

From: Dale Hammermeister [dhammermeister@co.nye.nv.us]
Sent: Wednesday, August 11, 2004 9:57 AM
To: Dudley, Sherry
Subject: FW: KTI-MULTIFLUX (fwd)

Sherry -

If you need the WORD file of the e-mail to the NWTRB guys, please request it directly from George. Thanks.

- Dale

-----Original Message-----

From: George Danko [mailto:danko@unr.edu]
Sent: Monday, August 09, 2004 12:50 PM
To: Dale Hammermeister
Subject: KTI-MULTIFLUX (fwd)

Dale -

Per your request, attached pls. find the e-mail that I sent to Debbie and Kirk some while ago. I cannot produce the copy of the other e-mail that I sent to John Pye and Carl at NWTRB. I have the MS Words document - will that be OK? Otherwise, I will need to ask John to send me back a copy if he still has it.

- George

----- Forwarded message -----

Date: Thu, 15 Apr 2004 13:15:45 -0700 (PDT)
From: George Danko <danko@unr.edu>
To: Deborah_Barr@Notes.YMP.GOV, Kirk_Lachman@Notes.YMP.GOV
Cc: danko@unr.edu
Subject: KTI-MULTIFLUX

Debbie and Kirk,

I have read the DOE KTI TEF 2.07 and RDTME 3.14 letter to NRC. As you know, I have spent considerable time as well as DOE support in part on the subject. I am the developer of MULTIFLUX (MF) that is specifically identified in the KTI letter. I found some points in the DOE response agreeable, and some not-so-agreeable as follows:

Agreeable (RDTME 3.14):

1. "Water vapor mass transport has little effect on the ability of ventilation to remove heat generated by the waste packages." It has been indeed proven (with MF as well) that the latent heat effect during preclosure is only a few percent of the total heat.

Not agreeable (RDTME 3.14):

1. Discretization issues (NRC question regarding technical basis for the adequacy of discretization used in these models) are not addressed. The AMR models do not use three-dimensional in-drift and rockmass models. Spatial variability is not addressed. Thermal hot-spots are ignored and not calculated.

2. The applicability of the ventilation model results to initialize postclosure thermal and thermal-hydrologic models is questionable. This issue is addressed in the letter to NRC. The problem I see is due to the dryout of rock during pre-closure. Dryout reduces the thermal conductivity from 2.1 to 1.3 around the drift in the hot areas. There will be spatially-variable, reduced conductivity in the rock for initial condition for postclosure. How could conductivity be initialized with a dry-only ventilation model? Reduction in conductivity will increase the temperature during the postclosure thermal surge. This postclosure effect is impossible to model without the correct modeling of the water and mass transport during preclosure. Only our integrated pre- and postclosure thermal-hydrologic modeling with MULTIFLUX can answer correctly the question: what is really going to be the maximum postclosure temperature along the emplacement drifts?

The YMP needs a credible, comprehensive thermal-hydrologic-air flow model for the integrated pre- and postclosure design. It is mind boggling how much DOE has spent and prepared to be spending for substandard models when, at the same time, there exists an efficient, correct, fully-coupled model, MF. MF is cheaper, faster, and better, originated in Nevada, but

it is disenfranchised, dismissed, and disengaged by DOE. Can this course be changed, picking up the newest MF version and start working together for the best interest of the YMP?

Please let me know what you think.

George