

FEB 25 1994

Mr. Charles A. Judd
Executive Vice President
Envirocare of Utah, Inc.
American Towers Commercial
46 W. Broadway, Suite 240
Salt Lake City, Utah 84101

Dear Mr. Judd:

By letter dated February 4, 1994, Steven J. Peterson of your staff submitted, for U.S. Nuclear Regulatory Commission consideration, a proposed redesign of the filter zone layer of the cover, with associated calculations. The staff has reviewed the revised filter zone design and concluded that Envirocare of Utah, Inc. (Envirocare) has not provided adequate documentation to justify the changes that are proposed. To resolve staff concerns on the filter design, Envirocare should address the enclosed comments, by providing revised calculations and discussions for each. Alternately, Envirocare should provide additional justification that documents the acceptability of each aspect of the filter design and discusses each of the staff's comments.

I would also like to point out that the proposed redesign is a change to the cover design presented in the license application specified in condition 9.3 of Byproduct Material License No. SMC-1559. Envirocare, therefore, must submit the revised filter zone design as a license amendment, for NRC review and approval, prior to its implementation.

Should you have any questions regarding the enclosed comments, please contact the NRC Project Manager, Sandra L. Wastler at (301) 504-2582.

Sincerely,

ORIGINAL SIGNED BY

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

Enclosure: As stated

cc: D. Hiller

W. Sinclair, Utah

Docket Number: 40-8989

License Number: SMC-1559

Distribution: See attached list

SUBJECT ABSTRACT: COMMENTS ON ENVIROCARE'S FEBRUARY 4, 1994 SUBMITTAL

*See Previous Concurrence

OFC	LLUR*	E	LLUR*	E	LLUR*	E
NAME	SWastler		MFliegel		JHolonich	
DATE	02/09/94	M	02/15/94	M	02/17/94	

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Mr. Khosrow B. Semnani, President
 Envirocare of Utah, Inc.
 American Towers Commercial
 46 W. Broadway, Suite 240
 Salt Lake City, Utah 84101

Dear Mr. Semnani:

By letter dated February 4, 1994, Steven J. Peterson of your staff submitted, for U.S. Nuclear Regulatory Commission consideration, a proposed redesign of the filter zone layer of the cover, with associated calculations. The staff has reviewed the revised filter zone design and concluded that it may not be acceptable. Further, Envirocare has not provided adequate documentation for the changes that are proposed. To resolve staff concerns on the filter design, Envirocare should address the enclosed comments, by providing revised calculations and discussions for each. Alternately, Envirocare should provide additional justification that documents the acceptability of each aspect of the filter design and discusses each of the staff's comments.

I would also like to point out that the proposed redesign is a change to the cover design presented in the license application specified in condition 9.3 of Byproduct Material License No. SMC-1559. Envirocare, therefore, must submit the revised filter zone design as a license amendment, for NRC review and approval, prior to its implementation.

Should you have any questions regarding the enclosed comments, please contact the NRC Project Manager, Sandra L. Wastler at (301) 504-2582.

Sincerely,

Joseph J. Holonich, Acting Chief
 Uranium Recovery Branch
 Division of Low-Level Waste Management
 and Decommissioning
 Office of Nuclear Material Safety
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 cc: D. Hiller
 W. Sinclair, Utah

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OFC	LLDR	E	LLUR	E	LLUR	E		E
NAME	Swastler		MFliegel		JHolonich			
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U.S. Nuclear Regulatory Commission Comments
on
Envirocare of Utah, Inc. Proposed Filter Zone Re-Design

Geotechnical Engineering

1. The licensee needs to evaluate the effect of the increased thickness of the redesigned cover on both settlement and slope stability. While the increase in thickness is not substantial; Envirocare must demonstrate that change have been considered with respect to both settlement and stability of the slopes.

Surface Water Hydrology

2. Envirocare has not provided a detailed justification for their selection of an allowable velocity of 0.5 feet per second through the filter voids. The reference cited (Chow, Open Channel Hydraulics) indicates that allowable velocities less than 0.5 feet per second may be appropriate for fine-grained materials which may underlie the filter zone.
3. It is possible that some piping of fines from the soil through the filter could occur, particularly on the side slopes. This phenomena can be accommodated by designing the filter in accordance with standard filter criteria, such as that developed by Sherard and presented in NUREG/CR-4620, "Methodologies for Evaluating Long-Term Stabilization Designs of Uranium Mill Tailings Impoundments." Because Envirocare has designed the filter based on velocity considerations, it is not clear that the filter design meets the criteria used in standard engineering practice. If Envirocare intends to deviate from standard practice, this may be acceptable; however, sufficient justification should be provided for such deviations.
4. Envirocare should provide a gradation curve, showing the D_{10} size that will be provided in the gradation. The tabular summary provided does not indicate the proposed D_{10} size. Since the design of the filter is based on this size, it should be clearly provided.
5. The velocity of flow through the voids should be checked using other methods, if the critical velocity approach is used as the design basis for the filter. The staff suggests that the Lep's Equation, as presented in NUREG/CR-4620, be used as an additional method for calculating the velocity.
6. The basis for selection of the thickness of both the filter and the riprap layers has not been provided. The staff notes that the riprap layer thickness has been increased to 18 inches, but the basis for the increase in the thickness has not been provided.

7. The staff notes that the calculations provided in the submittal are incorrect. Using its proposed method, Envirocare calculated the allowable D_{10} size for the filter material was calculated to be 1.57 inches; the correct answer is 0.157 inches. This may be important, because it is not clear that the D_{10} size is less than 0.157 inches.

Distribution: (For Envirocare Letter dated: FEB 25 1994)

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