

U.S. NUCLEAR REGULATORY COMMISSION

DOCKET NO. 70-7005

WASTE CONTROL SPECIALISTS LLC

SAFETY EVALUATION REPORT REGARDING THE PROPOSED EXEMPTION FROM
REQUIREMENTS OF 10 CFR PART 70

November 2014

INTRODUCTION

Waste Control Specialists LLC (WCS) operates a facility in Andrews County, Texas, that is licensed to process and store certain types of radioactive material contained in low-level waste (LLW) and mixed waste (MW). The facility also disposes of hazardous and toxic waste. Under an Agreement authorized by the Atomic Energy Act, as amended (AEA), the NRC can relinquish and a State can assume, regulatory authority over radioactive material specified in an Agreement with NRC. In 1963, Texas entered into an Agreement and assumed regulatory authority over source, byproduct and SNM under critical mass.

On November 30, 1997, the State of Texas Department of Health (TDH) issued WCS a radioactive materials license (RML) to possess, treat, and store LLW (RML R04971). In 1997, WCS began accepting Resource Conservation and Recovery Act (RCRA) and Toxic Substance Control Act (TSCA) wastes for treatment, storage, and disposal. Later that year, WCS received a license from the TDH for treatment and storage of MW and LLW. The MW and LLW streams may contain quantities of SNM. In 2007, RML R04971 was transferred to the Texas Commission on Environmental Quality (TCEQ). In September 2009, the TCEQ issued RML R04100 to WCS for disposal of LLW.

Section 70.3 of Title 10, *Code of Federal Regulations* (10 CFR) Part 70 requires persons who own, acquire, deliver, receive, possess, use, or transfer SNM to obtain a license pursuant to the requirements of 10 CFR Part 70. The licensing requirements in 10 CFR Part 70 apply to persons in Agreement States possessing greater than critical mass quantities, as defined in 10 CFR 150.11. However, pursuant to 10 CFR 70.17(a), "the Commission may grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest."

In September 2000, WCS requested an exemption from the licensing requirements in 10 CFR Part 70. On November 21, 2001, the NRC issued an Order to WCS (2001 Order) granting an exemption to WCS from certain NRC regulations and permitted WCS, under specified conditions, to possess waste containing SNM in greater quantities than specified in 10 CFR Part 150, at the WCS storage and treatment facility in Andrews County, Texas, without obtaining an NRC license pursuant to 10 CFR Part 70. The 2001 NRC Order was published in the *Federal Register* on November 15, 2001 (66 FR 57489). As seen in the attachments to the November 21, 2001, NRC letter to WCS (ADAMS Accession No. ML030130085), the conditions

specified in the 2001 Order are discussed in the October 2001 Environmental Assessment (EA) and November 2001 Safety Evaluation Report (SER) that supported the 2001 Order.

By letters dated August 6, 2003, and March 14, 2004, WCS requested a modification to the 2001 Order, which would allow it to use additional reagents for chemical stabilization of mixed waste containing SNM. The NRC issued the new Order on November 4, 2004 (2004 Order), which superseded the 2001 Order. The 2004 Order was published in the *Federal Register* on November 12, 2004 (69 FR 65468). The new conditions specified in the 2004 Order are discussed in the October 2004 EA (ADAMS Accession No. ML043020614) and SER (ADAMS Accession No. ML042250362) that supported the 2004 Order. The 2004 Order changed the 2001 Order Conditions to allow WCS to use such chemical reagents as it deems necessary for treatment and stabilization of mixed waste containing SNM, provided that the SNM mass does not exceed specified concentration limits.

By letter dated December 10, 2007, WCS requested additional modifications to the 2004 Order. The NRC issued the new Order to WCS on October 20, 2009 (2009 Order), which superseded the 2004 Order. The 2009 Order was published in the *Federal Register* on October 26, 2009 (74 FR 55072). The new conditions specified in the 2009 Order are discussed in the October 2009 EA (ADAMS Accession No. ML092460509) and SER (ADAMS Accession No. ML093070307) that supported the 2009 Order. The 2009 Order changed the 2004 Order Conditions regarding sampling of waste, what is allowed to be in the waste, and the amount of highly water soluble SNM in each waste package.

In July 2013, by Amendment No. 22 of RML R04100, the TCEQ began to merge the license requirements in RML R04971 (for the radioactive waste treatment, storage, and processing facility) with the requirements in RML R04100 (for the LLW land disposal facility). In Amendment No. 22 of RML R04100, the TCEQ license requirements related to the NRC 2009 Order in RML R04971 for the WCS treatment, storage, and processing facility were transferred to RML R04100. Previous Orders referred to that location as the treatment, storage, and processing facility. Subsequently, WCS began referring to that location as the "Treatment, Storage and Disposal Facility." The NRC will use the name "Treatment, Storage, and Disposal Facility" and the abbreviation TSDF to reference that location in this SER.

The previous NRC Orders (2001, 2004, and 2009) addressed the issue that 10 CFR 70.3 requires persons who own, acquire, deliver, receive, possess, use, or transfer SNM to obtain an NRC license pursuant to the requirements in 10 CFR Part 70. However, 10 CFR 150.10 exempts a person in an Agreement State who possesses SNM in quantities not sufficient to form a critical mass from the NRC's imposed licensing requirements and regulations. The method for calculating the quantity of SNM not sufficient to form a critical mass is set out in 10 CFR 150.11. Therefore, prior to the NRC 2001 Order, WCS was required to comply with NRC regulatory requirements and obtain an NRC specific license to possess SNM in quantities greater than amounts established in 10 CFR 150.11. The 2001 WCS exemption request to NRC proposed to use concentration-based limits rather than mass-based limits at a specific location at the WCS facility. The NRC 2001 Order granted, and the subsequent NRC Orders (2004 and 2009) continued, the use of concentration-based limits with conditions at a specific location at the WCS facility. The TCEQ incorporated the concentration-based limits and conditions from each respective NRC Order (2001, 2004, and 2009) into the WCS license for

the specific location at the WCS facility where the concentration-based limits instead of mass-based limits are applicable.

By letter dated July 18, 2014 (ADAMS Accession No. ML14209A660), WCS requested an exemption from NRC regulations to possess SNM in excess of the critical mass limits specified in 10 CFR 150.11 while temporarily storing specific waste at a different location at the WCS facility other than the TSDF. The WCS exemption request referenced the WCS June 20, 2014, letter to the NRC (ADAMS Accession No. ML14171A554) that notified the NRC of actions that WCS had taken in response to the on-going U.S. Department of Energy (DOE) investigation of an unplanned radiation release event at the DOE Waste Isolation Pilot Plant (WIPP) facility (i.e., the WIPP incident). The specific waste includes some of the transuranic waste that originated at the DOE Los Alamos National Laboratory (LANL), which are destined to be disposed of at the DOE WIPP facility (i.e., LANL waste). Due to the February 14, 2014 WIPP incident, the DOE suspended operations at the WIPP facility. In April 2014, WCS began receiving some of the LANL waste from DOE, which met the conditions in the NRC 2009 Order. WCS intended to temporarily store the LANL waste at the TSDF at the WCS facility until WCS ships the waste.

Based on the DOE investigation of the WIPP incident, DOE subsequently informed WCS that some of the LANL waste being temporarily stored at the WCS at the TSDF could, under certain conditions, react and potentially result in a release of transuranic radionuclides to the environment. On June 12, 2014, WCS responded to DOE's information by starting to voluntarily move the identified LANL waste to the FWF at the WCS facility for temporary storage.

The NRC Order enables the State of Texas to regulate SNM materials at the WCS facility under the State's radiation protection program as long as WCS complies with the NRC 2014 Order.

FACILITY AND SITE DESCRIPTION

WCS operates a 5.4 square kilometer (km²) (1,338-acre (ac)) facility located on an approximately 60.3 km² (14,900-ac) site in western Andrews County, Texas. The WCS facility is located near the southwestern edge of the Southern High Plains where surface elevations range from about 1,040 meters (m) to 1,070 m (3,415 feet (ft.) to 3,500 ft.) above mean sea level. The site lies on a broad topographic ridge that forms surface water drainage divide between the Pecos and Colorado Rivers. The region receives approximately 22 centimeters (cms) (nine inches) of rain annually and is atop a solid base of Triassic red bed clay (hydraulic conductivity of 1.0×10^{-8} cm/second [3.0×10^{-5} ft./day]) with the first groundwater, which is not potable and too salty for irrigation use, found 240 m to 300 m (800 ft. to 1000 ft.,) below.

The primary land use within an eight-km (five-mile (mi)) radius of the WCS facility is grazing and ranching. Future water uses in the area will include: industrial, domestic, livestock, and agricultural purposes. Oil and gas exploration and production activities have also been conducted in the vicinity of the WCS facility. Other businesses in proximity to the WCS facility include: (1) Wallach Crushing Screening Plant (crushed stone, sand, and gravel) and Sundance, Inc. (oil recovery and solids disposal), both located about 1.6 km (1.0 mi) west of the WCS facility; (2) Lea County Landfill, located approximately 1.6 km (1.0 mi) southwest of

the WCS facility in Lea County, New Mexico (NM); and (3) URENCO USA uranium enrichment facility, located approximately 1.6 km (1.0 mi) west of the WCS facility in Lea County, NM.

Major structures at the WCS facility include:

- Rail spur, rail-unloading facility, and 7.2 km (4.5 mi) rail loop around WCS facility;
- Maintenance building;
- Administration building with analytical and radiological laboratories;
- Stabilization Building;
- Container Storage Building (CSB);
- Bin Storage Units 1, 2, and 3;
- Resource Conservation and Recovery Act (RCRA) subtitle C landfill;
- 0.04 km² (10-ac) storage pad for low-specific-activity (LSA) waste;
- Hazardous Waste Facility;
- Texas Compact Waste Disposal Facility (CWF);
- Federal Waste Disposal Facility (FWF);
- Hazardous Waste Facility;
- 11e.(2) Byproduct Material Disposal Facility; and
- Treatment, Storage, and Disposal Facility (TSDF).

Waste shipments are received in a variety of sealed packages, such as standard 208-liter (55-gallon) steel drums, rectangular steel boxes, intermodal, roll-offs, waste generator-designed canisters, or from a list of radioactive material packages certified by the DOE for transport by road or rail. The facility is accessible by a nearby interstate highway and has truck off-loading capabilities.

Texas Compact Waste Disposal Facility (CWF):

- Operational since Spring 2012.
- Licensed disposal capacity of 65,412 m³ (2,310,000 ft.³) and 1.4393x10¹⁷ Becquerels (3,890,000 curies) of disposal space.
- Licensed to dispose of Class A, Class B, and Class C LLW.
- Available to Texas Compact states (Texas and Vermont).
- With conditions, available for the 34 U.S. states that do not have access to a compact disposal facility.
- Limit on total non-Texas Compact waste is 30 percent of licensed capacity.
- State of Texas takes immediate title to waste disposed of in the CWF.
- Key component is a 2.1-m (7-ft.) thick liner system, which includes a 0.3-m (1.0-ft.) thick layer of reinforced concrete, and a (RCRA) compliant geosynthetic layer.

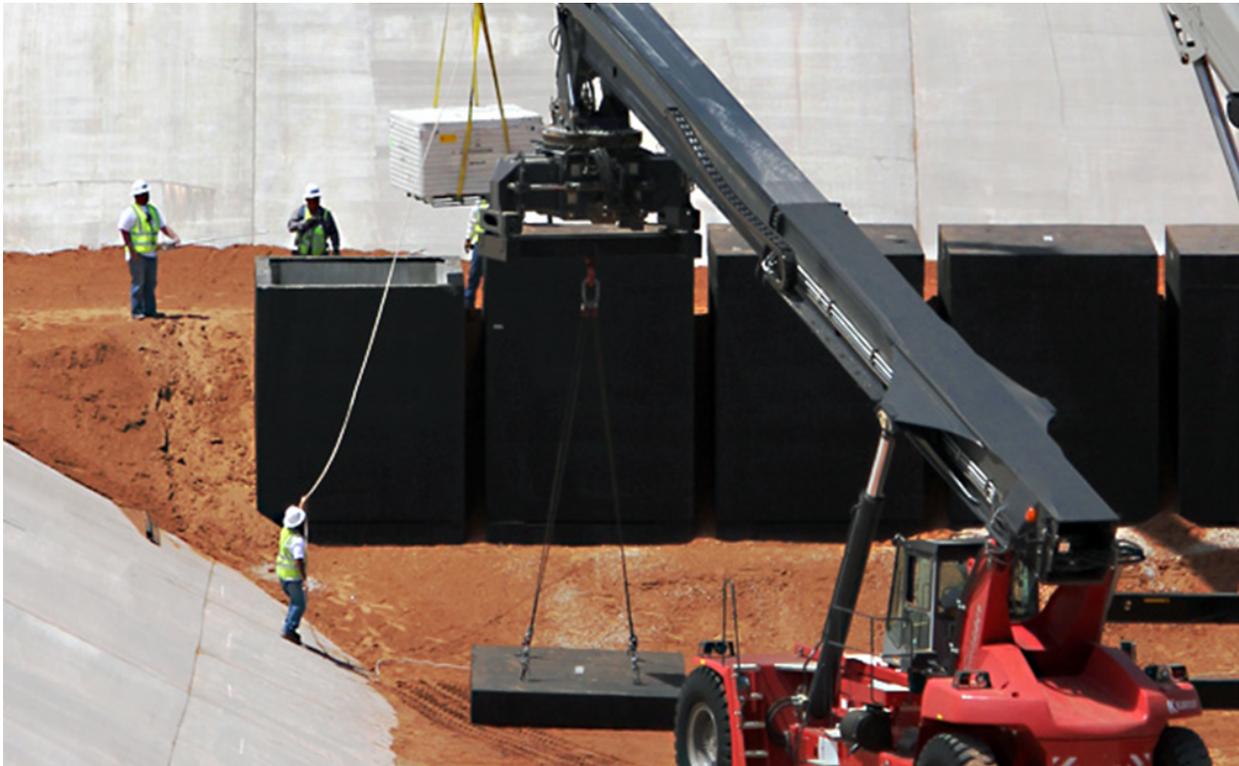
Picture of the Texas Compact Waste Disposal Facility (CWF)



Federal Waste Disposal Facility (FWF):

- Opened on June 6, 2013.
- Licensed for 15 years with provision for 10-year renewals.
- Designed, permitted, and constructed for disposal of Class A, Class B, and Class C LLW and Mixed LLW (MLLW) (i.e., waste that is both hazardous waste and LLW).
- Constructed for the sole purpose of disposal of waste that is the responsibility of the Federal Government, as defined in the Low-Level Radioactive Waste Policy Act, as amended.
- When fully constructed, will have a licensed disposal capacity of up to 736,239 m³ (26,000,000 ft.³) and 2.072x10¹⁷ Becquerels (5,600,000 curies).
- Upon closure, Federal Government will take title to waste disposed of in the FWF.
- Key component is a 2.1-m (7-ft.) thick liner system, which includes a 0.3-m (1.0-ft.) thick layer of reinforced concrete, and a RCRA compliant geosynthetic layer.
- All of the waste will be buried within the highly impermeable red bed formation that extends for hundreds of feet beneath the deepest layer of waste.

Picture of the Federal Waste Disposal Facility (FWF)



11e.(2) Byproduct Material Disposal Facility:

- Located within an approximately 0.06 km² (16-ac) landfill with engineered liner, associated support structures on the surface, and a buffer zone.
- Provides disposal capacity for approximately 764,545 meter³ (1.0 million cubic yards or approximately 27,000,000 ft.³).
- Disposal occurs completely below the top of the Triassic Dockum red beds, which is a laterally extensive and very thick massive clay and sandstone/siltstone formation.

Picture of the 11e.(2) Byproduct Material Disposal Facility



Treatment, Storage, and Disposal Facility (TSDF):

- Authorized for receipt, processing, and storage of LLW and non-thermal treatment of: (1) ignitable, corrosive, toxic, selective reactive, and non-hazardous wastes; and (2) liquids, sludges, solids, lab packs in approved containers, and liquids in bulk tankers
- Capable of storing (1) RCRA/Toxic Substance Control Act (TSCA) waste; and (2) radioactive waste, including Class A, Class B, and Class C LLW; Greater Than Class C waste; Transuranic waste; sealed sources; and Byproduct Material

WCS Facility Storage Capabilities:

- Not to exceed 51,051 m³ (1,802,865 ft.³) at any time with the following building or area limitations:
 - up to 226.53 m³ (8,000 ft.³) in the Stabilization Building;
 - up to 1,040.6 m³ (36,750 ft.³) in the CSB;
 - up to 2,477.2 m³ (87,480 ft.³) of LSA waste in each of the three Bin Storage Units for a total limit of 7,431.5 m³ (262,440 ft.³); and
 - up to 42,475 m³ (1,500,000 ft.³) of LSA waste (radioactive only, including 11e.(2) byproduct material) on the LSA Storage Pad.

Pursuant to the State and Federal Orders, Licenses, Permits, and Authorizations described below, WCS is authorized to use the following waste treatment technologies:

- Chemical oxidation;
- Chemical reduction;
- Deactivation;
- Micro- and macro-encapsulation (debris only);
- Neutralization;
- Stabilization;
- Controlled reaction; and
- Dewatering Services.

State and Federal Orders, Licenses, Permits, and Authorizations:

For Disposal:

- LLW/MLLW under TCEQ RML R04100 and Permit No. HW-50397.
- RCRA/TSCA waste under TCEQ Permit No. HW-50358 and U.S. Environmental Protection Agency (EPA) Authorization).
- Texas Exempt Waste (TCEQ Permit No. HW-50358).
- Byproduct Material (TCEQ RML R05807).
- SNM limits (i.e., only restricted by maximum grams possession allowed above ground).
- Permit to Discharge Wastes (Byproduct Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0004857000).
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (03-13-2014 CERCLA Federal Waste Disposal Facility).

For Treatment and Processing:

- RCRA/TSCA waste (TCEQ Permit No. HW-50358).
- MLLW (TCEQ RML R04100).
- By 2009 NRC Order, Exemption to 10 CFR Part 70 SNM possession limits:

- Only at TSDF with conditions and limits including SNM concentration limits instead of mass limits.

For Storage:

- RCRA/TSCA waste (TCEQ Permit No. HW-50358).
- Treatment, Storage, Processing, and Disposal of LLW (TCEQ RML R04100):
 - Order issued January 2009 and license signed on September 10, 2009.
 - Authorization for radioactive waste (i.e., Class A, Class B, and Class C LLW; Greater Than Class C waste; Transuranic waste; sealed sources; Byproduct Material) from Texas Compact and Federal generators.
- Hazardous and Industrial Waste Storage and Disposal Permit No. HW-50397:
 - Issued on December 23, 2008, by TCEQ.
 - Authorization for storage and disposal of hazardous waste (i.e., limited to mixed and Industrial radioactive waste) from the Federal government.
 - Works with the TCEQ RML R04100, allowing the land disposal restrictions compliant mixed waste to be disposed within the FWF.
 - Allows for bulk and containerized shipments by highway to WCS.
- Hazardous and Non-hazardous Industrial Solid Waste Storage, Processing, and Disposal Permit (RCRA waste) (TCEQ Permit No. HW-50358):
 - Issued on August 5, 1994, by the Texas National Resource Conservation Commission (TNRCC).
 - Renewed on October 5, 2005, by the TCEQ.
 - Authorization for treatment, storage, and land disposal of over 2,000 RCRA waste Codes.
- 11e.(2) Byproduct Material Disposal Facility (TCEQ RML R05807):
 - Issued on May 29, 2008, by the TCEQ.
 - Authorization for receipt and disposal of Byproduct Material, as defined in Title 30 of the Texas Administrative Code, Section 336.1105, including conditions on containers.
- TSCA Land Disposal Authorization (U.S. EPA ID No. TXD988088464):
 - Issued on November 22, 1999, by the U.S. EPA.
 - Renewed on September 19, 2005 by the U.S. EPA.
 - Authorization for treatment, storage, and land disposal of TSCA wastes including: Polychlorinated Biphenyl (PCB) and PCB contaminated materials with conditions on PCB liquids.
- TSCA Approval to Dispose of PCB Waste (U.S. EPA ID No. TXR060075788):
 - Issued on August 2, 2012, by U.S. EPA.
 - Authorization for disposal of PCB LLW in the FWF.
- CERCLA (03-13-2014 CERCLA FWF):
 - Issued on March 21, 1997, by the U.S. EPA, Region 6.

- Authorization for receipt of hazardous substances, pollutants, or containments.
- Byproduct Material TPDES Permit No. WQ0004857000:
 - Issued on December 2, 1999.
 - Renewed on May 31, 2005.
- Texas Land Application Permit:
 - Issued on November 15, 2011.
 - Expires on September 1, 2015.

PROPOSED ACTION

By letter dated July 18, 2014, WCS requested that the NRC modify the conditions in the 2009 Order to allow WCS to move some of the identified LANL waste from the TSDF, temporarily store that waste at the FWF, and prepare that waste for shipment. Based on the DOE investigation of the WIPP incident, DOE subsequently informed WCS that some of the LANL waste being temporarily stored at the WCS TSDF could, under certain conditions, react and potentially result in a release of transuranic radionuclides to the environment. On June 12, 2014, WCS responded to DOE's information by starting to voluntarily move the identified LANL waste to the FWF. If granted, then the proposed action would be the NRC issuance of an order superseding the 2009 Order.

EVALUATION

The NRC staff reviewed the public and non-public information provided by WCS and performed reviews in the areas of: (1) nuclear criticality safety; (2) material control and accounting; (3) physical security, and (4) other. In evaluating the safety of the proposed action, the NRC staff is relying on the State of Texas Department of Health safety evaluations relative to SNM for radiation safety other than nuclear criticality safety. Those evaluations are documented in a Technical Evaluation Report prepared by the Texas Department of Health, Bureau of Radiation Control, dated May 1997. Moreover, any NRC Order regarding the WCS exemption is limited to the concentration of SNM in the MLLW and LLW and does not address any solely hazardous waste issues. The NRC 2009 Safety Evaluation Report (SER) evaluated the temporary storage of certain SNM-bearing waste at the WCS treatment, storage, and processing facility. Subsequently, WCS began referring to that location as the "Treatment, Storage and Disposal Facility." The NRC will use the name "Treatment, Storage, and Disposal Facility" and the abbreviation TSDF to reference that location in this SER. This NRC 2014 SER is focused on movement of identified LANL waste from the TSDF to the FWF, temporary storage of that waste at the FWF, and future shipment of that waste from the FWF.

Nuclear Criticality Safety (NCS):

The NRC staff evaluated the NCS aspects of possession and storage of the LANL waste at the WCS facility, given the actions taken due to the risk of potential deflagration (i.e., violently burning) events along with the release of radionuclides to the environment. In order to minimize that potential hazard, WCS loaded the Standard Waste Boxes (SWBs) containing the identified LANL waste onto pallets and into Modular Concrete Canisters (MCCs), filled the void

space within each loaded MCC with washed river rock, moved the loaded MCCs to the FWF, and placed the MCCs in a single array. WCS then poured a one-foot, flowable sand layer around and over the MCCs. The temperature in each MCC is being monitored to provide indication of any changed conditions of the waste.

SER's for prior exemption requests determined that an accidental criticality in waste storage was a non-credible event at the WCS facility because SNM in waste would be maintained at a subcritical concentration. Some basic assumptions were part of those determinations, such as the waste would be kept contained and stable. The identified LANL waste poses a unique consideration in that a credible situation now exists where a deflagration event may result in a release of radionuclides to the environment, which includes soluble plutonium. If there was any water intrusion, the soluble plutonium could then be subject to leaching from the waste.

WCS and the DOE provided assurance that the materials loaded into the SWBs are consistent with the analyzed masses present in the DOE "Nuclear Criticality Safety Evaluation," WIPP-016, Rev. 4. That document included analyses that showed that the SWB configurations loaded into the MCCs would be subcritical under normal and credible abnormal conditions for typical waste storage operations. In addition, it would be highly unlikely that the materials contained in the SWBs would be released in quantities of concern for NCS because the lid of each SWB is secured to the body using bolts. Each MCC and SWB are water resistant and, even if water intrudes, then there would be no physical circumstance that would transfer significant quantities of leach plutonium solution from the waste to a location outside the SWB. Because the WIPP-16 evaluation considered the plutonium waste to be in a worst-case condition (i.e., optimally moderated in a conservative configuration in an SWB), the WIPP-16 evaluation bounds the potential configurations of identified LANL waste during movement and storage at the FWF. Lastly, the identified LANL waste being temporarily stored at the FWF will be isolated from other SNM-bearing waste disposed of at the FWF by WCS maintaining a minimum of 6.096 m (20 ft.) separation. That will assure any neutronic interaction (e.g., fission reaction) with other SNM-bearing waste is negligible.

Subject to the following NCS Conditions to be included in the new Order, the NRC staff has reasonable assurance that possession and storage of the LANL waste at the WCS facility does not constitute an unreasonable risk to the public health and safety.

Conditions to be put into the Order superseding the 2009 Order:

The following conditions are applicable to LANL waste stored at the FWF and other SNM bearing waste stored or disposed of at the FWF:

- The following waste is allowed to be stored at the WCS FWF: LANL waste in accordance with the concentration-based limits specified in Conditions 1 through 7, provided that it is in Standardized Waste Boxes (SWBs) analyzed to be safe in the DOE "Nuclear Critical Safety Evaluation," WIPP-016, Rev. 4. The lids of the SWBs shall be bolted or similarly secured to the body and the SWBs shall be placed inside Modular Concrete Canisters (MCCs) consistent with the configurations analyzed in WIPP-016.
- The LANL waste shall be isolated from other SNM-bearing waste by a minimum of 6.096 meters (20 feet).

- The LANL waste in MCCs shall be stacked no more than one MCC high.

Material Control and Accounting (MC&A):

The NRC staff evaluated the MC&A aspects of possession and storage of the LANL waste at the WCS facility. WCS maintains an overall MC&A program in accordance with the WCS facility internal procedures. In addition, WCS will continue to be compliant with the reporting requirements of 10 CFR Part 150.16 and 10 CFR Part 150.17 associated with, respectively, DOE/NRC Form 741, "Nuclear Material Transaction Reports," and DOE/NRC Form 742, "Material Status Reports.

Subject to the following MC&A Condition to be included in the new order, the NRC staff has reasonable assurance that possession and storage of the LANL waste at the WCS facility does not constitute an unreasonable risk to the public health and safety.

Condition to be put into the Order superseding the 2009 Order:

The following conditions are applicable to all the LANL waste stored at either the TSDF or the FWF:

- WCS shall follow the general reporting and recordkeeping requirements of 10 CFR Part 73 that are applicable to those who possess SNM of 1 gram or more. Those requirements are: (1) notification to the NRC within one hour of discovery of any unauthorized removal of SNM which WCS is authorized to possess; and (2) maintenance of a recordkeeping program showing the receipt, inventory, acquisition, transfer, and disposal of all SNM in WCS' possession.

Physical Security:

The NRC staff evaluated the physical security aspects of WCS possessing and storing the LANL waste at the WCS facility. The physical security needs for SNM stored at the WCS facility were evaluated based upon assessed attractiveness to an adversary, with consideration of the entire inventory available (i.e., not limited to soluble forms). The LANL waste stored temporarily would, for security purposes, normally be considered SNM of low strategic significance (i.e., Category III material), based upon material attractiveness for theft, diversion, or sabotage. That determination was made using the description of the waste material that WCS provided to the NRC. The NRC requirements for the secure storage of such material generally are to: (1) store the material in an area to which access is controlled; (2) monitor the area in order to detect any unauthorized access; and (3) assure that any unauthorized access will be met with an appropriate response. In addition, the protection program must be formal and documented with plans and procedures to include those for training applicable staff.

The NRC staff has reviewed specific WCS information about the existing physical protection program in place at the WCS facility, which is intended to meet the requirements for the

physical protection of byproduct material. Special sections document the specific measures in place to protect the LANL waste for the time period needed.

Subject to the following Physical Security Conditions to be included in the new Order, the NRC staff has determined that the security measures in place at the WCS facility provide protection adequate to maintain reasonable assurance that the temporary storage of the LANL waste at the WCS facility is not inimical to the common defense and security, and does not constitute an unreasonable risk to the public health and safety.

Conditions to be put into the Order superseding the 2009 Order:

The following conditions are applicable to all the LANL waste stored at either the TSDF or the FWF:

- The contents and matrices of the LANL waste in the inner containers shall conform to the description in the WCS non-public information.
- The physical security plan for the LANL waste shall be maintained to specifically include detection, assessment, and response methods and procedures for the LANL waste for as long as the LANL waste is at the WCS facility.

Other:

The Order associated with this Safety Evaluation Report (SER) supersedes the NRC 2009 Order. Conditions 1 through 7 of the 2009 Order remain in effect. So, those conditions are repeated in the new Order. As clearly noted in this SER and the associated Order, some of the conditions associated with this SER are applicable to all LANL waste being stored at either the TSDF or the FWF, while other conditions associated with this SER are only applicable to LANL waste that is being stored at the FWF.

Given that WCS has already received shipments containing LANL waste under the 2009 Order and the uncertainty of the results of DOE's continuing investigation of the WIPP incident at the time of this SER, the NRC has included conditions in the new Order to address the possibility that some of LANL waste at WCS may be similar to waste that DOE determines in the future to have contributed to the WIPP incident.

Subject to the following Other Conditions to be included in the new Order, the NRC staff has reasonable assurance that the WCS activities will be performed safely.

Conditions to be put into the Order superseding the 2009 Order:

The following conditions are applicable to all the LANL waste stored at either the TSDF or the FWF:

- WCS is allowed to possess the LANL waste for a maximum of two years.

- The LANL waste shall remain unopened in the inner container in which it was shipped, unless WCS needs to take an action on one of the inner containers based on knowledge from DOE's investigation of the WIPP incident. Only one inner container may be open at a time.
- WCS shall keep NRC informed of the status of the DOE investigation of the WIPP incident. If DOE determines that some of LANL waste at WCS was similar to the waste that DOE determines to have contributed to the WIPP incident, then WCS will notify the NRC.

SUMMARY AND CONCLUSION OF SAFETY EVALUATION

The NRC staff reviewed the WCS exemption request, held technical clarification teleconference calls with WCS, reviewed additional public and non-public information that WCS provided, and consulted with the TCEQ. Based on the NRC staff review, Conditions 1 through 7 remain the same as in the 2009 Order, a new Condition 8 will be included in the new Order to address the NRC's modification of WCS' exemption request, Condition 8 in the 2009 Order was renumbered as Condition 9 in the new Order, and Condition 9 in the 2009 Order was renumbered as Condition 10 in the new Order. The new Order Conditions 9 and 10 apply to all the other conditions in the new Order.

Based on its analysis of the operations and waste forms at the WCS FWF, the NRC staff concludes that possession and storage can be conducted with an acceptably low risk of nuclear criticality, theft, or diversion, as long as WCS complies with the conditions of the new Order. The NRC staff developed a set of additional conditions that ensure NCS and SNM safeguards. Those conditions are included in the new Order to WCS. The new Order is effective and final 20 days after issuance of the Order without further order or proceedings. The State of Texas may add the conditions in the new Order to regulate SNM under the state license for WCS, RML R04100.

Independent of the WCS request, NRC decided to add a new condition: *The Director of the Office of Nuclear Material Safety and Safeguards (or designee), may, in writing, relax or rescind any of the above conditions upon demonstration by WCS of good cause.*

NEW EXEMPTION CONDITIONS FOR THE 2014 ORDER

Conditions 1 through 7 remain the same as in the 2009 Order. A new Condition 8 will be included in the 2014 Order to address the NRC's modification of WCS' exemption request. Condition 8 applies to the LANL waste stored at either the TSDF or the FWF. Condition 8 in the 2009 Order was renumbered as Condition 9 in the 2014 Order. Condition 9 in the 2009 Order was renumbered as Condition 10 in the 2014 Order. A new Condition 11 will be included in the 2014 Order. As such, Conditions 1 through 11 of the 2014 Order will now read as the following:

8. The "WIPP incident" is the February 14, 2014, unplanned radiation release event at the U.S. Department of Energy (DOE) Waste Isolation Pilot Plant (WIPP) facility in New Mexico. The following relate to WCS storing DOE transuranic waste that originated at the Los Alamos National Laboratory (LANL), which are destined to be disposed of at the

DOE WIPP facility (i.e., "LANL waste"), at either the WCS Treatment, Storage, and Disposal Facility (TSDF) or the WCS Federal Waste Disposal Facility (FWF):

A. The following conditions are applicable to LANL waste stored at the Federal Waste Disposal Facility (FWF) and other SNM bearing waste stored or disposed of at the FWF:

1. The following waste is allowed to be stored at the WCS FWF: LANL waste in accordance with the concentration-based limits specified in Conditions 1 through 7, provided that it is in Standardized Waste Boxes (SWBs) analyzed to be safe in the DOE "Nuclear Critical Safety Evaluation," WIPP-016, Rev. 4. The lids of the SWBs shall be bolted or similarly secured to the body and the SWBs shall be placed inside Modular Concrete Canisters (MCCs) consistent with the configurations analyzed in WIPP-016.
2. The LANL waste shall be isolated from other SNM-bearing waste by a minimum of 6.096 meters (20 feet).
3. The LANL waste in MCCs shall be stacked no more than one MCC high.

B. The following conditions are applicable to all the LANL waste stored at either the TSDF or the FWF:

1. WCS shall follow the general reporting and recordkeeping requirements of 10 CFR Part 73 that are applicable to those who possess SNM of 1 gram or more. Those requirements are: (1) notification to the NRC within one hour of discovery of any unauthorized removal of SNM which WCS is authorized to possess; and (2) maintenance of a recordkeeping program showing the receipt, inventory, acquisition, transfer, and disposal of all SNM in WCS' possession.
2. The contents and matrices of the LANL waste in the inner containers shall conform to the description in the WCS non-public information.
3. The physical security plan for the LANL waste shall be maintained to specifically include detection, assessment, and response methods and procedures for the LANL waste for as long as the LANL waste is at the WCS facility.
4. WCS is allowed to possess the LANL waste for a maximum of two years.
5. The LANL waste shall remain unopened in the inner container in which it was shipped, unless WCS needs to take an action on one of the inner containers

based on knowledge from DOE's investigation of the WIPP incident. Only one inner container may be open at a time.

6. WCS shall keep NRC informed of the status of the DOE investigation of the WIPP incident. If DOE determines that some of LANL waste at WCS was similar to the waste that DOE determines to have contributed to the WIPP incident, then WCS will notify the NRC.
9. WCS shall notify the NRC, Region IV office within 24 hours if any of the above Conditions are violated. A written notification of the event must be provided within seven days.
10. WCS shall obtain NRC approval prior to changing any activities associated with the above Conditions.
11. The Director of the Office of Nuclear Material Safety and Safeguards (or designee), may, in writing, relax or rescind any of the above conditions upon demonstration by WCS of good cause.

REFERENCES

The ADAMS accession numbers for the documents related to this SER are the following:

Document	ADAMS Accession No.
WCS request to replace the Order	ML14209A660
03-05-14 WCS RML R04100 Amend25	ML14120A263
03-28-14 DOE AFA WCS Letter	ML14120A264
04-07-14 DOE Support to WCS Letter	ML14120A265
Apr 2012 CH -TRAMPAC Rev 4	ML14120A266
Apr 2014 WIPP NDA Info Rev 0	ML14120A268
Apr 2014 WIPP-016 Rev 4 Quick Guide	ML14120A272
Dec 2012 Chap 6 TRUPACT-II SAR Rev 23	ML14120A274
Jan 2014 WIPP-016 NCSE Rev 4	ML14120A276
06-20-14 WCS Retrieval Plan	ML14171A554