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Supplement Analysis

For

THE DISPOSAL OF CERTAIN ROCKY FLATS PLUTONIUM-BEARING MATERIALS AT THE WASTE ISOLATION PILOT PLANT

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Supplement Analysis For Disposal of Certain Rocky Flats Plutonium-Bearing Materials at the Waste Isolation Pilot Plant

PURPOSE

The U.S. Department of Energy (DOE) is proposing to revise its approach for managing approximately 0.97 metric tons (MT) of plutonium-bearing materials (containing about 0.18 MT of surplus plutonium) located at the Rocky Flats Environmental Technology Site (RFETS). DOE is proposing to repackage and transport these materials for direct disposal at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico.

Several DOE environmental impact statements (EISs) discuss the potential impacts from different proposed alternatives for the storage and disposition of surplus plutonium and waste containing surplus plutonium. These EISs evaluated and presented the potential impacts for several disposal alternatives including conversion to mixed-oxide (MOX) fuel, immobilization, and direct disposal at WIPP. DOE also has prepared two supplement analyses (SAs) to assess changes to proposals for storing surplus plutonium. In addition, DOE has issued several Records of Decision (RODs), amended RODs, and supplemental RODs that determine the disposition paths for surplus plutonium and plutonium-bearing materials within the DOE complex.

The Council on Environmental Quality regulations for implementing the National Environmental Policy Act (NEPA) [40 CFR 1502.9(c)] direct Federal agencies to prepare a supplemental EIS when an agency "(i) makes substantial changes in the proposed action that are relevant to environmental concerns, or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or impacts." When it is unclear whether a supplemental EIS is required, DOE NEPA regulations (10 CFR 1021.314(c)) direct the preparation of a SA to assist in making that determination.

The purpose of this SA is to evaluate, through the use of analyses in existing NEPA documents, the potential impacts of repackaging and transporting approximately 0.97 MT of RFETS plutonium-bearing materials (containing about 0.18 MT of surplus plutonium) for direct disposal at WIPP and to determine if additional NEPA analysis is required.

BACKGROUND

Historically, Rocky Flats has used a material identification system that segregated plutonium-bearing materials by process origin and/or to designate the subsequent process steps for plutonium recovery and recycle. The categorization is known as Item Description Codes (IDCs). In January 1993, these IDCs were grouped into two major categories, Product and Residue, in order to plan and manage the future disposition of the Site's plutonium-bearing materials. The characterization of plutonium-bearing materials as Product or Residue was based on the average plutonium concentration of each IDC, the relative ease or difficulty of recovery, and/or whether an IDC was traditionally considered Product or Residue. In general, the Product category was comprised of IDCs with average plutonium concentrations greater than 50 percent by weight. However, an IDC could be designated as residue material although some individual items within

this IDC exceed 50 percent by weight. Similarly, an IDC could be designated as Product material although some individual items within this IDC are less than 50 percent by weight.

DOE has already decided to dispose of the Residue materials at WIPP as transuranic waste (TRUW)[1] (DOE, 1998c and 2001a). The Product materials were originally part of a set of materials destined to be repackaged and sent to the Savannah River Site (SRS) for storage and possible subsequent disposition (DOE, 1997a; DOE 2002b). However, as the Rocky Flats closure plans matured, a more detailed review has been undertaken of the items within the Product oxide IDCs. This evaluation revealed that a significant quantity of the materials in the Product oxide IDCs contained plutonium concentrations comparable to the Residue materials. Additionally, these items contained the same plutonium compounds and many of the same impurities and physical characteristics as the materials in the Residue IDCs. In fact, these low assay oxides from the Product IDCs:

- originated from the same aqueous recovery processes and/or contain impurities similar to the Wet Residue category; or

- originated from the same pyrochemical processes and/or contained impurities similar to the Salt Residue category; or

- originated from the same process lines and/or contained impurities comparable to the Ash Residue category.

This SA addresses approximately 0.97 MT of low assay oxides (containing about 0.18 MT of surplus plutonium) from the Product IDCs. These low assay oxides are referred to in this SA as "proposed action materials." In order to dispose of the RFETS Residue materials at WIPP, the Residue materials were repackaged to meet the requirements for safeguards termination[2] and the WIPP waste acceptance criteria (WAC). The proposed action materials would be repackaged in a like manner for disposal at WIPP.

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[1] For waste classification, DOE specifically defines TRUW as waste containing more than 100 nanocuries of alpha emitting transuranic isotopes per gram of waste with half-lives greater than 20 years except as noted in Chapter III of DOE Guide 435.1-1 (DOE, 1999a).

[2] DOE Order 474.1 requires taking certain steps or meeting certain conditions before nuclear materials are considered sufficiently unattractive, as a source of fissile material for illicit purposes, to allow them to be exempted from safeguard controls. The primary step includes blending the plutonium-bearing materials with inhibitor materials to make the nuclear material less attractive and having lower plutonium concentration. DOE approved the necessary steps and conditions to terminate safeguard controls for certain Residue materials and low assay oxides in a memorandum from Barbara A. Mazurowski, Manager, Rocky Flats Field Office to Robert E. Tiller, Kaiser-Hill Company, LLC (*Approval of Variance Request RFPK-DOE-474.1-VR-062B, Termination of Safeguards on Attractiveness Level D Waste*, March 15, 2001). In August 2002, DOE confirmed that the proposed action materials are covered by this variance approval in a memorandum from Ned B. Larson, Acting Office Director, Rocky Flats Program Office to Eugene C. Schmidt, Manager, Rocky Flats Field Office (*Safeguards Termination limit Variance Regarding Rocky Flats Low-Grade Plutonium Oxides,* August 5, 2002). A discussion of safeguards termination limits can be found in Residues EIS Summary, section 1.3.1 (DOE, 1998b) and the related Records of Decision (DOE, 1998c and DOE, 2001a).

PRIOR NEPA DOCUMENTATION

During the 1990's, DOE prepared several NEPA documents to address the management and disposition of surplus nuclear materials and wastes associated with the production of nuclear weapons during the Cold War within the DOE complex. NEPA documents providing the programmatic and site-specific bases to implement the disposition of plutonium-bearing materials within the DOE complex include the following:

1 *Storage and Disposition of Weapons-Usable Fissile Materials Final Programmatic Environmental Impact Statement* (S&D PEIS), DOE/EIS-0229, December 1996.

2. *Waste Isolation Pilot Plant Disposal Phase Supplemental Environmental Impact Statement* (SEIS-II), DOE-EIS-0026-FS2, September 1997.

3. *Final Environmental Impact Statement on Management of Certain Plutonium Residues and Scrub Alloy Stored at the Rocky Flats Environmental Technology Site* (Residues EIS), DOE/EIS-0277F, August 1998.

4. *Surplus Plutonium Disposition Final Environmental Impact Statement* (SPD EIS), DOE/EIS-0283, November 1999.

5. *Supplement Analysis for Storing Plutonium in the Actinide Packaging and Storage Facility and Building 105-K at the Savannah River Site*, DOE/EIS-0229-SA-1, July 1998.

6. *Supplement Analysis for Storage of Surplus Plutonium Materials in the K-Area Material Storage Facility at the Savannah River Site,* DOE/EIS-0229-SA-2, February 2002.

The S&D PEIS analyzed the storage and disposition of up to 50 MT of surplus plutonium. The project-specific EIS documents (Residues EIS and SPD EIS) and the two SAs analyzed various actions for specific plutonium-bearing material categories at several DOE sites, including support of the RFETS closure by packaging and shipping the majority of the plutonium-bearing residues for disposal at WIPP and the remainder of the non-pit plutonium materials to SRS for storage and possible disposition. The SEIS-II analyzed the disposal of defense-related TRUW including waste treatment options, transportation to WIPP, and the disposal of this waste in the WIPP repository.

The various EISs present potential impacts for both normal and accident conditions, and for the preferred and other reasonable alternatives. The EISs cover a range of actions including the characterization, management, storage, stabilization, packaging, transportation, processing, and disposal of the surplus plutonium from various sites throughout the DOE complex. The SAs analyzed changing the storage facility at the SRS for surplus plutonium from various sites in the DOE complex, including RFETS. The July 1998 SA (DOE, 1998a) analyzed storing RFETS surplus plutonium in the existing K-Area Materials Storage (KAMS) Facility in Building 105-K pending completion of a new facility, the Actinide Packaging and Storage Facility (APSF). The February 2002 SA (DOE, 2002a) analyzed the long-term storage of surplus plutonium from

RFETS and the Hanford Site in KAMS instead of in APSF, in light of DOE's decision to cancel the APSF (DOE, 2001b).

DOE is now proposing to dispose of approximately 0.18 MT of the RFETS surplus plutonium (contained in approximately 0.97 MT of bulk materials) at WIPP instead of storing it in KAMS at SRS, pending possible disposition through other means. This SA examines whether the potential impacts of this action are adequately described in the WIPP SEIS-II. It should be noted that disposal at WIPP of the 50 MT of surplus plutonium from around the DOE complex that were the subject of the S&D PEIS was previously considered in scoping all alternatives for that PEIS. This option was eliminated from further consideration (i.e., determined to be unreasonable) because repackaging all 50 MT to a form that would make the material unattractive would have exceeded the capacity of WIPP. This would still be true if all 50 MT were considered for disposal at WIPP.

ESTIMATE OF ENVIRONMENTAL IMPACTS

The potential environmental impacts of repackaging and transporting the proposed action materials for direct disposal at WIPP can be divided into three phases: (1) activities at RFETS to prepare the material for disposal, (2) transport of the material to WIPP, and (3) disposal activities at WIPP. In the first phase, the proposed action materials would be repackaged to meet the WIPP WAC and safeguards termination requirements. Once these repackaged materials meet the WIPP WAC and safeguards termination requirements, they would be ready for shipment to WIPP.

The analysis presented below supports the conclusion that the proposed action would not result in significant impacts or impacts significantly different from those analyzed in the SEIS-II, and in particular those impacts associated with Alternative 1 of that SEIS. The impacts of repackaging, transporting, and disposing of the materials at issue are small in absolute terms. Moreover, the impacts of each of these actions either are bounded by or will not be significantly different from those analyzed in the SEIS-II.

As to repackaging, the impacts for ordinary operations would be bounded by the analysis in the SEIS-II, even when adding the very small impacts from repackaging the proposed action material, because the SEIS-II contemplated the repackaging of considerably more plutonium than the total amount of plutonium that will actually be repackaged at RFETS. With regard to the most severe accident scenario, an earthquake, the impacts would be greater than predicted in the SEIS-II because the proportion of plutonium in the containers being repackaged is larger than in the containers analyzed in the SEIS-II. But the difference is not significant because the impacts are still small, and because the earthquake scenario has a predicted frequency of less than once over 100,000 years.

The impacts from transporting and disposing of the proposed action materials are small and bounded by those predicted in the SEIS-II. As to transportation, this is because once the material has been repackaged for shipment, the shipments containing those packages will be in all applicable respects similar to the shipments analyzed in the SEIS-II, and because the actual number of shipments from RFETS to WIPP will be fewer than the number of shipments

analyzed in the SEIS-II, even when the shipments of the proposed action materials are included. As to disposal, once the material at issue has been repackaged, it will meet the WIPP waste acceptance criteria, the relevant consideration used in analyzing the impacts of disposing of the material analyzed in the SEIS II, and the volume (and impacts) of material slated for disposal from all sites, including the proposed action material, will remain well below the total analyzed in the SEIS-II.

As discussed below, the methodology for predicting the impacts of phase 1 - repackaging the materials at RFETS - involves adjusting the impacts presented in the SEIS-II to account for the fact that the plutonium proportion of the material (i.e., the "plutonium loading") is higher than the assumption used in the SEIS-II to predict the impacts of repackaging activities at RFETS. In contrast, the analysis for phases 2 and 3 involves a direct comparison to the results shown in the SEIS-II. The transportation and disposal analyses in the SEIS-II assume that the TRUW transported to and disposed of at WIPP will meet all requirements of the WIPP WAC.

Table 1 presents the amount of plutonium-bearing materials and related parameters used in evaluating the potential impacts of the proposed action. Table 2 presents selected parameters from the SEIS-II applicable to the TRUW at RFETS proposed for disposal at WIPP in that SEIS. These parameters are used in this SA to analyze the potential impacts of disposing of the additional approximately 0.97 MT of plutonium-bearing materials at WIPP.

Table 1 Estimate of the Proposed Plutonium-Bearing Materials for WIPP Disposal

Site	Bulk Material Including Plutonium (kg)	Plutonium (kg)	Post-Treatment Disposal Volume (m^3)	Plutonium Loading (kg of Pu /m^3)	Number of Shipments
RFETS	970	180	269	0.67	45

Note: Post-Treatment Disposal Volume represents the volume resulting from repackaging activities of bulk plutonium-bearing materials mixed with inhibitor materials to meet both WIPP WAC and safeguards termination requirements.

Table 2 Selected Parameters from the SEIS-II

Site	Post-Treatment Disposal Volume (m^3)	Plutonium Loading (kg of Pu/m^3)	Number of Shipments
RFETS	17,000	0.28	2,102

Source: DOE, 1997b. Volume—Table A-6, Post-Treatment Disposal Volume, Total Inventory; Number of Shipments—Table E-1, Action Alternative 1, Total Inventory; Plutonium loading calculated based on curie content of Table A-32, specific activities and volume.

The quantity of the TRUW from the proposed action (269 m^3) is relatively small when compared to the overall TRUW volume that WIPP was designed to manage, about 0.2 percent of total disposal capacity of 175,600 m^3 allowed under the WIPP Land Withdrawal Act. WIPP has an estimated excess capacity of approximately 68,000 m^3 (approximately 40 percent) based on the current projected disposal volume of approximately 107,600 m^3 (DOE, 2000). The proposed action materials represent about 1.5% of the volume of RFETS TRUW which DOE assumed in the SEIS-II would be disposed of at WIPP, and about 2 % of the number of shipments of RFETS TRUW to WIPP assumed in that SEIS. Furthermore, DOE believes that the assumed waste volume and number of shipments contained in the SEIS-II and reflected in Table 2 continue to represent an upper bound for the disposal of RFETS TRUW at WIPP, even when the additional proposed action materials are taken into consideration. As of September 1, 2002, approximately 660 shipments containing about 4,100 cubic meters of TRUW have been shipped from RFETS to WIPP. DOE projects that a maximum of 1,700 RFETS shipments containing about 12,500 cubic meters will eventually be sent to WIPP.

Under the proposed action, approximately 10,500 curies of Plutonium(Pu)-239 would be disposed of at WIPP. This is a small increase compared to the 785,000 curies of Pu-239 currently slated for disposal at WIPP, and even with the increase the curie content of the total amount of TRUW slated for disposal at WIPP will fall well under the 931,000 curies of Pu-239 analyzed in the SEIS-II. Similarly, additional curie content for other plutonium isotopes as a result of this proposed action would be small in comparison to the quantities analyzed in the SEIS-II, and would be within the total analyzed in the SEIS-II.

The SEIS-II discusses and presents the potential impacts to members of the public (both the maximally exposed individual and the population within 50 miles), non-involved workers (both individual and population), and involved workers from both waste treatment and waste disposal operations. Waste treatment involves operations that would occur at DOE originating sites, including treatment and/or repackaging to meet planning-basis WAC, prior to shipment of the waste to WIPP. Waste disposal operations include all operations that would occur at WIPP. The impacts from both normal operation and accidents are analyzed. These impacts are summarized in Section 5.1.9 of the SEIS-II and presented in more detail in Appendices B, E, F, and G.

Because the materials involved in the proposed action have a higher plutonium loading than that assumed in the SEIS-II for RFETS materials, the potential impacts from the repackaging activities are based on an adjustment of the impacts presented in that SEIS. Depending on the type of impacts at issue, different factors (i.e., volume, plutonium loading, or a combination of both, shown in Tables 1 and 2) were used to adjust the impacts presented in the SEIS-II. The comparison uses the quantities analyzed in SEIS-II Action Alternative 1 (based on an estimated disposal volume of 273,000 m^3) which represents the most conservative analysis.

For potential normal operational impacts during the proposed repackaging at RFETS, the factor used to adjust the SEIS-II impacts is the ratio of the amount of plutonium in Tables 1 and 2 (ratio of volume times plutonium loading) because these impacts are proportional to the amount of plutonium repackaged. For the potential impacts of radiological accidents at RFETS, the SEIS-II impacts were adjusted by the ratio of plutonium loading since the impact from an accident is proportional to the amount of plutonium in a container at risk during an accident. For the

potential normal transportation impacts, the SEIS-II impacts were adjusted for the number of shipments because these impacts are proportional to the number of containers shipped. No further adjustment was used in the normal radiological transportation impacts because once the plutonium-bearing materials are repackaged to meet the WIPP WAC, the radiological impacts would be bounded by the dose rates used in the SEIS-II. For potential impacts from a severe accident during transportation, no adjustment is needed since the SEIS-II analysis already assumed maximum allowable amount of plutonium in each shipping container.

Tables 3 through 6 compare the impacts of repackaging and transporting the RFETS material under the proposed action with the impacts presented in the SEIS-II. Table 7 presents the small impacts of disposal operations at WIPP analyzed in the SEIS-II and the accompanying text explains that the proposed action's impacts are bounded by those presented in that SEIS. The potential impacts to an individual (maximally exposed individual of public or non-involved worker) are shown as the probability of developing a latent cancer fatality (LCF). The potential impacts to populations (general public or workers) are shown as the predicted number of additional LCF. The numerical results are presented in scientific notation form. For example, in Table 3, the SEIS-II probability of a LCF occurring for the maximally exposed individual in the general public is presented as "1.4E-09" and may be read "1.4 x 10^{-9}" or "0.0000000014", meaning 1.4 occurrences for every one billion population.

Table 3 shows the potential radiological health effects from normal repackaging operations at RFETS for both the proposed action material and from the SEIS-II. The SA heath effects are based on the SEIS-II impacts, adjusted by the ratio of volume times plutonium loading because these impacts are proportional to the amount of plutonium repackaged. The potential for a latent cancer fatality from repackaging operations at RFETS for the assumed maximum case represented by the SEIS-II is very small, and the predicted impacts for the proposed action material are one to two orders of magnitude smaller yet. Moreover, this small impact for the proposed action is bounded by SEIS-II analysis because the actual total amount of material repackaged at RFETS will be well below the assumptions of the SEIS-II, even when the proposed action material is considered.

Table 3 Comparison of Normal Operational Radiological Health Effects

Site	General Public				Occupational Workers					
	Maximally Exposed Individual		Offsite Population		Individual Non-Involved Worker		Non-Involved Work Force Population		Involved Worker Population	
	Probability of LCF		Number of LCFs		Probability of LCF		Number of LCFs		Number of LCFs	
	SEIS-II	SA	SEIS-II	SA	SEIS-II	SA	SEIS-II	SA	SEIS-II	SA
RFETS	1.4E-09	5.3E-11	1.0E-04	3.8E-06	2.5E-09	9.5E-11	4.1E-06	1.6E-07	1.3E-02	4.9E-04

Source: DOE, 1997b, Table B-4. The SA health effects are based on SEIS-II impacts adjusted by the ratio of volume times plutonium loading of Table 1 divided by the volume times plutonium loading from Table 2.

Table 4 compares the potential health effects from the most severe accident scenario at RFETS under the proposed action with those from the SEIS-II[3]. The most severe accident for repackaging operations analyzed in the SEIS-II is the breach of a container caused by an earthquake. The SA health effects are based on the SEIS-II health effects adjusted by the plutonium loading, since the impact is proportional to the amount of plutonium in a container at risk during an accident. The potential health effects from the most severe accident scenario under the proposed action are about two times greater than those presented in the SEIS-II due to the higher plutonium loading. However, the potential impacts for an earthquake-induced accident are still small and comparable to those presented in the SEIS-II. Furthermore, the larger impacts predicted for the proposed action are mitigated by the very low probability of the occurrence of an initiating event. The earthquake scenario has a predicted frequency of less than once every 100,000 years (DOE, 1997b).

Table 4 Comparison of Most Severe Accident Scenario Radiological Health Effects

Site	Offsite Population		Maximally Exposed Individual		Maximally Exposed Non-Involved Worker*	
	Number of LCFs		Probability of an LCF		Probability of an LCF	
	SEIS-II	SA	SEIS-II	SA	SEIS-II	SA
RFETS	3	7	2E-04	5E-04	5E-03	1E-02

Source: DOE, 1997b, Table G-13, Contact-Handled Waste. SA health effects based on the SEIS-II health effects times the plutonium loading from Table 1 divided by the plutonium loading of Table 2.

* The SEIS-II estimated that the involved worker would not be expected to survive the catastrophic earthquake: if not killed by falling debris from the collapsing building, the involved worker could inhale high levels of radionuclides or hazardous materials.

Table 5 compares the potential radiological transportation health effects predicted for the proposed action with the results predicted in the SEIS-II. Per shipment LCF rates were multiplied by the total number of shipments to obtain the aggregate number of health effects. For normal shipping activities, the potential incident-free radiological transportation health effects for the proposed action are about one order of magnitude less than the estimated health effects presented in the SEIS-II. The potential severe accident radiological health effects for the

[3] The SEIS-II also analyzed two other accident scenarios: a waste spill and a drum fire. Like the earthquake scenario, the impacts of each would vary as a function of the plutonium loading of the container involved in the accident. Thus, like the earthquake scenario, the impacts would be approximately twice as great for the proposed action material as for that assumed in the SEIS-II. Both a waste spill and a drum fire are more likely to occur than an earthquake, but the impacts from either are much lower. The waste spill has a predicted frequency of occurrence once every 1,000 years, while the drum fire has a predicted frequency of occurrence of once every 10,000 years. However, the impacts of either a waste spill or a drum fire would be four orders of magnitude less than those for an earthquake, because the earthquake scenario assumes a much greater release of material into the atmosphere as a result of a building collapse. Therefore, this analysis uses the earthquake scenario for comparing the proposed action to the SEIS-II.

proposed action are estimated to be the same as in the SEIS-II since a shipping container would contain the maximum allowable amounts of plutonium as assumed in the SEIS-II.

Table 5 Comparison of Radiological Transportation Health Effects

Route	Incident-Free Radiological Health Impacts		Severe Accident	
	Number of LCFs for All Shipments		Aggregate Number of LCFs	
	SEIS-II	SA	SEIS-II	SA
RFETS to WIPP	8.2E-02	1.8E-03	7.0E-03	7.0E-03

Incident-free LCF's for both the SEIS-II shipments and the SA shipments are calculated by multiplying the number of LCFs per shipment, 3.9E-05 (calculated from the SEIS-II, Table E-12, DOE, 1997b) with the number of shipments in Tables 1 and 2. LCFs from a severe accident are taken from the SEIS-II, Table E-22, (DOE, 1997b).

Table 6 compares the potential non-radiological transportation health effects for the proposed action with those from the SEIS-II. Per shipment accident rates were multiplied by the total number of shipments to obtain the aggregate number of health effects. The potential non-radiological transportation health effects involving the proposed action materials range from one to two orders of magnitude less than the estimated health effects presented in the SEIS-II.

Table 6 Comparison of Non-Radiological Transportation Health Effects

Route	Total Number of Accident Fatalities		Total Number of LCFs from Pollution	
	SEIS-II	SA	SEIS-II	SA
RFETS to WIPP	2.1E-01	4.5E-03	9.5E-03	2.0E-04

The total number of accident fatalities and pollution-caused LCFs for both the SEIS-II shipments and the SA shipments are calculated by multiplying the number of accident fatalities per shipment, 1.0E-04, and the number of pollution-caused LCFs per shipment, 4.5E-06 (both taken from the SEIS-II, Table E-8, DOE, 1997b), respectively, with the number of shipments in Tables 1 and 2.

Table 7 presents the potential impacts during disposal operations for all TRUW at WIPP as shown in the SEIS-II. The Table demonstrates that the total potential impacts of disposal at WIPP are small. Furthermore, as discussed earlier, the additional proposed action materials are within the bounds of the volume of waste assumed in the SEIS-II to be disposed of at WIPP.

Therefore, the potential impacts of disposing of the proposed action materials are both negligibly small and fully considered in the SEIS-II.

Table 7 Impacts During Disposal Operations At WIPP

Receptor	Normal Operations		Severe Accidents (Worst Accident Impact)	
	Dose	Health Effects	Dose	Health Effects
Maximally Exposed Individual	9.0E-04 rem (per 70 years)	4.5E-07 probability of LCF	1.6E+02 rem	8.0E-02 probability of LCF
Offsite Population	6.0E-01 person-rem (per 35 years)	3.0E-04 LCF	1.1E+04 person-rem	5.5E+00 LCF
Maximally Exposed Noninvolved Worker	1.0E-03 rem (per 35 years)	4.0E-07 probability of LCF	1.6E+02 rem	6.0E-02 probability of LCF
Maximally Exposed Involved Worker	2.8E+01 rem (per 35 years)	1.1E-02 probability of LCF	One postulated death from crushing	One postulated death from crushing
Involved Workforce	1.0E+03 rem (per 35 years)	4.0E-01 LCF	N.R.	N.R.

Source: DOE, 1997b, Normal Operational Doses—Tables F-25 and F-26; Severe Accidents—Table G-44. Normal Operational Health Effects based on 0.0005 LCF per person-rem for the general public and 0.0004 LCF per person-rem for workers. N.R.—Not reported.

CONCLUSIONS

The potential impacts of the proposed action were found to be small and not significantly different from the impacts evaluated in the SEIS-II. The estimated impacts from normal operations are estimated at one to two orders of magnitude less than the impacts presented in the SEIS-II. The estimated impacts from the most severe accident at RFETS would be approximately two times greater than those presented in the SEIS-II. However, these potential impacts are small in either case. Furthermore, the larger impacts associated with the proposed action are mitigated by the fact that the initiating event for the accident - an earthquake - has a very low probability of occurrence (less than once every 100,000 years). The potential normal transportation impacts would be one to two orders of magnitude less than those presented in the SEIS-II. The potential health effects from severe accidents during transportation are estimated to be the same as presented in the SEIS-II. The potential impacts of disposal operations at WIPP associated with the proposed action are negligibly small and fully considered in the SEIS-II. From a cumulative perspective, the potential impacts of the proposed action combined with the potential impacts of ongoing and previously decided WIPP-related activities are well within the range of potential impacts analyzed in the SEIS-II.

DETERMINATION

The results of this SA indicate that the activities necessary to repackage approximately 0.97 MT of plutonium-bearing materials (containing about 0.18 MT of surplus plutonium) at RFETS, transport those materials to WIPP, and dispose of those materials at WIPP are the same as or very similar to the activities analyzed in the WIPP SEIS-II. The potential impacts of the activities were found to be small and not significantly different from potential impacts evaluated in the SEIS-II. On this basis, DOE has determined that the proposed action will not constitute a substantial change in actions previously analyzed and will not constitute significant new circumstances or information relevant to environmental concerns and bearing on the previously analyzed action of its impacts. Therefore, it is not necessary to undertake additional NEPA analysis.

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