

## **CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES**

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### **TRIP REPORT**

**SUBJECT:** 2001 ASTM International Fall Committee Week  
Charge No. 20.01402.571; AI No. 01402.571.019

**DATE/PLACE:** November 7–9, 2001  
Dallas, Texas

**AUTHOR:** Sean Brossia

**DISTRIBUTION:**

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**PERSONS PRESENT:**

**BACKGROUND AND PURPOSE OF TRIP:**

The author attended the ASTM G01 Corrosion of Metals Fall Committee week in Dallas, Texas from November 7–9, 2001. During the course of the meetings, a workshop on corrosion inhibitor testing as well as several discussions on the development of standard methods for corrosion testing were attended. These included: corrosion of nuclear materials (specifically cladding corrosion), atmospheric corrosion, electrochemical testing, and corrosion in soils. A brief synopsis of the points in some of the discussions in other meetings is provided. Further information can be obtained by contacting the author.

**SUMMARY OF PERTINENT POINTS:**

A meeting was held to discuss current work on developing a standard to test nodular corrosion of nuclear fuel cladding. The major limitation to further work in this area is obtaining reference material which has a known in-reactor service history, although some efforts in this area have been made over the past two years. Work on the new long-term (20 year) atmospheric corrosion study was reviewed. Current plans call for initial exposures to begin in late CY2001. The materials slated for exposure include unpainted carbon steels, galvanized and aluminum coated carbon steels, stainless steels, Ni alloys, Ti alloys and Al alloys. A Standard Guide is also under preparation outlining the certification and QA procedures for corrosion laboratories which would evaluate if the laboratories have core competencies in corrosion testing and evaluation. The reference standard for conducting potentiodynamic polarization curves is slated to have a new round robin to verify precision and bias, and further discussion on this is ongoing. This is important to the CNWRA as this method is used to verify the performance of potentiostats and the associated data acquisition systems attached to them.

The discussion of activities in ASTM C26.13 on nuclear fuel cycle raised a number of issues including why no one contacted G01 for review and/or aid in the revision of the C-1174 Standard Practice for Prediction of the Long-Term Behavior of Materials, Including Waste Forms, Used in Engineered Barrier Systems for Geologic Disposal of High-Level Radioactive Waste. Of particular note was that this activity falls within the interests and areas of expertise in G01.08 on Corrosion of Nuclear Materials. In addition, an impromptu round table discussion of

the repository program as a whole was held and attended by the members of the G01 Executive Committee and a few others. The main topic of discussion was the current status, timing of events, and why G01 members were not more involved in this activity. Besides the author, no one in attendance was intimately aware of the situation. CNWRA and NRC staff as a part of C26.13 activities have been participating in the revision of the C-1174 Standard for the last one year. The Executive committee decided that they will undertake efforts to examine this further and aid in the development of appropriate standards that will benefit the repository program. The committees that will pursue these activities include G01.08 Corrosion of Nuclear Materials, G01.09 Corrosion in Natural Waters, G01.10 Corrosion in Soils, G01.11 Electrochemical Test Methods, and G01.12 In-Plant Corrosion Testing and Monitoring.

#### **SUMMARY AND RECOMMENDATIONS:**

These meetings provide an opportunity to highlight work being done at the CNWRA in the area of life prediction and corrosion testing, to interact with scientific community on a one-on-one basis, and serve to increase the visibility and credibility of the NRC and CNWRA work on corrosion testing and research. It is suggested that participation in ASTM be continued, especially with the increased interest in the repository program that was demonstrated at the meeting. In addition, the CNWRA and NRC should support efforts to develop new ASTM standards that add value and credence to the approaches used in the repository program.


#### **PROBLEMS ENCOUNTERED:**

None.

#### **PENDING ACTIONS:**

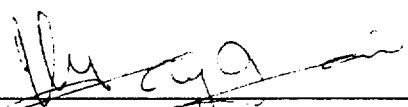
1. Evaluate possible needs in the area of testing standards that may improve credibility to approaches taken by the CNWRA in the repository testing program.
2. Liaise with C26.13 Technical Committee Chair to foster interest and participation in the development and use of standard test methods important to repository program.

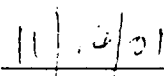
#### **SIGNATURES:**

  
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Sean Brossia  
Senior Research Engineer

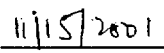
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Date

**CONCURRENCE:**

  
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