LOCATIONS: Oak Ridge National Laboratory, Oak Ridge, TN

ACCESSION NUMBER: 0024

DOCUMENT TYPE: RT

TITLE: Civilian Radioactive Waste Management System Management & Operating Contractor Interim Report on Evaluation of Plutonium Waste Forms For Repository Disposal

ORIG. DOC. NO.: DIA0000000001717570500009REV00A

DOCUMENT DATE: 960209

ORIGINATING AGENCY: Department of Energy

PAGES: 0045

REEL: FRAME:

AUTHORS: TRW Environmental Safety Systems Inc., Vienna, VA

ABSTRACT: On September 27, 1993 President Clinton established a policy to seek to eliminate accumulation of stockpiles of highly enriched uranium (HEU) and plutonium. At that time, the President initiated a comprehensive review of long-term options for plutonium disposition and invited Russia to participate. On March 1, 1994, to further demonstrate commitment to the goals of the Nuclear Nonproliferation Treaty, the Nuclear Weapons Council ordered that 200-metric tons of fissile material (HEU and plutonium) be permanently withdrawn from the US nuclear stockpile. This is in addition to the 10 metric tons of HEU made available in 1994 for international safeguards, and the about 600 kg of HEU brought in from Kazakhstan. Of the 200-metric tons declared surplus, about 50 metric tons is plutonium and 150-metric tons is HEU. In August of 1994, the Office of Fissile Materials Disposition (MD) contracted with the Office of Civilian Radioactive Waste Management (RW) to conduct a study to evaluate the feasibility of disposing plutonium waste forms in a high-level waste (HLW) repository. This feasibility analysis supports the development of MD's Long-Term Storage and Disposition of Weapons-Usable Fissile Materials Programmatic Environmental Impact Analysis (PEIS) and the subsequent Record of Decision (ROD). In support of the above activities, this report analyzes the following options, consistent with the PEIS documentation: 1) Mixed oxide (MOX) spent fuel produced from existing reactors, 2) MOX spent fuel produced from partially complete reactors, 3) MOX spent fuel produced from advanced or evolutionary reactors, 4) A plutonium glass form produced in a new (Greenfield) vitrification facility, 5) A plutonium ceramic form produced in a new (Greenfield) facility, and 6) A plutonium waste form produced by electrometallurgical treatment. Waste package shielding, thermal, and structural analyses for these

waste forms show no significant issues for disposal in a repository. An evaluation of the long-term performance of the plutonium waste forms also shows that they are all potential candidates for geologic disposal. To satisfy the NRC licensing requirements and to comply with the NEPA requirements of the NWPA, additional data will need to be developed and analyzed before any decisions can be made related to acceptability of these waste forms into a licensed repository.

KEYWORDS: URANIUM, PLUTONIUM, FISSILE MATERIAL, MIXED OXIDE FUEL, CRITICALITY, WASTE MANAGEMENT, ELECTROMETALLURGICAL TREATMENT, GREENFIELD GLASS FACILITY, CERAMIC FACILITY

CROSSINDEX:

PROVENANCE:

LOCATIONS:

ACCESSION NUMBER: 0025

DOCUMENT TYPE: PN

TITLE: Comprehensive Test Ban Treaty Research and Development FY95-96 Program Plan

ORIG. DOC. NO.: DOENN0003

DOCUMENT DATE: 941100

ORIGINATING AGENCY: Department of Energy

PAGES: 0060

REEL: FRAME:

AUTHORS: Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Pacific Northwest Laboratory, Sandia National Laboratories in coordination with Other US Government Agencies and the Private Sector

ABSTRACT: DOE has the responsibility for the research and development essential to provide the US agencies responsible for monitoring compliance with a CTBT with the integrated systems necessary to detect, locate, identify, and characterize nuclear explosions. Successful fulfillment of this responsibility will increase confidence in the performance of the monitoring system by reducing the number of false alarms to the lowest level consistent with effective detection of treaty violations. The program will focus on seismic, radionuclide, hydroacoustic, and infrasound monitoring, on-site inspection monitoring, space-based monitoring, and automated data processing technologies. To address these responsibilities, DOE and its National Laboratories have committed themselves to a cooperative, structured program that draws upon the core competencies of each DOE organization; the strengths of other agencies, the private sector, and universities; and frequent interaction with end users. The integration of resources and coordination with the users will allow the program to develop and demonstrate effective monitoring technologies, algorithms, procedures, and integrated systems in a cost-effective and timely manner. The introduction of a formal, multilaboratory structure for program management will support integrated system developments and future improvements, and facilitate interaction with the agencies responsible for monitoring and/or verifying compliance with a CTBT.

KEYWORDS: COMPREHENSIVE TEST BAN TREATY, SECURITY, SEISMIC MONITORING, RADIONUCLIDE, HYDROACOUSTIC, INFRASOUND

CROSSINDEX:

PROVENANCE:

LOCATIONS:

ACCESSION NUMBER: 0026

DOCUMENT TYPE: SA

TITLE: Department of the Navy Final Environmental Impact Statement for a Container System for the Management of Naval Spent Nuclear Fuel

ORIG. DOC. NO.: DOEEIS0251

DOCUMENT DATE: 961100

ORIGINATING AGENCY: Department of the Navy

PAGES: 0310

REEL: FRAME:

AUTHORS: Department of the Navy with the Department of Energy

ABSTRACT: This Final Environmental Impact Statement (EIS) addresses six general alternative systems for the loading, storage, transport, and possible disposal of naval spent nuclear fuel following examination. It supersedes the Draft Environmental Impact Statement for a Container System for the Management for Naval Spent Nuclear Fuel dated May 1996. This EIS describes environmental impacts of 1) producing and implementing the container systems (including those impacts resulting from the addition of the capability to load the containers covered in this EIS in dry fuel handling facilities at Idaho National Engineering Laboratory (INEL)), 2) loading of naval spent nuclear fuel at the Expanded Core Facility or at the Idaho Chemical Processing Plant with subsequent storage at INEL, 3) construction of a storage facility (such as a paved area) at alternative locations at INEL, and 4) loading of containers and their shipment to a geologic repository or to a centralized interim storage site outside the State of Idaho once one becomes available. As indicated in the EIS, the systems and facilities might also be used for handling low-level radiological waste categorized as special case waste. As identified in the Draft EIS, the following factors were considered in selecting a preferred alternative in this Final EIS: public comments, protection of human health and the environment, cost, technical feasibility, operational efficiency, regulatory impacts, and storage or disposal criteria which may be established for a repository or centralized interim storage site outside the State of Idaho. Based on evaluation of these factors, the Navy's preferred alternative for a container system for the management of naval spent fuel is a dual-purpose canister system. The primary benefits of a dual-purpose canister system are efficiencies in container manufacturing and fuel reloading operations, and potential reduction in radiation exposure. This EIS evaluated options for a dry storage facility for naval spent nuclear fuel, including existing facilities at INEL and currently undeveloped locations potentiall not above the Snake River Aquifer. The Navy's preferred alternative for a dry storage location for naval spent nuclear fuel is to utilize either a site adjacent to the Expanded Core Facility at the Naval Reactors Facility or a site at the Idaho Chemical Processing Plant at INEL. These locations offer several important advantages, including already existing fuel handling facilities and trained personnel. In addition,, use of these INEL facilities would protect previously undisturbed areas; development of these undisturbed sites would incur increased environmental impacts while offering no environmental advantage. This Final EIS includes public comments received on the Draft EIS and responses to those comments.

KEYWORDS: NAVY, DUAL-PURPOSE CANISTER SYSTEM, NUCLEAR FUEL, STORAGE, DISPOSITION, TRANSPORTATION, RADIATION, DRY STORAGE FACILITY, CONTAINER SYSTEMS, WASTE MANAGEMENT, SAFEGUARDS, ENVIRONMENTAL EFFECTS, JUSTICE, HEALTH RISKS, SOCIOECONOMICS, POLLUTION, STORAGE ALTERNATIVES

CROSSINDEX:

PROVENANCE:

LOCATIONS: Idaho National Engineering Laboratory, Idaho Falls, ID; Snake River Aquifer, ID; Expanded Core Facility, INEL, Idaho Falls, ID; Idaho Chemical Processing Plant Storage Facility, INEL, Idaho Falls, ID

ACCESSION NUMBER: 0027

DOCUMENT TYPE: RT

TITLE: Siting Feasibility of Locations For Dry Storage Facility on the INEL That are Removed From Over the Snake River Plain Aquifer

ORIG. DOC. NO.:

DOCUMENT DATE: 960422

ORIGINATING AGENCY: Idaho National Engineering Laboratory, Idaho Falls, ID

PAGES: 0022

REEL: FRAME:

AUTHORS: Paul C. Rizzo Associates

ABSTRACT: The agreement between the State of Idaho and the federal government involving the shipment of additional spent nuclear fuel to the Idaho National Engineering Laboratory (INEL) includes a provision that all spent nuclear fuel at INEL will be transferred from wet storage to dry storage (U.S. District Court, 1995; Paragraph E.8). The agreement also states that "DOE shall, after consultation with the State of Idaho, determine the location of the dry storage facilities within the INEL, which shall, to the extent technically feasible, be at a point removed from above the Snake River Plain Aquifer." The purpose of this report is to address locations at INEL that might be removed from above the Snake River Plain Aquifer (SRP Aquifer) and to compare them to locations at INEL that are over the SRP Aquifer. As part of the search for a technically feasible location at a point removed from above the SRP Aquifer, this report also addresses the recharge to the SRP Aquifer, the magnitude of potential earthquakes, and topography and foundation conditions of the area. In addressing siting considerations for a new dry storage facility at the INEL, this report places particular emphasis on the hydrogeologic characteristics of the aquifers that comprise the Snake River Basin. Accordingly, the Report addresses the geologic characteristics and aquifer hydrogeologic properties of the SRP Aquifer within the context of the larger Snake River Basin.

KEYWORDS: WASTE MANAGEMENT, IDAHO, SAFEGUARDS, SEISMICITY, VOLCANICLASTICS

CROSSINDEX:

PROVENANCE:

LOCATIONS: Idaho National Engineering Laboratory, Idaho Falls, ID; Snake River Basin, ID; Lemhi Range Area, ID; Birch Creek Area, ID

ACCESSION NUMBER: 0028

DOCUMENT TYPE: DD, RT

TITLE: PEIS Upgrade Data Report on Plutonium Storage at the Savannah River Site

ORIG. DOC. NO.: NMPPLS940288

DOCUMENT DATE: 940801

ORIGINATING AGENCY: Department of Energy

PAGES: 0094

REEL: FRAME:

AUTHORS:

ABSTRACT: Volume I - Data Report (including Summary and Environmental Data). Two related events have combined to create an unprecedented condition in the history of the nuclear weapons programs. The first event is the cessation of the production of nuclear weapons and most nuclear weapons components by the Department of Energy (DOE). The second event is a significant scheduled reduction in the military nuclear weapons stockpile. The condition resulting from these two governmental actions is a large surplus of weapons-grade plutonium. Storage of this plutonium in a safe, secure manner for decades is the challenge facing the DOE. Prior to these events, most plutonium was either located in the military stockpile or in interim storage at eight DOE-owned facilities, or was undergoing processing or fabrication. During the reduction of the weapons stockpile, DOE plans to dismantle the weapons and place the plutonium in interim storage at the Pantex Plant. DOE's long-term plans include selecting and developing an ultimate disposition method for the surplus plutonium. It is expected to take several years to select a method and begin disposing of the surplus plutonium, and several decades to dispose of all the plutonium currently in interim storage at DOE facilities. Prior to disposal, the surplus plutonium will need to be stored. Congress must decide where the nation's plutonium will be stored and the combination of new and existing facilities that will be used. The goal is to provide the best long-term storage solution based on initial capital cost, the total life cycle costs and socioeconomic impacts. The Programmatic Environmental Impact Statement/Record of Decision (PEIS/ROD) process will be used to select an alternative. There are three types of alternatives under consideration for the storage of DOE plutonium: a) "No action" - Under this alternative, existing storage facilities would continue to store plutonium. No significant changes would be incorporated into existing facilities or storage methods. This alternative may not comply with the long-term storage requirements; b) "Upgrade" - Under this alternative, plutonium would continue to be stored at some or all of the existing storage locations. The facilities and storage methods would be upgraded and/or modified to satisfy the long-term storage criteria and all Federal, State, and local Environmental Safety and Health (ES&H) regulatory requirements; c) "Consolidated" - Under this alternative, all the plutonium would be stored at a new storage plant. Plutonium storage in existing storage facilities would be phased-out.

KEYWORDS: PLUTONIUM, STORAGE, TRITIUM, NAVAL FUELS, WASTE MANAGEMENT, TRANSPORTATION, HAZARDOUS MATERIAL, SAFEGUARDS

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PROVENANCE:

LOCATIONS: