HLWYM HEmails

From: Randall Fedors
Sent: Wednesday, August 29, 2007 3:34 PM
To: Chandrika Manepally
Subject: RE: DD Effects on Temperature

I guess I missed the boat on this one. So, DOE applies their temperature threshold for seepage to the temperature at the waste package. This changes some of my thinking on their value for the temperature for seepage threshold. Note that the non-degraded drift wall is within 5 C of the waste package, but the collapsed drift wall temperature can be tens to a hundred degrees C different.
--Randy

>>> Chandrika Manepally <cmanepally@cnwra.swri.edu> 08/29/07 3:26 PM >>>
Answer to Question 2

2. Where is the temperature threshold of 100 C for seepage checked for

the collapsed drift scenario; at the actual degraded drift ceiling (11-m

diameter position), or the hypothetical original drift ceiling (5.5-m

position)?

The location is WP temperature...

Excerpt from Abstraction of Drift Seepage AMR Rev 01 (2004)Section 6.5.3

Note that the seepage abstraction deals with the flow of water from the formation into the rubble-filled opening, not with the fate of this water inside the rubble-filled opening. This information is provided to TSPA-LA in Section 6.8.1 of the Seismic Consequence Abstraction (BSC 2004) [169183]).
Based on studies conducted in BSC (2004 [DIRS 169565], Section 6.3.7.3), the Seismic Consequence Abstraction (BSC 2004 [169183], Section 6.8.1) suggests an abstraction model that assumes zero water arrival at the waste canisters during the time period that the waste package (or its close vicinity) remain safely at above-boiling temperatures. The definition is that seepage water will not be able to contact waste packages as long as the waste package surface temperature is above a 100ºC threshold value. This constraint implies that seepage entering the rubble-filled will be diverted through the rubble to the invert beneath the waste package. The threshold temperature is based on a sensitivity study of seepage arrival times at the drip shield crown for a collapsed drift that is filled with rubble (BSC 2004 [DIRS 169565], Section 6.3.7.3 and Table 6.3-44

-----Original Message-----
From: Randall Fedors [mailto:rwf@nrc.gov]
Sent: Wednesday, August 29, 2007 12:47 PM
To: Chandrika Manepally
Subject: Re: DD Effects on Temperature

Some rambling, though probably not helpful comments to consider:

Use of low-probability seismic MSTHM results for all seismic events in TSPA can lead to how much error? 100 C at some specific time seems large. But eventually the WP will go through the correct temperature regime; plus the duration may be longer in the localized corrosion window (thus possibly conservative). Shifting the environments a few thousand years does not seem important, unless something else is happening that won't happen later. So what that their model is not realistic, and that they're getting T and RH wrong at any particular time - are these time shifts in regimes important? Can we envision anything that would cause the DOE abstraction to be non-conservative?

1. Do we know for sure that the drift-collapsed MSTH results are applied for all seismic events (how is a seismic event defined, 10-4 probability?)

2. Where is the temperature threshold of 100 C for seepage checked for the collapsed drift scenario; at the actual degraded drift ceiling (11-m diameter position), or the hypothetical original drift ceiling (5.5-m position)?

--Randy

>>> Chandrika Manepally <cmanepally@cnwra.swri.edu> 08/29/07 11:38 AM

>>>

Randy

Take a look at the attachment and let me know if you think this question

needs to be included in the App 7.

Based on my discussions with Luis, DOE says that only a very strong

seismic

event will cause a complete collapse (i.e., drift fills up completely)

and

it does not happen very often. They use this assumption in the

calculation

of the static rubble load. This is inconsistent with the assumption in

MSTHM.

Let me know what you think...

-Chandrika

Hearing Identifier: HLW_YuccaMountain_Hold_EX
Email Number: 161

Mail Envelope Properties (Randall.Fedors@nrc.gov20070829153353)

Subject: RE: DD Effects on Temperature
Sent Date: 8/29/2007 3:33:53 PM
Received Date: 8/29/2007 3:33:53 PM
From: Randall Fedors

Created By: Randall.Fedors@nrc.gov

Recipients:
"Chandrika Manepally" <cmanepally@cnwra.swri.edu>
Tracking Status: None

Post Office:

Files	**Size**	**Date & Time**
MESSAGE	4046	8/29/2007 3:33:53 PM

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received: