**LSNReviews**

**From:** Wesley Patrick [wpatrick@cnwra.swri.edu]
**Sent:** Tuesday, January 16, 2007 1:54 PM
**To:** 'CNWRA_Dirs_Managers'; 'Goodluck Ofoegbu'; 'Luis Ibarra'; 'Chandrika Manepally'; 'Yi-ming Pan'; 'David Pickett'; 'Roberto Pabalan'; 'Osvaldo Pensado'; 'Ron Janetzke'; jmancillas@cnwra.swri.edu; 'Hakan Basagaoglu'; [redacted]
**Subject:** RE: TPA Code Modifications: Drift Degradation
**Attachments:** Drift Degradation (125 KB)

**Follow Up Flag:** Follow up
**Flag Status:** Flagged

All, but especially Jim and Osvaldo,

Like Budhi, I believe the pictorial representation that you have developed will be very helpful in explaining the processes related to drift degradation. The graphic will be useful both in the ongoing discussions, but also in the User Guide that is currently being developed.

As I have examined the graphic, several questions and possible points of clarification have come to mind. These are raised based on having attended many of the discussion sessions and having tried to understand why we have not yet achieved a common understanding; my perceptions may or may not be correct. These are summarized in the following points, for your consideration.

1. The graphic addresses just the water release path for radionuclides.
Direct release (via extrusive igneous activity) and gaseous release are considered separately. Suggest revising the title to state this explicitly:
"...Available for Water-Borne Release..."

2. The annotation on the upper left side of the graphic indicates a calculation that is made for "all" failure modes. In addition to the clarification noted in Item 1, suggest listing in parentheses the failure modes that are considered in TPA for water-borne release. My understanding is that these are (i) initial defect, (ii) subsequent mechanical breach,
(iii) localized corrosion (e.g., pitting, crevice, SCC), (iv) general corrosion, and (v) effects of intrusive igneous activity.

3. At least part of the discussion and lack of agreement to date seems to be based on the perspective of the individuals involved. The TPA code, as evidenced in the graphic, takes what might be called a "process-based"
approach: water is the starting point because without water, water-borne release is literally impossible. Many of the engineers, however, take what might be called a "failure-based" approach: a defect, rock fall, offset drip shield, etc. is the starting point. Neither is wrong, but an explanation and common understanding are needed to facilitate the dialogue.

4. The graphic does not make clear how time enters into consideration.
Although the fourth text block on the left states that water contact "has to occur early, while the packages are hot," it is not at all clear where this comes into play. For example, is it handled by the code checking the temperature, checking the time, or manipulating the probability of wetting to some "effective value" that is different from what is shown. Explanation and annotation on the graphic are needed, in my view.

5. It may also be helpful to provide at least one other figure like this (i.e., for a different failure mode involving water-borne release). Doing so will help (i) illustrate parallels between how the two failure modes are treated (a concern raised in discussions last week was that LC was being treated differently) and (ii) communicate that TPA covers the various failure modes comprehensively.

Stop by or drop a note if you would like to discuss this further.

Wes.

## LSNReviews

**From:** James Winterle [jwinterle@cnwra.swri.edu]
**Sent:** Tuesday, January 16, 2007 9:34 AM
**To:** 'CNWRA_Dirs_Managers'; Goodluck Ofoegbu; Luis Ibarra; Chandrika Manepally; 'Yi-ming Pan'; 'David Pickett'; 'Roberto Pabalan'; Osvaldo Pensado; 'Ron Janetzke'; jmancillas@cnwra.swri.edu; Hakan Basagaoglu; James Winterle; [redacted]; 'Roberto Pabalan'
**Subject:** FW: TPA Code Modifications: Drift Degradation
**Attachments:** Inventory for release logic diagram_1.ppt

All:

We will have one final meeting to explain and answer any questions related to TPA changes related to degraded drift processes, today, January 16 from 2:30 to 4:30 in room A237. If you feel you still have questions about what changes we propose to implement, you are welcome to attend this meeting. Osvaldo will repeat the presentation that was made back on December 18. Also, see attached for a diagram an attempt to illustrate the concept of inventory control.

--Jim Winterle

==========

>>> Christopher Grossman 01/16/2007 8:04 AM >>>
Date: Tues. Jan. 16, 2007
Time: 3:30PM ET/2:30 CT
Location: T-8 C5 (NRC)/ See J. Winterle (CNWRA)

ACTIONS: J. Winterle - please provide contact # and updated logic diagrams, as soon as practical.
ISI Leads - please notify pertinent team members not on the list who have been participating.
All - please familiarize with attached (and forthcoming) logic diagram(s) (~1 page each), if possible.

Purpose: To provide follow-up on last week's meeting regarding integration of the drift degradation scenario. At that meeting, many expressed some continued uncertainty about proposed approach and parameters. Participants asked for further clarification. This meeting will attempt to clarify those uncertainties. All participants are encouraged to attend. We are particularly interested to have you available if you expressed continued uncertainty at the meeting last Tuesday.

Outcome: Improved understanding of proposed approach with focus on inventory and water flux parameters

Process: J. Winterle and O. Pensado will walk through new logic diagrams for inventory (attached) and water flux (to be sent later by J. Winterle) to aid improved understanding of the approach.

# Determining Inventory Available for Release from Waste Packages Failed by Localized Corrosion