## HLWYM HEmails

**From:** Olufemi Osidele
**Sent:** Friday, February 23, 2007 5:40 PM
**To:** Ronald Janetzke
**Cc:** Jude Mcmurry
**Subject:** Fw: More updates to tpa.inp for UZFT parameters
**Attachments:** UZFT Parameter Value Changes_No2.doc

Ron,

I noticed you were not copied on Jude's original message. I believe the parameter changes would need to be effected with an SCR.

Jude,

Do you plan to incorporate these changes in your User Guide chapter when responding to NRC comments?

. . . . . Femi.

----- Original Message -----
From: "Jude McMurry" <jmcmurry@swri.edu>
To: "'Femi Osidele'" <olufemi.osidele@swri.org>
Cc: "'David Pickett'" <dpickett@cnwra.swri.edu>; "Scott L Painter" <scott.painter@swri.org>; "'Paul Bertetti'" <paul.bertetti@swri.org>; "Hakan Basagaoglu" <hakan.basagaoglu@swri.org>; "Bradley A Werling" <bradley.werling@swri.org>
Sent: Friday, February 23, 2007 12:14 PM
Subject: More updates to tpa.inp for UZFT parameters

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>
> Femi,
>
> Here is another set of changes to UZFT parameter values, this time related
> to the retardation factors for colloids in fractures. The retardation
> factors have been changed to values of 1.0 (no sorption) for all
> hydrostratigraphic layers, to conform with the same assumption of no
> sorption in fractures for dissolved radionuclides. The attached table
lists
> the changes for each parameter and a justification for the changes.
Please
> let me know if additional information is needed to document the changes.
>
> Jude
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>
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**Hearing Identifier:** HLW_YuccaMountain_Hold_EX
**Email Number:** 528

**Mail Envelope Properties** (001c01c7579b$92f97d80$99c8a281)

**Subject:** Fw: More updates to tpa.inp for UZFT parameters
**Sent Date:** 2/23/2007 5:40:09 PM
**Received Date:** 2/23/2007 5:40:10 PM
**From:** Olufemi Osidele

**Created By:** oosidele@cnwra.swri.edu

**Recipients:**
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Tracking Status: None

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| **Files** | **Size** | **Date & Time** |
|---|---|---|
| MESSAGE | 1525 | 2/23/2007 5:40:10 PM |
| UZFT Parameter Value Changes_No2.doc | | 25152 |

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

## UZFT Parameter Value Changes
## 02/23/2007

The following changes in parameter values are requested for *tpa.inp*. Table 11-2 of the TPA Version 5.1 User Guide also will need to be modified to show these changes, and the text of the Chapter 11 will need to be revised where the effect of these parameters is discussed.

### Change 1. Retardation Factors ($R_C$) for Colloids in UZFT Fractures.

(Changes proposed by e-mail from David Pickett, 02/21/2007, with subsequent discussion and concurrence by S.Painter, P.Bertetti, J.McMurry, and H.Basagaoglu on 02/23/2007.)

Justification:

(i) In the default case, the fracture colloid retardation factors ($R_C$) only affect the sorption of J-species colloids. The model otherwise assumes there is no sorption at all in fractures (i.e., for dissolved radionuclides or naturally occurring colloids) in the default case. This assumption is conservative, for in reality there is likely to be some sorption on fracture surfaces, but the process is not included in the model due to uncertainty about the extent and effectiveness of this process in unsaturated zone fractures. The fracture colloid retardation factors ($R_C$) have been reset to values of 1.0 (no retardation by sorption) to be consistent with the other assumptions about no retardation by sorption in fractures.

(ii) Another justification for changing the values is that the "old distribution type and value" was not based on data for unsaturated zone rocks. Although these numbers could be defended as an initial estimate, they are based on colloid retardation data from experiments in <u>saturated</u> fractured tuff. The "old distribution type and value" will continue to be used for saturated fractured tuff, as currently assigned, in the SZFT module for a similar parameter, ColloidRetardationFactor_STFF_[].

The UZ3 review team will consider a TPA sensitivity analysis to examine the effect of this change (no fracture sorption for J-species colloids in the unsaturated zone), in a simulation where transport through fractures is modeled by NEFTRAN II in at least one layer.

| Parameter Name | Old Distribution Type and Value | New Distribution Type and Value |
|---|---|---|
| FractureColloidRetardationFactor_TSw_[]<br>FractureColloidRetardationFactor_CHnv[]<br>FractureColloidRetardationFactor_CHnz[]<br>FractureColloidRetardationFactor_PPw_[]<br>FractureColloidRetardationFactor_UCF_[]<br>FractureColloidRetardationFactor_BFw_[]<br>FractureColloidRetardationFactor_UFZ_[] | usersuppliedpwisecdf<br>15<br>1.0, 0.0<br>1.01, 0.01<br>1.5, 0.04<br>2.0, 0.06<br>4.0, 0.12<br>6.0, 0.15<br>10.23, 0.25<br>14.86, 0.35<br>26.0, 0.5<br>34.35, 0.6<br>45.39, 0.7<br>59.98, 0.8<br>219.0, 0.9<br>418.6, 0.95<br>800.0, 1.0 | constant<br>1.0 |