	Scientific Analysis/Calculation Error Resolution Document *Complete only applicable items.*	QA: QA Page 1 of 3

INITIATION

1. Document Number:	ANL-EBS-MD-000074	2. Revision/Addendum:	01/01	3. ERD:	01

4. Title:	Analysis of Dust Deliquescence for FEP Screening
5. No. of Pages Attached:	2

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

This ERD was created to partially resolve CR -11919.

According to CR 11919, unqualified software (Geochemists Workbench Version 2.0) was used to estimate the target compositions of corrosion test solutions in DTN: LL040803112251.117 [DIRS 171362]. The data from DTN: LL040803112251.117 [DIRS 171362] is reported in Table 6.3-1 and in Table 6-5[a].
DTN: LL040803112251.117 [DIRS 171362] is also cited in Section 4.1.7[a] as well as the reference sections (8.3 and 8.3[a]).

Detailed description of changes due to CR 11919(4 changes):

1.) It was determined that the source DTN: LL040803112251.117 [DIRS 171362] was incorrectly identified as Direct Input and therefore, the following section is deleted from the addendum:

4.1.7[a] Standard Corrosion Test Solutions
In order to correct several incorrect entries in Table 6.3-1 of the parent report, qualified DTN: LL040803112251.117 [DIRS 171362] is required as the source. These corrections are made in Section 6.3.1[a] and Table 6-5[a].

Due to the fact that Section 4.1.7[a] has been deleted from the main body of the addendum, it is also deleted from the Table of Contents on page iii of the Addendum.

2.) Sections 8.3 and 8.3[a]

Replace
171362 LL040803112251.117. Target Compositions of Aqueous Solutions Used for Corrosion Testing. Submittal date: 08/14/2004.

With
185793 LL081002312251.202. Chemical Comparison of Corrosion Testing Solutions Used for Alloy C22 and Titanium at LLNL - Developed. Submittal date: 10/03/2008

7. CONCURRENCE

	Printed Name	Signature	Date
Checker	Gopal De	Gopal De	01/19/2009
QCS/QA Reviewer	Brian Mitcheltree	Brian Mitcheltree	1/19/09
8. APPROVAL			
Originator	Wendy Mitcheltree	Wendy Mitcheltree	1/19/09
Responsible Manager	Neil Brown	Neil R. Brown	1/19/09

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3.) Replace the entire Table 6.3-1 and Table 6-5[a] with the following Table:

Table 6.3-1 and Table 6-5[a]: Long-Term CorrosionTest Solution Compositions

Ion		SDW (mg/L)	SCW (mg/L)	SAW (mg/L)	SSW[a] (100°C) (mg/L)	SSW[a] (120°C) (mg/L)	BSW-11[b] (mg/L)
K^+	Minimum	3.58×10^1	1.35×10^3	3.25×10^3	---	---	5.89×10^4
	Average	3.69×10^1	3.48×10^3	3.51×10^3	1.42×10^5	1.70×10^5	6.04×10^4
	Maximum	3.94×10^1	4.96×10^3	3.86×10^3	---	---	6.19×10^4
Na^+	Minimum	3.30×10^2	3.36×10^4	3.92×10^4	---	---	9.45×10^4
	Average	4.10×10^2	3.99×10^4	4.22×10^4	4.87×10^5	5.84×10^5	9.75×10^4
	Maximum	4.68×10^2	4.36×10^4	4.36×10^4	---	---	1.01×10^5
Mg^{2+}	Minimum	0.00	0.00	4.99×10^1	---	---	0.00
	Average	6.62	5.68×10^{-2}	5.31×10^1	0	0	0.00
	Maximum	2.75×10^1	2.35×10^{-1}	5.72×10^1	---	---	0.00
Ca^{2+}	Minimum	0.00	1.11	4.95×10^1	---	---	6.40×10^{-1}
	Average	1.29×10^1	1.90	6.73×10^1	0	0	6.75×10^{-1}
	Maximum	4.51×10^1	2.74	9.65×10^1	---	---	7.09×10^{-1}
F^-	Minimum	0.00	1.03×10^3	0.00	---	---	3.80×10^3
	Average	9.39	1.26×10^3	2.68×10^2	0	0	3.83×10^3
	Maximum	3.02×10^1	1.48×10^3	7.75×10^2	---	---	3.85×10^3
Cl^-	Minimum	5.83×10^1	5.42×10^3	2.21×10^4	---	---	1.13×10^5
	Average	1.12×10^2	6.47×10^3	2.25×10^4	1.28×10^5	1.54×10^5	1.16×10^5
	Maximum	1.36×10^2	7.56×10^3	2.77×10^4	---	---	1.18×10^5
NO_3^-	Minimum	4.04×10^1	6.04×10^3	2.37×10^4	---	---	1.28×10^5
	Average	2.23×10^2	6.77×10^3	2.47×10^4	1.31×10^6	1.58×10^6	1.31×10^5
	Maximum	7.54×10^2	7.45×10^3	2.53×10^4	---	---	1.33×10^5
SO_4^{2-}	Minimum	1.55×10^2	1.21×10^4	4.35×10^4	---	---	1.17×10^4
	Average	2.32×10^2	1.52×10^4	6.00×10^4	0	0	1.22×10^4
	Maximum	2.96×10^2	1.92×10^4	6.95×10^4	---	---	1.28×10^4
HCO_3^-	Minimum	1.10×10^1	1.18×10^4	0.00	---	---	2.82×10^2
	Average	2.09×10^2	2.95×10^4	3.06×10^{-1}	0	0	3.87×10^2
	Maximum	5.39×10^2	4.28×10^4	9.51×10^{-1}	---	---	4.92×10^2
Si	Minimum	0.00	1.60×10^1	2.60×10^1	---	---	4.17×10^2
	Average	6.52	4.39×10^1	4.52×10^1	0	0	6.16×10^2
	Maximum	2.21×10^1	1.07×10^2	6.77×10^1	---	---	8.14×10^2
pH	Minimum	8.4	10.1	2.8	5.5	5.5	11.0
	Average	9.5	10.4	3.3	6.25	6.25	11.1
	Maximum	10.2	10.8	3.9	7	7	11.2

Source: DTN: LL081002312251.202 [DIRS 185793], file: Revised_Vessel_Chem_02and04v4.xls, worksheet: Range (Note: pH measured for the actual solution at room temperature (except SSW). BSW- basic saturated water. [a]SSW composition from TIP-CM-38, Rev. 0, Change Notice TIP-CM-38-0-1 [DIRS 185835], Table 1. [b]BSW solution composition can be slightly modified (mainly by adding sodium hydroxide) to cover a range of pH values from 11 to 13, yielding solutions referred to as BSW-11, -12, and -13.)

NOTES: BSW-12 = basic saturated water at pH around 12; SAW = simulated acidified water; SCW = simulated concentrated water; SDW = simulated dilute water; SSW = simulated saturated water.

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4. Title: Analysis of Dust Deliquescence for FEP Screening

6. Description of and Justification for Change (Identify affected pages, applicable CRs and TBVs) con't:

4.) **Sections 8.2 and 8.2[a]:**

Add the following:

185835 TIP-CM-38, Rev. 0, Change Notice TIP-CM-38-0-1. *Formulation of and Recipes for Simulated Saturated Water (SSW)*. Livermore, California: Lawrence. Livermore National Laboratory. ACC: MOL.20010110.0444.

Analysis of Impacted Documents:

The changes listed above in response to CR 11919 have no impact on the conclusions of or the outputs from ANL-EBS-MD-000074 REV 01 [DIRS 175058] and its associated Addendum [DIRS 181267]. These changes are not relevant to safety or waste isolation and have no impact on the Total System Performance Assessment. The chemical compositions of the test solutions were only used as background information. Furthermore, no document uses the changed text or tables as input. Therefore, there is no impact on the following controlled and under development documents which cite ANL-EBS-MD-000074 REV 01 and ANL-EBS-MD-000074 REV 01 ADD 01: ANL-WIS-GS-000003 Rev. 01, ANL-EBS-MD-000003 Rev. 03, ANL-EBS-MD-000004 Rev. 02, ADD 01, ANL-EBS-MD-000033 Rev. 06, ANL-NBS-HS-000057 Rev. 00, ANL-WIS-MD-000024 Rev. 01, ANL-WIS-MD-000027 Rev. 00, CAL-DN0-NU-000002 Rev. 00C, MDL-WIS-PA-000005 Rev. 00, TDR-MGR-MD-000037 Rev. 02, TDR-MGR-MD-000056 Rev. 00, TDR-WIS-PA-000014 Rev. 00 and IDD-MGR-MD-000001 Rev. 00. Also, none of the changes made in this ERD impact the Safety Analysis Report (SAR) because the SAR does not reference any of the text, and tables that have changed.