BECHTEL SAIC COMPANY, LLC

QA: QA

Mark T. Peters, Manager
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BECHTEL SAIC COMPANY, LLC (BSC) QUALITY ASSURANCE (QA) SURVEILLANCE REPORT BSCQA-02-S-02 OF SCIENTIFIC INVESTIGATION TEST PLANS

Enclosed is the Surveillance Report BSCQA-02-S-02, conducted by BSC QA on 03/28/02 at the BSC facilities in Las Vegas, Nevada.

The purpose of the surveillance was to determine the adequacy and effectiveness of the work processes in the implementation of Scientific Investigation Test Plans (STIP). The STIP selected for the surveillance was STIP-02-EBS-02, Revision 0, *Atlas Natural Convection Test.*

The surveillance identified one condition adverse to quality relative to pre-test predictions. The condition is documented in Deficiency Report BSC(B)-02-D-100.

This surveillance is considered complete and closed as of the date of this letter. A response to this surveillance report is not required.

If you have any questions, please contact either Ken Gilkerson at (702) 295-2950 or Robb Keele at (702) 295-2808.

D. T. Krisha

Donald T. Krisha, Manager
Quality Assurance

4/10/02
Date Signed

RFH:bw-0410022161

Enclosure:
Surveillance Report BSCQA-02-S-02

NM5567
WM-11

cc w/encl:
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G. K. Beall, BSC, Las Vegas, NV
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Leonard Fiorenzi, Eureka County, Eureka, NV
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Mickey Yarbro, Lander County, Battle Mountain, NV

cc w/encl:
K. O. Gilkerson, BSC, Las Vegas, NV
Cliff Howard, BSC, Las Vegas, NV
R. P. Keele, BSC, Las Vegas, NV

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OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
QUALITY ASSURANCE SURVEILLANCE REPORT

QA: QA

Complete only applicable items.

QA Surveillance Number: BSCQA-02-S-02

1. Organization/Location	2. Subject	3. Date(s) Performed
BSC S&ET, Las Vegas, NV	Implementation of Scientific Investigation Test Plans	03/28/02

4. Surveillance Scope
To verify implementation of Test Plan SITP-02-EBS-02, Atlas Natural Convection Test

5. Requirement(s) (Procedure, Specification, Drawing, etc.)
AP-SIII.7Q, R-0, Scientific Investigation Laboratory & Field Testing
AP-SIII.3Q, R-1, ICN1, Submittal & Incorporation of Data to the TDMS
SITP-02-EBS-002 R-0, Atlas Natural Convection Test
TWP-MGR-MD-000015, R-1 TWP for: EBS Department Modeling & Testing

6. Originator
K. O. Gilkerson

Team Members
J. E. Clark
R. E. Rucinski (Observer)

SURVEILLANCE RESULTS

7. Description/Details
BSC QA conducted a surveillance of the implementation of the test planning for work activities related to the quarter scale and half scale pilot Natural Convection Tests at the Atlas Facility. These tests are ongoing and the surveillance of real time activities reflects work performed and data collected as of this date. The data from these tests support Engineered Barrier System (EBS) modeling and will evaluate the three dimensional effects of a distributed heat load in a scaled environment, under post closure (non-ventilated) conditions. The activities defined in the test plan that were surveilled included pre-test calcs, schedule, responsibilities, test methodology, measurement objectives, conduct of the test, M&TE (including accuracy and precision), unexpected results & data collection. The surveillance methodology included interview, observation, examination, and review. The following was observed/noted:
- 44% Scale Test started 01/14/02; 25% Scale Test started 01/15/02 (Verified as entry in Scientific Notebook SN-SNL-SCI-025-V1).
- Test Cases 1, 2, 5, & 6 were completed; Cases 4 & 8 are in progress. Sequence of testing was altered to avoid unnecessary removal and re-installation of drip shields. There are a total of 8 Test Cases to be performed.
- The Plan to collect data at 2 scans per hour was altered to record only one scan per hour, plan to change scanning frequency (after 24 hours of testing) to one scan per 2 hours was altered to record only one scan per hour. This change was documented in the scientific notebook.
- Calibration stickers were in close proximity to the measuring devices as required by AP-12.1Q (invoked through the SITP), although the instrument leads could not be physically traced into the concrete pipe. All stickers checked had calibration dates expiring in the July-September, 2002, time frame. (See block 7 on Addendum page) (See Addendum 1)

8. Persons (and their organizations) Contacted
Hemi Kalia, EBS/Materials Testing (BSC/LANL)
Alex Sanchez, EBS/Materials Testing (BSC/SNL)
Mark Peters, S&ET Manager (BSC/LANL)
Troy Williams, EBS/Materials Testing (BSC/LLNL

9. CAQ/NCR/TE Issued
☑ Yes ☐ No

CAQ/NCR/TE Number(s): BSC(B)-02-D-100

Recommendation Issued
☐ Yes ☑ No

CIRS Number(s):

10. Surveillance Conclusions ☑ SAT ☐ UNSAT

Overall, it was found that these tests were being performed consistent with procedures and the SITP with the exception of the concern about Pre-Test Analyses. The personnel interviewed were knowledgeable of task requirements, the scientific notebooks were in good order and well organized. The M&TE was appropriately tagged and calibration documentation was available for all M&TE. Although a DR was identified, scoping calculations were performed prior to the start of the test and a spreadsheet containing relevant data submitted to the TDMS. The DTNs in TDMS, however, point to two calculations that do not exist. As a result, the concern exists that the pre-test predictions are not completely and accurately documented. Although, pre-test scoping calculations were performed, the complete results are not captured in an approved document (i.e. AP-SIII.9Q). Some results from the pre-test calculations are presented in the SITP, and helped determine the minimum and maximum operating parameters for the tests. See DR BSC(B)-02-D-100. With resolution of the pre-test calculation issue, the balance of the Convection Tests should be completed in an effective manner and compliant with governing procedures.

11. Completed By (Originator) (Print Name) K. O. Gilkerson	Signature K. O. Gilkerson	Date 04/03/02
12. Reviewed By (Appropriate QA Manager) (Print Name) Robert P. Keele	Signature Robert P. Keele	Date 04/03/02
13. Approved By (QVM) (Print Name) Robert F. Hartstern	Signature R F Hartstern	Date 4/4/02

Addendum 1

Block 7 continued:

The Investigator stated that most of the opening calibration documentation was sent to the RPC sometime in September, 2001.
- Calibration documentation (found in Instrument Calibration Attachment to SN-SNL-SCI-024-V1) for the following instruments used in these tests were reviewed:
TSI Inc. Velocity Probe, s/n 99050354 calibrated by TSI on 02/28/02. Probe was damaged during tests and an NCR was documented.
OSI Model PCS-11DY25 s/n 9100148 calibrated on 10/23/01 by OSI.
Vaisala Humidity Temperature XMTR(s): EBST0419, EBST0420, and EBST0421, all calibrated by Bechtel Nevada (BN) (09/01, 08/01 and 09/01 respectively).
Omega Type T Thermocouples Model WTT-10-300 s/n ttcc040 calibrated on 09/19/01 by BN.
No anomalies were denoted relative to calibration documentation.
- There was an initial concern with specifying 0.25 degrees C as a decision point in Section 5.4 of the SITP. The temperature measurement devices in use could not detect such small temperature variations. The investigator (Alex Sanchez) explained that the target was an average of 24 data points, which would yield significant digits far below the detection capability of the M&TE.
- The scientific notebook for the test has been prepared as required. The compliance and technical reviews were done on 03/27/02 by Jose Archuleta of Sandia National Laboratories (SNL).
- One unexpected condition arose on 02/21/02 when a computer crashed and failed to collect data fed by the instrumentation. The data was lost, but the investigators determined that data lost was during a stable period and would have therefore only recorded values seen before and after the loss period. This event was logged in the scientific notebook for future evaluation.

A deficient condition was identified relative to pre-test predictions. Pre-test scoping calculations were performed as required; however, the complete results are not captured in an approved document. The SITP required Pre-Test Analyses to be documented in an AP-SIII.9Q document. Some results from the pre-test "scoping" calculations are presented in the SITP and helped determine the minimum and maximum operating parameters. See conclusions (block 10).

ACRONYMS USED:
DTN Data Tracking Number
DR Deficiency Report
M&TE Measuring & Test Equipment
S&ET Science & Engineering Testing
SITP Scientific Investigation Test Plan
TDMS Technical Data Management System
TWP Technical Work Plan

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