



Scientific Analysis/Calculation Error Resolution Document

QA: QA
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Complete only applicable items.

INITIATION

1. Originator: John M. Scaglione	2. Date: 05/02/2008	3. ANL-EBS-NU-000009 ERD 02
4. Document Identifier: ANL-EBS-NU-000009 REV 00	5. Document Title: Commercial Spent Nuclear Fuel Igneous Scenario Criticality Evaluation	

6. Description of and Justification for Change (Identify applicable CRs and TBVs):

Introduction:

This document is being written to resolve CR 12030: CAQ from Surveillance LQA-IS-08-020 (Qualification of outside source)

Background Information Summary:

The condition report, CR 11854, identified the use of an unqualified data source as direct input in the referenced document. The qualification process from SCI-PRO-001 was used to qualify the data for use in the referenced document with ANL-EBS-NU-000009 ERD 01. CR 12030 identified issues with the data qualification documentation provided in ANL-EBS-NU-000009 ERD 01. ANL-EBS-NU-000009 ERD 01 identified "Equivalent QA program" as the method selected for qualifying the data. Although, this may be true, the documentation provided was insufficient to support this method. The resolution is to replace this method with the "Technical Assessment" method, and revise the data qualification for the external source data (Westrich 1982 [DIRS 100482]).

AMR Changes:

Please see attached.

Impact Evaluations/Results:

The following documents were evaluated for impact: ANL-DS0-NU-000001 Rev. 00 and ANL-DS0-NU-000001 Rev. 00 ACN 01, ANL-WIS-MD-000027 Rev. 00 and ANL-WIS-MD-000027 Rev. 00 ACN 01, and ANL-DSC-NU-000001 Rev. 000

The changes in this ERD do not affect any result or conclusion, nor do they impact any other technical product.

CONCURRENCE

	Printed Name	Signature	Date
7. Checker	Charles Henkel		02 may 2008
8. QCS/QA Reviewer	Brian T. Mitcheltree		5/2/08

APPROVAL

9. Originator	John M. Scaglione		5/2/08
10. Responsible Manager	Clifford L. Howard		5/2/08
	Paul R. Dixon		5/6/08

AMR Changes:

The following text should be considered as included within the report as an appendix.

This input is justified in this ERD for use as direct input in ANL-EBS-NU-000009 REV 00 and is considered qualified for intended use within the document using the criteria found in SCI-PRO-005, *Scientific Analyses and Calculations*. The qualification process follows Method 5, Technical Assessment, from Attachment 3 of SCI-PRO-001, *Qualification of Unqualified Data*. The acceptance criteria used for the following justification represent a subset of the methods and attributes required for qualification of data per Attachment 4 of SCI-PRO-001, *Qualification of Unqualified Data*. The following information is provided for the source: the full reference citation, a description of the data that were used from the source, and the extent to which the data demonstrate the properties of interest. In addition, one or more of the following criteria is also addressed:

1. *Qualifications of personnel or organizations generating the data are comparable to qualification requirements of personnel generating similar data under an approved program that supports the YMP License Application process or post closure science;*
2. *The extent to which the data demonstrate the properties of interest (e.g., physical, chemical, geologic, mechanical);*
3. *Prior peer or other professional reviews of the data and their results;*

The criteria described above meet the requirements of SCI-PRO-005 and SCI-PRO-001 and are provided as justification that the information that has been used from the referenced source is considered to be qualified for intended use.

Justification for the appropriate use of data from the scientific journal article *The Solubility of LWR Core Debris in Sacrificial Floor Material* (Westrich 1982 [DIRS 100482]):

- 1) Were the personnel or organizations generating the data qualified and comparable to qualification requirements of personnel generating similar data under an approved program that supports the YMP License Application process or post closure science?

The author of the above journal article, Henry R. Westrich, was a staff scientist at Sandia National Laboratories and the work was supported by the U.S. Department of Energy for the U.S. Nuclear Regulatory Commission, thus establishing the qualifications of the author and organization where the work was performed. Criterion 1 is satisfied.

- 2) Does the data demonstrate the properties of interest (e.g., physical, chemical, geologic, mechanical)?

Figure 3 of Westrich 1982 [DIRS 100482] presents the relationship of UO₂ solubility (in wt%) in molten basaltic glasses versus temperature. This is the primary property of interest for qualification in ANL-EBS-NU-000009 REV 00. Criterion 2 is satisfied.

- 3) Has the data received a prior peer or other professional review?

The referenced article, *The Solubility of LWR Core Debris in Sacrificial Floor Material*, was published in the *Journal of Nuclear Materials*. Its articles are peer-reviewed, i.e., reviewed by other experts in the pertinent technical field(s), individuals with experience in the subject matter who typically use such information in the course of their career work. Technical issues are raised during the review process and either resolved prior to publication or the article rejected. The article as published is thus vetted to the extent that the reader should have confidence that the data may be considered worthy of use in other research. Criterion 3 is satisfied.

Based on the assessment made above, data from *The Solubility of LWR Core Debris in Sacrificial Floor Material* (Westrich 1982 [DIRS 100482]) are qualified for use as direct input for ANL-EBS-NU-000009 REV 00.