

May 28, 2009

MEMORANDUM TO: Michael J. Case, Director
Division of Engineering
Office of Nuclear Regulatory Research

FROM: Robert L. Tregoning, Senior Technical Advisor **/RA/**
Division of Engineering
Office of Nuclear Regulatory Research

SUBJECT: INTERNATIONAL TRIP REPORT: MEETINGS OF THE
AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
COMMITTEE ON FATIGUE AND FRACTURE MECHANICS, THE
SUBCOMMITTEE ON FRACTURE MECHANICS, AND RELATED
TASK GROUPS

On May 17 – 20, 2009, Dr. Tregoning traveled to Vancouver, Canada to participate in the ASTM meetings of Main Committee E08, Subcommittee E0807, and the task groups affiliated with E0807. This memorandum presents the highlights of each of these meetings, and Enclosure 1 to this memorandum presents a detailed trip report. The agendas for these meetings are provided in Enclosure 2.

On May 18, Dr. Tregoning participated in task group meetings on Ductile Crack Growth and Initiation (E080705), Crack Tip Opening Angle (CTOA) – δ_5 Concepts and Procedures (E080707), Ductile-Brittle Transition (E080706), and Crack Tip Opening Displacement (CTOD)/Fracture Toughness of Welds (E080708). Dr. Tregoning is also chairman of the E080706 Task Group. The principal topics covered during these task group meetings included

- (1) discussing the subcommittee ballot on the addition of a high rate loading annex to ASTM E1820 “Standard Test Method for Measurement of Fracture Toughness,”
- (2) proposing E1820 revisions for ballot,
- (3) discussing plans to make ASTM and international standards on CTOA- δ_5 more consistent,
- (4) presenting the current knowledge of predicting ductile fracture of low-constraint specimens using CTOA,
- (5) resolving issues associated with the ballot on ASTM E1921, “Standard Test Method for Determination of Reference Temperature, T_0 , for Ferritic Steels in the Transition Range,”
- (6) proposing E1921 revisions for ballot, and
- (7) discussing the proposed test practice on weld testing changes.

On May 19, Dr. Tregoning participated in task group meetings on Elastic Fracture Mechanics (E080701), and Dynamic Fracture and Crack Arrest_(E080704). The principal topics covered during these meetings included

- (1) resolving issues associated with the ballot on ASTM E399, "Standard Test Method for Linear-Elastic Plane-Strain Fracture Toughness, K_{Ic} of Metallic Materials,"
- (2) addressing the status of ASTM E338 "Standard Test Method of Sharp-Notch Tension Testing of High-Strength Sheet Materials" and ASTM E602 "Standard Test Method for Sharp-Notch Tension Testing with Cylindrical Specimens,"
- (3) discussing the new crack arrest annex to E1221 "Standard Test Method for Determining Plane-Strain Crack-Arrest Fracture Toughness, K_{Ia} , of Ferritic Steels," and
- (4) discussing a study to identify recommendations for improved crack arrest testing criteria.

On May 19, Dr. Tregoning also participated in the Subcommittee meeting of E0807, and the Main Committee meeting of E08. Dr. Tregoning also served as secretary of E0807, and reported on the E0807 activities to E08. The principal topics covered during the E0807 meeting included

- (1) providing reports on task group activities, and
- (2) identifying ballot proposals and actions to be addressed during the E08 meeting.

The principal topics covered during the E0808 meeting included

- (1) providing reports on all subcommittee activities,
- (2) providing reports on related international standards activities and upcoming symposia,
- (3) resolving outstanding ballot issues, and
- (4) dispositioning ballot initiatives proposed by the subcommittees.

This trip did not result in any recommended actions by the Commission or the Office of Nuclear Regulatory Research.

Enclosures:
As stated

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- (1) providing reports on task group activities, and
- (2) identifying ballot proposals and actions to be addressed during the E08 meeting

The principal topics covered during the E0808 meeting included

- (1) providing reports on all subcommittee activities,
- (2) providing reports on related international standards activities and upcoming symposia,
- (3) resolving outstanding ballot issues, and
- (4) dispositioning ballot initiatives proposed by the subcommittees.

This trip did not result in any recommended actions by the Commission or the Office of Nuclear Regulatory Research.

Enclosures:
As stated

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