

**SUPPLEMENT ANALYSIS FOR A PROPOSAL TO TEMPORARILY STORE DEFENSE
TRANSURANIC WASTE PRIOR TO DISPOSAL AT THE
WASTE ISOLATION PILOT PLANT**



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ACRONYMS AND ABBREVIATIONS

BSU	Bulk Storage Unit
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH	contact-handled
CSB	Container Storage Building
DOE	U.S. Department of Energy
EIS	environmental impact statement
HW	hazardous waste
INL	Idaho National Laboratory
LANL	Los Alamos National Laboratory
LCF	latent cancer fatality
LLW	low-level waste
MLLW	mixed low-level waste
NEPA	National Environmental Policy Act
NRC	Nuclear Regulatory Commission
rem	roentgen equivalent man
RML	Radioactive Material License
ROD	Record of Decision
SA	supplement analysis
SEIS-II	<i>Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement</i>
SNM	Special Nuclear Material
TCEQ	Texas Commission on Environmental Quality
TRU	transuranic
TRUPACT-II	Transuranic Package Transporter Model II
WCS	Waste Control Specialists, LLC
WIPP	Waste Isolation Pilot Plant
WM PEIS	<i>Final Waste Management Programmatic Environmental Impact Statement</i>

SUPPLEMENT ANALYSIS FOR A PROPOSAL TO TEMPORARILY STORE DEFENSE TRANSURANIC WASTE PRIOR TO DISPOSAL AT THE WASTE ISOLATION PILOT PLANT

1.0 INTRODUCTION

Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) regulations (40 Code of Federal Regulations (CFR) 1502.9(c)) require Federal agencies to prepare supplements to either draft or final environmental impact statements (EISs) if “(i) The agency 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 its impacts.” In cases where it is unclear whether a supplemental EIS is required, U.S. Department of Energy (DOE) regulations (10 CFR 1021.314(c)) direct the preparation of a supplement analysis (SA) to assist in making that determination by assessing whether there is a change in the proposed action that is “substantial” or whether new circumstances or information are “significant,” pursuant to the CEQ regulations (40 CFR 1502.9(c)). This SA examines a proposal to temporarily store a limited amount of transuranic (TRU) waste¹ at the Waste Control Specialists, LLC (WCS) facility in Andrews, Texas, in order to determine whether the analysis contained in the *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement*, DOE/EIS-0026-S-02, September 1997, (SEIS-II) remains adequate, or whether significant new circumstances or information exist relevant to environmental concerns and bearing on the proposed activities and their impacts that would require preparation of a new or supplemental EIS.

2.0 PURPOSE AND NEED FOR ACTION

The Waste Isolation Pilot Plant (WIPP), located near Carlsbad, New Mexico, is the only facility in the U.S. licensed to receive, process and dispose of TRU waste generated by DOE defense activities. WIPP has recently experienced two events that have resulted in an extended suspension of WIPP operations. On February 5, 2014, an underground salt haul truck caught fire during normal operation. Personnel were safely evacuated from the mine and the fire was extinguished. On February 14, 2014, a radiological release occurred at the facility. These events have impacted WIPP’s ability to receive and process defense TRU waste in compliance with Federal and State requirements. As a result, these events impact the existing Framework Agreement between DOE and the State of New Mexico for the disposition of contact-handled² (CH) TRU waste at the Los Alamos National Laboratory (LANL) and certain LANL TRU waste at the Idaho National Laboratory (INL) which is subject to the Site Treatment Plan as approved by the State of Idaho. In addition, these events impact DOE’s operation to dispose of TRU waste that had already reached WIPP and which is currently being stored at WIPP. Until WIPP can

¹ Transuranic (TRU) waste is waste (excluding high-level waste and certain other waste types) contaminated with alpha-emitting radionuclides that are heavier than uranium with half-lives greater than 20 years and occur in concentrations greater than 100 nanocuries per gram. Transuranic waste results primarily from plutonium reprocessing and fabrication as well as research activities at U.S. Department of Energy defense installations.

² Contact-handled TRU waste does not require special shielding.

resume normal operations, DOE needs to temporarily store the waste from these three locations at an offsite location to meet its commitments and legal obligations.

3.0 PROPOSAL TO TEMPORARILY STORE TRANSURANIC WASTE DESIGNATED FOR DISPOSAL AT WIPP

DOE proposes to ship to Waste Control Specialists, LLC (WCS), TRU waste being stored at WIPP, TRU waste subject to the Framework Agreement and which is in storage at LANL, and certain LANL TRU waste from INL which is subject to the Idaho Site Treatment Plan. The waste would be transported by truck to WCS, a commercial facility in Andrews, Texas, for temporary storage until such time as the waste can be transported to WIPP for disposal. This CH-TRU waste would be shipped to WCS in Nuclear Regulatory Commission (NRC)-certified Type B "overpack" containers using currently approved transportation routes. Upon receipt at WCS, the waste would be removed from the shipping containers by a WIPP Mobile Loading System team and placed onto pallets for transfer to the WCS storage area. Once WIPP disposal operations have resumed, a WIPP Mobile Loading System team would load the wastes into NRC-certified shipping containers for transport to WIPP for disposal.

The NRC-certified shipping containers are subject to NRC-specified requirements for loading and transport, as well as for venting. The shipping containers are required to be vented within a specified shipping duration to avoid a build-up of any flammable compounds that might be generated from within the TRU waste. The TRU waste is typically contained in vented drums which are loaded into the shipping containers. All packages will be opened and unloaded within the required venting time. Table 1 shows the number of shipments that would be required to transport the waste to WCS.

Table 1 – CH-TRU Waste to be Shipped to WCS for Storage

Waste Generator Site	Number of Truck Shipments
Idaho National Laboratory	280
Los Alamos National Laboratory	120
WIPP	20
Total	420

4.0 DESCRIPTION OF WCS

WCS, a commercial entity, owns and operates a 541-hectare (1,338-acre) site for the treatment, storage, and landfill disposal of hazardous and radioactive wastes in Andrews County, Texas. The WCS facility is located approximately 10 kilometers (6 miles) east of Eunice, New Mexico, and 48 kilometers (30 miles) west of Andrews, Texas. A 5,500-hectare (13,500-acre) tract owned by WCS surrounds the 541-hectare (1,338-acre) permitted site. Overall, the facility property currently occupies 6,200 hectares (15,360 acres).

WCS has facilities used for the processing, storage, or disposal of hazardous waste, low-level waste (LLW), and mixed low-level waste (MLLW). WCS Radioactive Material License (RML)

R04100 and Hazardous Waste (HW) Permit 5038, issued by the Texas Commission on Environmental Quality (TCEQ), provide the primary authorizations for the facility to store the CH-TRU waste proposed for storage there (TCEQ, 2005, 2009). In addition to these authorities, WCS has a current Exception for above-ground possession of Special Nuclear Material (SNM) issued by the NRC that allows for the storage of TRU wastes (NRC, 2009). The license condition provides that “the Licensee is authorized to possess transuranic waste (waste generated by USDOE containing alpha emitting nuclides with an atomic number greater than 92) in concentrations greater than 100 nanocuries per gram (nCi/g) and greater than a 20 year half-life.” The NRC Order specifically provides that “confirmatory testing is not required for waste to be disposed of at DOE’s WIPP facility.” Consequently, based on the terms of the RML, HW Permit, and Exception, WCS can receive and store the CH-TRU waste under its existing authorizations.

WCS has two permitted storage facilities that meet the requirements of DOE to provide licensed and permitted covered storage for the proposed CH-TRU waste. The Container Storage Building (CSB) is an enclosed commercial-grade metal building divided into ten storage compartments, each with a sealed concrete floor surrounded by 6-inch high concrete curbs for secondary containment. The CSB is authorized to store 36,750 cubic feet (ft³) (1,041 cubic meters (m³)) of waste. Bulk Storage Unit (BSU) #1 is also an enclosed commercial-grade metal building with a sealed concrete floor surrounded by a 9-inch high containment curb. BSU #1 is authorized to store up to 87,480 ft³ (2,477 m³) of waste. Additionally, WCS has BSU #2, which is authorized to store an additional 174,960 ft³ (4954 m³) of uncovered waste. This area may serve as a surge area if the CSB and BSU #1 were to become full. In the event this area is needed, WCS would consider temporarily covering all or part of BSU #2, which would require a Class 1 HW Permit modification.

The WCS site has been extensively characterized and studied due to the wide range of waste management activities that occur there. The area around this location has a very low population density. In addition, WCS is not located near any major surface-water bodies; the nearest surface-water body is more than 16 kilometers (10 miles) away. Managing the storage of the proposed CH-TRU waste would be compatible with existing waste or hazardous materials management activities at the site, as well as site land use plans and regulatory agreements. Industries operating in the vicinity of WCS include gravel and caliche mining, oil and gas production, landfill operations, cattle grazing, and ranching. Louisiana Energy Services has an NRC license to operate a commercial uranium enrichment facility adjacent to the western boundary of WCS. The Lea County Landfill occupies approximately 16 hectares (40 acres) of adjacent land to the southwest. The majority of the remaining land within the vicinity of the site is used for ranching activities and seasonal livestock grazing. No parkland or other environmentally sensitive areas exist within a 16-kilometer (10-mile) radius of the site.

Various hypothetical accidents have been evaluated by WCS, including fires, explosions, material releases, equipment or vehicle accidents, and natural events. WCS has developed and maintains emergency response procedures which include both large and small accidents and spills. Facility personnel include those trained in emergency response, environmental safety and health, radiation safety, and quality assurance. WCS has had no spills, fires, explosions, leaks, or other such incidents that have resulted in offsite health and environmental impacts. Spills and

leaks from waste containers and equipment have occurred in the operational area of the site, with only localized spread of released material which has been mitigated in accordance with the emergency response procedures.

5.0 EXISTING NEPA AND OTHER ENVIRONMENTAL ANALYSES

In the WIPP SEIS-II, DOE analyzed the potential environmental impacts associated with disposing of TRU waste at WIPP. DOE's Proposed Action in the WIPP SEIS-II was to open WIPP and dispose of up to 175,600 m³ 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. 3624 (1998) (WIPP ROD). The WIPP SEIS-II analyzed the impacts associated with shipment, treatment and characterization of CH-TRU and remote-handled (RH) TRU wastes at various sites (including LANL and INL), and shipping these wastes to WIPP for disposal.

In the *Final Waste Management Programmatic Environmental Impact Statement*, DOE/EIS-0200-F May 1997 (WM PEIS) (DOE 1997a), DOE analyzed the potential environmental impacts of the management of TRU waste from all DOE sites where defense TRU was or is being generated. The WM PEIS included the potential use of commercial or private facilities within each of the four broad categories of alternatives analyzed. The TRU Waste ROD (69 FR 3629) documented DOE's decision that, in most cases, each DOE site that has generated or will generate TRU waste will prepare and store its TRU waste on the site. DOE noted that in the future, it may decide to ship TRU waste from sites where it may be impractical to prepare the waste for disposal to sites where DOE has or will have the necessary capability.

In 2005, DOE issued an SA for the WM PEIS (DOE/EIS-0200-SA-02). This SA, *Supplement Analysis for Transportation, Storage, Characterization, and Disposal of Transuranic Waste Currently Stored at the Battelle West Jefferson Site near Columbus, Ohio*, evaluated the transportation and storage of approximately 37 m³ of TRU waste generated at the Battelle West Jefferson site for temporary storage at the WCS facility prior to disposal at WIPP. Also in 2005, a *Supplement Analysis for the Waste Isolation Pilot Plant Site Wide Operations* was issued containing an evaluation of a proposal to transport and temporarily store up to 2,500 TRU waste shipments at WCS for up to 59 days (DOE/EIS-0026-SA05).

NRC prepared an Environmental Assessment for the issuance of an Order to modify the NRC license to WCS to allow for the possession of waste containing SNM in greater quantities than specified in 10 CFR Part 150, thus allowing for the storage of TRU wastes at that facility. An initial Environmental Assessment and Finding of No Significant Impact was published November 7, 2001 (66 FR 56358). Subsequently, NRC amended the Order and issued additional Findings of No Significant Impact in 2004 (69 FR 61697) and 2009 (74 FR 55071). There are no time limits on the amended Order.

6.0 EVALUATION OF IMPACTS

DOE considered the extent to which DOE's current proposal has been previously analyzed in the WIPP SEIS-II and other relevant previous NEPA documents and considered whether the new

information or changes constitute significant new circumstances or information relevant to environmental concerns and bearing on the actions or impacts previously analyzed by DOE.

To determine whether the human health (worker and public) impacts of the current proposal fall within the range of impacts set forth in the WIPP SEIS-II or other relevant previous NEPA analyses, DOE examined the impacts that could occur under its current proposal from transportation of the waste from the storage sites to WCS, temporary storage at WCS, and transportation of the waste from WCS to WIPP for disposal.

6.1 Transportation

Under the current proposal, up to 420 shipments of CH-TRU waste would move from WIPP, INL, and LANL to WCS in NRC-certified shipping packages following existing approved transportation routes. Shipments from LANL and INL would follow the existing approved route to WIPP as the initial portion of the destination route to WCS.

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. The distance between WIPP and WCS is approximately 60 miles, or 120 miles for a round trip. This distance is very small compared to the shipment miles analyzed for LANL and INL in the WIPP SEIS and WM PEIS. In DOE/EIS-0026-SA05, DOE evaluated the transportation impacts for up to 2,500 shipments from WIPP to WCS and return to WIPP. DOE concluded that the transportation impacts of those shipments would result in a less than 2 percent increase in the impacts reported for the SEIS-II Proposed Action. The increase for the proposed 420 shipments to WCS and return to WIPP would be less than that reported in DOE/EIS-0026-SA05 and would not significantly increase the transportation impacts related to shipment miles that were reported in the SEIS-II.

The SEIS-II used 1990 census data in the analysis of transportation impacts, and since that time 2010 census data have become available. For the 20 years from 1990 to 2010, the average increase in population in the United States is estimated to be 22.9 percent. This population increase affects the estimates of some categories of transportation impacts presented in the analysis. 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 22.9 percent. When combined with those impacts that would not change because of population density changes, such as traffic fatalities and occupational impacts, increase in the number of transportation-related latent cancer fatalities (LCF) for all shipments to WIPP as estimated in the WIPP SEIS-II Proposed Action increases from 8.9 to 9.7. This is an increase of less than 1 LCF attributable to population growth for all shipments to WIPP. Thus the impacts attributable to the 420 shipments would result in much less than 1 LCF.

6.2 Storage at WCS

For purposes of this analysis, payloads of up to 420 waste shipments are assumed to be stored at WCS until WIPP resumes waste processing operations. Upon receipt at WCS, shipments will be verified for receipt by WCS personnel and directed to the appropriate area for unloading of the

payload. A WIPP Mobile Loading System team will unload the payload, transfer the payload to the appropriate storage location, and place it in storage. Any venting operations that are required will also be performed by the WIPP Mobile Loading System team. Based upon the NRC Order and the WCS license condition, these wastes are not subject to confirmatory sampling at the WCS facility for SNM concentrations. Once the payload is placed in storage, WCS operations personnel will manage the waste in accordance with existing license and permit requirements. Once waste processing activities at WIPP resume, a WIPP Mobile Loading System team will prepare and reload the waste for shipment to WIPP for disposal. The effects of this activity would be the same as analyzed in the WIPP SEIS-II because the team would be packaging the same waste as originally destined for disposal at WIPP.

Further, activities for the WIPP Mobile Loading System team at WCS will be the same whether the waste is unloaded or loaded at that location or at any generator site or the WIPP site. Radiological impacts to the involved worker population at WIPP from disposal operations, which includes the unloading of TRU waste from the shipping containers and transferring the containers of TRU waste to the underground disposal area, was evaluated in the WIPP SEIS-II. For the Proposed Action Alternative, those impacts would be less than 1 LCF, and for hazardous chemicals, impacts would be less than 0.01 cancer incidence (Table 5-13). No noncarcinogenic health effects would occur. External radiation doses would be the primary source of potential radiological impacts to involved workers. Worker population impacts in the SEIS-II were estimated based on an assumption that the worker would be exposed at 3.3 feet (1 meter) from the CH-TRU waste, 2 hours per workday, 4 workdays per week for 25 to 35 years of exposure. Thus, impacts to the WIPP Mobile Loading System team from unloading and reloading each of the proposed shipments are within those previously estimated in the SEIS-II.

In DOE/EIS-0200-SA-02, DOE assumed that a weekly inspection of the mixed-waste containers would occur at WCS as required under the Resource Conservation and Recovery Act. Each week, two individuals would inspect the waste, and each inspection would take about 15 minutes, for a total of 26 person-hours per year. The total worker exposure for the time spent near the TRU mixed waste was estimated to be about 1×10^{-3} person-rem/year. The analyses in DOE/EIS-0200-SA-02 assumed storage at WCS for up to 5 years, with a resultant LCF risk of 2×10^{-5} . DOE expects that the duration of storage at WCS under the current proposal, although not known precisely, would be substantially less than the duration assumed for analytical purposes in DOE/EIS-0200-SA-02, and the associated risk to workers under routine conditions would therefore be substantially less. Based on the annual exposure analyzed in DOE/EIS-0200-SA-02, the annual risk of an LCF for a WCS worker under the current proposal would be 6×10^{-7} (essentially no risk) from routine storage of TRU waste at WCS.

In addition, the NRC evaluated the radiological and nonradiological impacts to workers at WCS in a 2001 Environmental Assessment conducted on their proposal to issue an amendment to the WCS NRC license allowing WCS to possess waste containing SNM. The NRC concluded that the proposed exemption would have no significant radiological or nonradiological impacts to workers at WCS.

WCS prepared an Environmental Assessment Report for the existing storage and processing facility. The assessment concludes that environmental, social and economic impacts from

continued operation of the storage facility would be limited. The environmental impacts are negligible. Radiological doses to members of the public would be well below the regulatory limits for exposure to the public.

6.3 Disposal at WIPP

As noted above, the WIPP SEIS-II analyzed the potential impacts of disposing of 6.2 million ft³ (175,600 m³) of post-1970 defense TRU waste. That waste volume includes the wastes described in this proposal. Thus, potential disposal impacts would not change from those previously reported in the SEIS-II.

6.4 Potential Impacts from Intentional Destructive Acts

DOE also considered the potential impacts of intentional destructive acts (i.e., acts of sabotage or terrorism) and estimated that the impacts would be no greater than the impacts of an accident as analyzed in the SEIS-II because the initiating forces and resulting quantities of radioactive or hazardous material potentially released by an intentional destructive act would be similar to those for the severe accident scenarios as discussed previously in the SEIS-II.

7.0 CONCLUSION

In this SA, DOE considered impact areas included in several NEPA reviews, including the WIPP SEIS-II that could be potentially affected by the proposed activities described herein. These areas are transportation, storage at WCS, disposal at WIPP, and intentional destructive acts. Other impacts would not significantly increase as a result of the temporary storage of TRU waste pending disposal at WIPP. Although there would be slight increases in transportation impacts due to the roundtrip mileage between WIPP and WCS and population increases from 1990 to 2010, these increases would not be significant within the meaning of the CEQ and DOE regulations. Further, DOE would take all appropriate precautionary measures to ensure that public health and the environment would be protected, including careful adherence to transportation and other relevant regulations. DOE concludes that storage of the TRU waste at WCS would not increase potential impacts beyond those analyzed for the WCS facility. WCS has accumulated more than a decade of environmental monitoring data that show that no member of the public or the environment has been affected by operations at the facility, including routine and accident risks. Analysis of postulated accidents resulted in projected doses to the public at less than the regulatory limit (WCS, 2009). DOE's evaluation also concludes that the volume of TRU waste to be returned to WIPP for disposal is within the volume analyzed in the WIPP SEIS-II, and the impacts from potential destructive acts would similarly be within the parameters of the accident analyses presented in the WIPP SEIS-II.

8.0 DETERMINATION

Based on the analyses in this SA, DOE has concluded that the information evaluated herein does not constitute significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action(s) in the WIPP SEIS-II or its impacts. The proposed temporary storage of TRU waste at WCS does not significantly change the Proposed Action analyzed in the WIPP SEIS-II, i.e., the packaging and transportation of TRU waste for disposal in the WIPP repository. Thus, DOE has not made substantial changes in the Proposed Action(s)

that are relevant to environmental concerns, nor would the temporary storage of TRU waste at WCS contribute significantly to the potential impacts identified in the WIPP SEIS-II. Therefore, in accordance with CEQ and DOE regulations, I have determined that neither a supplement to the SEIS-II nor an amended record of decision are necessary.

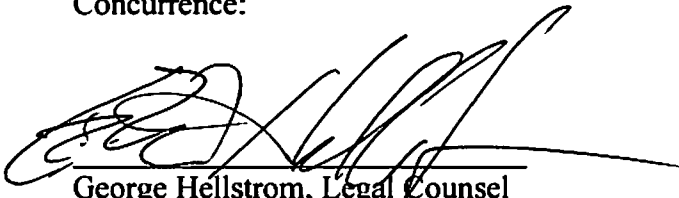
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