[7590-01-P]

NUCLEAR REGULATORY COMMISSION
Docket No. 70-7005
In the Matter of Waste Control Specialists, LLC
Order Modifying Exemption from 10 CFR Part 70

AGENCY: Nuclear Regulatory Commission

ACTION: Issuance of Order to Modify Waste Control Specialists, LLC's Exemption from Requirements of 10 CFR Part 70

FOR FURTHER INFORMATION CONTACT: James Park, Environmental and Performance Assessment Directorate, Division of Waste Management and Environmental Protection, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Telephone: (301) 415-5835, fax number: (301) 415-5397; e-mail: JRP@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

Pursuant to 10 CFR 2.106, the Nuclear Regulatory Commission (NRC) is providing notice in the Matter of Waste Control Specialists, LLC (WCS) of the issuance of an order to modify WCS's exemption from the requirements of 10 CFR Part 70.

II. Further Information

I.

In letters dated August 6, 2003, and March 15, 2004, WCS requested a modification to its exemption from certain NRC regulations relative to the possession of special nuclear material (SNM). A license pursuant to 10 CFR Part 70 issued by NRC is required for quantities

of SNM in excess of the limits in 10 CFR 150.11. WCS is requesting a modification to its exemption from licensing under Part 70 for possession of greater than the Part 150 SNM limits. The NRC issued the initial exemption to WCS in November 2001.

WCS operates a low-level waste (LLW) and mixed waste (MW) storage and treatment facility in Andrews County, Texas. The facility also disposes of hazardous waste. Texas is an Agreement State. This facility is licensed by the State of Texas Department of Health (TDH) under a 10 CFR Part 30 equivalent radioactive materials license (RML). The facility is also licensed by the Texas Commission on Environmental Quality (TCEQ) to treat and dispose of hazardous waste. 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 TDH for treatment and storage of MW and LLW. The MW and LLW streams may contain quantities of SNM.

II.

Section 70.3 of 10 CFR Part 70 requires persons who own, acquire, deliver, receive, possess, use, or transfer SNM to obtain a license pursuant to the requirements in 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.

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.”

On November 21, 2001, the NRC transmitted an Order to WSC. The Order was published in the *Federal Register* on November 15, 2001 (66 FR 57489). The Order exempted 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 WCS's storage and treatment facility in Andrews County, Texas, without obtaining an NRC license pursuant to 10 CFR Part 70. The methodology used to establish these limits is discussed in the 2001 Safety Evaluation Report (SER) that supported the 2001 Order.

III.

The NRC staff considers that the appropriate action is to modify WCS's exemption. Currently, WCS is exempted from the requirements of 10 CFR Part 70, including the requirements for an NRC license in 10 CFR 70.3, for SNM within the restricted area at WCS's site. This modification specifically would 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. The WCS would continue to be restricted from using magnesium oxide in stabilization, per Condition 2 of the Order. Therefore, WCS's exemption is modified as follows:

1. Concentrations of SNM in individual waste containers and/or during processing must 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, should be used.

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

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 homogeneously distributed throughout the waste. If the SNM is not homogeneously distributed, then the limiting concentrations must not be exceeded on average in any contiguous mass of 600 kilograms.

2. Waste must not contain “pure forms” of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By “pure forms,” it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. The presence of the above materials will be determined and documented by the generator, based on process knowledge or testing.

3. Waste accepted must 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. Waste packages must not contain highly water soluble forms of SNM greater than 350 grams of U-235 or 200 grams of U-233 or 200 grams of Pu. The sum of the fractions rule will apply for mixtures of U-233, U-235, and Pu. When multiple containers are processed in a larger container, the total quantity of soluble SNM shall not exceed these mass limits. 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.

b. 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.

c. Uniformity Description. A description of the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.

d. 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, that the measurement uncertainty does not exceed the uncertainty value 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 at the following frequency: (a) if the concentrations are above one tenth the SNM limits (Condition 1), once per 600 kg, (b) if the concentrations are below one tenth and greater than one hundredth of the SNM limits, once per 6,000 kg, and (c) if the concentrations are below one hundredth of the SNM limits, once per 60,000 kg.

If the waste is determined to be not homogeneous (i.e., maximum, which cannot exceed the limits in Condition 1, and minimum testing values performed by the generator are greater than five times the average value), the generator shall sample and determine the SNM concentration once per 600 kg thereafter, regardless of SNM concentration. In this case, samples shall be a composite consisting of four uniformly sampled aliquots.

The certifications required under these conditions shall be made in writing and include the statement that the signer of the certification understands that this information is required to meet the requirements of the NRC and must be complete and accurate in all material respects.

7. WCS shall sample and determine the SNM concentration for each waste stream at the following frequency: (a) if the concentrations are above one tenth the SNM limits (Condition 1), once per 1,500 kg for the first shipment and every 6,000 kg thereafter, (b) if the concentrations are below one tenth and greater than one hundredth of the SNM limits, once per 20,000 kg for the first shipment and every 60,000 kg thereafter, and (c) if the concentrations are below one hundredth of the SNM limits, once per 600,000 kg. This confirmatory testing is not required for waste to be disposed of at DOE's WIPP facility.

   If the waste is determined to be not homogeneous (i.e., maximum and minimum testing values performed by the generator are greater than five times the average value), WCS shall sample and determine the SNM concentration once per 1,500 kg for the first shipment and every 6,000 kg thereafter, regardless of SNM concentration. In this case, samples shall be a composite consisting of four uniformly sampled aliquots.

8. 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.

9. WCS shall obtain NRC approval prior to changing any activities associated with the above Conditions.

IV.

Based on the staff's evaluation, the Commission 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 Commission hereby grants this exemption subject to the above conditions. The exemption will become effective after the State of Texas has incorporated the above conditions into WCS's RML.

Pursuant to the requirements in 10 CFR Part 51, the Commission has published an Environmental Assessment (EA) 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. This finding was noticed in the *Federal Register* on October 20, 2004 (69 FR 61697).

V.

As of October 25, 2004, the NRC initiated an additional security review of publicly available documents to ensure that potentially sensitive information is removed from the ADAMS database accessible through the NRC's website. Interested members of the public should check the NRC's web pages for updates on the availability of documents through the ADAMS system.[1]

Dated at Rockville, Maryland this 5th day of November 2004.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Jack R. Strosnider, Director
Office of Nuclear Material Safety
and Safeguards

[1] The requests for modifying the Order will be available for inspection at NRC's Public Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html> using the ADAMS Accession Nos. ML032590937 and ML041350224. The NRC staff's request for additional information, its EA, and its SER for this action will be available at the above web site using the ADAMS Accession Nos. ML032731010, ML042250451, and ML042250362, respectively.