ENVIROCARE OF UTAH, INC.

THE SAFE ALTERNATIVE

CD00-256

April 21, 2000

Mr. William J. Sinclair
Director
Utah Division of Radiation Control
168 North 1950 West
Salt Lake City, UT 84114-4850

Subject: Re-submittal of Western LARW Cell Slug Test Data

Dear Mr. Sinclair:

In a letter dated April 10, 2000, Envirocare of Utah, Inc., (Envirocare) submitted a letter to the Division of Radiation Control (DRC) describing deficiencies requiring re-analysis associated with the previous Monitoring Well Slug Testing Results (Attachment C of the September 24, 1999 request to modify the Groundwater Quality Discharge Permit). The following corrections have been completed and are re-submitted herein:

- Re-analysis of the recovery data to account for 8-inch borehole diameters, as opposed to 6-inch borehole diameters;
- Re-analysis of the recovery data to account for a 30 percent sand pack porosity as opposed to a 45 percent sand pack porosity;
- Re-analysis of the recovery data for monitoring wells GW-69 and GW-70 to account for 10-foot screens as opposed to 15-foot screens; and
- R3e-analysis of the recovery data for GW-93 to account for a 15-foot screen as opposed to a 10-foot screen.

Should there by any questions, please contact either Tim Orton or Dan Shrum at (801) 532-1330.

Sincerely,

Mark Ledoux, CHP
Corporate Radiation Safety Officer

Enclosure

cc: Dane Finerfrock, DRC
Don Ostler P.E., DWQ
Woodrow Campbell, DRC
Robert Herbert, DRC
Blair Spitzburg, NRC Region IV (without enclosures)
Thomas H. Essig, U.S. NRC (without enclosures)

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ENVIROCARE OF UTAH, INC.
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CD00-255

April 21, 2000

Mr. William J. Sinclair
Director
Utah Division of Radiation Control
168 North 1950 West
Salt Lake City, UT 84114-4850

Subject: Infiltration and Transport Modeling for the Western LARW Cell

Dear Mr. Sinclair:

On March 6, 2000, Envirocare of Utah, Inc. (Envirocare) submitted a letter to the Utah Department of Environmental Quality Division of Radiation Control (DRC). This letter consisted of additional information pertaining to permit modifications for the Western LARW Cell. One of the documents submitted with this letter was an Infiltration, and Fate and Transport Modeling Analyses performed by Whetstone Associates. During subsequent modeling, it was discovered that an input error had occurred in the original analysis. This error caused many of the reported exceedance years to shift in all four modeling analyses.

Attachment 1 contains tables comparing the previously modeled values to the adjusted values obtained after the error was fixed. Many minor differences in exceedance years are presented after this error was fixed. The only major problem resulting from this new analysis is the exceedance (at the compliance monitoring well) of Thallium-204 after 35 years on the side slope with a 100-fold permeability increase and after 25 years on the side slope with a 300-fold permeability increase.

The Thallium exceedance prompted a more thorough investigation of the soil distribution coefficient (K_d) used for Thallium-204 in the analysis. From Table 17 ("Sorption Coefficient (K_d) Values and Data Sources") of the Fate and Transport Modeling Report, a K_d of 0.001 L/kg is assigned to Tl-204 with a note: "K_d unknown, therefore conservatively assigned a value of 0.001 L/kg." Further evaluation by Whetstone Associates suggests potassium is a suitable surrogate for Thallium. Potassium has reported distribution coefficients ranging from 2.0 to 200 L/kg; however, previous modeling at Envirocare has assumed a conservative K_d of 0.15 L/kg. Results of this research are provided as Attachment 2.

Modeling was performed using distribution coefficients of 0.15 and 2.0 L/kg for Thallium-204. The side slopes at both a 100-fold and a 300-fold permeability increase were examined using these new K_d values for Thallium-204. The results from this analysis are provided in Attachment 3. Using either K_d value, Thallium-204 will not reach the water table.

Envirocare has also re-analyzed slug testing data relative to the eighteen (18) wells installed at the proposed Western LARW Cell. A letter describing these changes is being submitted concurrently with this letter. The slug testing re-analysis has changed the calculated hydraulic conductivity of the aquifer beneath the Clive facility. Therefore, based on these new values, fate and transport modeling will need to be redone. Because extra modeling is still necessary, Envirocare is not submitting the affected pages of the Infiltration and Transport Modeling Analysis at this time. We would appreciate a DRC response on necessary changes prior to submitting a final version of the modeling analysis.

Should there by any questions, please contact either Tim Orton or Dan Shrum at (801) 532-1330.

Sincerely,

Mark Ledoux, CHP
Corporate Radiation Safety Officer

Enclosure

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