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Supplement Analysis for the Waste Isolation Pilot Plant Site Wide Operations

U.S. Department of Energy
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ACRONYMS AND ABBREVIATIONS

ANL-E	Argonne National Laboratory-East
ANL-W	Argonne National Laboratory-West
CFR	Code of Federal Regulations
CH	contact-handled
DOE	U.S. Department of Energy
EIS	Environmental Impact Statement
ETEC	Energy Technology Engineering Center
LANL	Los Alamos National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LCF	latent cancer fatality
LLNL	Lawrence Livermore National Laboratory
NEPA	National Environmental Policy Act
ORNL	Oak Ridge National Laboratory
PCB	polychlorinated biphenyls
RFETS	Rocky Flats Environmental Technology Site
RH	remote-handled
ROD	Record of Decision
SEIS-II	*Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement*
SNL	Sandia National Laboratories
SRS	Savannah River Site
TRU	transuranic (waste)
TRUPACT-II	Transuranic Package Transporter Model 2
WIPP	Waste Isolation Pilot Plant

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1.0 PURPOSE AND NEED FOR ACTION

The Waste Isolation Pilot Plant (WIPP), located near Carlsbad, New Mexico, is the only facility permitted to dispose of transuranic (TRU) waste generated by U.S. Department of Energy (DOE) defense activities. TRU waste is waste that contains alpha particle-emitting radionuclides with atomic numbers greater than uranium (92) and half-lives greater than 20 years in concentrations greater than 100 nanocuries per gram of waste. TRU waste is categorized as either contact-handled (CH) or remote-handled (RH), based on the radiation level at the surface of the waste container.

In its *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement* (SEIS-II) (DOE/EIS-0026-S-2, September 1997), DOE analyzed the potential environmental impacts associated with disposing of TRU waste at WIPP. DOE's Proposed Action was to open WIPP and dispose of up to 175,600 cubic meters of defense TRU waste (DOE announced its decision to implement the Proposed Action in the *Record of Decision for the Department of Energy's Waste Isolation Pilot Plant Disposal Phase*, 63 Fed. Reg. 3623 (1998) (WIPP ROD)).

DOE NEPA regulations [10 CFR 1021.330(d)] state that DOE shall periodically evaluate site-wide NEPA documents by means of a supplement analysis. This supplement analysis examines changes to WIPP site-wide and transportation operations and new information gathered since the preparation of the SEIS-II to determine whether the site-wide analysis contained in WIPP SEIS-II remains adequate or whether significant new circumstances or information relevant to the environmental concerns and bearing on the proposed activities and their impacts exist that would require a new or supplemental EIS.

2.0 PROPOSED ACTION

The Proposed Action is to continue the transportation of waste to WIPP by truck and the operation of WIPP for the disposal of transuranic waste generated by DOE defense activities. Since WIPP operations began, WIPP has implemented or proposed several initiatives to increase the efficiency of its operations. To meet the requirement that the U.S. Environmental Protection Agency (EPA) recertify WIPP's continued compliance with its regulations after five years of operation, DOE has updated its TRU waste inventory and completed another assessment of the impacts of the inventory changes and WIPP operational changes on its ability to meet the EPA's regulatory requirements. In addition, population data from the 2000 census is now available. Specifically, this supplement analysis will examine any changes to transportation, operational, or long-term performance impacts as a result of the following changed circumstances and new information.

- Changes in population along transportation routes as reflected by the 2000 census.

  Changes in DOE guidance for estimating radiological impacts to workers and members of the general public in NEPA documents

- Changes that would allow higher wattage payloads in TRUPACT-II containers

  Changes in the number of inter-site shipments of TRU waste due to transportation of some homogenous solid waste CH-TRU to Argonne National Laboratory-West (ANL-W) for coring and sample analysis needed to characterize that waste. DOE is projecting that a total of approximately 285 cubic meters of waste will be shipped to ANL-W from Argonne National Laboratory-East (ANL-E), Bettis Atomic Power Laboratory, the Hanford Site, Los Alamos

National Laboratory (LANL), Paducah Gaseous Diffusion Plant, Brookhaven National Laboratory, Sandia National Laboratory (SNL), The Savannah River Site (SRS), Separations Process Research Unit, and the West Valley Demonstration Project. As directed by Congress, DOE has submitted a request to modify the WIPP hazardous waste facility permit to change the requirement for solids sampling, and, depending of the outcome of that request, many of the shipments assumed for purposes of this analysis might not be made.

- Changes as a result of changed information contained in the WIPP's EPA Compliance Recertification Application (CRA). The CRA contains updated TRU waste inventory projections and an assessment of WIPP's ability to isolate waste that accounts for changes in WIPP disposal operations that have occurred over the last 5 years (e.g. the decision to accept some PCB commingled waste).

  Plans to temporarily store some TRU waste shipments at Waste Control Specialists (WCS) Texas facility near the border between Texas and New Mexico. The WCS facility would be used to supplement the limited storage capacity at WIPP, which would enhance the efficiency of WIPP operations (e.g. allow DOE to store a backlog of shipments for delivery to WIPP when waste disposal operations are not being conducted due to maintenance or repair activities or temporarily store shipments suspected of not meeting the WIPP Waste Acceptance Criteria until a final determination can be made on whether they meet those requirements).

3.0 EXISTING NEPA ANALYSES

The 1997 WIPP SEIS-II analyzed the impacts associated with shipping CH-TRU and RH-TRU wastes to WIPP and disposing of them at WIPP. Under the SEIS-II Proposed Action most CH-TRU waste was assumed to move directly to WIPP from the site where it was stored or generated. Some CH-TRU waste from sites with smaller waste inventories was assumed to be consolidated at the Nevada Test Site, LANL, or Oak Ridge National Laboratory (ORNL). RH-TRU waste was assumed to be moved directly to WIPP from Hanford, Idaho National Laboratory, LANL, and ORNL. RH-TRU waste from some smaller sites was assumed to be moved to Hanford or ORNL prior to shipment to WIPP. The total projected WIPP disposal volumes for the SEIS-II Proposed Action were 143,000 cubic meters of CH-TRU waste (this was scaled up to 168,500 cubic meters for the analysis in order to analyze the impacts of fully utilizing the authorized disposal capacity of WIPP) and 7,080 cubic meters of RH-TRU waste.

Also pertinent to this analysis is WIPP-SEIS-II Action Alternative 1, which is similar to the SEIS-II Proposed Action, except it examined the impacts of disposing of TRU waste volumes that exceed the disposal volume of WIPP established by Congress. The Action Alternative 1 analysis includes the impacts of disposal of types of wastes that were not planned or authorized for WIPP disposal at the time the WIPP-SEIS-II was prepared. Action Alternative 1 examined the impacts of disposal of 281,000 cubic meters of CH-TRU waste and 55,000 cubic meters of RH-TRU waste at WIPP.

In the WIPP ROD, DOE decided to implement the Proposed Action. Pursuant to a ROD for the *Waste Management Programmatic Environmental Impact Statement*, 63 Fed. Reg. 3629, (1998), TRU waste would move directly to WIPP from the point of its generation or storage (except waste at SNL, which would be moved to LANL prior to being moved to WIPP), instead of being consolidated, as was assumed in the WIPP SEIS-II Proposed Action.

Since the WIPP ROD, DOE has moved waste from several sites with smaller quantities of waste to larger sites for storage prior to shipment to WIPP. The TRU waste at ARCO Medical Products, Inc. and Pantex has been shipped to LANL. The TRU waste at Missouri University Research Reactor has been moved to ANL-E and then subsequently to WIPP for disposal along with the existing waste at ANL-E. The TRU

waste at Teledyne Brown has been shipped to Rocky Flats Environmental Technology Site and subsequently to WIPP for disposal. The TRU waste at Energy Technology Engineering Center has been shipped to Hanford. The TRU waste at Mound is being shipped to SRS (shipments have not yet been completed). All but one drum of TRU waste at LBNL has been shipped to LLNL and that waste, along the TRU waste stored at LLNL has been shipped to WIPP and disposed. A portion of the waste from Battelle Columbus Laboratory has been moved to Hanford.

4.0 IS A SUPPLEMENTAL EIS NEEDED?

DOE considered the extent to which its current proposal has been analyzed in the WIPP SEIS-II and whether the new information or changes noted above constitute significant new circumstances or information relevant to environmental concerns and bearing on the actions or impacts previously analyzed. For all impacts, DOE compared the current proposals to the WIPP SEIS-II Proposed Action and/or Action Alternative 1.

None of the activities to be conducted at WIPP would require any new excavation or facility construction. Therefore, impacts at the WIPP site to geological and hydrological resources, land use, biological resources, cultural resources, socioeconomics, noise, and air quality evaluated in the WIPP SEIS-II would remain unchanged.

To determine whether the human health impacts (worker and public) of the current proposals fall within the range of impacts set forth in the WIPP SEIS-II, DOE examined the impacts that could occur under its current proposals from transportation and routine operations, facility accidents and disposal at WIPP.

Inventories Analyzed in the WIPP SEIS-II

In the WIPP SEIS-II Proposed Action, DOE analyzed the impacts of disposing of the basic TRU waste inventory. Action alternative 1 analyzed the impacts of disposal of a TRU waste inventory consisting of the basic and additional inventories.

The basic inventory is (1) TRU waste that resulted from defense activities and that was placed in retrievable storage pursuant to Atomic Energy Commission policy of 1970, and (2) TRU waste reasonably expected to be generated by these ongoing activities through 2033. The volume of the basic inventory identified in the WIPP SEIS-II was 170,000 cubic meters WIPP SEIS-II, Table 2-2), although the statutory limit of approximately 175,600 cubic meters was analyzed for the Proposed Action (see the WIPP SEIS-II, p. 3-2).

Additional inventory consists of (1) TRU waste that is commingled with polychlorinated biphenyls (PCBs), (2) commercial/nondefense TRU waste, and (3) TRU waste disposed of prior to the Atomic Energy Commission policy of 1970. The volume of the additional inventory analyzed in the WIPP SEIS-II was 142,500 cubic meters (see the WIPP SEIS-II, Table 2-3).

5.0 ENVIRONMENTAL IMPACTS

5.1 Facility Impacts

5.1.1 *Routine Operations at WIPP*

DOE estimates, based on recent TRU waste inventory data that 142,000 cubic meters of CH-TRU waste and 15,700 cubic meters of RH-TRU waste exist in the DOE complex that could be eligible for disposal at WIPP. Only 7,080 cubic meters of RH-TRU waste can be disposed of at WIPP under the DOE's agreement with the State of New Mexico. These CH-TRU and RH-TRU waste volumes are less than or equal to the waste volumes analyzed in the SEIS-II Proposed Action (168,520 cubic meters of CH-TRU waste and 7,080 cubic meters of RH-TRU waste) and much less than the volumes analyzed in Action Alternative 1 (281,000 cubic meters of CH-TRU waste and 55,000 cubic meters of RH-TRU waste). The estimated total radionuclide inventory for CH-TRU waste in the CRA is slightly less than the total radionuclide inventory used for the SEIS-II proposed action analysis, while the estimated total radionuclide inventory for RH-TRU waste is about three times that used for the proposed action, and about a third of that used for the analysis of the SEIS-II Action Alternative 1.

The projected impacts of TRU waste disposal operations at WIPP would increase somewhat from those described in the WIPP SEIS-II Proposed Action because of a change in DOE guidance for calculating latent cancer fatalities in National Environmental Policy Act analyses. For members of the public, and workers involved in waste handling and disposal activities the increase in projected radiological impacts would be small and the total impacts would still be approximately equal to those originally projected for Action Alternative 1 (4×10^{-4} LCFs for the public and 1 LCF for involved workers). Since the population surrounding WIPP has remained essentially the same, despite an overall increase in United States population since the WIPP SEIS-II was prepared, impacts to the public would not be expected to increase because of an increase in the number of persons exposed in the vicinity of WIPP.

Method for Calculating Latent Cancer Fatalities
After the preparation of the SEIS-II, DOE changed its guidance for estimating latent cancer fatalities (LCFs) as a result of radiation exposure in DOE National Environmental Policy Act documents. The SEIS-II estimated LCFs for members of the public at 5×10^{-4} per person-rem and for workers at 4×10^{-4} person-rem; in accordance with the guidance in effect at the time the SEIS-II was prepared. New DOE guidance suggests using 6×10^{-4} LCFs per person-rem for both the public and workers. The new guidance has been used to estimate LCFs in this supplement analysis.

Impacts to non-involved workers, would increase slightly as compared to Action Alternative 1 estimates, but would still be low (6×10^{-7} LCFs for the MEI and 6×10^{-4} LCFs for the worker population as compared to Action Alternative 1 estimates of 4×10^{-7} LCFs for the MEI and 5×10^{-4} LCFs for the worker population).

5.1.2 *Facility Accidents at WIPP*

The SEIS-II accident analyses assumed that maximally loaded waste containers were involved in the postulated accidents. Therefore, despite the difference in the average radionuclide concentration of the RH waste as compared to the SEIS-II the only difference in impacts of waste disposal accidents at WIPP as compared to the WIPP SEIS-II would be differences attributable to the use of new DOE guidance for calculating LCFs for those accidents. In general, even taking into account the new guidance for calculating LCFs, the impacts of WIPP facility accidents are low, with only the highly unlikely Waste Hoist drop likely to produce fatalities. Using the new guidance, total LCFs for the population around WIPP could increase from 5 to 6 for the waste hoist drop, with the probability of an LCF for the maximally exposed member of the public increasing from .08 to .1 and the probability of an LCF for the maximally exposed worker increasing from .06 to .09. Facility accidents for the WIPP SEIS-II Proposed Action are described in Section 5.1.10 of the WIPP SEIS-II, with details of the analysis presented in Appendix G.

Storage at WCS

For purposes of this analysis, a total of 2,500 TRU waste shipments are assumed to be stored at WCS over the remaining operational lifetime of WIPP, each for no more than 59 days. No waste containers would be vented or unloaded from trailers during the time the shipments were being stored at WCS. Of the 2,500 TRU shipments, this analysis assumes that half of them consist of CH containers (TRUPACT-IIs or HalfPacts, three containers per shipment) and half of RH-72B containers (one container per shipment). Conservative external dose rates for these containers (4 millirem/hr at 1 meter from the container for both CH and RH containers) are used to calculate impacts. At WCS, workers that are assumed to inspect the containers once a week are assumed to be at a distance of three meters for approximately 5 minutes during each inspection. Five workers working nearby are assumed to be present 10 hours daily at a distance of 50 meters from the containers. Under these circumstances, the impacts to the worker population at WCS from

storage of the waste at WCS would be about 3×10^{-2} LCFs, with the maximally exposed worker (this worker is assumed to work at WCS throughout the shipping campaign and be exposed to every shipment) having a 5×10^{-3} chance of dying from cancer as a result of exposure to the radiation from these shipments.

5.2 Transportation Impacts

5.2.1 New Census Data

The transportation analysis performed for the WIPP SEIS-II used 1990 Census data. Since the WIPP SEIS-II was published, 2000 Census data have become available. For the 10 years from 1990 to 2000, the average increase in population in the United States is estimated to be 13.2 percent. This population increase affects the estimates of some categories of transportation impacts presented in the WIPP SEIS-II. For the transportation impacts that are proportional to changes in population (incident-free impacts to populations along transportation routes; nonradiological pollution health effects; radiological accident risk), it is estimated that the impacts would increase by about 13.2 percent. This increase in population could increase incident free impacts from the 3.1 fatalities projected under the SEIS-II proposed action to 3.7 fatalities (factoring in both the increased population and the new guidance for calculating LCFs) , but would still be less than the 11 fatalities projected under the SEIS-II Action Alternative 1.

Using 2000 Census data would also increase the impacts of the postulated "worst case" transportation accident. For example, the impacts from the "worst case" transportation accident involving either CH-TRU and RH-TRU waste would increase to about 21.7 LCFs (factoring in both the increased population and the new guidance for calculating LCFs) from 16 LCFs. A traffic accident of this severity is highly unlikely to occur during the lifetime of WIPP (about 1 chance in 50,000,000 that a single accident of this severity would happen during the WIPP shipping campaign).

5.2.2 Additional Waste Shipments to ANL-W for Coring and Analysis and to WCS for Temporary Storage

In the WIPP SEIS-II, radiological and nonradiological impacts were estimated for transportation and transportation accidents. These impacts are proportional to the number of shipment-miles. Thus, the impacts would vary as the total distance (i.e., the shipment-miles) that the TRU waste would be shipped varies. For this analysis, the shipment-miles evaluated in the WIPP SEIS-II were compared to the shipment-miles for DOE's current proposal to determine the potential increase or decrease in the transportation impacts (LCF, traffic fatalities, and pollution-related health effects).

The shipment of TRU waste under the Proposed Action in the WIPP SEIS-II involved an estimated 38,708 shipments and 52,963,080 shipment-miles of transportation. Under Action Alternative 1, the shipment of TRU waste involved an estimated 107,608 shipments and 166,888,004 shipment-miles of transportation.

Transporting homogenous solid waste to ANL-W for coring and analysis would add an estimated 145 shipments and 369,074 shipment-miles of transportation. This would increase the number of shipments analyzed for the Proposed Action in the WIPP SEIS-II by about 0.29 percent and would increase the number of shipment-miles by about 0.69 percent. Transportation impacts would also increase by about 0.69 percent except that radiological impacts would increase about 0.94 percent for members of the public and about 1 percent for drivers when updated population estimates and new dose-to-risk conversion factors are considered.

The amount of waste that might be transported to WCS facilities for storage is uncertain and depends on future circumstances. However, the number of shipments sent to WCS for storage is not expected to

exceed 2,500 over the remaining life of the WIPP project. The diversion of shipments moving to WIPP over current routes to WCS would increase the mileage of a single shipment by 126 miles. The diversion of 2,500 shipments would add another 315,000 shipment–miles of transportation, increasing shipment miles by another 0.59 percent. Transportation impacts would increase by another 0.59 percent as compared to the proposed action except that radiological impacts would increaseabout 0.80 percent for members of the public and about 0.89 percent for workers when updated population estimates and new dose to risk conversion factors are considered.

Taking both the shipments to ANL-W for coring and the shipments to and from WCS for storage into account, the impacts would increase from 5 projected deaths in traffic accidents to 5.1 deaths, and latent cancer fatalities from radiological exposure would increase from 3 to 3.1 for members of the public. Pollution health impacts and worker radiological impacts would remain essentially the same as for the proposed action at 0.1 and 0.3 fatalities respectively. These impacts are still well below the 16 deaths from traffic accidents, 0.5 deaths from pollution health effects, 10.5 deaths among the public from radiation exposure, and 0.7 deaths among workers from radiation exposure that were projected to potentially result from the SEIS-II Action Alternative 1.

Thus, the transportation impacts of DOE's proposal to ship waste to ANL-W for coring and analysis and to and from WCS for temporary storage would be very slightly higher (less than 2 percent) than the impacts under the Proposed Action and substantially lower than the impacts under Action Alternative 1.

5.2.3 Assessment of Transportation Accident

The SEIS-II used an estimate of the waste that could potentially be shipped to WIPP consisting of a hypothetical isotopic mixture chosen to maximize accident impacts. These hypothetical waste isotopic mixtures were then used to calculate the impacts of "worst case" accidents involving both TRUPACT-II shipping containers for CH-TRU waste and RH-72B shipping containers for RH-TRU waste. The isotopic mixtures for these "worst case" accidents were estimated from inventory data developed very early in DOE's National TRU program

For this Supplement Analysis, new (updated) inventory data was used to evaluate whether the older "worst case" estimates were still valid. DOE used a new isotopic mixture (Taggart, 2004) for determining accident impacts for this analysis.[1] The new estimate is derived from the most current TRU waste inventory information. Table 2 compares the old and updated (new) bounding shipping container content by isotope.

For shipping CH waste in the TRUPACT-II container, the new bounding isotopic mixture would contain less of all individual isotopes except ^{242}Pu, which is essentially the same. Given these CH inventory numbers, DOE concludes that the CH transportation accident dose calculated in the SEIS-II is slightly more than the dose derived from using the new bounding CH inventory. Therefore, this analysis does not recalculate the results of the accident analyses from SEIS-II for CH shipments.

For shipping RH waste in the RH-72B container, the new "worst case" isotopic mixture is significantly different from that employed in SEIS-II. The table shows that those isotopes that can result in significant high energy gamma dose (i.e., ^{60}Co, ^{137}Cs) are all significantly lower (about a factor of 10) in the new analysis and inventory. The total activity of alpha emitting isotopes is also lower in the new analysis and inventory. However, some isotopes increase and some decrease.

[1] Taggart, Daniel P., December 2004, "BOUNDING PE-CI AND RADIONUCLIDE INVENTORY PER TRUPACT-II OR RH-72B CANISTER FOR SUPPLEMENTARY ANALYSIS OF THE SEIS-II", LA-UR-04-8830, Los Alamos National Laboratory.

Table 2 - Comparison of Old and New Bounding Case Radionuclide Inventories for CH-TRU and RH-TRU Accidents

Radionuclide	Inventory (Ci)			
	TRUPACT-II		RH-72B Canister	
	Old	New	Old	New
^{60}Co	6.4e-4	0	2.5	0
^{90}Sr	0.01	0	49	3.1
^{90}Y	0	0	0	3.1
^{137}Cs	0.01	0	49	5.0
^{137m}Ba	0	0	0	4.8
^{233}U	0	0	0.03	0
^{235}U	0	0	0.001	0.0000066
^{238}U	0	0	7.1e-5	0
^{238}Pu	990	952	1000	6.8
^{239}Pu	16	15.4	20	0.38
^{240}Pu	4.2	4.0	10	0.49
^{241}Am	3.6	3.5	12	42.5
^{241}Pu	200	192.4	10	2130
^{242}Pu	6.8e-4	0.0007	0	0.00024
Total Curies	1213	1167	1052	2196

The isotope that dominates dose calculations in the SEIS-II accident analyses is ^{238}Pu. The new "worst case" estimate for accident calculations for ^{238}Pu represents a more than 100-fold reduction from the estimate used in SEIS-II. While there are modest increases in the amount of isotopes ^{241}Am and ^{242}Pu, and a large increase in the amount of ^{241}Pu (an extremely weak emitter of beta particles and low energy gamma radiation), these increases are more than compensated for by the reduction in the amount of ^{238}Pu Therefore, DOE concludes that the accident dose for transportation accidents involving RH TRU waste calculated in the SEIS-II exceeds the dose that would result if the new RH TRU bounding inventory numbers were used to calculate impacts.

Consequently, DOE concludes that neither the increased wattage allowed in the TRUPACT-II payloads for "quick to WIPP" shipments nor the new inventory data used for this analysis would increase the transportation accident impacts above those projected in the SEIS-II Proposed Action. As noted in Section 5.2.1 above, however, increases in population along the transportation routes and application of the DOE's new guidance for calculating radiological health impacts have resulted in an increase in the expected impacts from the "worst case" transportation accident, as previously calculated in the SEIS-II.

6.0 PERFORMANCE ASSESSMENT

The CRA that DOE submitted to the Environmental Protection Agency in March 2004 examines how the changes in WIPP operations and the projected waste inventory since the original certification have impacted WIPP's long term waste isolation capability. The CRA determined that the changes have had little impact on WIPP's expected repository performance. The CRA analysis shows that there would continue to be no releases from WIPP absent intrusion into the repository.

The WIPP-SEIS also examined the impacts of drilling intrusions into the repository (SEIS-II, Section 5.1.12.2). The amount of radioactivity released from the repository as a result of drilling intrusions

depends primarily on the activity of the waste intersected by the borehole, and the waste characteristics (primarily permeability and porosity) in the repository at the time of the intrusion. The maximum radiation effects from drilling intrusions in the SEIS-II resulted from scenarios where workers would come in direct contact with drill cuttings that contain TRU waste.

For the scenario involving a member of the drilling crew, the amount of the radioactivity contributing to the worker radiation dose from the CRA inventory is approximately the same as used in the WIPP-SEIS II analysis. Using the new dose conversion factors recommended in NEPA guidance, the projected chance of a LCF to the drilling crew member from exposure to and inadvertent ingestion of drill cuttings would increase from 4×10^{-4} for the SEIS-II Proposed Action to 6×10^{-4}.

For the scenario involving external radiation exposure to a well-site geologist, the projected radiation dose from CH waste would remain about the same or decrease from that calculated in the WIPP-SEIS when the CRA inventory is used. The radiation dose from RH waste could potentially increase by a factor of about four because of an increase in the projected amount of cesium and strontium that would be disposed of. However, the impacts from the increased amount of cesium and strontium in the RH TRU waste inventory would still be only slightly higher than the dose from CH waste ($6x\ 10^{-9}$ chance of a latent cancer fatality for RH waste when the new dose conversion recommendations are applied as compared to 3×10^{-9} chance of a latent cancer fatality for CH waste). These doses are so small that no substantial impacts would be likely in any instance

Indirect impacts from eating beef consuming radiologically contaminated water were also assessed in the SEIS-II. These impacts should remain about the same as or lower that those of the SEIS-II Action Alternative 1 analysis (2×10^{-27} probability of a LCF from radiation and $3x\ 10^{-27}$ probability of cancer from ingestion of heavy metals) because they depend primarily on the solubility of the involved radionuclides and the amount of radionuclides in the repository. The solubilities used in the CRA have remained essentially the same as previously used for the SEIS-II analysis or, in some cases, have decreased. The amount of radionuclides in the inventory is less than that analyzed in the SEIS-II Action Alternative 1.

7.0 DETERMINATION

Based on the analyses discussed in this Supplement Analysis, DOE concludes that its current proposals do not substantially change the environmental impacts in the WIPP SEIS-II. Further, there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposals analyzed in the WIPP SEIS-II or the impacts of those proposals. Therefore, a supplement to the WIPP SEIS-II is not needed. .

Approved April 6, 2005

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