



## Department of Energy

Nevada Operations Office  
P. O. Box 98518  
Las Vegas, NV 89193-8518

JUN 07 1989

WBS 1.2.9.3  
QA

Joseph C. Calovini  
Technical Project Officer  
for Yucca Mountain Project  
Holmes & Narver, Inc.  
101 Convention Center Drive  
Suite 860  
Las Vegas, NV 89109

CLOSURE OF STANDARD DEFICIENCY REPORTS (SDRs) 251 AND 257, REVISION 0,  
RESULTING FROM YUCCA MOUNTAIN PROJECT OFFICE QUALITY ASSURANCE AUDIT S89-01 OF  
HOLMES & NARVER, INC.

SDRs 251 and 257 have been closed based on satisfactory verification of  
completed corrective actions. A copy of the SDRs is enclosed for your files.

If you have any questions, please contact Wendell B. Mansel of my staff at  
794-7945, or Stephen R. Dana of Science Applications International Corporation  
at 794-7176.

Edwin L. Wilmot, Acting Director  
Quality Assurance Division  
Yucca Mountain Project Office

YMP:WBM-4229

Enclosure:  
SDRs 251 and 257

cc w/encl:  
Ralph Stein, HQ (RW-30) FORS  
Dwight Shelor, HQ (RW-3) FORS  
A. E. Gurrola, H&N, Las Vegas, NV  
S. R. Dana, SAIC, Las Vegas, NV  
J. J. Brogan, SAIC, Las Vegas, NV  
L. G. Scherr, SAIC, Las Vegas, NV  
S. W. Zimmerman, NWPO, Carson City, NV  
J. E. Kennedy, NRC, Washington, DC ←

cc w/o encl:  
Richard Ivy, H&N, Las Vegas, NV  
C. O. Wright, H&N, Las Vegas, NV  
Stephen Metta, SAIC, Las Vegas, NV  
H. H. Caldwell, SAIC, Las Vegas, NV  
T. W. Noland, W, Las Vegas, NV  
J. W. Gilray, NRC, Las Vegas, NV

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# WMPO STANDARD DEFICIENCY REPORT

N-QA-038  
3/87

Completed by Originating QA Organization

1 Date NOV 29, 1988		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2	
3 Discovered During H&N AUDIT S89-01		3a Identified By M. Brake		3b Branch Chief Concurrence Date	
5 Organization Holmes & Narver		6 Person(s) Contacted R. Schreiner/D. Brown		4 SDR No. 251 Rev. 0	
7 Response Due Date is 20 Working Days from Date of Transmittal					
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item T-9) H&N Procedure NNWSI-007, Rev. 1, "Work Initiation", Sections 6.4.1 & 6.4.2, "Any revision of criteria or work scope changes from the original WI requires					
9 Deficiency 1. WIs 88-15, 88-16, 88-17, 88-19, 88-21, 88-22, 88-27, 88-31, 88-32, and 88-33 have not been revised when criteria or work scope were revised. 2. In the same WIs, the references to the Design Basis Document (DBD), Rev 2,					
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective 1. Revise the WIs to reference the latest criteria documents when revisions are received/made to the criteria documents.					

Aprvl.

11 QAE/Lead Auditor Date <i>S. Jones 12-12-88</i>	12 Branch Manager Date <i>Adams 12/12/88</i>	13 Project Quality Mgr. Date <i>James Blaylock 12/19/88</i>
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Completed by Organization in Block 5

14 Remedial/Investigative Action(s)  See Attached Sheet		15 Effective Date _____
16 Cause of the Condition & Corrective Action to Prevent Recurrence  See Attached Sheet		17 Effective Date _____
18 Signature/Date <i>Joseph C. Coltrini 1/20/89</i>		

Comp. by Orig. QA Org.

19 Response	<input checked="" type="checkbox"/> Accept <input type="checkbox"/> Amended Response	QAE/Lead Auditor/Date <i>S. Jones 1/31/89</i>	Branch Manager/Date <i>Adams 31 Jan 89</i>
20 Amended Response	<input type="checkbox"/> Accept <input type="checkbox"/> Reject	QAE/Lead Auditor/Date	Branch Manager/Date
21 Veri- fication	<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory	QAE/Lead Auditor/Date <i>S. Jones 5/4/89</i>	Branch Manager/Date <i>Adams H&amp;N 5/10/89</i>
22 Remarks (1) VERIFIED THAT THE ABOVE WIs HAD BEEN REVIEWED AND AS A RESULT NO REVISIONS WERE DEEMED NECESSARY. (2) & (3) VERIFIED THROUGH ICN-001 OF PROCEDURE NNWSI-007 REV.1, THAT A MANAGEMENT CONTROL SYSTEM FOR DESIGN CHANGES AND A PLAN TO INVESTIGATE THE IMPACT OF INCORRECT DESIGN INFORMATION HAS BEEN DEVELOPED. (3) VERIFIED THAT TRAINING TO NNWSI-007 IS IN PROCESS. SEE ATTACHMENT FOR ECRs EVALUATED.			
23 QA CLOSURE	QAE/Lead Auditor/Date <i>S. Jones 5/10/89</i>	Branch Manager/Date <i>Adams H&amp;N 5/10/89</i>	PQM/Date <i>For 5/30/89</i> <i>William B. Mansel</i>

ENCLOSURE

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CONTINUATION SHEET

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Rev. 0

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8 Requirement ( continued )

that it be revised, using the same number", and "Attach or reference the approved criteria revision to the revised WI".

9 Deficiency ( continued )

and the SDRD, Rev 1, are incorrect.

10 Recommended Actions ( continued )

2. Provide a management control system to ensure that when design information changes, the effected documents are revised accordingly.
3. Develop a plan to investigate what impact the incorrect design information identified in block 9 has had on the quality of design output documents. The plan should be provided with response to the SDR.
4. Train appropriate personnel to revised procedural requirements.

WMPO STANDARD DEFICIENCY REPORT

Holmes & Narver, Inc.  
Response to SDR No. 251

Block 14

Remedial/Investigative:

The Work Initiations (WIs) referenced Revision 1 of the SDRD and Revision 2 of the DBD. Both were the basis for H&N's design for Title I. The revisions to the SDRD and the Engineering Change Requests (ECRs) were all evaluated as they were issued or approved as to their impact on H&N design. Revisions 2, 3, 4, and 5 were deemed not to affect H&N. All ECRs were evaluated and those that affected H&N design were incorporated into the design.

The WIs referenced Revision 2 of the DBD because that is H&N's latest document. The Title I design was essentially complete in August 1988, and reflected the latest criteria. At that time, H&N revised the DBD to Revision 3, which would have incorporated all applicable changes. However, H&N was instructed by the Project Office not to issue it; therefore, reference to Revision 2 of the DBD was correct. Also, H&N had decided that the revisions to the SDRD were not an impact and considered Revision 1 of the SDRD as the appropriate document revision.

H&N has also conducted a review of the WIs and as a result no revisions were deemed necessary.

15. Effective date: N/A

16. Cause of the Condition & Corrective Action to Prevent Recurrence

Cause:

ECRs were considered the only methods of anticipated changes to criteria. H&N considered the SDRD to be a living document and that ECRs are an integral part of it and the ECRs would eventually be incorporated into the SDRD.

Corrective Action:

In the future, H&N will document our assessment of proposed changes to criteria to substantiate our decision to revise or not to revise the Work Initiation. This assessment/review will be accomplished in Procedure NNWSI-015, Control of Design Inputs. Procedure NNWSI-007, Work Initiations, will be revised to consider that a work initiation may not have to be changed each time criteria/work scope changes.

17. Effective Date: March 31, 1989

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Completed by Originating QA Organization	1 Date November 29, 1988		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 3		
	3 Discovered During H&N Audit S89-01		3a Identified By J. Jardine		3b Branch Chief Concurrence Date		
	5 Organization Holmes & Narver		6 Person(s) Contacted R. Schreiner/D. Brown		7 Response Due Date is 20 Working Days from Date of Transmittal		
	8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Items 1-10, 1-11, 1-12, 1-14, 1-19, 1-20 and 1-22) H&N QAPP, Rev. 1, Section 5, Paragraph III.B.1 states:						
Completed by Organization in Block 5	9 Deficiency Contrary to the cited requirement, H&N procedures do not contain appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished. The following						
	10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective 1. Revise procedures to correct cited deficiencies.						
	11 QAE/Lead Auditor Date <i>S. Dana 12-12-88</i>		12 Branch Manager Date <i>Alanus for 12/12/88</i>		13 Project Quality Mgr. Date <i>James Blaylock 12/19/88</i>		
	14 Remedial/Investigative Action(s)  See Attached Sheet				15 Effective Date _____		
Comp. by Orig. QA Org.	16 Cause of the Condition & Corrective Action to Prevent Recurrence  See Attached Sheet						
	17 Effective Date _____						
	18 Signature/Date <i>Joseph C. Colvin 1/20/89</i>						
19 Response		<input checked="" type="checkbox"/> Accept <input type="checkbox"/> Amended Response		QAE/Lead Auditor/Date		Branch Manager/Date	
20 Amended Response		<input type="checkbox"/> Accept <input type="checkbox"/> Reject		QAE/Lead Auditor/Date		Branch Manager/Date	
21 Verification		<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		QAE/Lead Auditor/Date		Branch Manager/Date	
22 Remarks <i>See Attachment for verification and objective evidence.</i>							
23 QA CLOSURE		QAE/Lead Auditor/Date		Branch Manager/Date		PQM/Date	
		<i>S. Dana 5/30/89</i>		<i>Wendell B. Marshall 30 May 89</i>		<i>For 5/30/89</i>	

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8 Requirement ( continued )

"Instructions, plans, procedures, etc., shall:

Include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished."

9 Deficiency ( continued )

examples indicate the areas in which H&N procedures fail to provide a sufficient level of detail or guidance to those responsible for implementation.

1. H&N NNWSI-007, Rev. 0, with ICN-002, Rev. 0, "Work Initiation, Criteria Gathering, and Reporting," and NNWSI-015, Rev. 0, "Design Input Control", do not instruct those responsible for implementation with regard to what aspects of design input must be reviewed in order to arrive at acceptance of the input. Instructions directing such a review should, at a minimum, include the following:
  - 1) a comparison of subject input with known values, standard tables, information, and codes;
  - 2) a check to determine if the input is complete such as a reference to Attachment 8.1 of NNWSI-015;
  - 3) a check to confirm accuracy of the input;
  - 4) a check to determine if the input requires a change to established input and an assessment of related input that requires a change and;
  - 5) an assessment of whether the input will result in the use of standard available technology and equipment or some arrangement that is beyond the state of the art.
2. H&N NNWSI-006, Rev. 1, "Design Analysis," does not impart the message that an analysis is more than a set of calculations. This procedure concentrates heavily on who prepares, where the analyses are sent to next, etc...but fails to convey the fundamental purpose of an analysis. That is, an analysis must prove through use of progressive and orderly logic that the design of the item will serve safely and effectively under the established design conditions. The designer must postulate what the design conditions are, including worse case conditions, and prove or disprove that design objectives of safety and effectiveness can be met.
3. H&N NNWSI-029, Rev. 1, "Design Interface Control," does not contain provisions to assure that traceability is achieved between Design Interface

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9 Deficiency ( continued )

Identification Sheets, Component Interface Drawings, System Interface Drawings and the Design Output Drawings used for procurement and construction.

4. H&N NNWSI-015, Rev. 0, does not provide instructions on how comments are documented, see Para. 6.3.2.
5. H&N NNWSI-014, Rev. 0, does not provide instructions on how those responsible are expected to assess whether design inputs have been selected correctly, whether assumptions are valid, whether a proper design method was used etc....The procedure does not explain how these questions are to be incorporated into the Design Verification Report nor how those responsible indicate their satisfaction or dissatisfaction with what they have learned of the design. Further, the procedure does not provide instructions regarding resolutions of comments made by the verifier that indicate dissatisfaction with the design.
6. H&N NNWSI-005, Rev. 1, does not contain instructions regarding which engineering disciplines are required to review a drawing. No instructions are provided to indicate how review comments are resolved.

10 Recommended Actions ( continued )

2. Perform and document QA review to determine extent and depth of similar deficiencies.
3. Determine the adequacy of past QA reviews of subject procedures. Revise procedures to reinforce requirements for QA reviews including documentation of comments and resolutions.
4. Train appropriate personnel to revised procedural requirements.

WMPO STANDARD DEFICIENCY REPORT

Holmes & Narver, Inc.  
Response to SDR No. 257

Block 14

Investigative:

Reviewed all existing procedures. In addition to those identified via this SDR, the following procedures were determined to require revision:

NNWSI-001	Revision 2 issued, action completed.
NNWSI-003	Revision required, estimated completion 1/27/89.
NNWSI-013	Revision required, estimated completion 1/27/89.

The changes required to satisfy the deficiencies would not have caused changes in the Title I design. the Title I design as preliminary in nature and has matured with the Technical Assessments.

Remedial:

1. Procedure NNWSI-007, Rev. 1, which superseded -007, Rev. 0, and ICN-001 (effective 8/11/89) is for writing and issuing Work Initiations and no longer covers acceptance or review of Design Input. Procedure NNWSI-015 is the proper procedure for Design Input Control an Documentation.
2. Procedure 006 is in for rewrite and will include the issues addressed in Item 2. Estimated completion by 2/1/89.
3. The revision of the Interface Control Procedure NNWSI-029 is dependent upon the resolution of Observations 1 and 2 that are the responsibility of the Yucca Mountain Project Office (Project Office). Estimated completion date: one month after receipt of resolution of the Observations by the Project Office.
4. ICN 001 to Procedure 014 includes the rectification of this deficiency, issued 1/6/89, and action is complete.
5. Procedure 014 is in for revision and will address the issues in Item 5. Estimated completion by 2/1/89.
6. Procedure 005 is in for revision and will address the issues addressed in Item 6. Estimated completion by 2/1/89.
15. Effective date: 2/1/89

**16. Cause of the Condition & Corrective Action to Prevent Recurrence**

The identified deficiencies are a result of the interpretation of QAP/QAPP requirements and the level of detail necessary to implement these requirements in detail procedures.

All procedures have been reviewed and where necessary are being revised and/or developed, as appropriate. All procedures necessary to start Title II design will be approved and issued prior to the initiation of Title II design.

**17. Effective Date: 2/1/89**