



# Scientific Analysis/Calculation Error Resolution Document

QA: QA  
Page 1 of 5

Complete only applicable items.

## INITIATION

1. Originator: Charles Haukwa	2. Date: 7/11/2008	3. ERD No. ANL-NBS-HS-000005 ERD 01
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4. Document Identifier: ANL-NBS-HS-000005 Rev 03	5. Document Title: In Situ Field Testing of Processes
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6. Description of and Justification for Change (Identify applicable CRs and TBVs):

### I Background Information Summary

This ERD addresses CR 11291 associated with changes to DTN: GS990908315213.001 [DIRS 153379] which is cited as a source for some of the data plotted in Figures 6-197, 6-198 and 6-199 in the report *In Situ Field Testing of Processes*, ANL-NBS-HS-000005 Rev 03 [DIRS 170004].

### Condition Description (CR 11291):

“I believe a current request for editorial corrections (IRAN 5988) to technical data set (DTN: GS990908315213.001 [DIRS 153379]) are not editorial. Actual technical data is being changed and additional data is being added to the data set. This DTN is referenced in document ANL-NBS-HS-000005 *In Situ Field Testing of Processes*.”

Subsequent evaluation of IRAN 5988 found the potential changes to the DTN to be technical, and not editorial. The request for editorial corrections was therefore cancelled and the changes made by superseding the DTN (IRAN 6142) consistent with TST-PRO-001.

(See attached)

## CONCURRENCE

	Printed Name	Signature	Date
7. Checker	Teklu Hadgu		7/23/08
8. QA/QCS Reviewer	Peter Persoff		07/23/2008

## APPROVAL

9. Originator	Charles Haukwa		07/23/08
10. Responsible Manager	Paul Dixon		7/23/08

(Continued from Block 6)

IRAN 6142 request states:

“I am requesting initiation of a superseding IRAN due to necessary corrections to metadata within the subject data package, DTN GS990908315213.001, STABLE CARBON AND OXYGEN ISOTOPE DATA FOR CALCITE FROM THE ESF AND ANALYZED 2/96 - 5/99, and specifically within SEP Table S00305-001. This request is due to management determination that these changes to sample numbers, SPC numbers, and sample locations are not editorial but instead require supersession.”

This ERD addresses the impact of this supersession on the report (*In Situ Field Testing of Processes*, ANL-NBS-HS-000005 Rev 03 [DIRS 170004]) which cites DTN: GS990908315213.001 [DIRS 153379]. The ERD also corrects several minor errors in the report ANL-NBS-HS-000005 Rev 03 [DIRS 170004] as documented in Section III.

## II Inputs and/or Software

Direct inputs to this ERD include the following DTNs: GS990908315213.001 [DIRS 153379] and GS071208315213.001 [DIRS 185342]. Indirect inputs include, Whelan, J.F. et al., 2006 [DIRS 179305], Figures 6 and 8; and Whelan, J.F. et al., 2002 [DIRS 160442], Figure 8.

No software controlled under IM-PRO-003, *Software Management*, is used in this analysis.

## III Analysis and Results

CR 11291 is addressed by superseding DTN: GS990908315213.001 [DIRS 153379] with GS071208315213.001 [DIRS 185342] which implements the following corrections identified in IRAN 6142. Note no changes were made to the actual measured data.

Table 1 Metadata Corrections

Original Metadata				Corrected Metadata			
Row	Sample Number	Location	SPC Number	Row	Sample Number	Location	SPC Number
171	HD-2375fa K11	ESF 76+17.6	SPC00541298	171	HD-2275fa K11	ESF 76+10.4	SPC00524944
172	HD-2375fa K12	ESF 76+17.6	SPC00541298	172	HD-2275fa K12	ESF 76+10.4	SPC00524944

The impact of this supersession on *In Situ Field Testing of Processes*, ANL-NBS-HS-000005 Rev 03 [DIRS 170004], is addressed by the following changes and corrections.

### III.1. Changes to *In Situ Field Testing of Processes*, ANL-NBS-HS-000005 Rev 03 [DIRS 170004]

In Section 4.1.14.1, Table 4-14a of ANL-NBS-HS-000005 Rev 03:

- Replace “GS990908315213.001 [DIRS 153379]” with “GS071208315213.001 [DIRS 185342]”. The latter DTN corrects errors identified in CR 11291.
- Delete Figures 6-197 and 6-198 from use of DIRS 164846. Add Figures 6-197 and 6-198 to use of DIRS 164847. This change is associated with the correction of the DIRS number for DTN: GS020908315215.004 in Figures 6-197 and 6-198.

In Section 6.14.2.3.1 of ANL-NBS-HS-000005 Rev 03:

- On Page 6-355, Figure 6-197: Replace “Source: DTNs:” with “Sources”. Replace DTN: GS990908315213.001 [DIRS 153379] with GS071208315213.001 [DIRS 185342]. Add to sources “Whelan, J.F. et al., 2006 [DIRS 179305], Figure 6”, which is the source for Figure 6-197. Correct DIRS for DTN: GS020908315215.004 from 164846 to 164847.
- On Page 6-356, Figure 6-198: Replace “Source: DTNs:” with “Sources”. Replace DTN: GS990908315213.001 [DIRS 153379] with GS071208315213.001 [DIRS 185342]. Add to sources “Whelan, J.F. et al., 2002 [DIRS 160442], Figure 8”, which is the source for Figure 6-198. Delete “NOTES: Modified from Whelan et al. (2002 [DIRS 160442])”. Correct DIRS for DTN: GS020908315215.004 from 164846 to 164847.
- On Page 6-358, Figure 6-199: Replace “DTNs:” with “Sources”. Replace DTN: GS990908315213.001 [DIRS 153379] with GS071208315213.001 [DIRS 185342]. Add to sources “Whelan, J.F. et al., 2006 [DIRS 179305], Figure 8”, which is the source for Figure 6-199. Correct DTN: GS020908315215.004 for DIRS 164846 to DTN: GS020908315215.003.

In Section 8.1 of ANL-NBS-HS-000005 Rev 03:

- On Page 8-25 add the following citation

Whelan, J.F.; Neymark, L.A.; Moscati, R.J.; Marshall, B.D.; and Roedder, E. 2006. *Thermal History of the Unsaturated Zone at Yucca Mountain, Nevada, USA*. DRAFT. Denver Colorado, U.S. Geological Survey, ACC: *MOL.20070508.0200* – DIRS 179305

In Section 8.2 of ANL-NBS-HS-000005 Rev 03:

- On Page 8-35 make the following correction to cited data

Replace “GS990908315213.001 Stable Carbon and Oxygen Isotope Data for Calcite from the ESF and Analyzed 2/96-5/99 submittal date 10/28/1999. [DIRS 153379]” with “GS071208315213.001 Stable Carbon and Oxygen Isotope Data for Calcite from the ESF and Analyzed 2/96-5/99. Submittal date 12/19/2007. [DIRS 185342]”.

### III.2. DTN Changes

DTN: GS990908315213.001 [DIRS 153379] has been superseded by DTN GS071208315213.001 [DIRS 185342], which has the correct entries for sample locations and identifiers. The new DTN is to be used on pages 4-18 (Table 4-14a), 6-355 (Figure 6-197), 6-356 (Figure 6-198), 6-358 (Figure 6-199), and 8-35 (Documents Cited) of the parent report (*In Situ Field Testing of Processes*, ANL-NBS-HS-000005 Rev 03 [DIRS 170004]).

### III.3 DIRS Changes

Corresponding DIRS changes resulting from corrections identified in sections III.1 and III.2 are included in the marked-up pages of the DIRS report.

## IV Impact Evaluation

Resolution of CR 11291 impact on the technical report (*In Situ Field Testing of Processes*, ANL-NBS-HS-000005 Rev 03 [DIRS 170004]) involves changes identified in Section III above. The changes and corrections outlined are minor. There are no impacts on the conclusions of the technical report ANL-NBS-HS-000005 Rev 03 [DIRS 170004]. Changes in this ERD do not affect the Safety Analysis Report. The following is a list of downstream products that cite ANL-NBS-HS-000005 Rev 03 [DIRS 170004]. None of these products is impacted.

### **Controlled Documents that cite ANL-NBS-HS-000005 Rev03 [DIRS 170004]:**

- MDL-NBS-HS-000019 Rev. 02 Abstraction of Drift Seepage.
- ANL-NBS-HS-000042 Rev. 00, Analysis of Hydrologic Properties Data.
- ANL-NBS-HS-000054 Rev. 00, Data Analysis for Infiltration Modeling: Bedrock Saturated Hydraulic Conductivity Calculation.
- ANL-NBS-HS-000056 Rev. 00, ACN 01, Analysis of Alcove 8/Niche 3 Flow and Transport Tests.
- ANL-NBS-HS-000056 Rev. 00, Analysis of Alcove 8/Niche 3 Flow and Transport Tests.
- ANL-NBS-HS-000058 Rev. 00, Calibrated Unsaturated Zone Properties.
- ANL-NBS-MD-000001 Rev. 04, Features, Events, and Processes in UZ Flow and Transport.
- ANL-WIS-MD-000027 Rev. 00, Features, Events, and Processes for the Total System Performance Assessment: Analyses.
- MDL-EBS-MD-000001 Rev. 00, In-Drift Natural Convection and Condensation Model Report.
- MDL-NBS-HS-000003 Rev. 02, Calibrated Properties Model.
- MDL-NBS-HS-000004 Rev. 03, ACN 01, Seepage Calibration Model and Seepage Testing Data.

- MDL-NBS-HS-000004 Rev. 03, ACN 02, Seepage Calibration Model and Seepage Testing Data.
- MDL-NBS-HS-000004 Rev. 03, Seepage Calibration Model and Seepage Testing Data.
- MDL-NBS-HS-000005 Rev. 01, Conceptual Model and Numerical Approaches for Unsaturated Zone Flow and Transport.
- MDL-NBS-HS-000006 Rev. 03, UZ Flow Models and Submodels.
- MDL-NBS-HS-000007 Rev. 03, Mountain-Scale Coupled Processes (TH/THC/THM) Models.
- MDL-NBS-HS-000008 Rev. 02, ACN 02, Addendum 01, Radionuclide Transport Models Under Ambient Conditions.
- MDL-NBS-HS-000008 Rev. 02, Radionuclide Transport Models Under Ambient Conditions.
- MDL-NBS-HS-000015 Rev. 02, Drift-Scale Coupled Processes (DST and TH Seepage) Models.
- MDL-NBS-HS-000017 Rev. 01, ACN 01, Drift Scale THM Model.
- MDL-NBS-HS-000017 Rev. 01, Drift Scale THM Model.
- MDL-NBS-HS-000019 Rev. 01, Addendum 01, Abstraction of Drift Seepage
- MDL-NBS-HS-000019 Rev. 01, Abstraction of Drift Seepage.
- TDR-TDIP-NF-000004 Rev. 00, Total System Performance Assessment Data Input Package for Abstraction of Drift Seepage.