



Department of Energy

Washington, DC 20585

QA: QA

FEB 15 2002

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Berkeley, CA 94720

VERIFICATION OF CORRECTIVE ACTIONS AND CLOSURE OF DEFICIENCY REPORT (DR) BSC-02-D-008

The Office of Quality Assurance staff has evaluated the corrective actions of DR BSC-02-D-008 and determined the results to be satisfactory. As a result, the DR is considered closed.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Christian M. Palay at (702) 794-1486.

James Blaylock for
Ram Murthy, Acting Director
Office of Quality Assurance

OQA:JB-0669

Enclosure:
DR BSC-02-D-008



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NMS07*

FEB 15 2002

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WASHINGTON, D.C.

DEFICIENCY REPORT
☐ CORRECTIVE ACTION REPORT
NO. BSC-02-D-008
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DEFICIENCY/CORRECTIVE ACTION REPORT

1. Controlling Document: AP-2.21Q, Revision 0; AP-2.21Q Revision 1, BSCN 1		2. Related Report No.: CIRS Item # 1982	
3. Responsible Organization: Science & Analyses		4. Discussed With: Jim Blink, Hank Greene, Bill Watson, Cindy Humphries-Alder, Dave Dobson	
5. Requirement: 1) AP-2.21Q, R-1, BSCN1 Section 5.6 a) states: "For existing Work Packages being modified (e.g., by a Change Request, Baseline Change Proposal, etc.) with work scope changes, determine if the current TWP is consistent with the work package." 2) AP-2.21Q, R-1, BSCN1 Section 5.6 b) states: "When a revision to the TWP is necessary, develop the revised TWP in accordance with Subsections 5.2 through 5.5 and 5.8." 3) AP-2.21Q, R-1, BSCN1 Section 5.5.2.e states: "Conduct a review of the TWP including any addenda (i.e., Activity Evaluation, etc.). Review of the TWP may be accomplished via hard copy or electronically, at the discretion of the TWP Manager or Designee. Comments and resolution may be accomplished via electronic mail or by using a Review Record and Comment Sheet, such as the forms in AP-5.1Q, Plan and Procedure Preparation, Review, and Approval. Reviews conducted via electronic mail require a signed hard copy." Section 6.0 requires these reviews to be submitted to records. (NOTE: AP-2.21Q R-0 required that a AP-6.28Q review be performed.) 4) AP-2.21Q, R-1, BSCN1 Section 5.8a) states: "Upon completion of the TWP, TWP Manager or Designee: a) Forward the TWP to Document Control for issuance in accordance with AP-6.1Q."			
6. Description of Condition: TWP-NBS-TH-000001, R-0, ICN 1, "Technical Work Plan for Nearfield Environment Thermal Analyses and Testing" was not prepared and processed in accordance the requirements of AP-2.21Q. 1) Subject TWP was modified to add a scope of work not authorized (funded) by Work Package #4301213NML. This WP only lists 6 approved activities. The addition of the 7 th activity to prepare and complete the Large Block Final Report (TDR-NBS-HS-000012) is not part of subject work package and thus an improper modification to subject TWP. This report was however prepared in FY 01 with LLNL funding (not YMP). NOTE: There is no FY 02 funding for this product either. 2) The modification to subject TWP was accomplished by an "ICN". The AP-2.21Q process for revising TWP's does not allow for revising with "ICNs". 3) An extensive review of the RISWEB does not disclose any objective evidence that subject TWP (nor Revision 0 of subject TWP) were reviewed in accordance with AP-2.21Q. No comment sheets or associated resolution of comments could be located in any record package associated with TWP-NBS-TH-000001 Revision 0 or Revision 0, ICN 1. 4) TWP-NBS-TH-000001, R-0, ICN 1 was approved on 2/12/01. The document was never submitted to Document Control as required.			
7. Initiator: Michelle Prater/K. O. Gilkerson Date 10/19/01 <i>M. Prater K. O. Gilkerson</i>		9. Does a stop work condition exist? (Not required for a DR) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Check One: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	
10. Recommended Actions: None.			
11. QA Review: Christian Palay QAR <i>Chris Palay</i> Date 10/19/01		12. Response Due Date: 10 Working Days From Issuance	
13. DOQA Issuance Approval: Printed Name Robert D. Davis Signature <i>James Blaylock Jr</i> Date 10/25/01			
22. Corrective Actions Verified: QAR <i>Chris Palay</i> Date 02/13/02		23. Closure Approved by: DOQA <i>James Blaylock Jr</i> Date 2/15/02	

Exhibit AP-16.1Q.1

Rev. 12/20/1999

ENCLOSURE

1 of 10

TYPE RESPONSE:

- ☒ Initial
☐ Complete
☐ Amended

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DEFICIENCY/CORRECTIVE ACTION REPORT (RESPONSE)

14a. Immediate Actions:

Not Applicable: none necessary

Compliance Date:

14. Remedial Actions:

Condition 1: ICN 01 will be cancelled effective immediately. No work was done to the ICN, because the work was not planned or funded for FY 01 or FY 02.

Condition 2: ICN 01 will be cancelled effective immediately, so the out of compliance condition will no longer exist.

Condition 3: The review records for TWP - NBS - TH - 000001 have been compiled and will be submitted to the records center as soon as the records are checked for completeness. They will be submitted by no later than November 30.

Condition 4: ICN 01 will be cancelled effective immediately. Document control will be notified.

15. Extent of Condition:

Preliminary evaluation indicates that the out of compliance conditions identified on the DR are isolated. No other examples of TWPs with similar deficiencies have been identified.

A more comprehensive evaluation of the extent of condition will be performed and documented on the Completed Response by the date in Block 18.

There is no impact on any product or deliverables as a result of the cited conditions.

16. Cause: (Attach results of root cause determination prepared in accordance with AP-16.4Q for a significant deficiency.)

The cause appears to be related to confusion about the approved scope of work for FY 01 in the Near Field Dept., and to a lack of management oversight caused by the management transition at the time of the contract transition. A complete description of the cause will be provided upon completion of the Extent of Condition investigation.

17. Action to Preclude Recurrence: All TWPs will be reviewed and approved by appropriate responsible managers. Any additional actions necessary will be based on the Cause, Block 16, identified on the Completed Response to be determined from the results of Extent of Condition investigation, Block 15.

18. Due Date: December 15, 2001

- ☒ For submittal of complete response
☐ For completion of corrective action

19. Response by: David Dobson

David Dobson *Put* *NAW*
Date November 7, 2001 *dB* Phone 295-2679

20. Evaluation: ☒ Accept ☐ Partially Accept ☐ Reject

QAR

Chris Foley

Date 11/20/01

21. Concurrence:

DOQA

James Bleyford

Date 11/21/01

Exhibit AP-16.1Q.1

Rev. 12/20/1999

TYPE RESPONSE:

- ☐ Initial
☒ Complete
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DEFICIENCY/CORRECTIVE ACTION REPORT (RESPONSE)

14a. Immediate Actions:

Not Applicable: none necessary

Compliance Date: December 21, 2001

14. Remedial Actions:

Condition 1: After review and consultation with Document Control, it was determined that no action was necessary. Because the ICN was never issued or used, there is no need to cancel it. Because the original TWP described work performed in FY 01, and because the Near Field Department has been merged into the Unsaturated Zone Department, TWP-NBS-TH-000001 is no longer being used by any organization, and does not control any ongoing work.

Condition 2: See Condition 1 above: since the ICN 01 was never issued by document control, or used by any investigators, there is no need to cancel it. An "Extent of Condition" review summarized below indicates that ICNs have not been used to modify any other TWPs, so no other documents have been identified that need to be modified. All department managers have been reminded (at staff meetings) by the Science and Analysis (Performance Assessment) Manager that the procedure (AP 2.21Q) does not allow the use of ICNs for TWPs. No out of compliance condition currently exists.

Condition 3: The review records for TWP - NBS - TH - 000001 have been compiled and submitted to Document Control as required by AP 2.21Q and AP 6.1Q (Controlled Distribution). The completed records package was submitted on December 19, 2001.

Condition 4: See Condition 1 above: because the ICN was not issued or used, and because it described work not performed, Document Control has advised that there is no need to cancel it. A note will be added to the record copy of the ICN that the TWP was prepared but never implemented.

15. Extent of Condition:

In consultation with BSC QE (Steve Dana) and the QAR, investigators identified a group of 7 other TWPs prepared during approximately the same period of time, to be reviewed to determine whether the conditions identified in the DR existed in other planning documents (this set of TWPs includes similar planning documents used throughout the Science and Analysis department during this time period). The results of the review are summarized below.

See Continuation Page

16. Cause: (Attach results of root cause determination prepared in accordance with AP-16.4Q for a significant deficiency.)

Three causes have been identified for the conditions causing BSC-02-D-008.

See Continuation page

17. Action to Preclude Recurrence:

Causes 1 and 2: All current approved TWPs have been reviewed and approved by appropriate responsible managers to ensure that the work scope is consistent with BSC direction.

Cause 3: Managers will continue to ensure that all staff preparing or approving TWPs are trained in appropriate procedures. In addition, the requirements regarding changes to TWPs (revision, not ICNs) has been discussed and emphasized by program management at staff and management meetings.

18. Due Date: December 21, 2001

- ☐ For submittal of complete response
☒ For completion of corrective action

19. Response by: David Dobson

David Dobson
 Date December 20, 2001

Phone 295-2679

20. Evaluation: ☐ Accept ☒ Partially Accept ☒ Reject

QAR *Chris Palay* Date 01/09/02

21. Concurrence:

DOQA *James Blaylock* Date 1/11/02

Exhibit AP-16.1Q.1

Rev. 12/20/1999

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8. ☒ DR/CAR
☐ Stop Work Order

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DEFICIENCY/CORRECTIVE ACTION REPORT/STOP WORK ORDER CONTINUATION PAGE

Block 15, Extent of Condition

The following criteria were identified to select additional TWP's for similar conditions identified in Block 6 of this DR:

1. Procedure AP-2.21Q, Revision 0, effective date 8/1/2000, was selected as the starting point for selection of TWP's.
2. Only science related TWP's were selected, excluding testing TWP's.
3. TWP's were selected up to 5/2001.

TWP's were reviewed to Conditions 2, 3, and 4 identified in Block 6, specific review criteria:

1. TWP, if modified, was not accomplished with an ICN
2. TWP was reviewed in accordance with AP-2.21Q
3. TWP was submitted to Document Control in accordance with AP-6.1Q.
4. In addition, all TWP authors were checked for training to AP-2.21Q.

Note: Condition 1 was reviewed only if a TWP was identified without a review (review criteria 2).

The selected documents included:

TWP-MGR-MD-000009: TECHNICAL WORK PLAN BIOSPHERE MODELING AND EXPERT SUPPORT, Revision 0, effective date 10/19/2000

TWP-NBS-GS-000003: TECHNICAL WORK PLAN FOR THE INTEGRATED SITE MODEL PROCESS MODEL REPORT, Revision 0, effective date 10/19/2000

TWP-WIS-MD-000004: TECHNICAL WORK PLAN FOR: DISRUPTIVE EVENTS SUPPORT TO SITE RECOMMENDATION, Revision 0, effective date 10/01/2000

TWP-WIS-MD-000004: TECHNICAL WORK PLAN FOR: DISRUPTIVE EVENTS SUPPORT TO SITE RECOMMENDATION, Revision 1, effective date 11/8/2000

TWP-MGR-MD-000013: TECHNICAL WORK PLAN FOR SUBSURFACE PROCESS MODELING FY 01 WORK ACTIVITIES, effective date 11/13/2000

TWP-MGR-MD-000014: TECHNICAL WORK PLAN FOR FY01 SUPPLEMENTAL SCIENCE AND PERFORMANCE ANALYSES: VOLUME 1-SCIENTIFIC BASES AND ANALYSES; VOLUME 2, PERFORMANCE ANALYSES, Revision 0, effective date 3/23/2001

TWP-MGR-MD-000014: TECHNICAL WORK PLAN FOR FY01 SUPPLEMENTAL SCIENCE AND PERFORMANCE ANALYSES: VOLUME 1-SCIENTIFIC BASES AND ANALYSES; VOLUME 2, PERFORMANCE ANALYSES, Revision 1, effective date 5/31/2001

The records packages for each of the TWP's were reviewed to determine whether any of the 4 conditions identified in Block 6 existed for any other TWP's. In addition, at the recommendation of the GAO and BSC QE, and because it appeared that the DR-008 resulted in part, from a lack of familiarity with the requirements of AP 2.21Q, the training records of the staff who approved the TWP were reviewed.

The findings of the review were as follows:

- 1) There were no other ICNs issued for these TWP's
- 2) There is evidence all TWP's were reviewed as required by procedure
- 3) All TWP's are in document control as required by procedure
- 4) AP-2.21Q training (LPTEC01003) was conducted for staff approving each TWP

The records package for one other TWP (TWP-MGR-MD-000009: TECHNICAL WORK PLAN BIOSPHERE MODELING AND EXPERT SUPPORT, Revision 0, effective date 10/19/2000) was found to be incomplete with respect to records of the review of the TWP. However, the review records were located and have been compiled and will be submitted so that the records package is complete and in full compliance with the AP 2.21Q.

In summary, the conditions that caused BSC-02-D-008 appear to be isolated, and have been resolved as a result of the actions taken in response to the DR. No out of compliance conditions regarding approved TWP's are known to exist.

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8. ☒ DR/CAR
☐ Stop Work Order

NO. BSC-02-D-008

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DEFICIENCY/CORRECTIVE ACTION REPORT/STOP WORK ORDER CONTINUATION PAGE

Block 16, Cause

The identified causes include:

- 1) There was confusion about the approved scope of work for FY 01 in the Near Field Dept. If the scope had been clearly understood by the staff who initiated the ICN to TWP – NBS – TH – 000001, the ICN would not have been prepared or approved. This cause was corrected through the planning and management process, which did result in the appropriate work scope being performed in accordance with the original TWP.
- 2) Lack of oversight caused by the management transition at the time of the contract transition. The failure to resolve the confusion regarding work scope above was caused in part by the transition from the TRW M&O team to BSC. New managers after the transition were initially unaware of the existence of the ICN and therefore did not resolve the issue.
- 3) Staff and managers that prepared the ICN were apparently unfamiliar with the requirements of AP2.21Q regarding changes to TWPs that specify that changes must be accomplished by Revision, not ICN.

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8. ☒ DR/CAR
☐ Stop Work Order

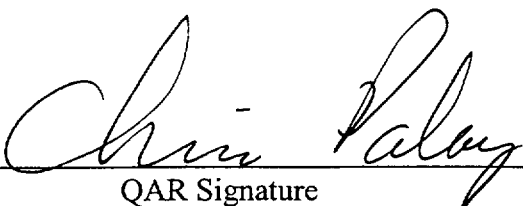
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Evaluation of Complete Response to Deficiency Report BSC-02-D-008

The complete response requires a revision to the extent of condition to acknowledge the Technical Work Plan (TWP) for the Unsaturated Zone (UZ) Flow and Transport Process Model Report, TWP-NBS-HS-000001. This TWP was revised via an Interim Change Notice (ICN) twice. The first ICN was effective on 11/29/00 and the second ICN was effective on 12/12/00. The second ICN was incorporated into revision 1 on 3/26/01, therefore the current remedial actions should include a requirement to link that TWP to this DR.


QAR Signature

01/10/02
Date

TYPE RESPONSE:

☐ Initial
☒ Complete
☒ Amended

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DEFICIENCY/CORRECTIVE ACTION REPORT (RESPONSE)

14a. Immediate Actions:

Not Applicable: none necessary

Compliance Date: December 21, 2001

14. Remedial Actions:

Condition 1: After review and consultation with Document Control, it was determined that no action was necessary. Because the ICN was never issued or used, there is no need to cancel it. Because the original TWP described work performed in FY 01, and because the Near Field Department has been merged into the Unsaturated Zone Department, TWP-NBS-TH-000001 is no longer being used by any organization, and does not control any ongoing work.

Condition 2: See Condition 1 above: since the ICN 01 was never issued by document control, or used by any investigators, there is no need to cancel it. An "Extent of Condition" review summarized below indicates that ICNs have not been used to modify any other TWPs except for TWP-NBS-HS-000001 (which had already been corrected). No other documents have been identified that need to be modified. All department managers have been reminded (at staff meetings) by the Science and Analysis (Performance Assessment) Manager that the procedure (AP 2.21Q) does not allow the use of ICNs for TWPs. No out of compliance condition currently exists. This DR will be electronically linked to the records package for TWP-NBS-HS-000001.

Condition 3: The review records for TWP - NBS - TH - 000001 have been compiled and submitted to Document Control as required by AP 2.21Q and AP 6.1Q (Controlled Distribution). The completed records package was submitted on December 19, 2001.

Condition 4: See Condition 1 above: because the ICN was not issued or used, and because it described work not performed, Document Control has advised that there is no need to cancel it. A note will be added to the record copy of the ICN that the TWP was prepared but never implemented.

15. Extent of Condition:

In consultation with BSC QE (Steve Dana), investigators identified a group of 7 other TWPs prepared during approximately the same period of time, to be reviewed to determine whether the conditions identified in the DR existed in other planning documents (this set of TWPs includes similar planning documents used throughout the Science and Analysis department during this time period). The results of the review are summarized below.

See Continuation Page

16. Cause: (Attach results of root cause determination prepared in accordance with AP-16.4Q for a significant deficiency.)

Three causes have been identified for the conditions causing BSC-02-D-008.

See Continuation page

17. Action to Preclude Recurrence:

Causes 1 and 2: All current approved TWPs have been reviewed and approved by appropriate responsible managers to ensure that the work scope is consistent with BSC direction.

Cause 3: Managers will continue to ensure that all staff preparing or approving TWPs are trained in appropriate procedures. In addition, the requirements regarding changes to TWPs (revision, not ICNs) has been discussed and emphasized by program management at staff and management meetings.

18. Due Date: December 21, 2001

☐ For submittal of complete response
☒ For completion of corrective action

19. Response by: David Dobson

Date January 29, 2002

Phone 295-2679

20. Evaluation: ☒ Accept ☐ Partially Accept ☐ Reject

QAR

Date 01/29/02

21. Concurrence:

DOQA

James Blaylock

Date

2/1/02

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Block 15, Extent of Condition

The following criteria were identified to select additional TWP's for similar conditions identified in Block 6 of this DR:

1. Procedure AP-2.21Q, Revision 0, effective date 8/1/2000, was selected as the starting point for selection of TWP's.
2. Only science related TWP's were selected, excluding testing TWP's.
3. TWP's were selected up to 5/2001.

TWP's were reviewed to Conditions 2, 3, and 4 identified in Block 6, specific review criteria:

1. TWP, if modified, was not accomplished with an ICN
2. TWP was reviewed in accordance with AP-2.21Q
3. TWP was submitted to Document Control in accordance with AP-6.1Q.
4. In addition, all TWP authors were checked for training to AP-2.21Q.

Note: Condition 1 was reviewed only if a TWP was identified without a review (review criteria 2).

The selected documents included:

TWP-MGR-MD-000009: TECHNICAL WORK PLAN BIOSPHERE MODELING AND EXPERT SUPPORT, Revision 0, effective date 10/19/2000

TWP-NBS-GS-000003: TECHNICAL WORK PLAN FOR THE INTEGRATED SITE MODEL PROCESS MODEL REPORT, Revision 0, effective date 10/19/2000

TWP-WIS-MD-000004: TECHNICAL WORK PLAN FOR: DISRUPTIVE EVENTS SUPPORT TO SITE RECOMMENDATION, Revision 0, effective date 10/01/2000

TWP-WIS-MD-000004: TECHNICAL WORK PLAN FOR: DISRUPTIVE EVENTS SUPPORT TO SITE RECOMMENDATION, Revision 1, effective date 11/8/200

TWP-MGR-MD-000013: TECHNICAL WORK PLAN FOR SUBSURFACE PROCESS MODELING FY 01 WORK ACTIVITIES, effective date 11/13/2000

TWP-MGR-MD-000014: TECHNICAL WORK PLAN FOR FY01 SUPPLEMENTAL SCIENCE AND PERFORMANCE ANALYSES: VOLUME 1-SCIENTIFIC BASES AND ANALYSES, VOLUME 2, PERFORMANCE ANALYSES, Revision 0, effective date 3/23/2001

TWP-MGR-MD-000014: TECHNICAL WORK PLAN FOR FY01 SUPPLEMENTAL SCIENCE AND PERFORMANCE ANALYSES: VOLUME 1-SCIENTIFIC BASES AND ANALYSES, VOLUME 2, PERFORMANCE ANALYSES, Revision 1, effective date 5/31/2001

The records packages for each of the TWP's were reviewed to determine whether any of the 4 conditions identified in Block 6 existed for any other TWP's. In addition, at the recommendation of the BSC QE, and because it appeared that the DR-008 resulted in part, from a lack of familiarity with the requirements of AP 2.21Q, the training records of the staff who approved the TWP were reviewed.

The findings of the review were as follows:

- 1) There were no other ICNs issued for these TWP's
- 2) There is evidence all TWP's were reviewed as required by procedure
- 3) All TWP's are in document control as required by procedure
- 4) AP-2.21Q training (LPTEC01003) was conducted for staff approving each TWP

The records package for one other TWP (TWP-MGR-MD-000009: TECHNICAL WORK PLAN BIOSPHERE MODELING AND EXPERT SUPPORT, Revision 0, effective date 10/19/2000) was found to be incomplete with respect to records of the review of the TWP. However, the review records were located and have been compiled and will be submitted so that the records package is complete and in full compliance with the AP 2.21Q.

Continued

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Block 15, Extent of Condition continued:

Additionally, conditions related to another TWP should be noted in this extent of condition evaluation. TWP-NBS-HS-000001 was not initially listed in the extent of condition for subject DR. Although this TWP had two ICNs to Revision 0 processed in November and December 2000, this condition was corrected when brought to the attention of the responsible organization. The TWP was revised to Revision 1 in accordance with the AP-2.21Q. No outstanding conditions exist for this TWP. Subsequently this TWP was superceded by TWP-NBS-HS-000003. This DR will be electronically linked to the records package(s) for the TWP-NBS-HS-000001 ICNs (MOL.20001220.0019 and MOL.20010115.0311) when this DR's records package is submitted.

In summary, the conditions that caused BSC-02-D-008 appear to be isolated, and have been resolved as a result of the actions taken in response to the DR. No out of compliance conditions regarding approved TWPs are known to exist.

Block 16, Cause

The identified causes include:

- 1) There was confusion about the approved scope of work for FY 01 in the Near Field Dept. If the scope had been clearly understood by the staff who initiated the ICN to TWP – NBS – TH – 000001, the ICN would not have been prepared or approved. This cause was corrected through the planning and management process, which did result in the appropriate work scope being performed in accordance with the original TWP.
- 2) Lack of oversight caused by the management transition at the time of the contract transition. The failure to resolve the confusion regarding work scope above was caused in part by the transition from the TRW M&O team to BSC. New managers after the transition were initially unaware of the existence of the ICN and therefore did not resolve the issue.
- 3) Staff and managers that prepared the ICN were apparently unfamiliar with the requirements of AP2.21Q regarding changes to TWPs that specify that changes must be accomplished by Revision, not ICN.

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Verification of Corrective Actions for Deficiency Report (DR) BSC-02-D-008

The amended complete response outlined corrective actions requiring QAR verification in the following blocks:

14. Remedial Actions

Condition 3: BSC Science and Analysis Project Staff committed to compile and submit the complete record package for the reviews of the Near Field Environment Department's Technical Work Plan (TWP-NBS-TH-000001) Revision 0. This action was verified through the review of the in-process records package received by the Records Processing Center on 01/10/02.

Condition 4: BSC Science and Analysis Project Staff committed to add a note to the record copy of the non-issued and unused Interim Change Notice (ICN) to TWP-NBS-TH-000001. This action was verified via the in-process record containing the note, which will supplement the ICN 1 records package.

17. Actions To Preclude Recurrence

For causes 1 and 2 (see block 16), the BSC Science Analysis Project committed to have the current approved Technical Work Plans (TWP) reviewed by their TWP managers to ensure that the work scope is consistent with BSC direction (i.e., the YMP approved scope of work). This review was verified as being completed by the new Unsaturated Zone Near Field Environment (UZ/NFE) Department manager through an e-mail message that he had reviewed the UZ/NFE TWP for consistency with BSC direction.

For cause 3, the BSC Science Analysis Project committed to ensure that all staff that either prepares or approves TWPs is trained appropriately. This action was verified by reviewing the training records and the training requirement matrix for TWP managers (i.e., the staff that approves a TWP). The TWP managers either have taken or are required to take the classroom training on AP-2.21Q, *Quality Determinations and Planning*.

Based on the above evaluation, the QAR recommends closure of DR BSC-02-D-008.


QAR Signature

02/13/02
Date