

April 22, 2003

Dr. Gordon W. Wittmeyer  
Manager, Performance Assessment  
Center for Nuclear Waste Regulatory Analyses  
6220 Culebra Road  
P.O. DRAWER 28510  
San Antonio, TX 78228-0510

SUBJECT: TRANSMITTAL OF THE SOFTWARE VALIDATION TEST PLAN FOR THE  
TOTAL-SYSTEM PERFORMANCE ASSESSMENT VERSION 5.0 CODE  
(IM 06002.01.113.320)

Dear Dr. Wittmeyer:

On March 27, 2003, the Center for Nuclear Waste Regulatory Analyses (CNWRA) transmitted the subject Software Validation Test Plan. The test plan was received on the due date of March 28, 2003. We have reviewed the Software Validation Testing Plan and have determined that it satisfies the Intermediate Milestone. Although we have comments on the validation testing plan which will require the plan to be amended, you should continue your validation-testing efforts and commence with the consequence module and stand-alone code testing.

In your transmittal letter, you provided estimates for the work necessary to complete the Phase I and Phase II tests in the plan as it was submitted. Three options were provided for our consideration: (1) the U.S. Nuclear Regulatory Commission (NRC) contributes approximately 8 person-months of effort, (2) reducing the scope of the tests by 8 person-months, and (3) extending the due date of the Major Milestone so that CNWRA can provide more resources for the validation testing. The schedule for the Total-system Performance Assessment (TPA) Version 5.0 code has already been modified to accommodate the change in the schedule for validation testing. This has reduced our flexibility in the schedule for completing the validation testing of the TPA code. As I had indicated in my letter to you on February 20, 2003, it is important that we keep the development of the Total-system Performance Assessment (TPA) Version 5.0 code on its current schedule to meet the needs for Iterative Performance Assessment (IPA) activities and the NRC High-level Waste Operations Plan.

The fiscal year 2003 CNWRA Operations Plan includes a table of those resources planned for the various Total System Performance and Integration Key Technical Issue team activities. The Software Validation Testing Plan prepared by CNWRA will require resources beyond those allocated for the testing to be completed. The resources identified in the CNWRA Operations Plan include 0.6 full time equivalents at CNWRA and 0.2 full time equivalents at NRC for developing the plan and conducting the testing. We feel that it is worthwhile to conduct the Phase I and Phase II testing with a scope similar to that identified in the testing plan that you submitted, and we will adjust our activities so that we can contribute to the validation testing. Although we will not be able to provide the eight person-months of effort, Jon Peckenpaugh (301-415-6753 or [jmp@nrc.gov](mailto:jmp@nrc.gov)) and Richard Codell (301-415-8167 or [rbc@nrc.gov](mailto:rbc@nrc.gov)) will be working with your staff to determine the details of the NRC contribution to the validation testing.

You will need to plan to augment the resources that you have already identified for the validation testing. It is my understanding, based on our April 8, 2003, discussion, that you have additional resources available to you that were not included in your March 27, 2003, estimate.

I will be reevaluating our plans for activities within the Total System Performance Assessment Key Technical Issue team, given our current activities, available resources, and future work. This will help us to make any further adjustments to our planned future work, given the greater-than-budgeted effort on completing the TPA code — including the validating testing — and the later-than-initially-anticipated time have a post-validation testing version of the code available as one example. The planned start for the IPA will be later than originally planned and the effort on this activity in fiscal year 2003 is anticipated to be less than originally forecast for fiscal year 2003, including the efforts of other Elements in support of this activity. This, and other CNWRA activities that are underspent, may help to provide needed resources for validation testing. We will need to continue and intensify our efforts at issue resolution. If the adjustments that you make will have a detrimental effect on our issue resolution efforts or other planned work, please inform me of the perceived consequences.

Please consider the following comments, when amending the Software Validation Testing Plan for TPA Version 5.0 and conducting the tests.

- The testing identified for Phase III will be either eliminated or will need to be modified significantly. We will be making our decision on the direction of Phase III shortly. We do not believe that Phase III will include comparisons to either the Canadian or Japanese Safety Assessments.
- Validation testing will need to be completed for the MECHFAIL portion of the TPA code. This was not included in the Software Validation Test Plan. It is not clear that the testing recently performed on MECHFAIL meets the test guidelines (Section 1.3 of the Software Validation Test Plan).
- Eliminate test C-12, which pertains to FAULTO. The phenomena represented by FAULTO is not anticipated to be a significant element of our eventual use of the TPA code to support our licensing review and it can be easily excluded from calculations.

After assignments for the validation testing are developed and agreed upon, I will convey to you details of the NRC staff contribution to the testing. After we make our decision on Phase III of the validation testing, we will inform you, so that the Software Validation Test Plan can be amended.

Dr. G. W. Wittmeyer

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If you have any questions regarding the Validation Testing, please direct them to Jon Peckenpaugh (301-415-6753 or [jmp@nrc.gov](mailto:jmp@nrc.gov)) or Richard Codell (301-415-8167 or [rbc@nrc.gov](mailto:rbc@nrc.gov)). If you have questions or concerns regarding resources and our other planned work, please discuss them with me. I can be reached at (301) 415-6628 or ([jrf2@nrc.gov](mailto:jrf2@nrc.gov)).

Sincerely,

**/RA/**

James R. Firth, Element Manager  
Total System Performance Assessment  
and Integration KTI  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

cc: B. Meehan, ADM/DCPM/CMB2  
M. Leach, NMSS/PMDA