

NUCLEAR REGULATORY COMMISSION

[Docket No. 70-7005; NRC-2009-0283; EA-14-104]

Supersede Exemption for Waste Control Specialists, LLC.,

Andrews County, Texas

AGENCY: Nuclear Regulatory Commission.

ACTION: Order; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing a new Order superseding a previously issued Order to Waste Control Specialists, LLC., (WCS) on October 20, 2009 (2009 Order). The previous Order exempted WCS from the NRC's regulations concerning special nuclear material (SNM). The current action is in response to a request by WCS dated July 18, 2014.

ADDRESSES: Please refer to Docket ID **NRC-2009-0283** when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document using any of the following methods:

- **Federal Rulemaking Web site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2009-0283**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-287-3422; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "ADAMS Public

Documents” and then select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced in this document (if that document is available in ADAMS) is provided the first time that a document is referenced.

- **NRC’s PDR:** You may examine and purchase copies of public documents at the NRC’s PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

FOR FURTHER INFORMATION CONTACT: Maurice Heath, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington DC 20555–0001; telephone: 301-415–3137; email: Maurice.Heath@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. 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 less than a 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, regulatory responsibility for RML R04971 was transferred by TDH 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 submitted to NRC an exemption request 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 Order.

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 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 Federal Waste Disposal Facility (FWF) at the WCS facility for temporary storage.

After evaluating WCS's exemption request, the NRC staff decided that the appropriate action is to grant the request, contingent on compliance with the additional conditions contained in the 2014 Order. The reasons for this decision are further described in the SER for this request (ADAMS Accession No. ML14230A804).

II. Conditions

Currently, WCS is exempted from the requirements of 10 CFR part 70, including the requirements for an NRC license in 10 CFR 70.3. This Order supersedes the 2009 Order that applies to the WCS treatment, storage and processing facility. 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 the 2014 Order.

The NRC reviewed the information in the WCS request and, along with clarifying teleconference calls and other public and non-public information provided by WCS, the NRC decided that the appropriate action is to grant the WCS exemption request, but has modified WCS’ exemption request to include additional conditions which are reflected in this 2014 Order. As described in the SER Report for this request, the NRC has determined that the modified conditions in the 2014 Order will not endanger life or property or the common defense and security and is otherwise in the public interest to allow for movement and the temporary storage of the identified LANL waste at WCS FWF.

Conditions 1 through 7 remain the same as in the 2009 Order. A new Condition 8 was created in this 2014 Order to address the NRC’s modification of WCS’ exemption request. The new 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 this 2014 Order. Condition 9 in the 2009 Order is renumbered as Condition 10 in this 2014 Order. A new Condition 11 was created in this 2014 Order. As such, Conditions 1 through 11 of this 2014 Order now read as the following:

1. Concentrations of SNM in individual waste containers and/or during processing shall not exceed the following values:

SNM Isotope	Operational Limit (gram SNM/gram waste)	Measurement Uncertainty (gram SNM/gram waste)
U-233	4.7E-04	7.1E-05
U-235 (10 percent enriched)	9.9E-04	1.5E-04

U-235 (100 percent enriched)	6.2E-04	9.3E-05
Pu-239	2.8E-04	4.2E-05
Pu-241	2.2E-04	3.2E-05

When mixtures of these SNM isotopes are present in the waste, the sum-of-the-fractions rule, as illustrated below, shall be used.

$$\frac{\text{U-233 conc}}{\text{U-233 limit}} + \frac{100\text{wt}\%\text{U-235 conc}}{100\text{wt}\%\text{U-235 limit}} + \frac{10\text{wt}\%\text{U-235 conc}}{10\text{wt}\%\text{U-235 limit}} + \frac{\text{Pu-239 conc}}{\text{Pu-239 limit}} + \frac{\text{Pu-241 conc}}{\text{Pu-241 limit}} \leq 1$$

The measurement uncertainty values in column 3 above represent the maximum one-sigma uncertainty associated with the measurement of the concentration of the particular radionuclide.

The SNM must be uniformly distributed throughout the waste, such that the limiting concentrations must not be exceeded on average in any contiguous mass of 600 kilograms.

- The mass concentration of carbon, fluorine, and bismuth in the waste must be limited as follows:

SNM Isotope	Carbon	Fluorine	Bismuth
U-233	28 wt%	34 wt%	34 wt%
U-235(10)	25 wt%	35 wt%	31 wt%
U-235(100)	41 wt%	42 wt%	33 wt%
Pu-239	43 wt%	43 wt%	34 wt%
Pu-241	37 wt%	39 wt%	32 wt%

For waste containing mixtures of C, F, and Bi, the sum of the weight fractions of C, F, and Bi shall be compared to the most restrictive maximum allowable weight fractions for any one of those elements. Similarly, where mixtures of radionuclides are present in the waste, the limiting maximum allowable weight fraction of C, F, and Bi shall be applied. The presence of the above materials will be determined and documented by the generator, based on process knowledge or testing.

3. Waste accepted shall not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one tenth of one percent of the total weight of the waste. The presence of the above materials will be determined and documented by the generator, based on process knowledge, or testing.
4. Possession of highly water soluble forms of SNM shall not exceed the amount of SNM of low strategic significance defined in 10 CFR 73.2. Highly soluble forms of SNM include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, uranyl sulfate, plutonium chloride, plutonium fluoride, and plutonium nitrate. The presence of the above materials will be determined and documented by the generator, based on process knowledge or testing.
5. Processing of mixed waste containing SNM will be limited to chemical stabilization (i.e., mixing waste with reagents). For batches with more than 600 kilograms of waste, the total mass of SNM shall not exceed the concentration limits in Condition 1 times 600 kilograms of waste.

6. Prior to shipment of waste, WCS shall require generators to provide a written certification containing the following information for each waste stream:

a. **Waste Description.** The description must detail how the waste was generated, list the physical forms in the waste, and identify uranium chemical composition.

Waste Characterization Summary. The data must include a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.

b. **Uniformity Description.** A description of the process by which the waste was generated showing that the spatial distribution of SNM is homogeneous or other information supporting spatial homogeneity.

c. **Manifest Concentration.** The generator must describe the methods to be used to determine the concentrations on the manifests. These methods could include direct measurement and the use of scaling factors. The generator must describe the uncertainty associated with sampling and testing used to obtain the manifest concentrations.

WCS shall review the above information and, if adequate, approve in writing this pre-shipment waste characterization and assurance plan before permitting the shipment of a waste stream. This will include statements that WCS has a written copy of all the

information required above, that the characterization information is adequate and consistent with the waste description, and that the information is sufficient to demonstrate compliance with Conditions 1 through 4. Where generator process knowledge is used to demonstrate compliance with Conditions 1, 2, 3, or 4, WCS shall review this information and determine when testing is required to provide additional information in assuring compliance with the Conditions. WCS shall retain this information as required by the State of Texas to permit independent review.

At the time waste is received, WCS shall require generators of SNM waste to provide a written certification with each waste manifest that states that the SNM concentrations reported on the manifest do not exceed the limits in Condition 1, and that the waste meets Conditions 2 through 4.

WCS shall require generators to sample and determine the SNM concentration for each waste stream, not to include sealed sources, at a frequency of once per 600 kg if the concentrations are above one tenth the SNM limits of Condition 1. The measurement uncertainty shall not exceed the uncertainty value in Condition 1 and shall be provided on the written certification.

7. WCS shall sample and determine the SNM concentration for each waste stream, not to include sealed sources, at a frequency of once per 600 kg if the concentrations are above one tenth the SNM limits of Condition 1. This confirmatory testing is not required for waste to be disposed of at DOE's WIPP facility.

8. The "WIPP incident" is the February 14, 2014, unplanned radiation release event at the DOE WIPP facility in New Mexico. The following relate to WCS storing DOE transuranic waste that originated at the 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 1 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 2 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 7 days.
10. WCS shall obtain NRC's 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.

III. Conclusion

Based on the staff's evaluation, the NRC has determined, pursuant to 10 CFR 70.17(a), that the exemption as described above at the WCS facility is authorized by law, will not endanger life or property or the common defense and security and is otherwise in the public interest. Accordingly, by this Order, the NRC hereby grants this exemption subject to the conditions in this Order, which implements concentration-based limits for SNM quantities not sufficient to form a critical mass at specific locations at the WCS facility. This NRC Order is effective and final 20 days after issuance of the Order without further order or proceedings. This NRC's 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 this Order.

Pursuant to the requirements in 10 CFR part 51, the Commission has published an Environmental Assessment for the proposed action wherein it has determined that the granting of this exemption will have no significant impacts on the quality of the human environment. That finding was noticed in the *Federal Register* on November 6, 2014 (79 FR 65999).

Dated at Rockville, Maryland this 3rd day December of 2014.

For the Nuclear Regulatory Commission.

/RA/

Catherine Haney, Director,
Office of Nuclear Material Safety
and Safeguards.