From: Darrell Dunn [ddunn@cnwra.swri.edu]
Sent: Monday, August 16, 2004 5:32 PM
To: Xihua He
Subject: RE: review on Appendix P

The OLI calculation can be performed by several staff. Vijay, Lietai, and Bobby Pabalan have performed these calculations. Something else to consider is the consistency between the information presented in TBD 6 Appendix P and TBD 5.

Regarding your evaluation of Appendix P, I have the following comments:

1. The DOE presented weight loss data for 5 years. It seems that you feel this is acceptable. I do not think that the information presented addresses the actual content of the agreement which was to perform more sensitive measurements. It may be that the information presented by the DOE is acceptable because it is conservative. If this is the case, then the values of the corrosion rates should be verified by some independent source such as the work performed by Brossia and Cragnolino.

2. As I mentioned in my earlier comments, the DOE evaluation of the effect of fluoride does not consider temperature. This is an important consideration.

3. The DOE used the 1 year corrosion rates for the for assessing the corrosion damage to the drip shield but used 5 year corrosion rate data for hydrogen uptake. An evaluation of the hydrogen uptake using 1 year data would be interesting. Such discrepancies cannot be overlooked. Appendix H did not contain the evaluation of Ti corrosion rates.

4. The SCC tests on Ti in the long term corrosion test facility are of limited use. The work by Andresen is much better. Some of this work may be included in the SCC AMR. The key question here is does the DOE consider SCC of Ti and is the model abstraction appropriate.

5. For galvanic coupling, it is not expected that the corrosion rate of Ti will increase. The concern here is hydrogen uptake particularly if Ti is coupled to carbon steel or an active alloy.

6. The assessment of intergranular oxidation and intergranular corrosion does not address oxidation.

> -----Original Message-----
> **From:** Xihua He [mailto:xhe@cnwra.swri.edu]
> **Sent:** Monday, August 16, 2004 8:17 AM
> **To:** 'Darrell Dunn'
> **Subject:** RE: review on Appendix P
>
> Hi, Darrell,
>
> Thank you for the comments. Would you please let me know what OLI calculation is and where we can do it? Thanks. Xihua
>
>> -----Original Message-----
>> **From:** Darrell Dunn [mailto:ddunn@cnwra.swri.edu]
>> **Sent:** Friday, August 13, 2004 4:51 PM

To: xhe@cnwra.swri.edu
Subject: RE: review on Appendix P

Here are my initial comments/questions on Appendix P. I will read your review and provide you with comments on Monday.

1. The information provided by the DOE does not address Ti Gr 24.
2. Page P-2. It is unclear what the predicted composition of the water is and what controls fluoride solubility. Does the information presented here agree with the information presented in TBD 05?
3. I suggest an OLI calculation of the concentrations presented on Page P-2
4. It is not clear how active corrosion is defined in equation P-1. Also the equation was generated for dental applications and the temperature was likely 37 C. No effect of temperature is considered in equation P-1.
5. Page P-6. The statement that Pd enrichment lowers the corrosion rate should be supported with a reference or an analysis. Did Brossia and Cragnolino also reach this conclusion?
6. I would expect Br to affect localized corrosion susceptibility rather than the uniform corrosion rate.
7. Section P.4.3 is the work of Andresen included in the BSC2004a reference?
8. The hydrogen uptake efficiency is dependent on several factors including temperature, alloy chemistry, and environmental chemistry. This does not appear to be addressed by the DOE.

-----Original Message-----
From: Xihua He [mailto:xhe@cnwra.swri.edu]
Sent: Friday, August 13, 2004 9:52 AM
To: Darrell Dunn
Subject: review on Appendix P

Hi, Darrell

To prepare next week's CLST meeting, would you please take a look at my review on Appendix P regarding corrosion of the drip shield? Please feel free to give me some comments. Thanks.
Xihua

Hearing Identifier: HLW_YuccaMountain_Hold_EX
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Mail Envelope Properties (001d01c483d8$84154ea0$13c8a281)

Subject: RE: review on Appendix P
Sent Date: 8/16/2004 5:32:22 PM
Received Date: 8/16/2004 5:25:58 PM
From: Darrell Dunn

Created By: ddunn@cnwra.swri.edu

Recipients:
"Xihua He" <xhe@cnwra.swri.edu>
Tracking Status: None

Post Office: STURM

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MESSAGE	4061	8/16/2004 5:25:58 PM

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