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October 6, 2005
Contract No. NRC-02-02-012
Account No. 20.06002.01.322

U.S. Nuclear Regulatory Commission
ATTN: Mrs. Deborah A. DeMarco
Division of High-Level Waste Repository Safety
Two White Flint North
11545 Rockville Pike
Mail Stop T8 A23
Washington, DC 20555

Subject: Programmatic review of a paper for publication in the Corrosion 2006 Proceedings;
AI 06002.01.322.514

Dear Mrs. DeMarco:

Enclosed is the following paper with form 390A submitted for NRC programmatic review.

Surface Analysis of Alloy 22 Under Conditions That Promote Stress Corrosion Cracking
authored by D.S. Dunn, Y.-M. Pan, K.T. Chiang, and G.A. Cragnolino

This paper describes the results of the surface analysis of oxide films on Alloy 22 using X-ray photoelectron spectroscopy. The purpose of this work is to provide a mechanistic understanding of compositional changes in the oxide film on Alloy 22 under conditions conducive to stress corrosion cracking. The thin, protective oxide films on Alloy 22, when formed in air or in chloride solutions, contain significant concentrations of chromium. Oxides formed in solutions with chloride and bicarbonate are thicker and have substantially reduced chromium concentrations. The change in the thickness and composition of the oxide film corresponds to the conditions where stress corrosion cracking of Alloy 22 has been observed. Although some of the information included in this paper has been included in CNWRA 2005-02, the analysis of oxides formed under conditions where stress corrosion cracking is possible has not been previously reviewed by the NRC.

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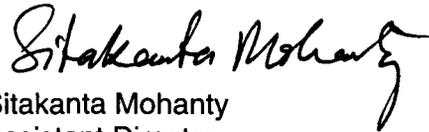
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Mrs. Deborah A. DeMarco
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Please advise me of the results of your programmatic review. If you have any questions regarding this paper, please contact Darrell Dunn at (210) 522-6090 or me at (210) 522-5185. Your cooperation in this matter is appreciated.

Sincerely,



Sitakanta Mohanty
Assistant Director
Engineering and Systems Assessment

SM:DD:jg

cc:	W. Reamer	M. Bailey	D. Brooks	W. Patrick	P. Shukla	<u>Ltr only</u>
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Surface Analysis of Alloy 22 Under Conditions that Promote Stress Corrosion Cracking

2. AUTHOR(s)

D.S. Dunn, Y.-M. Pan, K.T. Chiang, and G.A. Cragolino

3. NAME OF CONFERENCE, LOCATION, AND DATE(s)

Corrosion 2006 61st Annual Conference & Exposition, San Diego, CA, March 12-16, 2006

4. NAME OF PUBLICATION

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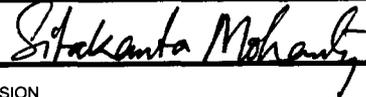
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