HLWYM HEmails

From: David Pickett [dpickett@swri.edu]
Sent: Wednesday, February 23, 2000 3:50 PM
To: Tae Ahn
Cc: Bret Leslie; Roberto Pabalan (rpabalan); English Pearcy (epearcy); David Turner (dturner)
Subject: AMR deficiencies

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Tae,

I am responding to your phone message and e-mail regarding "Reamer's Request.wpd" for input on significant deficiencies identified so far in AMRs. I can only answer for the three colloid AMRs I read for the waste form audit. These are F0105, F0110, and F0115, concerned with colloid-associated source terms. My comments are as follows; only the last comment concerns an identified potential deficiency.

1. Because you previously closed out colloid issues in the CLST IRSR, I have no comments on how the AMRs address that document.

2. I was not previously involved in colloid work, so I cannot claim to be familiar with all the technical issues. However, from discussions with other staff, I do not see any significant deficiencies in DOE's approach to abstracting colloid-associated radionuclide release. They appear to be doing the best they can with limited data.

3. Colloid discussions in the ENFE IRSR concern in-drift radionuclide transport and, thus, are not strictly relevant to these AMRs. However, discussions of coupled THC effects on colloid stability, radionuclide attachment, and colloid transport do shed light on the source term technical issues.

The colloid source term abstraction described in one of the audited AMRs (F0115) uses calculated in-package pH and ionic strength to help calculate colloid stability and concentration of colloid-associated radionuclide. As discussed in the ENFE IRSR, other THC parameters, such as temperature, redox, and alkalinity, may affect colloids. The AMR does not directly address these other factors by, for example, showing that the abstraction is conservative regardless of temperature effects. This is the one potentially significant deficiency I would note: that the abstraction AMR does not explicitly address a sufficient range of possible coupled THC effects on colloid stability and radionuclide attachment to ensure that the abstraction is adequate for the range of possible repository conditions.

The DOE would not necessarily need to incorporate such effects into their abstraction: they merely need to justify that their exclusion could not result in a significant underestimate of colloid influence on release.

This point was made by me at the Waste Form PMR audit and also in my input to the audit report.

I am not sure this qualifies as a "glaring gap." We may need to discuss further to establish that. I welcome comments by Bret and the others cc'd.

David

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