



Scientific Analysis/Calculation Administrative Change Notice

QA: QA
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Complete only applicable items.

DOC.20070703.0006

1. Document Number:	ANL-WIS-MD-000021	2. Revision:	03/AD 01	3. ACN:	02
4. Title:	Cladding Degradation Summary for LA				
5. No. of Pages Attached:	2				

6. Approvals:		
Preparer:	Clifford L. Howard Print Name and Sign	<u>Cliff Howard</u> Date
Checker:	Christine Stockman Print name and sign	<u>Christine Stockman</u> Date
QCS/Lead Lab QA Reviewer:	Brian Mitcheltree Print name and sign	<u>Brian Mitcheltree</u> Date
Responsible Manager:	M. Kathryn Knowles Print name and sign	<u>M. Kathryn Knowles</u> Date

7. Affected Pages	8. Description of Change:
Addendum Cover Page	Last sentence deleted in Description of Change, Block 11. Sentence incorrectly states Addendum 01 incorporates editorial changes from ACN 01. ACN 01 will remain active.
6	Editorial change to last sentence in Section 7.1.2[a].



Addendum Cover Page

Complete only applicable items.

QA: QA

1. Total Pages: 18

2. Addendum to (Title): Cladding Degradation Summary for LA			
3. DI (including Revision and Addendum No.): ANL-WIS-MD-000021 REV 03 AD 01			
	Printed Name	Signature	Date
4. Originator	David Stahl	<i>David Stahl</i>	6/12/2007
5. Checker	Christine Stockman	<i>Christine Stockman</i>	6/12/2007
6. QCS / QA Reviewer	Brian Mitcheltree	<i>Brian Mitcheltree</i>	6/14/07
7. Responsible Manager / Lead	Clifford L. Howard	<i>Cliff Howard</i>	6-12-07
8. Responsible Manager	M. Kathryn Knowles ^{For}	<i>Paul J</i>	6-12-07
9. Remarks			
Change History			
10. Revision and Addendum No.	11. Description of Change		
REV 01 AD 01 6/12/07	This addendum updates the treatment of the percentage of waste packages containing stainless steel-clad commercial spent nuclear fuel and deletes treatment on mechanical damage, which addresses CR 6546. For the compliance case, no credit is now taken for cladding performance for either stainless steel or Zircaloy-clad commercial spent nuclear fuel. This addendum also incorporates and updates the editorial changes made in the ACN to the parent document, including the insertion of the missing section heading, 6.2.4 Spill Cladding, in the Table of Contents. CWH 6/29/07		

Table 7-1[a]. Summary of Cladding Degradation Values for Use by TSPA-LA (Continued)

TSPA Parameter Name	Parameter Description	Parameter Type	Parameter Value	DTN
Density_Schoepite	Density of schoepite	Constant	4.83 g/cm ³ (calculated)	A
MW_UO2	Molecular weight of UO ₂	Constant	270 g/mol	A
MW_Schoepite	Molecular weight of schoepite	Constant	322.1 g/mol (calculated)	A
Rind_Porosity_CSNF	<i>Por</i> , porosity in rind	Uniformly distributed, epistemic uncertainty	Range: 0.05 to 0.3	A
Rod-Length)_CSNF	<i>L_r</i> , active fuel rod length	Constant	366 cm	A
Num_Rods_WP_CSNF	<i>N_r</i> , number of rods per waste package	Constant	5,544	A
Pellet_Diameter	<i>D_{init}</i> , initial pellet diameter	Constant	0.819	A

Product output: A = DTN: MO0411SPACLDDG.003 REV 001.
B = DTN: MO0702PAFRACSS.000.

Table 7-2[a]. Initial Rod Failure Values for Use for the TSPA-LA Compliance Model

TSPA Parameter Name	Parameter Description	Parameter Type	Parameter Value
Initial_Rod_Failures	Distribution of failed cladding, as-received	Constant	100%

Source: Output DTN: MO0702PAFRACSS.000.

7.1.1[a] Cladding Condition As-Received

No changes are needed to this section of the parent report. This technical area applies to the PMA only.

7.1.2[a] Stainless Steel Cladding Distribution

This analysis was modified to take into account the fact that most CSNF will be received at the repository in TAD canisters rather than as bare fuel. The percentage of stainless steel-clad fuel is 1.0% of the total inventory of CSNF. To allow for some flexibility in the loading of these fuel assemblies at the utility and the potential for some stainless steel-clad fuel to come to the repository as bare fuel, the percentage of waste packages that could contain stainless steel cladding is estimated to be within 1.0% to 2.0%. Stainless steel-clad fuel is discussed in Section 6.2.2. The distribution only applies to the PMA.

7.1.3[a] Mechanical Failure of Cladding

This section has been deleted, since mechanical damage to the cladding is included in the seismic consequence analysis (SNL 2007 [DIRS 176828]).

7.1.4[a] Split Cladding

No changes are needed to this section of the parent report. This technical area applies to both the compliance case and the PMA.