NOV - 1 1993

Mr. William J. Sinclair, Director
Division of Radiation Control
Department of Environmental Quality
168 North 1950 West
P.O. Box 144850
Salt Lake City, Utah 84114-4850

Dear Mr. Sinclair:

Your letter of September 24, 1993, transmitted comments on facility design and ground water issues regarding the Envirocare of Utah, Inc.'s, 11e.(2) byproduct material disposal facility. Our respective staffs discussed these issues in a conference call on October 4, 1993, and reached satisfactory resolution of all issues. The enclosure documents our understanding of the agreements and resolutions of those issues resulting from that teleconference.

Should you have any clarifications, modifications, or questions regarding the enclosure, please contact me at (301) 504-3439 or Sandra L. Wastler of my staff at (301) 504-2582.

Sincerely,

ORIGINAL SIGNED BY

Joseph J. Holonich, Acting Chief
Uranium Recovery Branch
Division of Low-Level Waste Management
and Decommissioning
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc: K. Semnani, Envirocare
D. Hiller, Envirocare

Docket Number: 40-8989

Distribution: See attached list

SUBJECT ABSTRACT: Utah Comments
* See Previous Concurrence

| OFC | LLUR* | E | LLUR* | E | LLUR | E | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NAME | SWastler/eb | | MFliegel | | JHolonich | | | | | |
| DATE | 10/26/93 | M | 10/27/93 | M | 10/ /93 | M | | | | |

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SUMMARY OF OCTOBER 4, 1993 TELECON BETWEEN
THE U.S. NUCLEAR REGULATORY COMMISSION AND THE STATE OF UTAH
IN RESPONSE TO
THE STATE OF UTAH COMMENTS OF SEPTEMBER 24, 1993
ON ENVIROCARE OF UTAH'S 11E.(2) BYPRODUCT DISPOSAL SITE

PARTICIPANTS:

| NRC | UTAH |
|---|---|
| M. Fliegel | W. Sinclair |
| S. Wastler | D. Finerfrock |
| T. Johnson | L. Morton |
| D. Rom | S. Hacking |
| L. Hamdan | |

PURPOSE: To discuss the State of Utah's comments on the draft license as provided in their letter of September 24, 1993.

GENERAL DISCUSSION:

Prior to addressing the State's specific comments, the NRC staff discussed the differences between the State and Federal regulations, as well as a possible misunderstanding of those regulations, that appeared to have a significant influence on the State's comments. Specifically, the NRC staff indicated:

1. That the review of Envirocare of Utah, Inc (Envirocare) license application was in accordance with 10 CFR Part 40, as specified by the Commission in the January 25, 1991 Federal Register Notice (FRN). The ground-water standards in Part 40 are those imposed by the Environmental Protection Agency (EPA) in 10 CFR Part 192, Subparts D and E (48 FR 45926; October 7, 1983), which in turn are based on the Resource Conservation and Recovery Act (RCRA) standards in 40 CFR Part 264. Based on Part 40, the ground-water standards applicable at the Point of Compliance are either background, Maximum Concentration Limits (MCL), or Alternate Concentration Limits (ACL).

2. That it did not have the regulatory authority to require compliance with State ground-water protection standards. As described in the Final Safety Evaluation Report (FSER) and FSER Supplement 1, the NRC staff has already determined that Envirocare complied with all applicable Federal regulations in regard to its 11e.(2) license application. The most the NRC could do in a situation where the State regulations have an additional requirement or more conservative requirement than that of the NRC is to ask the licensee to voluntarily commit to meeting this requirement at the 11e.(2) facility. Such a commitment, however, is at the licensee's discretion.

3. The difference between the State ground-water regulations as applied at the low-level radioactive waste (LLWR) facility and that of the NRC at the 11e.(2) facility appeared to be differing ground-water assessments.

At the LLRW facility, the staff's understanding is that the State's ground-water evaluation is based on a forward looking performance assessment of the facility's design and the application of a non-degradational ground-water standard. The NRC staff went on to explain that the Part 40 approach with regard to groundwater relies on the design of a tight cover combined with comprehensive monitoring and corrective action.

4. That Criterion 6 of Appendix A to Part 40 contains design requirements strictly for long-term stability and control of radon release. This Criterion is not applicable to the groundwater. Under Criterion 6, the cover design must provide reasonable assurance of the control of radiological hazards to be effective for 1,000 years, to the extent reasonably achievable, and, in any case, for 200 years.

In response to the above discussion, the State pointed out that its ground-water standards: 1) were essentially EPA drinking water standards, as in RCRA; 2) allow for ACL's, which must be approved by a State Board; 3) do not require that all sites meet a non-degradational standard; and 4) require a performance assessment to demonstrate that the engineering design maintains ground-water quality for LLRW site for at least 200 years.

Discussion then turned to the State's main concern, the design of the cell cover for the 11e.(2) facility. While the State felt that the cell covers for the two facilities were basically the same, it had specific concerns regarding the permeability of the cover and the design of the filter layer.

With regard to the permeability of the cover, the State's attorney believes Utah has the authority to regulate heavy metals on the 11e.(2) site and, therefore, has a vested interest in the design of the 11e.(2) facility cover. State staff indicated that, to assure control of heavy metals, the permeability of the cover had to be .28 cm/yr or less. The cover approved by Utah for the LLRW facility was 6 feet of native clay material with a $10^{-6}$ cm/sec hydraulic conductivity capped with a one foot layer of native clay material amended with bentonite to a $10^{-8}$ cm/sec hydraulic conductivity. The State questioned the comparability of the two covers (11e.(2) and LLWR) with regard to permeability.

The NRC staff indicated that, while our regulations do not require a specific permeability for the cover, the license will require a bentonite amendment, or some alternative method approved by the NRC, to make the cover tighter than the liner, and will thus result in hydraulic conductivity of about $10^{-8}$ cm/sec. The NRC indicated that while it has not done a performance assessment analysis, experience indicates that the 8-9 foot thick cover of native clay material including bentonite (hydraulic conductivity of about $10^{-8}$ cm/sec) would be at least equal to the cover proposed by the State. The NRC staff indicated that Envirocare must provide, for NRC approval, the construction specifications regarding the amount of bentonite that will be added and that it would be more than willing to coordinate with the State in this regard. The State considered the NRC coordination an acceptable resolution.
The second area of concern was the design of the filter layer. Basically the

State felt the filter layer design didn't allow the cover to shed water as effectively as the design approved by the State for the LLWR facility. As a result, the Envirocare filter layer design made more water available to infiltrate the radon/infiltration barrier than the State's design. The NRC staff indicated that the design was proposed by Envirocare and was accepted by the staff. However, the NRC's acceptance of the proposed design did not mean that there were not other filter zone designs that would be acceptable to the NRC staff. NRC staff stated that the primary function of the filter zone was to serve as a transition to protect the radon/infiltration barrier from the overlying rock riprap. The State questioned the NRC's willingness to accept the filter zone design approved by the State for the LLRW site. The NRC staff indicated that, while it had not reviewed the specific design, it would probably be acceptable if submitted by Envirocare.

Based on the above general discussion, the State indicated that its concerns regarding infiltration and, thereby most of its comments were resolved. The following additional specific comments in the State of Utah's September 24, 1993, letter were addressed individually:

**Utah Item 1 - Coordination of Ground-Water Protection Standards and Compliance Monitoring**

Paragraph 3, B - The NRC staff cannot require Envirocare to monitor copper and zinc as hazardous constituents at this time. Part 40, Appendix A, Criterion 5B(2) requires that hazardous constituents must meet all of the following: 1) the constituent must be reasonably expected in the waste; 2) detected in the groundwater; and 3) listed in Part 40, Appendix A, Criterion 13. Criterion 13, however, lists only the compounds of copper cyanide, zinc cyanide and zinc phosphide.

The NRC staff can only request that Envirocare voluntarily add copper and zinc to their list of hazardous constituents. However, the NRC will have a license condition requiring Envirocare to require the shipper to provide complete chemical analysis of the material being shipped. As a result of that analysis, contaminants identified in the waste but not previously listed by Envirocare, as representative of the waste to be received, will be added to its list of hazardous constituents.

Paragraph 3, C - The NRC staff agreed to coordinate with the State, action limits for ground-water monitoring and compliance, where allowed under applicable regulations.

Paragraph 3, D - The NRC staff agreed to coordinate with the State on the evaluation of ACL's for groundwater, if proposed by Envirocare.

**Utah Item 6 - Post-Operational Ground-Water Monitoring**

At the present, a license condition will require quarterly post-closure ground-water monitoring, however this is subject to change depending on operations. The NRC staff agreed to coordinate with the State on any change to post-closure sampling requirements and frequency.

Utah Item 7 - Ground-Water Corrective Action

The NRC staff agreed to coordinate with the State on any corrective action to restore ground-water quality proposed at the site. It should be noted, however, that the ground-water cleanup plan discussed in FSER Section 9.0 and Supplement 1 Section 3.13.2 was for development of the financial surety, and as such was a hypothetical estimate based on reasonable assumption of site performance. Should any corrective action be needed, an actual site specific plan will be developed by the applicant for NRC review, and the surety estimate will also be reviewed and revised as necessary based on the actual plan.

Utah Item 10 - Bottom Clay Liner Design

The applicant, in the license application, has already committed to removing and replacing any Unit 3 sand encountered at the depth of the bottom foot of liner with clay to assure that the bottom foot of liner is composed of all clay. Where clay already exists at that depth, it would be scarified and recompacted to form the bottom foot of the two foot liner. The State indicated that it would rather have the 2 foot clay liner composed of all imported (borrowed on site) clay.

The NRC staff stated that NRC regulations do not require Envirocare to install a liner below the 11e.(2) facility. However, since Envirocare has chosen to put in a liner and to take credit for it in the design, the applicant must demonstrate that: 1) the clay is compatible with the tailings solutions (Part 40, Appendix A, Criterion 5(E)); and 2) the liner will function as the applicant takes credit for in the design. The NRC evaluated the proposed liner in regard to the latter and found it acceptable. With regard to the compatibility issue, the applicant still has to demonstrate the liner's compatibility and the NRC staff will make this a condition of the license.

Once again, the NRC does not have the regulatory authority to require that Envirocare put in a two foot liner of imported clay. However, the NRC indicated that it had no objection to the State requesting that Envirocare place a 24" liner of <u>imported</u> clay at the 11e.(2) facility.

There is a potential complication if Envirocare is unable to demonstrate that the native borrow clay used in the liner is compatible with the tailings solution. This may result in Envirocare being required to import clay from another location entirely.

Utah Item 12 - Waste Storage

The NRC regulations do not require bulk storage on a bulk storage pad; therefore, the NRC has no regulatory authority to require Envirocare to construct a pad for such storage. However, as stated in the FSER Section 6.1.2.3, the applicant has proposed that bulk storage will be located on an unexcavated portion of the disposal area; the storage area will be scarified and recompacted; and a liner placed on the compacted clay prior to placement of waste for storage. Since this is not a requirement, the NRC

staff can only ask Envirocare to voluntarily commit to construct a storage pad for storage similar to the LLRW site.

CONCLUSION:

The State of Utah indicated that its comments had been adequately resolved and should not preclude issuance of the NRC license as scheduled.

BCC list for letter dated: 11/01/93

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