



**GEOSCIENCES AND ENGINEERING DIVISION
QUALITY ASSURANCE
SURVEILLANCE REPORT**

PROJECT NO.: 06002.01.322

REPORT No.: 2007-16

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SURVEILLANCE SCOPE: CNWRA Corrosion Science and Process Engineering (CSPE) activities

REFERENCE DOCUMENTS: QAPs-001, 005, 007, 008, 013, 019; AP-001, TOP-018

START DATE: 7/10/07

END DATE: 7/18/07

QA REP: M. Simpson

PERSONS CONDUCTING ACTIVITY (persons contacted or reviewed): K. Axler (CSPE Mgr.), Y. Pan, A. Jung, T. Mintz, P. Shukla, X. He, K. Chiang, L. Yang, S. Birnbaum (consultant - checked quals/training/COI only). Also met briefly with the GED QA Director, R. Brient.

SATISFACTORY FINDINGS:

Discussions were held with the recently appointed CSPE manager, all current CSPE staff, and two DEMPS staff performing significant work for this group. CSPE had been operating under an acting manager for most of the previous year. The staff member assigned to this role during the majority of this time is an experienced senior level employee and implementation of the QA program appears to have continued at a satisfactory level during his tenure, with no evidence of a diminution of effectiveness. The new manager also appears to understand the role and appreciate the value of a well-functioning QA program so it is anticipated that CSPE's attention to its QA responsibilities will continue at a high level.

CSPE continues to concentrate most of its efforts on the Degradation of Engineered Barriers for the repository program. Recently assigned work for Non-Repository Programs (NRP) was not reviewed as part of this surveillance (will be covered in NRP surveillance). Laboratory experiments are currently at a juncture, with some short-term corrosion activities recently concluded (and reports submitted) and possible new ones under discussion. Stress corrosion cracking experiments are currently on hold pending hardware and software upgrades. It is anticipated that any new short-term experiments would have to be able to be concluded at some point prior to LA submittal. If funding is available, there is discussion that longer term experiments could be extended even after their official conclusion at report approval. It would have to be considered that there may be no new corresponding milestones and formal updates to data and conclusions presented in reports submitted prior to LA would not be possible.

The only laboratory work observed specifically for this surveillance is the ongoing preparations for the Integrated Environmental Effects Experiments for Engineered Barrier System Materials, which represents a joint effort between various scientific disciplines. The project is evaluating the evolution of the near-field water chemistry and its effect on corrosion of engineered barrier system materials. As such, it integrates the knowledge from material scientists, chemists, and hydrologists. A new PI has been recently assigned for this work. The last month has been a transition and set-up period. Problems maintaining elevated temperatures for this experiment are currently being addressed (heaters have failed). "Calibration before use" has been performed on the output monitors but the information has not yet been recorded in a scientific notebook. A notebook has not yet been initiated for this work but the PI committed to begin one in the near future.

The reviewer is satisfied that the CSPE labs remain in compliance with measuring and test equipment (M&TE) and chemical control requirements based on personal reviews during recent programmatic surveillances and direct observation of auditors successfully reviewing the labs during

the recent CNWRA internal audit. Spot checks during this surveillance confirmed continuing compliance. Sample control also remains generally adequate, with one possible exception (see Recommendation 1).

A Recommendation made during the previous CSPE surveillance concerned M&TE calibration labeling. Even though CSPE and the GED calibration custodian have been diligent in assuring such labeling, it had not been a formal requirement of QAP-019. The procedure was revised during this surveillance to specifically call out requirements for calibration labels, which was not previously addressed because of an oversight. Note: Staff are reminded to implement additional QAP-019 changes as soon as possible. Recommendation 2 also concerns this issue.

Based on the results of other recent assessments of CSPE and a previously demonstrated proficiency and vigilance by some corresponding notebook holders, only selected scientific notebooks were reviewed for this surveillance. Some notebooks had no new entries since the previous CSPE surveillance. Notebooks surveilled in detail include 796, 835, and 851E. A few minor suggestions were made and accepted.

Other CSPE work at present (or recently concluded) includes various literature reviews, development of the 2008 Operations Plan, cathodic capacity modeling (using MATLAB 7.4.0 and ABAQUS 6.6), contributions to the TPA and its User Guide, addressing NRC comments on previously submitted reports, and development of LA review strategies.

UNSATISFACTORY FINDINGS: None

NCR NO.: None

CAR NO.: None

ATTACHMENTS: None

RECOMMENDATIONS/ACTIONS:

1. CSPE sample custody logs do not record changes to sample location after receipt. It happens that samples currently start out and end up in the same general location - so the TOP-012 requirement for recording long-term storage is satisfied; even though that wasn't the intent of the initial recording (otherwise we would have a nonconforming condition). However, no "chain of custody" is recorded when samples are machined, used in an experiment, or otherwise moved. It is recommended that GED management consider the need for recording such a chain of custody or if only recording the long-term storage location is sufficient. Either way, a procedural change is probably necessary. In the interim, CSPE should clearly state that their logs do in fact record the long-term storage location.
2. Even though QAP-019 does not require labeling of M&TE designated as "calibrate before use" or "no calibration required," CSPE is encouraged to continue such labeling as a good practice. Note: terminology change in newly revised QAP-019 would indicate the need for new labels.

APPROVED:



DATE:

7/23/2007

DISTRIBUTION:

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