Steve Solomon

DRAFT

Utah File

MEMORANDUM TO: Theodore S. Sherr, Chief
Regulatory and international Safeguards Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety and Safeguards

FROM: Richard L. Bangart, Director
Office of State Programs

SUBJECT: OSP COMMENTS ON INITIATION OF RULEMAKING - SAFE CONCENTRATION FOR POSSESSION OF SNM IN CONTAMINATED SOIL

This responds to your request for concurrence on January 31, 1995 (Enclosure 1). Staff comments are as follows:

1. The initiation of rulemaking package fails to note that the petition for rulemaking by Envirocare of Utah, Inc., was published in the Federal Register on February 22, 1993 (9552 FR 2/2/93) (Enclosure 2) and does not discuss the nature of the two comments received from Westinghouse Electric Corporation (April 19, 1993 Enclosure 3) and from USEcology, Inc. (USE) (April 23, 1993) (Enclosure 4). We believe that the notice and issues raised should be discussed in addition to how various concerns raised in the letters are to be addressed in the proposed rulemaking.

2. The Westinghouse letter supports the petition. However, the comment points out that the use of this proposed rule should be limited to licensee's processing waste materials for disposal in approved burial sites. Also, additional controls are needed to prevent accidental critical reactions. These should include a mass concentration limit for bulk materials when the Special Nuclear Material (SNM) 350 gram limit is exceeded.

3. USE offers a number of comments that should be considered in any proposed rulemaking effort. First, it believes that Envirocare submitted this petition to avoid being regulated in this area by the Nuclear Regulatory Commission (NRC). In USE's view, Envirocare is shifting the onus of criticality analysis and safety evaluation from the prospective licensee to the regulating body. Such a shift, it claims, is inconsistent with previous licensing action in this area. Additional specific concerns are:

- SNM is still of strategic importance and should not be relinquished to non-federal government agencies.
- Tens of thousands of grams of SNM may be involved, much of it inhomogeneous. Without knowing the concentrations of SNM appropriate regulation of characterization, transportation, disposal, long-term care and maintenance, among others, may not adequately addressed.
- Many issues at Envirocare are inconsistent with the other low-level (LLW) waste disposal facilities. Controls in place in Utah should be comparable.
- Although the petition notes that mass concentrations of the wast material may be as low as 0.0004 percent, it is not stated how high the concentrations may be. Much more information is required. USE suggests that NRC establish a framework for each

006003/

1/5

facility exemption after NRC performs a complete characterizatio

- USE suggests that it is more appropriate for individual disposal licensees to raise such issues to NRC rather than Envirocare on behalf of all licensees.

4. Page 1, paragraph 2 notes that the staff investigated the maximum SNM concentration in soil. However, apparently, the presence of structural debris and inhomogeneity are not taken into account. The Envirocare license includes limits on the combination of structural debris and soil; and the inhomogeneity of such is a given. These variance should be considered.

5. Attachment 1, page 2, item 5. Agreement States, host States and Compacts should be included as to impact. Of special concern is that this proposed rulemaking will focus attention that SNM, and especially Pu, is going to LLW disposal sites; and especially after the Ward Valley, California, reevaluations done by NRC when NRC was accused of "cooking the numbers." The North Carolina LLW Disposal Authority specifically avoided applying for an SNM license from NRC. States and Compacts are not interested in advertising that some small amount of SNM goes into the disposal facilities. This rulemaking action would tend to focus attention on this subject. Because this rule would be a matter of compatibility, many Agreement State issues would be raised, such as enforcement and increased amounts of SNM allowed under State licenses.

6. Attachment 1, page 2, item 6. The timetable does not allow for the Agreement States to review and comment on this proposed rule in advance. OSP usually allows Agreement States 30 days to comment. An additional 14 days is factored into OSP review and mailing before the Agreement States receive the proposed rulemaking package.

Distribution:
Task# - 5S-33
File: LLW
DIR r/f
RLBangart
PHLohaus
SNSalomon
RDoda, RSAO, RIV
RPerson, LLDP

concurrence:

SNSalomon PHLohaus RLBangart

G:\SNS\SNMINITI.SNS

5038

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 26, 1996

NOTE TO COMMISSIONER ASSISTANTS

OCM/SJ	OCM/KR	OCM/GD
__ Marylee Slosson	__ Myron Karman	__ Brad Jones
__ Annette Vietti-Cook	__ Mort Fleishman	__ Terence Chan
__ Mitzi Young	__ Jack Sorensen	__ Anthony Markley
__ James Johnson	X Seth Coplan	X Joel Lubenau
__ Brian Holian	cc Lynn Deering	cc Keith McDaniel
X Regis Boyle	__ Lil VanCise	__ Donna Smith
__ Bob McOsker	__ Ann Haikalis	__ Joanne Field
__ Jackie Silber		__ Joel Lubenau
__ Janice Dunn Lee		
__ Chris Miller		
cc Scott Moore		
__ Gerry Schuetze		
__ Evelyn Williams		
__ Judy Ledbetter		
__ Pat Celenza		
__ Leslie Hill		

FROM: for Valerie H. Wilson
James L. Blaha
Assistant for Operations, OEDO

SUBJECT: STAFF RESPONSES TO CHAIRMAN'S QUESTIONS CONCERNING ENVIROCARE

The Chairman's office verbally communicated five questions concerning the Envirocare facility to staff. Attached are the responses to those questions.

Attachment:
As stated

cc: J. Taylor, EDO (w/o attachment)
J. Milhoan, DEDR (w/o attachment)
H. Thompson, DEDS (w/o attachment)
J. Blaha, AO/OEDO (w/attachment)
K. Stablein, OEDO (w/o attachment)
L. Person, NMSS (w/o attachment)
SECY (w/attachment)
OGC (w/attachment)
OCA (w/o attachment)
OPA (w/o attachment)

9707280033 4pp

1/4

QUESTIONS RELATED TO ENVIROCARE AND SNM

1. Has Envirocare exceeded the 350 g possession limit for U-235 at its disposal facility?

   Although the total amount of U-235 received for disposal, to date, has exceeded this amount, discussions with the State of Utah indicate that Envirocare has not exceeded the 350 g possession limit for U-235, which is the limit on the material above ground prior to actual disposal. NRC does not inspect the Envirocare facility because the LLW disposal facility is regulated by the State of Utah. The State of Utah inspection includes both inspection of the licensee's operating procedures and uranium and plutonium assay of waste shipments containing special nuclear material. The State has not identified any violations of this possession limit as part of its inspection efforts.

2. Has Envirocare worked with its customers on how the arrival of rail cars at the site could be spaced such that an accumulation of several cars could be avoided?

   As we understand the situation at Envirocare and their waste shipments, it would not be practical to parse the shipments into smaller batches (single rail cars). For practical reasons, licensees will typically accumulate waste on-site at a decommissioning project and then ship large batches to Envirocare (10 or more rail cars may not be unusual). We also understand from Envirocare that this situation is no longer posing a problem because they are not currently receiving large amounts of SNM waste from licensees. However, they still desire resolution of the problem because they anticipate it will resume under future contracts that they have already signed (e.g., NFS-Erwin for 1,000,000 cubic feet of waste).

Chairman Jackson's Questions
on Envirocare SNM Limit[1]

1. How different is the Envirocare facility from other facilities that NRC licenses under 10 CFR Part 70?

Answer:

With two exceptions, Envirocare is significantly different than most of the facilities that NRC licenses under 10 CFR Part 70. Envirocare is an operating disposal facility for low-activity low-level radioactive waste (LLW), 11e(2) byproduct material waste, and naturally occurring radioactive material (NORM) waste. The 11e(2) disposal site is physically separate from the LLW-NORM disposal site. Envirocare has a 540 acre facility. The State of Utah licenses disposal of LLW and NORM waste; NRC licenses disposal of the 11e(2) byproduct material waste. The special nuclear material (SNM) that is received at Envirocare for disposal is at very low concentrations and dispersed in the LLW (soil, rubble, and debris). At the concentration level received, these materials do not pose a criticality hazard. The LLW is disposed in accordance with requirements that are compatible with NRC regulations in 10 CFR Part 61.

In contrast, the requirements in Part 70 are primarily intended for fuel facilities that process larger, more concentrated amounts of SNM in the form of enriched uranium fuel and chemical intermediates and concentrated and refined plutonium. In contrast with the diffuse SNM waste received at Envirocare, the SNM at fuel facilities pose criticality hazards, and are therefore carefully controlled to prevent inadvertent criticality. In addition, there is greater concern about potential diversion of SNM at fuel facilities because of the strategic value of such materials or their potential use for radiological sabotage. Consequently, fuel facilities are also subject to comprehensive material control and accounting (MC&A) and physical protection requirements (10 CFR Part 73). Given current conditions, application of these requirements is clearly not necessary at the Envirocare facility.

In addition to fuel facilities, Part 70 also applies to smaller-scale uses or possession of SNM. For example, certain uses of gauges or radioactive sources and devices are licensed under 10 CFR Part 70. Similar to the fuel facilities, the SNM used in these applications is generally in a concentrated form and in a sealed form. Safety is built into the design and construction of the device or source. Consequenly, there is no additional need to specifically address criticality safety, MC&A, and physical protection.

The two exceptions identified above are the Barnwell and Richland LLW disposal facilities, which are licensed by both the State for LLW and NRC to dispose of waste containing SNM under 10 CFR Part 70.

---

[1]From July 18, 1996 meeting between Chairman Jackson and Carl Paperiello

Envirocare's operations are similar to those of Barnwell and Richland in that all three facilities are engaged in near-surface disposal of LLW. However, there are significant differences between Envirocare's design and operating procedures and those of Barnwell and Richland. In addition, the waste forms and concentrations differ significantly. The wastes at Barnwell and Richland may include discrete sources and more highly concentrated wastes in packages that are placed intact in the trenches, whereas the wastes disposed at Envirocare are in very low concentrations, diffuse, and bulk or generally unpackaged at the time of placement in the disposal embankment. The Part 70 criticality requirements are appropriate for the wastes at Barnwell and Richland because of a greater potential for inadvertent criticality during storage and placement of the waste in the trenches. However, in contrast to the requirements applied to the fuel facilities, the MC&A and physical protection requirements are not applicable to waste disposal at Barnwell and Richland.

2. Would the staff propose to apply specific limits on the amount of SNM that Envirocare could receive for disposal?

Yes. The staff's proposed concentration limits for plutonium (5 micro-curies per gram of soil) and enriched uranium (400 pico-curies per gram of soil) in diffuse waste were provided to the Commission in a memorandum dated May 13, 1996.

3. How would these concentration limits be imposed on Envirocare?

The proposed concentration limits for SNM in diffuse waste would be imposed on Envirocare through NRC's order to Envirocare and through the State of Utah's license and regulations, as described in staff's memo to the Commission of November 13, 1995.