YMP	**Model** **Error Resolution Document** *Complete only applicable items.*	QA: QA Page 1 of 5

INITIATION

1. Originator: Alicia Aragon	2. Date: 07/03/08	3. ERD No. MDL-NBS-HS-000019 ERD 01
4. Document Identifier: MDL-NBS-HS-000019 REV 01 AD 01	5. Document Title: Abstraction of Drift Seepage	

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

1 Background Information Summary

This ERD is prepared to address Condition Reports 11063 and 12275 which are associated with the model report *Abstraction of Drift Seepage* (MDL-NBS-HS-000019 REV 01 [DIRS 169131]) and its addendum (MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244]).

CR 11063 Description

"The Abstraction of Drift Seepage AMR addendum (MDL-NBS-HS-000019 R1 AD1) was accepted by DOE (deliverable PAD807S10, accepted 20Aug07). Non-mandatory comments were provided by DOE, and tracking these is the purpose of this CR (per direction of Lead Lab management). The comments are:

1. (page 7-5[a], 2nd para. after bullets, last line) Suggest replacing the phrase "reasonable attempt at estimating seepage" with "reasonable method for estimating seepage"...it sounds more positive.
2. (page 7-5[a], 3rd para. after bullets, 3rd line) The model domain length is reported in both English (8 feet) and metric values, while the width and height are only give in their metric values...the figure to which they are referenced (Figure 7-2[a]) also only shows metric values...so, for consistency, I suggest deletion of the English entry and removal of the parentheses around the corresponding metric value. A similar situation is found in the 2nd line of the last paragraph...here, too, we show both English and metric units/values...suggest similar solution.
3. (page 7-11[a], 1st para., 5th line) Change "these units are have" to read "these units have"
4. (page 7-11[a], 1st para., 7th line) Text discusses "fracture densities", but no units (i.e., #/meter) are supplied...please revisit and include unit of measure."

(see attached)

CONCURRENCE

	Printed Name	Signature	Date
7. Checker	Paul Mariner		8/5/08
8. QCS/QA Reviewer	Brian Mitcheltree		8/5/08

APPROVAL

9. Originator	Alicia Aragon		8/5/08
10. Responsible Manager	Jerry McNeish		8.12.08

(Continued from Block 6)

CR 12275 Description

"Appendix C (Statistical Analysis of Permeability Values) of MDL-NBS-HS-000019, R01 (Abstraction of Drift Seepage) references an incorrect SEP Table from DTN: LB00111AIRKTEST.001 [DIRS 153155] for Niche 3566.

Appendix C provides a roadmap for the analyses of permeability values measured in air-injection testing. The roadmap for Niche 3566 can be found on pg. C-5 of the AMR. Item #1 under the heading "Niche 3566" states, "Tables S00434_001, S00434_002, and S00434_003 from DTN: LB0011AIRKTEST.001 [DIRS 153155] were extracted from the TDMS. Each table relates to a separate zip file for the boreholes tested prior to construction of Niche 3566. These files were then used to generate a new Excel file named "niche_3566_preexcavation_upscaling.xls" found in DTN: LB0407AMRU0120.001. According to DTN: LB0407AMRU0120.001, the three boreholes tested are: "niche center hole," "niche top hole," and "niche b hole."

While performing a random sampling of the data located in the SEP Tables (S00434_001, S00434_002, and S00434_003) from DTN: LB0011AIRKTEST.001 against the data located in the file "niche_3566_preexcavation_upscaling.xls" found in DTN: LB0407AMRU0120.001, I was unable to find the data for borehole "niche top hole" within any of the three SEP tables referenced. After further investigation, I was able to locate the data for the "niche top hole" in SEP Table S00434_005 of DTN: LB0011AIRKTEST.001.

The use of Table S00434_005 is further confirmed by information provided in Table 4.1-1 (pg. 4-4) of AMR MDL-NBS-HS-000019, Rev, where it states in Item 16, "Data for Niche 3566 are in Tables S00434_001, S00434_002, and S00434_005 (each borehole in separate table)."

II Inputs and/or Software

No new input sources or software are used in this ERD.

III Analysis and Results

CR 11063

<u>Resolution to DOE comment #1:</u>

In Section 7.1.2[a] of MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244] (page 7-5[a], 2nd para. after bullets, last line), the text states:

> *"Nevertheless, the Monte Carlo approach chosen here can be considered an alternative, reasonable attempt at estimating seepage into the ESF South Ramp."*

This sentence is to be replaced with:

> *"Nevertheless, the Monte Carlo approach chosen here can be considered an alternative, reasonable method for estimating seepage into the ESF South Ramp."*

Resolution to DOE comment #2:

In Section 7.1.3[a] of MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244] (page 7-5[a], 3rd para. after bullets, 3rd line), the text states:

> *"The model domain has a length of 8 feet (2.4384 m), a width of 5.55 m, and a height of 10.0 m, and includes a portion of the drift of diameter (8 m)."*

This sentence is to be replaced with:

> *"The model domain has a length of 2.4384 m, a width of 5.55 m, and a height of 10.0 m, and includes a portion of the drift of diameter (8 m)."*

In Section 7.1.3[a] of MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244] (page 7-5[a], 4th para. after bullets, 1st line), the text states:

> *"The length along the drift axis consists of 8 grid cells of 1 foot (0.3048 m) in length."*

This sentence is to be replaced with:

> *"The length along the drift axis consists of 8 grid cells of 0.3048 m in length."*

Resolution to DOE comments #3 and #4:

In Section 7.1.5[a] of MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244] (page 7-11[a], 1st para.), the text states:

> *"Analysis of fracture data in the Tiva Canyon Welded Tuff and the Topopah Spring Welded Tuff units shows that these units are have comparable characteristics. Both units are densely fractured, welded tuff formations, with fracture densities in the Tiva Canyon unit ranging from 0.92 to 2.79, and those in the Topopah Spring unit ranging from 0.81 to 4.36 DTN: LB0205REVUZPRP.001 [DIRS 159525])."*

For traceability to the DTN referenced, these sentences are to be replaced with:

> *"Analysis of fracture data in the Tiva Canyon Welded Tuff (TCw) and the Topopah Spring Welded Tuff (TSw) units shows that these units have comparable characteristics. Both units are densely fractured, welded tuff formations, with fracture frequencies in the Tiva Canyon unit ranging from 0.92 to 2.79 m^{-1}, and those in the Topopah Spring unit ranging from 0.81 to 4.36 m^{-1} (DTN: LB0205REVUZPRP.001 [DIRS 159525])."*

The resolutions to the DOE comments are editorial in nature, therefore do not affect the conclusions or output from MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244]. The DIRS report to MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244] does not change, and these editorial corrections have no impact on downstream products that cite MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244].

CR 12275

As stated in the description to CR 12275, the data being referenced was not found in Table S00434_003 of DTN: LB0011AIRKTEST.001 [DIRS 153155], but was found in Table S00434_005 of the same DTN. This reference to the wrong table did not occur elsewhere in MDL-NBS-HS-000019 REV 01 [DIRS 169131] or its addendum MDL-NBS-HS-000019 REV

01 AD 01 [DIRS 181244]. This error is deemed editorial in nature and shall be corrected as follows:

In Appendix C of MDL-NBS-HS-000019 REV 01 AD01 [DIRS 181244] (page C-5, Niche 3566 Item 1, 1st line), the text states:

> *"Tables S00434_001, S00434_002, and S00434_003 from DTN: LB0011AIRKTEST.001 [DIRS 153155] were extracted from the TDMS."*

This sentence is to be replaced with:

> *"Tables S00434_001, S00434_002, and S00434_005 from DTN: LB0011AIRKTEST.001 [DIRS 153155] were extracted from the TDMS."*

This editorial correction does not affect the conclusions or output from MDL-NBS-HS-000019 REV 01 [DIRS 169131] or its addendum, MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244]. The DIRS reports to these documents do not change, and this editorial correction has no impact on downstream products that cite the parent report or addendum.

In the process of correcting MDL-NBS-HS-000019 REV 01 AD01 [DIRS 181244] in response to CR 12275, a typographical error was found in the document and is corrected as follows.

In Appendix C of MDL-NBS-HS-000019 REV 01 AD01 [DIRS 181244] (page C-3, 2nd paragraph 1st sentence), the text states:

> *"The upscaling analysis was conducted using the pre-excavation measurements in Niches 1620, 3107, 3566, 3650, and 3566."*

This sentence is to be replaced with:

> *"The upscaling analysis was conducted using the pre-excavation measurements in Niches 1620, 3107, 4788, 3650, and 3566."*

The correction to the typographical error in niche number does not affect the conclusions or output from MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244] or any of its downstream documents.

IV Impact Evaluation

As discussed above, the corrective actions for CRs 11063 and 12275 were editorial corrections and do not impact the conclusions or output from the parent report MDL-NBS-HS-000019 REV 01 [DIRS 169131] or its addendum MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244]. These corrections have no impact on downstream products that cite the parent report or its addendum.

Controlled documents that cite MDL-NBS-HS-000019 REV 01 [DIRS 169131] include the following:

- ANL-EBS-GS-000002 Rev 01: *Geochemistry Model Validation Report: External Accumulation Model*
- ANL-EBS-MD-000003 Rev 03: *General Corrosion and Localized Corrosion of Waste Package Outer Barrier*

- ANL-EBS-MD-000027 Rev 03: *Drift Degradation Analysis*
- ANL-EBS-MD-000037 Rev 04: *In-Package Chemistry Abstraction*
- ANL-EBS-MD-000049 Rev 03: *Multiscale Thermohydrologic Model*
- ANL-EBS-MD-000074 Rev 01: *Analysis of Dust Deliquescence for FEP Screening*
- ANL-NBS-HS-000005 Rev 03: *In Situ Field Testing of Processes*
- ANL-NBS-HS-000045 Rev 00: *Post-Processing Analysis for THC Seepage*
- ANL-NBS-HS-000047 Rev 01: *THC Sensitivity Study of Heterogeneous Permeability and Capillary Effects*
- CAL-MGR-NU-000012 Rev 0A: *Probability of Postclosure Criticality*
- MDL-EBS-MD-000001 Rev 00: *In-Drift Natural Convection and Condensation Model Report*
- MDL-NBS-HS-000002 Rev 03: *Seepage Model for PA Including Drift Collapse*
- MDL-NBS-HS-000004 Rev 03: *Seepage Calibration Model and Seepage Testing Data*
- MDL-NBS-HS-000015 Rev 02: *Drift-Scale Coupled Processes (DST and TH Seepage) Models*
- MDL-NBS-HS-000016 Rev 01: *Drift-Scale Radionuclide Transport*
- MDL-NBS-HS-000017 Rev 01: *Drift Scale THM Model*

Controlled documents that cite MDL-NBS-HS-000019 REV 01 AD 01 [DIRS 181244] include the following:

- ANL-EBS-MD-000049 Rev 03 Addendum 01: *Multiscale Thermohydrologic Model*
- ANL-NBS-HS-000057 Rev 00: *Postclosure Analysis of the Range of Design Thermal Loadings*
- ANL-WIS-MD-000024 Rev 01: *Postclosure Nuclear Safety Design Bases*
- ANL-WIS-MD-000027 Rev 00 ACN 01: *Features, Events, and Processes for the Total System Performance Assessment: Analyses*.
- ANL-WIS-PA-000001 Rev 03: *EBS Radionuclide Transport Abstraction*
- MDL-NBS-HS-000006 Rev 03 Addendum 01: *UZ Flow Models and Submodels*.
- MDL-WIS-PA-000005 Rev 00 Addendum 01: *Total System Performance Assessment Model/Analysis for the License Application*.
- TDR-MGR-MD-000056 Rev 00: *Performance Confirmation Annual Report Fiscal Year 2007*
- TDR-PCS-SE-000001 Rev 05 Addendum 01: *Performance Confirmation Plan*
- TDR-WIS-PA-000014 Rev 00: *TSPA Information Package for the Draft SEIS*