



QA: QA

Douglas J. Weaver, Manager
Test Coordination Office
Bechtel SAIC Company, LLC (BSC)
1180 Town Center Drive
Las Vegas, NV 89144

VERIFICATION OF CORRECTIVE ACTION AND CLOSURE OF DEFICIENCY REPORT
(DR) BSC(B)-02-D-100, PRE-TEST PREDICTIONS FOR SITP-02-EBS-002 NOT
COMPLETED AS REQUIRED PRIOR TO START OF TESTS

BSC Quality Assurance has verified corrective action for DR BSC(B)-02-D-100 and determined the results to be satisfactory; therefore the DR has been closed.

If you have any questions, please contact either Kenneth O. Gilkerson at (702) 295-5763 or Judith E. Gebhart (702) 295-4788.


Donald T. Krishna, Manager
Quality Assurance

7-5-02
Date Signed

KOG:ml-0703023222

Enclosure:
DR BSC(B)-02-D-100

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Wm-11*

July 5, 2002

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cc w/encl:

R. W. Andrews, BSC, Las Vegas, NV
G. K. Beall, BSC, Las Vegas, NV
L. W. Bradshaw, Nye County, Pahrump, NV
Margaret Chu, DOE/HQ (RW-1) FORS
J. R. Dyer, DOE/YMSCO, Las Vegas, NV
W. J. Glasser, NQS, Las Vegas, NV
C. E. Hampton, DOE/YMSCO, Las Vegas, NV
D. G. Horton, DOE/YMSCO, Las Vegas, NV
D. T. Krishna, BSC, Las Vegas, NV
Robert Latta, NRC, Las Vegas, NV
M. E. Lobo, BSC, Las Vegas, NV
S. W. Lynch, State of Nevada, Carson City, NV
S. P. Mellington, DOE/YMSCO, Las Vegas, NV
Ram Murthy, DOE/OQA, Las Vegas, NV
D. G. Opielowski, NQS, Las Vegas, NV
R. E. Powe, BSC, Las Vegas, NV
J. M. Replogle, DOE/YMSCO, Las Vegas, NV
N. K. Stablein, NRC, Rockville, MD
Engelbrecht von Tiesenhausen, Clark County, Las Vegas, NV
T. J. Wall, BSC, Las Vegas, NV

cc w/encl:

S. R. Dana, BSC, Las Vegas, NV
J. E. Gebhart, BSC, Las Vegas, NV
K. O. Gilkerson, BSC, Las Vegas
Cliff Howard, BSC, Las Vegas, NV
R. P. Keele, BSC, Las Vegas, NV
S. E. Rucinski, BSC, Las Vegas, NV
N. H. Williams, BSC, Las Vegas, NV

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8. DEFICIENCY REPORT
 CORRECTIVE ACTION REPORT
NO. BSC(B)-02-D-100
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DEFICIENCY REPORT/CORRECTIVE ACTION REPORT

1. Controlling Document: (Document ID and Revision or Date)
AP-SIII.7Q, R-0

2. Related Report No.:
BSCQA-02-S-02

3. Responsible Organization:
S&E Testing Project

4. Discussed With:
Mark Peters, Cliff Howard, Hemi Kalja, Dan Thomas, N. Kramer

5. Requirement:
AP-SIII.7Q, R-0, 5.2 a) requires that the PI perform pre-test predictions (if required) prior to the start of the test. 5.2 b) requires that the pre-test prediction be documented in accordance with AP-3.10Q, AP-3.12Q or AP-SIII.3Q. Note: AP-3.10Q and AP-3.12Q were supceded by AP-SIII.9Q.
Technical Work Plan TWP-MGR-MD-000015 R-01, FY02 EBS Modeling & Analyses specifically requires a pre-test calculation for the Atlas Natural Convection Test.
The Scientific Test Plan for the Atlas Natural Convection Test SITP-02-EBS-002 para 4.3/4.4 identifies the completion of the pretest predictive calculations and uncertainty analysis before January 2002. Para. 5.1 (of the SITP) requires a predictive analysis.

6. Description of Condition:
Contrary to the above, the Natural Convection Testing began on January 14, 2002 without the pre-test predictions (analysis) being documented and issued. While scoping data was submitted into the TDMS in accordance with AP-SIII.3Q (DTNs SN0112T0812301.001 & SN0112T0812301.002), the pre-test caculations (analyses) were not performed as required by the TWP and SITP. The "scoping data" submitted to the TDMS states that the data for the predictive analyses are presented in CAL-EBS-MD-000024 entitled "Two Dimensional Pretest Predictions for the Quarter and Half- Scale Natural Convection Tests" and CAL-EBS-MD-000026 titled "Two Dimensional Natural Convection Heat Transfer". These Pre-Test Calculations have not been completed.
Discussion: Although the SITP calls for an AP-SIII.9Q analyses, the submittal of data from scoping calculations were submitted into the TDMS. AP-SIII.7Q provides for using AP-SIII.3Q for documenting (submitting) pre-test predictions or AP-3.10Q or AP-3.12Q (now AP-SIII.9Q). The SITP specifically identifies what methods will be used to document the pre-test predictions. The data that was submitted for this SITP is unqualified and unverified. The Calculations that the DTN's reference were developed and submitted to checking in November/December per AP-3.12Q, but were abandoned when it was realized that AP-SIII.9Q would take effect before the review & checking could be completed. Consequently, there is no objective evidence that the data used for scoping have been reviewed and controlled. Also, the SITP states that AP-SIII.9Q (Analyses) would be used to document the predictive analyses.

Has work been stopped? Yes No

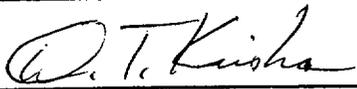
7. Initiator:
K.O. Gilkerson  4/2/02
Printed Name Signature Date

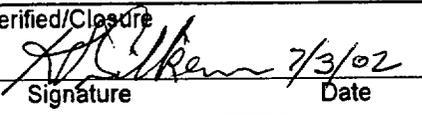
9. Does a stop work condition exist?
 Yes No N/A
If Yes, Check One: A B C D

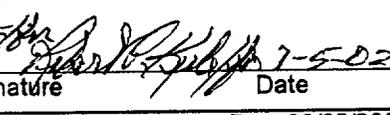
10. Recommended Actions:
1) Complete calculations CAL-EBS-MD-000024 & 26 in accordance with AP-SIII.9Q and test plan. OR
2) Perform a documented review of scoping data in TDMS per requirements, correct references to calculations CAL-EBS-MD-000024 & 26 (if they are not going to be completed) and revise SITP to reflect methodology for documenting pre-test predictions.
3) Revise AP-SIII.7Q to add guidance and clarification for use of "scoping" data versus pre-test predictions (analyses).
4) Identify other SITPs with same or similar problems.

11. QA Review:
K.O. Gilkerson  4/3/02
Printed Name Signature Date

12. Response Due Date:
10 Working Days after Issuance

13. QAM Issuance Approval:
Printed Name Donald T. Krishna Signature  Date 4/4/02

14. Corrective Actions Verified/Closed:
K.O. Gilkerson  7/3/02
QAR Printed Name Signature Date

15. QAM Closure Approval:
Donald T. Krishna  7-5-02
Printed Name Signature Date

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2. Check if Amended
 Check if also Initial Response
3. Extended Processing
 No Yes (If yes, submit
 Extended Processing request)

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DEFICIENCY REPORT/CORRECTIVE ACTION REPORT COMPLETE RESPONSE

4. Extent of Condition: (Amended response will be required if all Extent of Condition investigations are not complete and documented herein)

All scientific investigation test plans identified on the project-wide list, maintained by the BSC Science and Engineering Testing Department (S&ET) Manager (or designee) as procedurally required, were reviewed for the extent of condition. This included a review of forty (40) test plans. Of those forty (40), four (4) were found to be non-compliant, with respect to the completion of pre-test prediction calculations/analyses, as committed to in the individual test plans. This includes SITP-02-EBS-002, which was identified in the deficiency report, as well as the following test plans: SITP-02-EBS-003, SITP-02-UZ-007, and SITP-02-SSD-001. See Attachment I.

5. Impact: (Provide an impact statement relative to waste isolation and safety, and impact to other work, if any)

There is no impact to quality based on the fact that the pre-test analyses and calculations were performed, but just not reviewed and documented prior to test commencement as required in AP-SIII.7Q and the respective test plans.

6. Remedial Actions: (Document all actions necessary to address the results of the Extent of Condition)

See continuation page.

7. Root Cause (For a significant CAQ, attach results of formal root cause determination prepared in accordance with AP-16.4Q)
 Apparent Cause

Lack of understanding of AP-SIII.7Q.

8. Action to Preclude Recurrence: (Address those actions necessary to prevent the identified cause from recurring)

See continuation page.

9. Due Date for Completion of Corrective Action:
 6/28/02

10. Responsible Manager:

Doug Weaver D-gw 5-22-02
 Printed Name Signature Date

11. QAR Evaluation: Accept Partially Accept Reject

12. QAM Concurrence:

Donald T. Krishna [Signature] 5-20-02
 Printed Name Signature Date

Kenneth O. Grikerson [Signature] 05/28/02
 Printed Name Signature Date

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CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

Continued from block 6 (Remedial Actions):

SITP-02-EBS-002 Results of the pre-test calculations were not documented in an AP-SIII.9Q document, as committed to by the test plan, but they were submitted to the TDMS, as allowed by AP-SIII.7Q. This deviation will be documented in the scientific notebook. The incorrect information in the TDMS will be corrected. Additionally, it will be verified that the data was technically reviewed. If not, a review will be performed and properly documented.

SITP-02-EBS-003 The test plan made a commitment to document the pre-test predictions in a calculation, which is not yet complete. However, it is currently being completed, and will be completed prior to the corrective action completion due date. The data was submitted to the TDMS (DTN: MO0201EBSRTCM.013).

SITP-02-UZ-007 The test plan made a commitment to submit the pre-test prediction data to TDMS. A TDIF has been completed and a DTN has been obtained, but the data has not yet been submitted. The data will be submitted by the corrective action completion due date. Additionally, it will also be verified that the data has undergone a technical review. If not, a review will be performed and properly documented.

SITP-02-SSD-001 The test plan committed to pre-test prediction documentation in accordance with AP-SIII.9Q or AP-3.10Q and TDMS. The TDMS submittal was completed, but the AP-SIII.9Q or AP-3.10 documentation was not completed and will not be completed. This deviation will be documented in the scientific notebook. It will be verified that the data submitted to the TDMS was technically reviewed. If not, a review will be performed and properly documented.

This deficiency report will be linked to the records packages of the affected test plans.

All action items identified above will be completed by the corrective action completion due date.

Continued from block 8 (Actions to Preclude Recurrence):

On 4/9/02, all managers and supervisors within S&ET were reminded via email that pre-test predictions, as required by AP-SIII.7Q and the individual test plan, are required to be completed and documented prior to beginning testing.

The two managers whose test plans were identified in the extent of condition will be reminded of the proper way to document pre-test predictions. This discussion will clarify the pre-test predictions procedural requirements, and will be documented and signed by all individuals involved in the discussion.

All action items identified above will be completed by the corrective action completion due date.

**Scientific Investigation Test Plans
BSC(B)-02-D-100 Extent of Condition**

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TEST	TEST PLAN	TEST PLAN IDENTIFIER	Pre-test predictions/Action necessary to determine extent & compliance
Ash Redistribution Studies and Field Studies of Lava Morphology & Igneous Processes	Ash Redistribution Studies and Field Studies of Lava Morphology & Igneous Processes	SITP-02-DE-001	N/A - Testing not yet started.
Atlas Ventilation Test Phase 3	Atlas Ventilation Test – Phase 3	SITP-02-EBS-001	N/A - Testing not yet started.
Atlas Natural Convection Test	Atlas Natural Convection Test	SITP-02-EBS-002	Non-compliant - Identified in DR.
Field Thermal Conductivity Testing	Field Thermal Conductivity Testing	SITP-02-EBS-003	Non-compliant - Commitment to document pre-test prediction in calc. Calc not yet complete, but is currently being completed. The data was submitted to the TDMS (DTN: MO0201EBSRTCM.013).
Reactive Transport Column Experiments	Reactive Transport Column Experiments	SITP-02-EBS-004	N/A - Testing not yet started.
Atlas Breached Waste Package and Drip Shield Experiments	Atlas Breached Waste Package and Drip Shield Experiments	SITP-02-EBS-005	N/A - No pre-test prediction documentation commitment in the SITP.
Laboratory Thermal Conductivity Testing	Laboratory Thermal Conductivity Testing	SITP-02-EBS-006	N/A - No pre-test prediction documentation commitment in the SITP.
TSW Fracture and Lithophysal Studies	TSW Fracture and Lithophysal Studies	SITP-02-ISM-001	N/A - No pre-test prediction documentation commitment in the SITP.
Geologic Mapping of Southern Expansion and Jet Ridge	Geologic Mapping of Southern Expansion and Jet Ridge	SITP-02-ISM-002	N/A - No pre-test prediction documentation commitment in the SITP.
Natural Analogs	Natural Analogs	SITP-02-NA-001	N/A - This work is all non-Q.
Rock Modulus Field Testing	Rock Modulus Testing	SITP-02-SSD-001	Non-compliant - Committed to documentation in accordance with AP-SIII.9Q or AP-3.10Q and TDMS. Norm verified that TDMS submittal was completed.
Mechanical Properties Laboratory Investigations	Mechanical Properties Laboratory Investigations	SITP-02-SSD-002	N/A - No pre-test prediction documentation commitment in the SITP.
Ground Support Testing	Ground Support Testing	SITP-02-SSD-003	N/A - Testing not yet started.
Lithostratigraphic Studies in Cooperation with Nye County	Lithostratigraphic Studies in Cooperation with Nye County EWDP	SITP-02-SZ-001	N/A - Commitment to submit data to TDMS. Norm verified that this was complete.
Hydrologic/ Hydrochemistry Studies in Cooperation with Nye Co. EWDP	Hydrologic/Hydrochemistry Studies in Cooperation with Nye Co. EWDP	SITP-02-SZ-002	N/A - No pre-test prediction documentation commitment in the SITP.
Alluvial Testing Complex	Alluvial Testing Complex – Single-well, Multi-well, and Laboratory Studies	SITP-02-SZ-003	N/A - States that data is documented in DTN: GS011208312315.002. Norm verified this DTN.
ECRB Bulkhead Studies	Moisture Monitoring in the ECRB Bulkheaded Cross Drift	SITP-02-UZ-001	N/A - Pre-test predictions discussed in document. No further documentation necessary.

**Scientific Investigation Test Plans
BSC(B)-02-D-100 Extent of Condition**

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TEST	TEST PLAN	TEST PLAN IDENTIFIER	Pre-test predictions/Action necessary to determine extent & compliance
Niche 5	Niche 5 Seepage Testing	SITP-02-UZ-002	N/A - No pre-test prediction documentation commitment in the SITP.
Alcove 8/Niche 3	Alcove 8 Flow & Seepage Testing	SITP-02-UZ-003	N/A - States that data is documented in DTN: LB0112A8N3MDLG.001. Norm verified this DTN.
Systematic Hydrologic Characterization	Systematic Hydrologic Characterization	SITP-02-UZ-004	N/A - No pre-test prediction documentation commitment in the SITP.
36Cl Validation	36Cl Validation	SITP-02-UZ-005	N/A - No pre-test prediction documentation commitment in the SITP.
Busted Butte Transport Test	Busted Butte Transport Testing	SITP-02-UZ-006	N/A - SITP not complete, but testing has begun (D-068). Pre-test predictions have already been developed and are referenced in the SITP being developed.
UZ Hydrochemistry U-Series and Pore Water	UZ Hydrochemistry Investigations	SITP-02-UZ-007	Non-compliant - Commitment to submit data to TDMS. A TDIF has been completed and a DTN has been obtained, but the data has not yet been submitted. This is being done, and should be completed within the next month.
Fluid Inclusions and Thermal History of Yucca Mountain	Fluid Inclusion Studies	SITP-02-UZ-009	N/A - Pre-test predictions discussed in document. No further documentation necessary.
Moisture Monitoring/Alcove 7	Moisture Monitoring Investigations and Alcove 7 Studies	SITP-02-UZ-010	N/A - Pre-test predictions discussed in document. No further documentation necessary.
Laboratory Sorption Measurements – UZ and SZ	Laboratory Sorption Investigations – UZ and SZ	SITP-02-UZ-011	N/A - Testing not yet started.
Drift Scale Test	Drift Scale Test	SITP-02-UZ-012	N/A - Pre-test predictions discussed in document. No further documentation necessary.
Laboratory Block Experiments	Laboratory Flow/Coupled Process Block Experiments	SITP-02-UZ-013	N/A - Testing not yet started.
Cross Drift Thermal Test	Cross Drift Thermal Test	SITP-02-UZ-014	N/A - Testing not yet started.
Niche 4	Niche 4 Seepage Testing	SITP-02-UZ-015	N/A - States that data is documented in an AMR and DTN: LB0010SCMREV01.001. The information is in the AMR, but not in the TDMS. It appears that the data may have been sent to the TDMS in error, and was later removed, but the information remains in the AMR MDL-NBS-HS-000004 Rev01, <i>Seepage Calibration Model and Seepage Testing Data</i> .

**Scientific Investigation Test Plans
BSC(B)-02-D-100 Extent of Condition**

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TEST	TEST PLAN	TEST PLAN IDENTIFIER	Pre-test predictions/Action necessary to determine extent & compliance
Long Term Studies of the Degradation and Radionuclide Release from Commercial Spent Fuel and Fuel Rod Segments	Commercial Spent Fuel and Fuel Rod Segment Degradation and Radionuclide Release in Long Term Tests	SITP-02-WF-001	N/A - No pre-test prediction documentation commitment in the SITP.
Long Term Studies of the Degradation and Radionuclide Release from Defense High-Level Waste (DHLW) Glass	DHLW Degradation and Radionuclide Release in Long-Term Tests	SITP-02-WF-002	N/A - No pre-test prediction documentation commitment in the SITP.
Laboratory Tests to Study the Characteristics and Concentration of Waste Form Colloids	Waste Form Colloids Characterization and Concentration Studies	SITP-02-WF-003	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to identify and Characterize Solid Phases that Control the Dissolved Concentration of Radionuclides e.g. Np	Validation of Dissolved Radionuclide Concentration	SITP-02-WF-004	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to determine the oxidation response of CSNF to dry- and moist-air atmospheres	CSNF Oxidation Testing	SITP-02-WF-006	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to determine the CSNF reaction rate for LA	CSNF Flow-through Dissolution Testing	SITP-02-WF-007	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to quantify the generation of colloids from corroded CSNF	CSNF Colloid Release Testing	SITP-02-WF-008	N/A - SITP not complete. Testing not yet begun.
Tests to validate the dissolved concentration of radionuclides controlled by fully reacted spent fuel	PNNL Dissolved Concentration Validation Testing	SITP-02-WF-009	N/A - SITP not complete. Testing not yet begun.
Passive Film Characterization	Waste Package and Drip Shield Materials Testing	SITP-02-WP-001	N/A - Pre-test predictions were discussed in document, but says that some pre-test predictions would be applicable to new testing. This test plan is for on-going work - new new testing has begun since the test plan was written.
Waste Package Environment Investigations - Dust Geochemistry	Waste Package Environment Investigations - Dust Geochemistry	SITP-02-WP-008	N/A - States that data is documented in the RIS (MOL.20022004.0233 & .0234), but could not be found. Norm verified that this was submitted to the RIS, but just not imaged yet.

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DR COMPLETE RESPONSE QAR EVALUATION (BLOCK 11)

This DR response has been evaluated by the QAR with the following results:

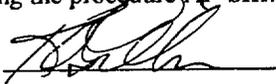
Block 4 Extent of condition is acceptable.

Block 6 Remedial Action is acceptable.

Block 5 Impact is not acceptable as written. Until the data reviews are complete (per Block 6 commitments) it cannot be determined that the calculations/analyses were in fact correct. The impact statement should read that based on the analyses and calcs that were performed, it is not believed that there is (will be) any impact. However, if the reviews that are to be completed as part of remedial actions identified in Block 6 disclose any problems with subject analyses then an amended response will be provided identifying any additional remedial actions.

Block 7 Lack of understanding of AP-SIII.7Q is partially correct. This lack of understanding is directly related to the lack of clarity and appropriate detail in the procedure. During and after interviews of cognizant personnel conducted during surveillance BSCQA-02-S-02 and based on reviews of AP-SIII.7Q, the BSC surveillance team determined that the procedure was not clear, contained contradictory information and was subject to diverse interpretation. Persons surveilled made distinctions between scoping calcs, predictive analyses and pre-test predictions. The procedure contains bulletized information without implementing detail. A second DR would have been generated to address the procedural inadequacies, but it was believed by the surveillance team that the one DR would result in revising the procedure to address these related issues.

Block 8 needs to address revising the procedure AP-SIII.7Q based on cause discussion above.

Evaluation by K.O. Gilkerson  05/28/2002

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- 2. Check if Amended
- Check if also Initial Response
- 3. Extended Processing
- No Yes (If yes, submit Extended Processing request)

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DEFICIENCY REPORT/CORRECTIVE ACTION REPORT COMPLETE RESPONSE

4. Extent of Condition: (Amended response will be required if all Extent of Condition investigations are not complete and documented herein)

All scientific investigation test plans identified on the project-wide list, maintained by the BSC Science and Engineering Testing Department (S&ET) Manager (or designee) as procedurally required, were reviewed for the extent of condition. This included a review of forty (40) test plans. Of those forty (40), four (4) were found to be non-compliant, with respect to the completion of pre-test prediction calculations/analyses, as committed to in the individual test plans. This includes SITP-02-EBS-002, which was identified in the deficiency report, as well as the following test plans: SITP-02-EBS-003, SITP-02-UZ-007, and SITP-02-SSD-001. See Attachment I.

5. Impact: (Provide an impact statement relative to waste isolation and safety, and impact to other work, if any)

Based on the analyses and calculations that were performed, it is not believed that there is (or will be) any impact. However, if the reviews that are to be completed as part of the remedial actions identified in Block 6 disclose any problems with subject analyses, then an amended response will be provided identifying any additional remedial actions.

6. Remedial Actions: (Document all actions necessary to address the results of the Extent of Condition)

See continuation page.

- 7. Root Cause (For a significant CAQ, attach results of formal root cause determination prepared in accordance with AP-16.4Q)
- Apparent Cause

Lack of understanding of AP-SIII.7Q.

Lack of clarity in procedure AP-SIII.7Q, subsection 5.2.

8. Action to Preclude Recurrence: (Address those actions necessary to prevent the identified cause from recurring)

See continuation page.

9. Due Date for Completion of Corrective Action:
6/28/02

10. Responsible Manager:

Doug Weaver Doug Weaver 6-4-02
Printed Name Signature Date

- 11. QAR Evaluation: Accept Partially Accept Reject

12. QAM Concurrence:

Kenneth O Gihkerson [Signature] 06/05/02
Printed Name Signature Date

Donald T. Krishna [Signature] 6/10/02
Printed Name Signature Date

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Continued from block 6 (Remedial Actions):

SITP-02-EBS-002 Results of the pre-test calculations were not documented in an AP-SIII.9Q document, as committed to by the test plan, but they were submitted to the TDMS, as allowed by AP-SIII.7Q. This deviation will be documented in the scientific notebook. The incorrect information in the TDMS will be corrected. Additionally, it will be confirmed that the data was technically reviewed. If not, a review will be performed and properly documented.

SITP-02-EBS-003 The test plan made a commitment to document the pre-test predictions in a calculation, which is not yet complete. However, it is currently being completed, and will be completed prior to the corrective action completion due date. The data was submitted to the TDMS (DTN: MO0201EBSRTCM.013).

SITP-02-UZ-007 The test plan made a commitment to submit the pre-test prediction data to TDMS. A TDIF has been completed and a DTN has been obtained, but the data has not yet been submitted. The data will be submitted by the corrective action completion due date. Additionally, it will also be verified that the data has undergone a technical review. If not, a review will be performed and properly documented.

SITP-02-SSD-001 The test plan committed to pre-test prediction documentation in accordance with AP-SIII.9Q or AP-3.10Q and TDMS. The TDMS submittal was completed, but the AP-SIII.9Q or AP-3.10 documentation was not completed and will not be completed. This deviation will be documented in the scientific notebook. It will be verified that the data submitted to the TDMS was technically reviewed. If not, a review will be performed and properly documented.

This deficiency report will be linked to the records packages of the affected test plans.

All action items identified above will be completed by the corrective action completion due date.

Continued from block 8 (Actions to Preclude Recurrence):

On 4/9/02, all managers and supervisors within S&ET were reminded via email that pre-test predictions, as required by AP-SIII.7Q and the individual test plan, are required to be completed and documented prior to beginning testing.

The two managers whose test plans were identified in the extent of condition will be reminded of the proper way to document pre-test predictions. This discussion will clarify the pre-test predictions procedural requirements, and will be documented and signed by all individuals involved in the discussion.

Procedure AP-SIII.7Q will undergo an ICN to reflect clarification in subsection 5.2.

All action items identified above will be completed by the corrective action completion due date.

**Scientific Investigation Test Plans
BSC(B)-02-D-100 Extent of Condition**

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TEST	TEST PLAN	TEST PLAN IDENTIFIER	Pre-test predictions/Action necessary to determine extent & compliance
Ash Redistribution Studies and Field Studies of Lava Morphology & Igneous Processes	Ash Redistribution Studies and Field Studies of Lava Morphology & Igneous Processes	SITP-02-DE-001	N/A - Testing not yet started.
Atlas Ventilation Test Phase 3	Atlas Ventilation Test - Phase 3	SITP-02-EBS-001	N/A - Testing not yet started.
Atlas Natural Convection Test	Atlas Natural Convection Test	SITP-02-EBS-002	Non-compliant - Identified in DR.
Field Thermal Conductivity Testing	Field Thermal Conductivity Testing	SITP-02-EBS-003	Non-compliant - Commitment to document pre-test prediction in calc. Calc not yet complete, but is currently being completed. The data was submitted to the TDMS (DTN: MO0201EBSRTCM.013).
Reactive Transport Column Experiments	Reactive Transport Column Experiments	SITP-02-EBS-004	N/A - Testing not yet started.
Atlas Breached Waste Package and Drip Shield Experiments	Atlas Breached Waste Package and Drip Shield Experiments	SITP-02-EBS-005	N/A - No pre-test prediction documentation commitment in the SITP.
Laboratory Thermal Conductivity Testing	Laboratory Thermal Conductivity Testing	SITP-02-EBS-006	N/A - No pre-test prediction documentation commitment in the SITP.
TSW Fracture and Lithophysal Studies	TSW Fracture and Lithophysal Studies	SITP-02-ISM-001	N/A - No pre-test prediction documentation commitment in the SITP.
Geologic Mapping of Southern Expansion and Jet Ridge	Geologic Mapping of Southern Expansion and Jet Ridge	SITP-02-ISM-002	N/A - No pre-test prediction documentation commitment in the SITP.
Natural Analogs	Natural Analogs	SITP-02-NA-001	N/A - This work is all non-Q.
Rock Modulus Field Testing	Rock Modulus Testing	SITP-02-SSD-001	Non-compliant - Committed to documentation in accordance with AP-SIII.9Q or AP-3.10Q and TDMS. Norm verified that TDMS submittal was completed.
Mechanical Properties Laboratory Investigations	Mechanical Properties Laboratory Investigations	SITP-02-SSD-002	N/A - No pre-test prediction documentation commitment in the SITP.
Ground Support Testing	Ground Support Testing	SITP-02-SSD-003	N/A - Testing not yet started.
Lithostratigraphic Studies in Cooperation with Nye County	Lithostratigraphic Studies in Cooperation with Nye County EWDP	SITP-02-SZ-001	N/A - Commitment to submit data to TDMS. Norm verified that this was complete.
Hydrologic/ Hydrochemistry Studies in Cooperation with Nye Co. EWDP	Hydrologic/Hydrochemistry Studies in Cooperation with Nye Co. EWDP	SITP-02-SZ-002	N/A - No pre-test prediction documentation commitment in the SITP.
Alluvial Testing Complex	Alluvial Testing Complex - Single-well, Multi-well, and Laboratory Studies	SITP-02-SZ-003	N/A - States that data is documented in DTN: GS011208312315.002. Norm verified this DTN.
ECRB Bulkhead Studies	Moisture Monitoring in the ECRB Bulkheaded Cross Drift	SITP-02-UZ-001	N/A - Pre-test predictions discussed in document. No further documentation necessary.

**Scientific Investigation Test Plans
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TEST	TEST PLAN	TEST PLAN IDENTIFIER	Pre-test predictions/Action necessary to determine extent & compliance
Niche 5	Niche 5 Seepage Testing	SITP-02-UZ-002	N/A - No pre-test prediction documentation commitment in the SITP.
Alcove 8/Niche 3	Alcove 8 Flow & Seepage Testing	SITP-02-UZ-003	N/A - States that data is documented in DTN: LB0112A8N3MDLG.001. Norm verified this DTN.
Systematic Hydrologic Characterization	Systematic Hydrologic Characterization	SITP-02-UZ-004	N/A - No pre-test prediction documentation commitment in the SITP.
36Cl Validation	36Cl Validation	SITP-02-UZ-005	N/A - No pre-test prediction documentation commitment in the SITP.
Busted Butte Transport Test	Busted Butte Transport Testing	SITP-02-UZ-006	N/A - SITP not complete, but testing has begun (D-068). Pre-test predictions have already been developed and are referenced in the SITP being developed.
UZ Hydrochemistry U-Series and Pore Water	UZ Hydrochemistry Investigations	SITP-02-UZ-007	Non-compliant - Commitment to submit data to TDMS. A TDIF has been completed and a DTN has been obtained, but the data has not yet been submitted. This is being done, and should be completed within the next month.
Fluid Inclusions and Thermal History of Yucca Mountain	Fluid Inclusion Studies	SITP-02-UZ-009	N/A - Pre-test predictions discussed in document. No further documentation necessary.
Moisture Monitoring/Alcove 7	Moisture Monitoring Investigations and Alcove 7 Studies	SITP-02-UZ-010	N/A - Pre-test predictions discussed in document. No further documentation necessary.
Laboratory Sorption Measurements – UZ and SZ	Laboratory Sorption Investigations – UZ and SZ	SITP-02-UZ-011	N/A - Testing not yet started.
Drift Scale Test	Drift Scale Test	SITP-02-UZ-012	N/A - Pre-test predictions discussed in document. No further documentation necessary.
Laboratory Block Experiments	Laboratory Flow/Coupled Process Block Experiments	SITP-02-UZ-013	N/A - Testing not yet started.
Cross Drift Thermal Test	Cross Drift Thermal Test	SITP-02-UZ-014	N/A - Testing not yet started.
Niche 4	Niche 4 Seepage Testing	SITP-02-UZ-015	N/A - States that data is documented in an AMR and DTN: LB0010SCMREV01.001. The information is in the AMR, but not in the TDMS. It appears that the data may have been sent to the TDMS in error, and was later removed, but the information remains in the AMR MDL-NBS-HS-000004 Rev01, <i>Seepage Calibration Model and Seepage Testing Data</i> .

**Scientific Investigation Test Plans
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TEST	TEST PLAN	TEST PLAN IDENTIFIER	Pre-test predictions/Action necessary to determine extent & compliance
Long Term Studies of the Degradation and Radionuclide Release from Commercial Spent Fuel and Fuel Rod Segments	Commercial Spent Fuel and Fuel Rod Segment Degradation and Radionuclide Release in Long Term Tests	SITP-02-WF-001	N/A - No pre-test prediction documentation commitment in the SITP.
Long Term Studies of the Degradation and Radionuclide Release from Defense High-Level Waste (DHLW) Glass	DHLW Degradation and Radionuclide Release in Long-Term Tests	SITP-02-WF-002	N/A - No pre-test prediction documentation commitment in the SITP.
Laboratory Tests to Study the Characteristics and Concentration of Waste Form Colloids	Waste Form Colloids Characterization and Concentration Studies	SITP-02-WF-003	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to identify and Characterize Solid Phases that Control the Dissolved Concentration of Radionuclides e.g. Np	Validation of Dissolved Radionuclide Concentration	SITP-02-WF-004	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to determine the oxidation response of CSNF to dry- and moist-air atmospheres	CSNF Oxidation Testing	SITP-02-WF-006	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to determine the CSNF reaction rate for LA	CSNF Flow-through Dissolution Testing	SITP-02-WF-007	N/A - No pre-test prediction documentation commitment in the SITP.
Tests to quantify the generation of colloids from corroded CSNF	CSNF Colloid Release Testing	SITP-02-WF-008	N/A - SITP not complete. Testing not yet begun.
Tests to validate the dissolved concentration of radionuclides controlled by fully reacted spent fuel	PNNL Dissolved Concentration Validation Testing	SITP-02-WF-009	N/A - SITP not complete. Testing not yet begun.
Passive Film Characterization	Waste Package and Drip Shield Materials Testing	SITP-02-WP-001	N/A - Pre-test predictions were discussed in document, but says that some pre-test predictions would be applicable to new testing. This test plan is for on-going work - new testing has begun since the test plan was written.
Waste Package Environment Investigations - Dust Geochemistry	Waste Package Environment Investigations - Dust Geochemistry	SITP-02-WP-008	N/A - States that data is documented in the RIS (MOL.20022004.0233 & .0234), but could not be found. Norm verified that this was submitted to the RIS, but just not imaged yet.

**OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.**

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CONDITION ADVERSE TO QUALITY CONTINUATION PAGE

Block 14: Corrective Actions Verified for Closure:

VERIFICATION OF REMEDIAL ACTIONS:

RE: SITP-020EBS-002

The response indicated that the deviation for documenting pre-test calcs per AP-SIII.3Q in lieu of AP-S.III.9 Q would be documented in the Scientific Notebook (SN). A review of SN-SNL-SCI-025-VI p.241 disclosed that Alex Sanchez made entry referencing the 2 DTNs with scoping data and addressing the deviation from the Test Plan. Additionally, the data submitted to the TDMS was technically reviewed per AP-2.14Q by Verun Chipman on 6/17/02 and Nick Francis on 6/11/02. The two AP-2.14Q review records reflecting these reviews (DTNs: SN0112T0812301.002 and SN0112T0812301.001) were examined by the QAR. A further review of the TDMS disclosed that previous erroneous information for the 2 DTNs had been corrected.

RE: SITP-02-EBS-003

The response required the pre-test prediction for field thermal conductivity testing to be completed by 06/28/2002. Reviews for CAL-EBS-MD-000028 R-0 were completed on 06/28/02. The QAR reviewed draft rev 0G. All comments were incorporated and document was approved by the manager of Engineered Systems on 6/28/2002. The completed approval cover sheet was examined during this verification.

RE: SITP-02-UZ-007

A review of TDIF and AP-2.14Q Review Record for DTN: GS020408312272.003 was performed. This data was technically reviewed by Robert Melvin on 4/9/02.

RE: SITP-02-SSD-001

The response indicated that the deviation for documenting pre-test calcs per AP-SIII.3Q in lieu of AP-S.III.9 Q would be documented in the Scientific Notebook (SN). A review of SN-SNL-SCI-027-VI (Rock Modulus Testing) disclosed that the SN had been amended by Cliff Howard (for Tim George) on 4/30/02 to reflect that pre-test data DTN: SN0112T00812501.001 had been submitted to TDMS per AP-SIII.3Q and addressing the deviation from the Test Plan. A review of the AP-2.14Q review record for this data disclosed that it was technically reviewed by Richard Jensen for Steve Sbolik on 12/19/01 (prior to the test).

Linking of DR to records packages was verified by review of 4 record transmittals (1 for each SITP) linking DR BSC(B)-02-D-100 to each SITP submitted on 06/28/02 by Diedre Maestas.

VERIFICATION OF ACTIONS TO PRECLUDE RECURRENCE:

- 1) Reviewed e-mail dated 4/9/02 to all S&ET Managers relative to completing pre-test predictions prior to tests. Note: S&ET was reorganized and integrated into other line organizations since this DR was issued. A review of the org chart in place at time was reviewed against the distribution of this e-mail to ensure that appropriate Testing personnel received this information.
- 2) Reviewed documentation dated 06/27/02 issued to test managers (identified as in noncompliance in extent of condition) reinforcing procedural requirements relative to pre-test procedural requirements. This discussion was signed by appropriate individuals. Subject documentation reviewed by QAR. See MOL.20020628.0157 for documentation
- 3) QAR participated in the review of ICN 1 to AP-SIII.7Q R-0. The ICN addressed clarifying pre-test predictions and scoping calculations. A review of the Lotus Notes Database disclosed that the ICN was approved on 06/27 and effective on 6/28/2002.

Verifications performed by K.O. Gilkerson, BSC QA

 7/3/02

Kenneth O. Gilkerson Date Signed