



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 8, 1996

Mr. Ronald A. Milner, Director  
of Program Management and Integration  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, D.C. 20585

SUBJECT: RESOLUTION OF OPEN ITEM ON QUALIFICATION OF SCIENTIFIC METHODS

Dear Mr. Milner:

This letter documents resolution (closure) of NRC's open item regarding the qualification of scientific methods that was transmitted to you as an attachment to the observation audit report enclosed with the NRC (Holonich) November 15, 1995, letter to you. This open item is listed as a question in NRC's Open Item Tracking System as OQA015NOV1995Q001.<sup>1</sup>

The bases of closure are your letter dated February 26, 1996, to the NRC (Austin) and a discussion of the open item at the NRC-DOE quality assurance (QA) meeting on March 27, 1996. Your letter indicates that DOE's Quality Assurance Requirements and Description document (QARD) imposes requirements that adequately ensure the acceptability of scientific methods. We agree that the reviews of study plans, data, and reports required by the QARD should ensure the acceptability of scientific methods.

However, as the NRC pointed out at the March 27, 1996, NRC-DOE QA meeting, USGS reports continue to use dates based on the uranium-trend dating technique in spite of a report (USGS - Yucca Mountain Project Branch 1995 Milestone Report 3GCH510M, "Progress Report on Dating Quaternary Surficial Deposits") having the words: "Some of the problems inherent (to uranium-trend dating) ... became apparent during ... the late 1970's. ... The method has never received wide-spread use by the Quaternary geochronologic community." And, later: "uranium-trend dating methods are considered fundamentally flawed from a technical viewpoint. ... we recommend in the strongest terms that all subsequent reference to and consideration of previously-published uranium-trend 'ages' from soil profiles at Yucca Mountain and elsewhere be abandoned with regards to numerical age significance. No other uranium-series geochronologists have ever come (sic) to the defense of the technique or the published results resulting from its application." The consensus of those participating in the discussion seemed to be that this was more of a technical/management problem than a QA problem. That is, USGS/M&O/DOE technical reviewers and management personnel should be familiar enough with the lack of technical support of the uranium-trend dating technique such that

<sup>1</sup> My letter to you of March 6, 1996, closing the open item on software validation inadvertently misidentified it. The correct identification of the open (resolved) item on software validation is OQA019DEC1994C001.

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It was also noted at the meeting that this may be more of an isolated incident rather than a pervasive problem. While we understand that the rock varnish cation method of age dating is also contentious, it does appear to have some support outside the Yucca Mountain project.

In light of the above, we consider this open item resolved. However, we suggest that DOE considers reviewing checklists/procedures used to review and approve technical documents to ensure that they require an assessment of the acceptability of the technical method(s) reported. A written response to this letter is not required. If you have any questions, please call Jack Spraul of my staff on (301) 415-6715.

Sincerely,

(original signed by)

John H. Austin, Chief  
Performance Assessment and High-Level  
Waste Integration Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

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