HLWYM HEmails

From: Tae Ahn
Sent: Wednesday, March 21, 2007 1:03 PM
To: Ken Chiang; Osvaldo Pensado; Xihua He; Yi-Ming Pan
Subject: RE: (2) Fwd: Reference for heat affected zone

Thanx, Tae

>>> Xihua He <xhe@cnwra.swri.edu> 03/21/2007 1:01 PM >>>
Thank Yi-Ming's clarification. It is my misunderstanding for the thermally-aged material. I took a look at the paper. Yi-Ming and Osvaldo are right. We don't have evidence to show the HAZ material is more susceptible to localized corrosion than the mill-annealed material. I agree that the HAZ material can be ignored in the analysis.

Thanks,
Xihua

-----Original Message-----
From: Yiming Pan [mailto:ypan@cnwra.swri.edu]
Sent: Wednesday, March 21, 2007 11:30 AM
To: 'Tae Ahn'; 'Ken Chiang'; 'Osvaldo Pensado'; 'Xihua He'
Subject: RE: (2) Fwd: Reference for heat affected zone

We have actually done Erp measurements on the heat affected zone specimens.
The Erp values are similar to those of the mill-annealed material.
The
details are available in a CNWRA paper (Corrosion Vol. 62, No. 1, pp.
3-12)

Also, the thermally aged material has the lowest Erp values that are suitable to bound the effect of fabrication processes. It is not intended to simulate the HAZ material.

Yiming

-----Original Message-----
From: Tae Ahn [mailto:TMA@nrc.gov]
Sent: Wednesday, March 21, 2007 7:54 AM
To: Ken Chiang; Osvaldo Pensado; Xihua He; Yi-ming Pan
Subject: RE: (2) Fwd: Reference for heat affected zone

In this case, we need the answer to my original questions on the HAZ width.

>>> Xihua He <xhe@cnwra.swri.edu> 03/21/2007 9:51 AM >>>
We tested thermally-aged samples which simulate the material in HAZ.
Based
on repassivation potential measurement, they are more susceptible than welded plus solution annealed Alloy 22. After solution annealing of the waste package, the HAZ should be thermally aged plus solution annealed. Based on metallurgical phase analysis, the thermally aged plus solution annealed should be less susceptible to localized corrosion than thermally aged because solution annealing removes some of the secondary phases.

In our TPA code, in the localized corrosion model, we used thermally aged material to simulate the fabrication effects. It should conservatively bound the material in the welded and HAZ.

Yi-Ming may be able to clarify further on this.

Thanks,
Xihua

-----Original Message-----
From: Osvaldo Pensado [mailto:opensado@cnwra.swri.edu]
Sent: Wednesday, March 21, 2007 8:31 AM
To: 'Tae Ahn'; 'Ken Chiang'; 'Xihua He'; 'Yi-ming Pan'
Subject: RE: (2) Fwd: Reference for heat affected zone

But the real question is whether the HAZ is more susceptible to localized corrosion, not if it is large or not. It is my understanding that, in Alloy 22, the HAZ is not necessarily less corrosion resistant. If it is not corrosion susceptible, then it can be ignored in the analysis.

Is there any analysis suggesting that the HAZ is any worse?

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Osvaldo Pensado, Ph.D.
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-----Original Message-----
From: Tae Ahn [mailto:TMA@nrc.gov]
Sent: Wednesday, March 21, 2007 7:08 AM
To: Ken Chiang; Osvaldo Pensado; Xihua He; Yi-ming Pan
Cc: Sheena Whaley
Subject: (2) Fwd: Reference for heat affected zone

I have tried to locate this document in LSN. Apparently, it is not available for the public. I still don't understand that the 100 micron HAZ was obtained from the lab welding or from Joseph Oat. The HAZ width will vary depending on heat input (Metal Handbook). Obviously, the Joseph Oat has higher heat input. I hope our TPA5 is correct by assuming the HAZ width is negligible compared with the weld width. If you know any scale up results of you lab testing, please let me or Osvaldo know. For example, the ratio of HAZ width to weld width from you lab testings would give some idea about the real situation. Thanx,
Tae

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fyi

>>> <Neal_Hunemuller@Notes.YMP.GOV> 03/14/2007 5:20 PM >>>

Jon,

Tae Ahn requested a GE reference regarding a 100 micron heat affected zone
that was discussed during a teleconference on February 22, 2007. The heat
affected zone is shown in Figure 2-3a on page 176 and Figure 2-21 on page
193 in the following reference:

Andresen, P.L.; Kim, Y.J.; Emigh, P.W.; Catlin, G.M.; and Martiniano, P.J.
2005. Stress Corrosion Crack Initiation & Growth Measurements in
Environments Relevant to High Level Nuclear Waste Packages. Report Number:
GE-GRC-Bechtel-2005-1. [Niskayuna, New York]: General Electric Global
Research Center. ACC: MOL.20060112.0042. [DIRS 176653].

I have requested a copy of this document be made available at the LSO.
Please contact me if you have further questions on this matter.

Thank you,
Neal

Hearing Identifier: HLW_YuccaMountain_Hold_EX
Email Number: 1569

Mail Envelope Properties (s6012d23.002)

Subject: RE: (2) Fwd: Reference for heat affected zone
Sent Date: 3/21/2007 1:03:06 PM
Received Date: 3/21/2007 1:04:08 PM
From: Tae Ahn

Created By: Tae.Ahn@nrc.gov

Recipients:
"Ken Chiang" <kchiang@cnwra.swri.edu>
Tracking Status: None
"Osvaldo Pensado" <opensado@cnwra.swri.edu>
Tracking Status: None
"Xihua He" <xhe@cnwra.swri.edu>
Tracking Status: None
"Yi-Ming Pan" <ypan@cnwra.swri.edu>
Tracking Status: None

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