

YUCCA MOUNTAIN PROJECT OFFICE QUALITY ASSURANCE AUDIT REPORT
YUCCA MOUNTAIN PROJECT AUDIT OF FENIX & SCISSON, INC.

AUDIT NUMBER S89-2

CONDUCTED: NOVEMBER 7 - 14, 1988

Prepared By: *Stephen Dana*
Stephen Dana
Lead Auditor

Date: 1-17-89

Approved By: *H. H. Caldwell*
H. H. Caldwell
Division Manager, Audits

Date: 1/18/89

Approved By: *James Blaylock*
James Blaylock
Project Quality Manager

Date: 1/31/89

Received w/Ltr Dated 1/31/89 102.7

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ENCLOSURE

EXECUTIVE SUMMARY

PROJECT OFFICE AUDIT REPORT NO. S89-2

FENIX & SCISSON, INC.

LAS VEGAS, NEVADA

NOVEMBER 7 - 14, 1988

In the opinion of the Project Office audit team, the overall F&S design control program is effective for this stage of the design cycle (i.e., Title I). However, it is evident that elements of the program need to be strengthened or enhanced prior to the start of Title II design. For example:

1. Interdiscipline check prints need to be maintained as QA records.
2. Assumptions listed in design analysis packages that will require verification in Title II need to be identified.
3. Assumptions in design analysis packages should be listed, in all cases, in the "Assumptions" section of the package.
5. The F&S Basis for Design (BFD) document must be reviewed and approved by the F&S QA organization.
6. Commercial software to be used by F&S for Title II design must be controlled in accordance with current Project Office requirements.

It should be pointed out that all F&S personnel interviewed were very knowledgeable about their assigned tasks and responsibilities, and all were concerned with providing a quality product.

Nine deficiencies were identified during the course of the audit. The audit team also generated nine observations and four recommendations.

1.0 INTRODUCTION

This report contains the results of a Quality Assurance (QA) audit of the Fenix & Scisson (F&S) support of the Yucca Mountain Project. The audit was conducted at the F&S facilities at the Nevada Test Site and Las Vegas, NV, November 7 through November 14, 1988. Although originally scheduled to conclude on November 10, 1988, the audit was extended to November 14, 1988, to allow for a more in-depth review by the audit team of certain quality related activities performed by F&S. The audit was conducted in accordance with the requirements of the Yucca Mountain Project Quality Assurance Plan (QAP), NVO-196-17, Revision 5, and Quality Management Procedure (QMP)-18-01, Revision 3, "Audit System for the Waste Management Project Office."

2.0 AUDIT SCOPE

The purpose of this audit was to evaluate the effectiveness of specific elements of the F&S Quality Assurance Program Plan (QAPP) and to verify the implementation of the Quality Assurance program as it relates to the Yucca Mountain Project.

This was a supplemental audit, and as such covered only specific subjects. The scope of the audit focused primarily on design control, specifically, review of the F&S Exploratory Shaft Facility (ESF) Title I design activities. QA programmatic elements 2, 5, 6, 16, 17, and 18 were also selected because these elements are integral to the design process. In addition, problem areas identified during Project Office Audit 88-01 were added to the audit scope to determine whether F&S is effectively implementing its program in these areas. Programmatic element 4 (Procurement Document Control) was added to the audit scope during the audit. The programmatic elements that were not included in this audit (see Section 4.2 of this report) were covered in-depth during Audit 88-01.

3.0 AUDIT TEAM PERSONNEL

The audit team consisted of:

Stephen Dana	Lead Auditor	SAIC, Las Vegas, NV
William Camp	Auditor	SAIC, Las Vegas, NV
Frederick Ruth	Auditor	SAIC, Las Vegas, NV
Ken Wolverton	Auditor	HARZA, Las Vegas, NV
Albert Williams	Auditor Candidate	YMP, Las Vegas, NV
Alvin Langstaff	Lead Technical Specialist	W, Las Vegas, NV
Steve Smith	Technical Specialist	SAIC, Las Vegas, NV
Thomas Watson	Technical Specialist	HARZA, Las Vegas, NV
James Donnelly	Observer	NRC, Washington, DC
Michael Gonzalez	Observer	NRC, Washington, DC
John Peshel	Observer	NRC, Washington, DC
John Gilray	Observer	NRC, Las Vegas, NV
Robert Clark	Observer	Weston, Washington, DC

3.0 AUDIT TEAM PERSONNEL (continued)

Arthur Watkins	Observer	Weston, Washington, DC
Catherine Hampton	Observer	YMP, Las Vegas, NV
Susan Zimmerman	Observer	NWPO, Carson City, NV
James Grubb	Observer	NWPO, Carson City, NV

4.0 SUMMARY OF AUDIT RESULTS

4.1 Statement of Program Effectiveness

In the opinion of the Project Office audit team, the overall F&S design control program is effective for this stage of the design cycle (i.e., Title I). However, it is evident that essential elements of the program need to be strengthened or enhanced prior to the start of Title II design. For example:

- (a) Interdiscipline check prints need to be maintained as QA records.
- (b) Assumptions listed in design analysis packages that will require verification in Title II need to be identified.
- (c) Assumptions in design analysis packages should be listed, in all cases, in the "Assumptions" section of the package.
- (d) The F&S Basis for Design document must be reviewed and approved by the F&S QA organization.
- (e) Commercial software to be used by F&S for Title II must be controlled in accordance with current Project Office requirements.

Areas identified by the audit team as marginally effective are as follows:

- (a) Indoctrination and Training requires additional emphasis by F&S in the areas of (1) verification of education and experience, and (2) proficiency evaluation. Although F&S has taken great strides in improving this area of its program since the previous Project Office audit, especially in providing training on design procedures to design personnel, it is still not in full compliance with Project Office QA requirements.
- (b) Procurement Document Control appears to be lacking in that the applicable procedures do not have a checklist(s) of review criteria to document results of the technical/QA review.

The following QA program elements were determined by the audit team to be effectively implemented by F&S:

- 5.0 Instructions, Procedures, and Drawings
- 6.0 Document Control
- 16.0 Corrective Action
- 17.0 Quality Assurance Records
- 18.0 Audits

4.0 SUMMARY OF AUDIT RESULTS

4.2 Summary (continued)

A total of nine Standard Deficiency Reports (SDRs) and nine observations were identified as a result of the audit. In addition, the audit team generated four recommendations for the consideration of the F&S Yucca Mountain Project staff. A synopsis of the SDRs and observations and the complete recommendations are contained in Section 6.0 of this report.

Deficiencies identified by the Project Office are qualified by severity level, which is related to the significance of the deficiency. A discussion of the severity levels is provided in Enclosure 1.

At the time of the audit, six observations remained open from the previous Project Office audit (88-1). During the audit, the audit team verified that corrective action had been satisfactorily completed for Observations No. 1, 2, 3, 4, 5, and 6.

The following program elements were deemed to be in compliance with the requirements of the F&S QAPP, Rev. 3, and its implementing procedures:

- 5.0 Instructions, Procedures, and Drawings
- 6.0 Document Control
- 16.0 Corrective Action
- 17.0 Quality Assurance Records
- 18.0 Audits

Program elements in which the audit team identified deficiencies were:

- 2.0 Quality Assurance Program
- 3.0 Scientific Investigation and Design Control
- 4.0 Procurement Document Control

The following programmatic elements were not within the scope of this audit:

- 1.0 Organization
- 7.0 Control of Purchased Items and Services
- 8.0 Identification and Control of Items, Samples and Data
- 9.0 Control of Processes
- 10.0 Inspection
- 11.0 Test Control
- 12.0 Control of Measuring and Test Equipment
- 13.0 Handling, Shipping, and Storage
- 14.0 Inspection, Test, and Operating Status
- 15.0 Control of Nonconforming Items

The following technical activities were reviewed as part of this audit:

4.0 SUMMARY OF AUDIT RESULTS

4.2 Summary (continued)

- 1.2.6.3.2 - ES-1 Collar Design
- 1.2.6.3.3 - ES-2 Collar Design
- 1.2.6.4.1 - ES-1 Shaft and Lining
- 1.2.6.4.2 - ES-1 Hoist and Headframe
- 1.2.6.5.1 - ES-2 Shaft and Lining
- 1.2.6.5.2 - ES-2 Hoist and Headframe
- 1.2.6.6.0 - Subsurface Excavation
- 1.2.6.7.1 - Utilities and Communication Systems
- 1.2.6.7.2 - Mine Plant
- 1.2.6.7.3 - ES-1 Shaft Internals and Conveyances
- 1.2.6.7.4 - ES-2 Shaft Internals and Conveyances

5.0 AUDIT MEETINGS

5.1 Preaudit Conference

A preaudit conference was held with the F&S Technical Project Officer (TPO) and his staff at 10:00 a.m. on November 7, 1988. The purpose, scope and proposed agenda for the audit were presented. A list of attendees for this meeting is provided in Enclosure 2.

5.2 Postaudit Conference

The postaudit conference was held at 10:00 a.m. on November 14, 1988. A synopsis of the preliminary SDRs and observations identified during the course of the audit was discussed with the F&S TPO and his staff. A list of attendees for this meeting is also provided in Enclosure 2.

6.0 SYNOPSIS OF SDRS, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Standard Deficiency Reports

1. There is no objective evidence on how the education and experience of four Parsons-Brinckerhoff personnel was verified. Refer to SDR No. 261, Severity Level 2.
2. F&S procedure PF-60-01, Rev. 1, "Personnel Selection and Indoctrination," does not include the requirement to prepare Proficiency Evaluation Records. Refer to SDR No. 262, Severity Level 2.
3. No documented evidence was provided that interdisciplinary check print comments had been verified by the engineers to ensure that their comments had been incorporated. Refer to SDR No. 263, Severity Level 2.

6.0 SYNOPSIS OF SDRS, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Standard Deficiency Reports (continued)

4. Of the 50 out of 52 design analysis packages reviewed, those assumptions (listed in each package) that will require verification in Title II had not been identified. In addition, assumptions in design analysis packages are not listed in the "Assumption" section in all cases. Refer to SDR No. 264, Severity Level 1.
5. FS-CA-0071 (Charge Weight and Firing Sequence for Smooth Blasting) lists the sources of design inputs, but does not identify each specific input. Refer to SDR No. 265, Severity Level 3.
6. There is no objective evidence that the F&S Basis for Design document, used for Title I design, was reviewed and approved by the F&S QA organization. In addition, there is no evidence to show that the F&S QA representative is verifying that this document is being controlled. Refer to SDR No. 266, Severity Level 2.
7. The F&S QAPP, Rev. 3, Section 3, para. 3.3.2, exempts commercial software from the documentation requirements stated in the NNWSI QA Plan, NVO-196-17, Rev. 5, Section III. Refer to SDR No. 267, Severity Level 2.
8. Purchase Order No. SC-LV-88-139, Modifications No. 2 and 3, do not indicate a comprehensive review was performed (including technical review) prior to contract modification award. Refer to SDR No. 268, Severity Level 2.
9. There is no objective evidence, such as recording in the Project Control Log, that the Title I 50 percent and 100 percent Technical Assessment Review comments were handled according to Procedure DC-11. Refer to SDR No. 269, Severity Level 3.

6.2 Observations

1. In reviewing indoctrination and training records, it was noted that six design personnel had not received training to Revision 3 of the F&S QAPP. This deficiency has been identified by F&S QA on Deficiency Report No. 10, Audit QA(N)-88-01. Refer to Observation No. S89-2-01.
2. A review of calculations and drawings was performed to determine if design inputs are traceable from the source through the calculation/analysis into the drawings or other design input. In two cases traceability was not as well defined as it was in other design packages. Inconsistencies in referencing from drawing to analyses and analyses to drawing were also found. In addition, there were no references found on the drawing referring to the supporting analyses.

6.0 SYNOPSIS OF SDRS, OBSERVATIONS, AND RECOMMENDATIONS

6.2 Observations (continued)

3. If the authority of the F&S Project Manager (PM) to determine which design elements are to be verified is allowed to continue into Title II and beyond, the danger of the PM misjudging the requirement for the performance of verification activities on a Title II design product could jeopardize licensability. Refer to Observation No. S89-2-03.
4. Although F&S procedure NNWSI-DC-06, Rev. 3, delineates a control log, it is not included with the procedure as an attachment nor are the contents of the log specified. A Engineering Change Request (ECR) log was observed being maintained; however, the log did not give appropriate information for tracking the status of each ECR. F&S has deleted DC-06 in its entirety and replaced it with procedures NNWSI-DC-26, NNWSI-DC-27, and NNWSI-DC-28. DC-28 addresses the concerns of this observation, therefore no response is required. Refer to Observation No. S89-2-04.
5. During the review of design analysis packages, the QA Design Analysis Checklists (QAP-3.3(N)) were noted as rejecting the analysis and comments were provided on a piece of paper attached to the checklist. An additional checklist was attached to the top of these Design Analysis Checklists, marking the analysis QA approved (informally). The second checklist was annotated in the comments section, "all comments resolved and incorporated," then signed by the originator of the comments. Thus there is no objective, auditable evidence that comments were properly resolved. Refer to Observation No. S89-2-05.
6. The F&S procedure for checking calculations, NNWSI-DC-05, Rev. 5, is weak. Refer to Observation No. S89-2-06.
7. Several outline specifications reviewed showed there was no table of contents, no data requirements list, and a lack of consistency in certain requirements. The deficiency has been identified by F&S QA on Deficiency Report No. 13, Audit QA(N)-88-02. Refer to Observation No. S89-2-07.
8. Several drawings have received an interdiscipline review without having been verified first. Upon further review, it was revealed that F&S procedure NNWSI-DC-09 was revised and reissued on 10/31/88, allowing the non-sequential design verification and interdiscipline review as may be determined by the ESF Design Manager. Refer to Observation No. S89-2-08.
9. F&S has not been verifying commercial software used in the design of the ESF. Refer to Observation No. S89-2-09.

6.0 SYNOPSIS OF SDRS, OBSERVATIONS, AND RECOMMENDATIONS

6.3 Recommendations

Recommendation No. 1

F&S is presently preparing a matrix that will indicate who has received training and what that training is. It is recommended that F&S continue this effort and assure the matrix accomplishes the following:

- o Who needs what type of indoctrination and training.
- o Who has received indoctrination and training.
- o Who is delinquent in required training.

Recommendation No. 2

In reviewing indoctrination and training records of several design personnel it was noted their resumes were not up to date. For instance, one individual's resume did not indicate the date of employment; another is now employed by F&S, but his resume indicated he was still employed by Parsons-Brinckerhoff.

A review of all the files should be performed to assure that resumes are current and up-to-date.

Recommendation No. 3

The F&S Document Control system is presently controlled through the use of three separate procedures:

1. FP-10-01, Rev. 3, "Preparation of YMP Procedures."
2. QAP-6.1(N), Rev. 2, "Document Control."
3. DC-16, Rev. 4, "Document Control."

It is recommended that F&S consolidate their Document Control system into one procedure. As the Project grows, it may become increasingly difficult for F&S to effectively control documents using the three-procedure system.

Recommendation No. 4

The F&S Basis for Design document added a requirement for redundancy in monitoring systems where a defect in the monitored item could be life-threatening. Design analysis FS-ST-0051 included this requirement as a criterion, but the ensuing analysis and design drawings (FS-GA-0221 and FS-GA-0222) do not reflect this redundancy of systems (such as redundant cabling through different shafts). Title II efforts should ensure that the design also includes those additional requirements incorporated into the Basis for Design.

7.0 REQUIRED ACTION

A written response is required for each SDR delineated in Section 6.0 above. The original copies of the SDRs were forwarded to the F&S TPO on December 21, 1988. Responses to each SDR are due 20 working days from the date of the SDR transmittal letter. Upon response, acceptance, and satisfactory verification of all remedial and corrective actions, the SDRs will be closed and F&S will be notified by letter of the closure.

A written response is required for eight out of the nine observations (Observation No. 4 requires no response) contained in Enclosure 4 of this report. Responses are due 25 working days after the date of the transmittal letter of this audit report.

Written responses are not required for the recommendations contained in this audit report. The recommendations were generated by the audit team for the F&S staff to consider during implementation of its Quality Assurance Program.

ENCLOSURE 1

Severity Levels

Severity Level 1

Significant deficiencies considered of major importance. These deficiencies require remedial, investigative, and corrective actions to prevent recurrence.

Severity Level 2

A deficiency which is not of major importance, but may also require remedial, investigative, and/or corrective action to prevent recurrence.

Severity Level 3

A minor deficiency in that only remedial action is required. These deficiencies are generally isolated in nature or have a very limited scope. In addition, the integrity of the end result of the activity is not affected nor does the deficiency affect the ability to achieve those results.

AUDIT REPORT S89-2
ENCLOSURE 2

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TITLE</u>	<u>PREAUDIT CONFERENCE</u>	<u>DURING AUDIT</u>	<u>POSTAUDIT CONFERENCE</u>
Arshad, Ali	F&S	Sr. QA Engineer	X		
Blaylock, Jim	DOE/YMP	Project Quality Mgr.			X
Bullock, R. L.	F&S	Sr. Project Manager	X	X	X
Camp, William	SAIC	QA Engineer	X		
Chytrowski, Boleck	F&S	Project Design Mgr.	X	X	X
Clark, Bob	WESTON	QA Engineer	X		
Cross, Jack	F&S	General Manager	X	X	X
Dana, Stephen	SAIC	QA Engineer	X		X
Donnelly, James	NRC	QA Engineer	X		
Ferguson, J. E.	F&S	Sr. Records Spec.	X	X	X
Gilray, John	NRC	On Site Engineer	X		X
Graves, Bill	F&S	Mgr. Admin.	X	X	X
Grenia, J. D.	F&S	LPDE	X	X	X
Grubb, Jim	State of NV	Repository Engineer	X		
Gonzalez, Michael	NRC	QA Engineer	X		
Hale, Paul	F&S	QA Specialist	X	X	X
Hampton, Catherine	DOE/YMP	QA Specialist	X		X
Jacocks, Harry	F&S	Dir. of Procurement	X	X	X
Johnson, Janet	F&S	Sr. QA Engineer	X	X	
Langstaff, Alvin	WESTINGHOUSE	Sr. Engineer	X		X
Lockwood, Don L.	F&S	Exec. Vice President	X	X	
Mansel, Wendell	DOE/YMP	QA Engineer	X		
McCracken, T. L.	F&S	QA Engineer		X	X
Mika, Deborah	F&S	Personnel Specialist	X	X	X
Mirza, Maltmood B.	F&S	Config. Control Mgr.	X	X	
Peshel, John	NRC	Tech. Observer	X		X

AUDIT REPORT S89-2 (CONTINUED)
ENCLOSURE 2

<u>NAME</u>	<u>ORGANIZATION</u>	<u>TITLE</u>	<u>PREAUDIT CONFERENCE</u>	<u>DURING AUDIT</u>	<u>POSTAUDIT CONFERENCE</u>
Regenda, M. J.	F&S	Director of QA	X	X	X
Rue, Joseph	F&S	QA Coordinator	X	X	X
Ruth, Fred	SAIC	QA Engineer	X		
Smith, Steven	SAIC	Tech. Specialist	X		
Tunney, Daniel	F&S	Sr. QA Engineer	X	X	X
Watkins, Arthur	WESTON	Tech. Observer	X		
Willmans, Albert	DOE	General Engr. QA	X		X
Wilson, Matt	F&S	Administrative Mgr.	X	X	X
Wolverton, Ken	HARZA	QA Engineer	X		X
Yacca, Karen	F&S	Design Admin.	X	X	
Zimmerman, Susan	State of NV	QA Manager	X		

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ENCLOSURE 3

SDRs

WMPO STANDARD DEFICIENCY REPORT

NQA-038
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Completed by Organization in Block 5 Apr. 1988
Completed by Originating QA Organization 5/22/88

1 Date Dec 05, 1988		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
3 Discovered During F&S Audit S89-02		3a Identified By F. Ruth	3b Branch Chief Concurrence Date	4 SDR No. 261 Rev. 0
5 Organization Fenix & Scisson		6 Person(s) Contacted J. Johnson		7 Response Due Date is 20 Working Days from Date of Transmittal
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item 2-7) F&S NNWSI Quality Assurance Program Plan, Rev. 3, Section 2, "Quality Assurance Program", para. 2.4.1:2, "Personnel selected will have education				
9 Deficiency Although verification of education and experience is stated as being verified, there is no objective evidence on how this was accomplished (i.e., contacting the appropriate university and past employers) for the following Parsons-				
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input type="checkbox"/> Corrective 1. Obtain the appropriate verification of experience for the individuals identified in Block 9.				
11 QAE/Lead Auditor Date <i>[Signature]</i> 12/12/88		12 Branch Manager Date <i>[Signature]</i> 12/12/88	13 Project Quality Mgr. Date <i>James Blaylock</i> 12/19/88	
14 Remedial/Investigative Action(s)				
15 Effective Date _____				
16 Cause of the Condition & Corrective Action to Prevent Recurrence				
17 Effective Date _____				
18 Signature/Date				
19 Response <input type="checkbox"/> Accept <input type="checkbox"/> Amended Response <input type="checkbox"/> Reject		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 Veri- fication <input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		QAE/Lead Auditor/Date	Branch Manager/Date	
22 Remarks				
23 QA CLOSURE	QAE/Lead Auditor/Date	Branch Manager/Date	PQM/Date	

ENCLOSURE

WAMPO STANDARD DEFICIENCY REPORT
CONTINUATION SHEET

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SDR No. 261

Rev. 0

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8 Requirement (continued)

and experience commensurate with the minimum requirements specified in the position description. Relevant education and experience will be verified."

9 Deficiency (continued)

Brinkerhoff personnel:

1. J. Grenia
2. I. Lange
3. T. Frank
4. R. Gast

10 Recommended Actions (continued)

2. Review personnel files of other Parsons-Brinkerhoff personnel to assure that verification of education and experience has been properly documented. Provide results of the review.
3. If additional personnel are identified, take the appropriate corrective action.
4. If personnel are identified that don't meet the education requirements, re-evaluate all work performed by those personnel.

WMPO STANDARD DEFICIENCY REPORT

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Completed by Originating QA Organization

1 Date Dec 05, 1988	2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
3 Discovered During F&S Audit S89-02	3a Identified By F. Ruth	3b Branch Chief Concurrence Date	4 SDR No. 262 Rev. 0
5 Organization Fenix & Scisson	6 Person(s) Contacted K. Vacca		7 Response Due Date is 20 Working Days from Date of Transmittal
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item 1-7) F&S NNWSI Quality Assurance Program Plan, Rev. 3, Section 2, "Quality Assurance Program", para. 2.4.1.6.4, "Proficiency Evaluation Records -			
9 Deficiency F&S Project Procedure PP-60-01, Rev. 1, "Personnel Selection and Indoctrination" does not include the requirement to prepare Proficiency Evaluation Records as stated in Block 8. The method by which F&S states it			
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective 1. Develop a Proficiency Evaluation Record and make it an attachment to procedure PP-60-01.			

Completed by Organization in Block 5

11 QAE/Lead Auditor Date <i>Diana 12/19/88</i>	12 Branch Manager Date <i>Manager 12/15/88</i>	13 Project Quality Mgr. Date <i>James Blaylock 12/19/88</i>
14 Remedial/Investigative Action(s)		15 Effective Date _____
16 Cause of the Condition & Corrective Action to Prevent Recurrence		17 Effective Date _____
18 Signature/Date		

Comp. by Orig. QA Org.

19 Response	<input type="checkbox"/> Accept <input type="checkbox"/> Reject	<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 type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		QAE/Lead Auditor/Date	Branch Manager/Date
22 Remarks				

23 QA CLOSURE	QAE/Lead Auditor/Date	Branch Manager/Date	PQM/Date
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8 Requirement (continued)

Records of proficiency evaluation will include, as a minimum, the name of the evaluated employee, the evaluator, evaluation results, date of evaluation, and the activities covered by the evaluation".

9 Deficiency (continued)

will perform proficiency evaluations in procedure (PP-60-01) does not meet the F&S QAPP requirements.

10 Recommended Actions (continued)

2. Revise PP-60-01 to address the requirements of preparing Proficiency Evaluation Records.
3. Prepare Proficiency Evaluation Records for all necessary personnel.
4. For personnel that are evaluated as not proficient in functions to be performed, take the appropriate action.
5. Train appropriate personnel to revised procedural requirements.

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Completed by Originating QA Organization

1 Date Dec 05, 1988	2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
3 Discovered During F&S Audit S89-02	3a Identified By A. Langstaff	3b Branch Chief Concurrence Date	4 SDR No. 263 Rev. 0
5 Organization Fenix & Scisson	6 Person(s) Contacted R. Bullock	7 Response Due Date is 20 Working Days from Date of Transmittal	
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item T-21) F&S Procedure NNWSI-DC-09, Rev. 5, para. 6.2.12, "The engineers shall verify that comments have been resolved/incorporated into the back-check"			
9 Deficiency No documented evidence was provided that interdiscipline checkprint comments had been verified by the engineers to ensure that their comments had been incorporated. A sampling of 11 out of 84 final drawings were examined along			
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective 1. Comply with procedural requirements stated in NNWSI-DC-09, Rev. 5, para. 6.2.12.			

11 QAE/Lead Auditor Date <i>S. Jones</i> 12-12-88	12 Branch Manager Date <i>Atkins jr</i> 12/12/88	13 Project Quality Mgr. Date <i>James Bleylock</i> 12/19/88
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14 Remedial/Investigative Action(s)	15 Effective Date _____
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16 Cause of the Condition & Corrective Action to Prevent Recurrence	17 Effective Date _____
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18 Signature/Date

Comp. by Orig. QA Org.

19 Response	<input type="checkbox"/> Accept <input type="checkbox"/> Amended Response <input type="checkbox"/> Reject	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 type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory	QAE/Lead Auditor/Date	Branch Manager/Date

22 Remarks

23 QA CLOSURE	QAE/Lead Auditor/Date	Branch Manager/Date	PGM/Date
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8 Requirement (continued)

reproductions, and confirm their acceptance of the back-check by signing off the DRN."

9 Deficiency (continued)

with their checkprints, however, DRNs had not been completed per procedural requirements.

10 Recommended Actions (continued)

2. Revise the appropriate procedure(s) so that the back-check prints are maintained as QA records.
3. Develop a plan to investigate the extent of the problem on the remaining 73 drawings. The plan should be provided with response to the SDR.
4. Train appropriate personnel to the requirements identified in Block 8.

W.M. O STANDARD DEFICIENCY REPORT

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3/87

1 Date Dec 05, 1988. 2 Severity Level 1 2 3 Page 1 of 2

3 Discovered During F&S Audit S89-02 3a Identified By A. Langstaff S. Smith 3b Branch Chief Concurrence Date 4 SDR No. 264 Rev. 0

5 Organization Fenix & Scisson 6 Person(s) Contacted R. Bullock 7 Response Due Date is 20 Working Days from Date of Transmittal

8 Requirement (Audit Checklist Reference, if Applicable)
(Audit Checklist Item T-10b&c)
F&S Procedure NNWSI-DC-03, Rev. 5, "Design Analysis", para. 6.3.5, "In order to complete the analysis, the originator may have to make certain assumptions

9 Deficiency
1. Of the 50 out of 52 design analysis packages reviewed, those assumptions (listed in each package) which will require verification in Title II had not been identified as such.

10 Recommended Action(s): Remedial Investigative Corrective
1. For each design analysis package, list all assumptions in the "Assumptions Section" and provide a page cross reference for point of use. If no

11 QAE/Lead Auditor Date *S Jones 12-12-88* 12 Branch Manager Date *Blane for 12/12/88* 13 Project Quality Mgr. Date *James Blaylock 12/19/88*

14 Remedial/Investigative Action(s) 15 Effective Date _____

16 Cause of the Condition & Corrective Action to Prevent Recurrence 17 Effective Date _____

18 Signature/Date

19 Response	<input type="checkbox"/> Accept <input type="checkbox"/> Reject	<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 Verifi- cation	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		QAE/Lead Auditor/Date	Branch Manager/Date

22 Remarks

23 QA CLOSURE QAE/Lead Auditor/Date Branch Manager/Date PQM/Date

Completed by Originating QA Organization

Completed by Organization in Block 5

Comp. by Orig. QA Org.

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8 Requirement (continued)

which are not clearly identified or controlled by the design input(s) or other sources of information. These assumptions, along with the basis for the assumptions, must be clearly stated within the analysis. Those assumptions which will require verification as the design proceeds must be identified."

9 Deficiency (continued)

2. Assumptions in design analysis packages are not, in all cases, listed in the "Assumptions Section".

10 Recommended Actions (continued)

assumptions have been used in the analysis, so state in the "Assumption Section".

2. Identify all assumptions which need to be verified as the design proceeds. Document within each design analysis package whether the assumptions require or do not require verification in Title II.

WMPO STANDARD DEFICIENCY REPORT

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Completed by Originating QA Organization in Block 5 April 5
Completed by Organization in Block 5
Comp. by Orig. QA Org.

1 Date Dec 05, 1988		2 Severity Level <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3		Page 1 of 2	
3 Discovered During F&S Audit S89-02		3a Identified By A. Langstaff	3b Branch Chief Concurrence Date		4 SDR No. 265 Rev. 0
5 Organization Fenix & Scisson		6 Person(s) Contacted R. Bullock		7 Response Due Date is 20 Working Days from Date of Transmittal	
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item T-10a) F&S Procedure NNWSI-DC-03, Rev. 5, "Design Analysis", para. 6.3.2, "The analysis shall identify what design inputs are being used in performance of					
9 Deficiency FS-CA-0071 (Charge Weight and Firing Sequence for Smooth Blasting) lists the sources of design inputs, but does not identify each specific input.					
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Investigative <input type="checkbox"/> Corrective 1. List specific design inputs as well as the source documents in the analysis.					
11 QAE/Lead Auditor Date <i>S. Davis 12-12-88</i>		12 Branch Manager Date <i>Manoj 12/12/88</i>		13 Project Quality Mgr. Date <i>James Blaylock 12/19/88</i>	
14 Remedial/Investigative Action(s)				15 Effective Date _____	
16 Cause of the Condition & Corrective Action to Prevent Recurrence				17 Effective Date _____	
18 Signature/Date					
19 Response <input type="checkbox"/> Accept <input type="checkbox"/> Reject		<input type="checkbox"/> Amended Response		QAE/Lead Auditor/Date	
20 Amended Response <input type="checkbox"/> Accept <input type="checkbox"/> Reject				QAE/Lead Auditor/Date	
21 Verification <input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory				QAE/Lead Auditor/Date	
22 Remarks					
23 QA CLOSURE		QAE/Lead Auditor/Date		Branch Manager/Date	
				PQM/Date	

WMPPO STANDARD DEFICIENCY REPORT
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10/86

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Page 2 of 2

8 Requirement (continued)

the analysis and the source of such inputs..."

10 Recommended Actions (continued)

WMPO STANDARD DEFICIENCY REPORT

N-QA-038
3/87

Completed by Originating QA Organization

1 Date Dec 05, 1988	2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2
3 Discovered During F&S Audit S89-02	3a Identified By K. Wolverton	3b Branch Chief Concurrence Date	4 SDR No. 266 Rev. 0
5 Organization Fenix & Scisson	6 Person(s) Contacted P. Hale/J. Johnson	7 Response Due Date is 20 Working Days from Date of Transmittal	
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item 1-12) 1. F&S NNWSI Quality Assurance Program Plan, Rev. 3, Section 3, "Scientific Investigation Control And Design Control", para. 3.2.2.1, "Applicable"			
9 Deficiency Contrary to the above, there is no objective evidence to indicate that the F&S Basis for Design (BFD) document, used for Title I design, was reviewed and approved by the F&S QA organization. In addition, there is no evidence to			
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective 1. Revise the appropriate F&S procedure to include the BFD as a controlled document.			

Completed by Organization in Block 5

11 GAE/Lead Auditor Date <i>S. J. J. 12/15/88</i>	12 Branch Manager Date <i>Adams for 12/15/88</i>	13 Project Quality Mgr. Date <i>James Bleylock 12/19/88</i>
14 Remedial/Investigative Action(s)		15 Effective Date _____
16 Cause of the Condition & Corrective Action to Prevent Recurrence		17 Effective Date _____
18 Signature/Date		

Comp. by Orig. QA Org.

19 Response	<input type="checkbox"/> Accept <input type="checkbox"/> Amended Response <input type="checkbox"/> Reject	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 type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory	QAE/Lead Auditor/Date	Branch Manager/Date
22 Remarks			
23 QA CLOSURE	QAE/Lead Auditor/Date	Branch Manager/Date	PQM/Date

WMPO STANDARD DEFICIENCY REPORT
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8 Requirement (continued)

design input, such as criteria letters, design bases, performance and regulatory requirements, codes, standards, manufacturer's design data, and quality standards, will be identified, documented, and their selection reviewed and approved by F&S Design and the F&S QA organization."

2. F&S procedure NNWSI-DC-15, Rev. 4, "Basis for Design Control", para. 5.5, "Quality Assurance Representative - The QAR is responsible for verifying the criteria of the Basis for Design and that changes thereof, are being adequately controlled".

9 Deficiency (continued)

show that the F&S QAR is verifying that this document is being controlled, nor changes thereto.

10 Recommended Actions (continued)

2. Complete the required reviews and approvals by the F&S QA Organization.
3. Develop a plan to investigate what impact the lack of a QA review and approval has had on the control of design inputs. The plan should be provided with response to the SDR.
4. Train appropriate personnel to revised procedural requirements.

WMPO STANDARD DEFICIENCY REPORT

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3/87

Completed by Originating QA Organization

1 Date Dec 05, 1988	2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 3
3 Discovered During F&S Audit S89-02	3a Identified By K. Wolverton	3b Branch Chief Concurrence Date	4 SDR No. 267 Rev. 0
5 Organization Fenix & Scisson	6 Person(s) Contacted B. Chytrowski/J. Grenia/B. Stanley	7 Response Due Date is 20 Working Days from Date of Transmittal	
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item 1-30) NNWSI QA Plan, NVO-196-17, Rev. 5, Section III, "Scientific Investigation and Design Control":			
9 Deficiency Contrary to the above, F&S NNWSI Quality Assurance Program Plan, Rev. 3, Section 3, para. 3.3.2, exempts commercial software from the documentation requirements stated in Block 8. Therefore, F&S has not documented nor			
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective 1. Revise F&S QAPP, Section 3, para. 3.3, to comply with the latest revision of NNWSI/88-9 and Appendix H requirements.			

Aprvl.

11 QAE/Lead Auditor Date <i>S. Dana 12/15/88</i>	12 Branch Manager Date <i>Adams for 12/15/88</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)	15 Effective Date _____
16 Cause of the Condition & Corrective Action to Prevent Recurrence	17 Effective Date _____
18 Signature/Date	

Comp. by Orig. QA Org.

19 Response	<input type="checkbox"/> Accept <input type="checkbox"/> Reject	<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 type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		QAE/Lead Auditor/Date	Branch Manager/Date
22 Remarks				
23 QA CLOSURE	QAE/Lead Auditor/Date	Branch Manager/Date	PQM/Date	

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8 Requirement (continued)

1. Para. 3.3.2

"Documentation of computer software shall include the following, as a minimum:

- o Software Summary;
- o Description of mathematical models and numerical methods;
- o User's manual;
- o Code assessment and support; and
- o Continuing documentation and code listings."

2. Para. 3.3.3

"F&S will institute a software configuration management program appropriate to the projects they conduct and will provide documentation of this program to the Records Management System (RMS). The minimum requirements for this configuration management program will be: (1) the inclusion of a unique identification, including software version numbers whenever feasible, in the output; (2) listing of the software; and (3) a brief chronology of the software versions, including descriptions of the changes made between versions.

9 Deficiency (continued)

obtained documentation from the supplier concerning commercial software used during Title I design activities. Furthermore, none of the commercial software has been verified in accordance with NNWSI-SOP-03-02, Rev. 0, "Software Quality Assurance". During interviews with F&S design personnel, it was stated that all software utilized by F&S during Title I design was commercially produced. It was also stated that they (F&S) had not instituted a software configuration program since they have only utilized commercial software.

10 Recommended Actions (continued)

2. Identify all software used in design activities.
3. Design output based on software identified above should not be used for Title II activities until all corrective actions associated with this SDR are complete and approved by the Project Office.
3. Develop a plan to evaluate all previous design activities to assess any adverse effects on completed activities as well as design activities in process. The plan should be provided with response to the SDR.
4. If any deficiencies are identified, perform corrective action as required.
5. Initiate the configuration management system for computer software utilized to date in accordance with current Project Office requirements.



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10 Recommended Actions (continued)

6. Train appropriate personnel to revised programmatic requirements.

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N-QA-038
3/87

Completed by Originating QA Organization

1 Date Dec 05, 1988		2 Severity Level <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3		Page 1 of 2	
3 Discovered During F&S Audit S89-02		3a Identified By W. Camp	3b Branch Chief Concurrence Date		4 SDR No. 268 Rev. 0
5 Organization Fenix & Scisson		6 Person(s) Contacted H. Jacocks		7 Response Due Date is 20 Working Days from Date of Transmittal	
8 Requirement (Audit Checklist Reference, if Applicable) (Audit Checklist Item 3-4) F&S NNWSI Quality Assurance Program Plan, Rev. 3, Section 4, "Procurement Document Control", para. 4.2.3, "Procurement document changes will be subject					
9 Deficiency Contrary to the above requirement, Purchase Order No. SC-LV-88-139 (Parsons-Brinkerhoff) Modifications No. 2 and 3 do not indicate a comprehensive review was performed (including technical review) prior to contract modification					
10 Recommended Action(s): <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Investigative <input checked="" type="checkbox"/> Corrective 1. Establish a checklist for technical/QA reviews in the existing procedures. 2. Train appropriate personnel to revised procedural requirements.					
11 QAE/Lead Auditor Date <i>S. Jones 12-12-88</i>		12 Branch Manager Date <i>Blair for 12/12/88</i>		13 Project Quality Mgr. Date <i>James Blaylock 12/19/88</i>	
14 Remedial/Investigative Action(s)				15 Effective Date _____	
16 Cause of the Condition & Corrective Action to Prevent Recurrence				17 Effective Date _____	
18 Signature/Date					
19 Response <input type="checkbox"/> Accept <input type="checkbox"/> Amended Response <input type="checkbox"/> Reject		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 Verifi- cation <input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory		QAE/Lead Auditor/Date		Branch Manager/Date	
22 Remarks					
23 QA CLOSURE		QAE/Lead Auditor/Date		Branch Manager/Date	
				PQM/Date	

Comp. by Orig. QA Org.



WMPO STANDARD DEFICIENCY REPORT
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Page 2 of 2

8 Requirement (continued)

to the same degree of control as utilized in the preparation of the original document. Changes that are made as a result of the bid evaluation or precontract negotiations will be incorporated into the procurement documents. The review of such changes and their effects will be completed and documented prior to contract award."

9 Deficiency (continued)

award. In addition, F&S procedures QAP-4.1(N), Rev. 3, and PP-60-02, Rev. 1, do not have a checklist of review criteria to document results of the review. Reviewed 2 out of 2 purchase orders.

WMPO STANDARD DEFICIENCY REPORT

N-QA-038
3/87

Completed by Originating QA Organization

1 Date Dec 05, 1988 2 Severity Level 1 2 3 Page 1 of 2

3 Discovered During F&S Audit S89-02 3a Identified By A. Langstiff 3b Branch Chief Concurrence Date 4 SDR No. 269 Rev. 0

5 Organization Fenix & Scisson 6 Person(s) Contacted P. Hale 7 Response Due Date is 20 Working Days from Date of Transmittal

8 Requirement (Audit Checklist Reference, if Applicable)
F&S Procedure NNWSI-DC-11, Rev. 4, "External Comment Control", para. 6.3, describes steps for resolution of external review comments according to steps 6.3.1 through 6.3.9.

9 Deficiency
There is no objective evidence, such as recording in the Project Control Log, that the Title I 50% Design Review and 100% Technical Assessment Review comments were handled according to procedure DC-11, para. 6.3.

10 Recommended Action(s): Remedial Investigative Corrective
1. Revise the appropriate procedure to specifically address how resolution of Technical Assessment Review comments (50% and 100%) are accomplished.

Aprvl.

11 QAE/Lead Auditor Date S Jones 12-12-88 12 Branch Manager Date Mans for 12/12/88 13 Project Quality Mgr. Date James Blayford 12/19/88

Completed by Organization in Block 5

14 Remedial/Investigative Action(s) 15 Effective Date _____

16 Cause of the Condition & Corrective Action to Prevent Recurrence 17 Effective Date _____

18 Signature/Date

Comp. by Orig. QA Org.

19 Response	<input type="checkbox"/> Accept <input type="checkbox"/> Amended Response <input type="checkbox"/> Reject	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 Verifi- cation	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory	QAE/Lead Auditor/Date	Branch Manager/Date

22 Remarks

23 QA CLOSURE QAE/Lead Auditor/Date Branch Manager/Date PQM/Date



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10 Recommended Actions (continued)

2. Train appropriate personnel to revised procedural requirements.

YMP AUDIT REPORT NO. S89-2

ENCLOSURE 4

OBSERVATIONS

WMPO OBSERVATION NO. S89-2-01

**N-QA-012
8/88**

Completed by Originating QA Organization

Noted During: QA Audit S89-2	Identified By: F. Ruth	Date: NOV 14 1989
Organization: Fenix & Scisson	Person(s) Contacted: K. Vacca	Response Due Date is 20 Days from Date of Transmittal

Discussion:
F&S NWSI QAPP, Rev. 3, Section 2, para. 2.4.1.3, "Prior to assigning personnel to perform activities affecting quality they will be indoctrinated as to the purpose, scope, methods of implementation, and applicabilty of the following documents, as a minimmm,

o QAPP..."

In reviewing the Indoctrination and Training Records of the following design personnel, it was noted they had not received training to revision 3 of the F&S QAPP.

QAE/Lead Auditor <i>[Signature]</i>	Date 1-17-89	Branch Manager <i>[Signature]</i>	Date 18 Jan 89
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Completed By Respondee

Response:

Signature: _____ **Date:** _____

Response Receipt Verified/Closed

QAE/Lead Auditor	Date	Branch Manager	Date
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Completed By QA Org.

Remarks:

Observation No. 1 (continued)

1. J. Grenia
2. I. Lange
3. T. Greiner
4. J. Hill
5. B. Stanley
6. R. Coppage

The lack of training on revision 3 of the F&S QAPP is documented in F&S Deficiency Report No. 10 (QA(N)-88-01), Rev. 0, dated 5/23/88. Therefore, this observation will serve to track corrective action of DR No. 10.

Since the F&S QAPP is in the transition stage and is presently being revised, it is requested that F&S provide objective evidence (indoctrination & training records) that design personnel have received training to the latest revision of the F&S QAPP when it is issued.

WMPO OBSERVATION NO. S89-2-02

**N-QA-012
6/88**

Completed By Originating QA Organization

Noted During: QA Audit S89-2	Identified By: A. Langstaff	Date: NOV 14 1988
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Organization: Fenix & Scisson	Person(s) Contacted: R. Bullock	Response Due Date is 20 Days from Date of Transmittal
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Discussion:
A review of calculations and drawings was performed to determine if design inputs are traceable from the source through the calculation/analysis into the drawings or other design output. In two cases, ES-2 Shaft Collar Design and Controlled Blasting, traceability was not as well defined as it was in other design packages. On the collar design, calculations had been prepared informally but not put into the record as a design analysis. In the controlled blasting analysis, references were listed but specific design inputs were not spelled out. Inconsistencies in referencing from drawing to analyses and analyses to drawings were also found. Some analyses referenced the drawings they supported; others did not. There were no references found on the drawing referring to the supporting analyses.

QAE/Lead Auditor <i>S. Jones</i>	Date 1-17-89	Branch Manager <i>H.A. Caldwell</i>	Date 18 Jan 89
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Completed By Respondee

Response:

Signature: _____ **Date:** _____

Response Receipt Verified/Closed

QAE/Lead Auditor	Date	Branch Manager	Date
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Completed By QA Org.

Remarks:

Observation No. 2 (continued)

Develop a consistent method of referencing between calculations or analyses and the drawings they support.

WMPO OBSERVATION NO. S89-2-03

**N-QA-012
8/88**

Completed By Originating QA Organization

Noted During: QA Audit S89-2	Identified By: T. Watson	Date: NOV 14 1988
Organization: Fenix & Scisson	Person(s) Contacted: I. Lange/N. Tamondong	Response Due Date is 20 Days from Date of Transmittal

Discussion:
F&S procedure NWISI-DC-04, Rev. 5, para. 6.1, "The PM or his designee, shall determine which design elements are to be verified. The extent of verification of Title I and II designs, final designs, and changes to final designs, shall be determined by the PM, or his designee."

If this authority is allowed to continue into Title II and beyond, the danger of a PM misjudging the requirement for the performance of verification activities on a Title II design product could jeopardize licensability. The words "and Title II designs, final designs, and changes to final designs" should be deleted from the procedure. DC-04, para. 5.1 should also be revised accordingly.

QAE/Lead Auditor <i>S. D. [Signature]</i>	Date 1-17-89	Branch Manager <i>[Signature]</i>	Date 13 Jan 89
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Completed By Responder

Response:

Signature: _____ **Date:** _____

Response Receipt Verified/Closed

QAE/Lead Auditor	Date	Branch Manager	Date
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Completed By QA Org.

Remarks:

WMPO OBSERVATION NO. S89-2-04

N-QA-012
8/88

Completed By Originating QA Organization

Noted During:
QA Audit S89-2

Identified By:
K. Wolverton

Date:
NOV 14 1988

Organization:
Fenix & Scisson

Person(s) Contacted:
P. Hale

Response Due Date is
20 Days from Date of
Transmittal

Discussion:

F&S procedure NWSI-DC-06, Rev. 3, para. 6.1.4, "A Design Change Control Log shall be maintained by the PM, or his designee, to provide an accounting of all changes."

Although this procedure delineates a control log, it is not included with the procedure as an attachment nor are the contents of the log specified. Upon review of nine (9) Engineering Change Requests (ECRs) initiated by F&S, an Engineering Change Request log was observed being maintained. However, this log did not give appropriate information for tracking the status of each ECR. Upon further review, it was noted that F&S has deleted DC-06 in its entirety

QAE/Lead Auditor

Date

Branch Manager

Date

S. Hale

1-17-89

W. A. Howell

18 Jan 89

Completed By Responder

Response:

Signature:

Date:

Response Receipt Verified/Closed

QAE/Lead Auditor

Date

Branch Manager

Date

Completed By QA Org.

Remarks:

Observation No. 4 (continued)

and replaced it with procedures NNWSI-DC-26, NNWSI-DC-27, and NNWSI-DC-28. DC-28 addresses the concerns of this observaton, therefore, no response is required.

WMPO OBSERVATION NO. S89-2-05

N-QA-012
8/88

Completed by Originating QA Organization

Noted During: QA Audit S89-2	Identified By: K. Wolverton	Date: NOV 14 1988
Organization: Fenix & Scisson	Person(s) Contacted: P. Hale	Response Due Date is 20 Days from Date of Transmittal

Discussion:

During the review of design analysis packages FS-CA-0027, FS-CA-0031, and FS-CA-0028, the QA Design Analysis Checklists (QAP-3.3(N)) were noted as rejecting the analysis and comments were provided on a piece of paper attached to the checklist (LV-328). An additional checklist was attached to the top of these marking the analysis QA approved (informally). The second checklist was annotated in the comments section, "all comments resolved and incorporated," then signed by the originator of the comments. This was observed on several other documentation packages. Thus there is no objective, auditable evidence that comments were properly resolved.

QAE/Lead Auditor <i>[Signature]</i>	Date 1-17-89	Branch Manager <i>[Signature]</i>	Date 18 Jan 89
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Completed By Respondee

Response:

Signature: _____ Date: _____

Response Receipt Verified/Closed

QAE/Lead Auditor	Date	Branch Manager	Date
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Completed By QA Org.

Remarks:

Observation No. 5 (continued)

The procedures which delineate review information should be revised to include internal review sheets which reflect the comment, the requirement, the resolution of the comment, and the acceptance of the resolution and require that these internal review sheets be filed with the specific design document packages.

WMPO OBSERVATION NO. S89-2-06

N-QA-012
8/88

Completed by Originating QA Organization

Noted During:
QA Audit S89-2

Identified By:
S. Smith

Date:
NOV 14 1988

Organization:
Fenix & Scisson

Person(s) Contacted:
J. Grenia

Response Due Date is
20 Days from Date of
Transmittal

Discussion:

The F&S procedure for checking calculations, NNWSI-DC-03, Rev. 5, is weak. For example, there is no means to track or review (1) original draft issue of calculations, (2) specific comments and corrections made by reviewer, (3) comment and correction resolutions, (4) resolution implementation, and (5) the calculation revision sequence.

Response to the observation should include those actions taken to resolve the above program weakness.

QAE/Lead Auditor

Date

Branch Manager

Date

S. Jones

1-17-89

A. McCall

18 Jan 89

Completed By Responder

Response:

Signature:

Date:

Response Receipt Verified/Closed

QAE/Lead Auditor

Date

Branch Manager

Date

Completed By QA Org.

Remarks:

WMPO OBSERVATION NO. S89-2-07

N-QA-012
8/88

Completed by Originating QA Organization

Noted During: QA Audit S89-2	Identified By: K. Wolverton	Date: NOV 14 1988
Organization: Fenix & Scisson	Person(s) Contacted: P. Hale	Response Due Date is 20 Days from Date of Transmittal

Discussion:

F&S procedure NNWSI-DC-07, Rev. 4, para. 6.3, "Specification Content - Each specification shall be comprised of a Specification Cover Sheet, a Table of Contents, the body of the specification (Specification Format) and the Data Requirements List; in the order listed."

Several outline specifications reviewed showed there was no table of contents, no data requirements list, and a lack of consistency in certain requirements. For example, some specifications did not require a qualified QA program of the supplier when most other specifications did for the same QA level. The specifications and QA specification checklists reviewed were:

QAE/Lead Auditor <i>J. Allen</i>	Date 1-17-89	Branch Manager <i>R. A. Caldwell</i>	Date 18 Jan 89
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Completed By Responses

Response:

Signature: _____ Date: _____

Response Receipt Verified/Closed

QAE/Lead Auditor	Date	Branch Manager	Date
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Completed By QA Org.

Remarks:

Observation No. 7 (continued)

FS-SP-0204, FS-SP-0701, FS-SP-0308, FS-SP-1501, FS-SP-1507, FS-SP-0201,
FS-SP-1406, FS-SP-1406, FS-SP-0502, FS-SP-0902, FS-SP-1605, FS-SP-1614,
FS-SP-1418, FS-SP-0303, and FS-SP-1509.

The above deficiency has been identified by F&S on Deficiency Report No. DR-013 of audit QA(N)-88-02. Therefore, this observation will serve to track corrective action of DR-013.

Response to this observation should include remedial action(s) taken by F&S relative to DR-013.

WMPO OBSERVATION NO. S89-2-08

N-QA-012
8/88

Completed by Originating QA Organization

Noted During:
QA Audit S89-2

Identified By:
K. Wolverton

Date:
NOV 14 1988

Organization:
Fenix & Scisson

Person(s) Contacted:
P. Hale

Response Due Date is
20 Days from Date of
Transmittal

Discussion:

F&S procedure NNWSI-DC-09, Rev. 5, para. 6.1.2, "All work products shall have undergone review, in accordance with the DCP NNWSI-DC-04, "Design Verification", before commencement of the interdiscipline review activities."

Several drawings have received an interdiscipline review without having been verified first. The following are a few examples: FS-GA-0001, FS-GA-0085, FS-GA-0091, FS-GA-0113, and FS-GA-0180. These drawings were all stamped with the interdiscipline review stamp and signed in July and August of 1988. Upon further review, it was revealed that DC-09 was revised and reissued on 10/31/88 allowing the non-sequential design verification and interdiscipline

QAE/Lead Auditor

Date

Branch Manager

Date

S. Jones

1-17-89

W.A. Caldwell 18 Jan 89

Completed By Responses

Response:

Signature:

Date:

Response Receipt Verified/Closed

QAE/Lead Auditor

Date

Branch Manager

Date

Completed By QA Org.

Remarks:

Observation No. 8 (continued)

review as may be determined by the ESF Design Manager. These concerns were originally addressed in WMPO Audit 88-1, SDR 104.

A response is required to this observation detailing what specific steps were taken to assure that these drawings and others were not adversely affected as was stipulated in the recommended action of SDR 104.

Observation No. 9 (continued)

3. SOP-03-02, Rev. 0, stipulates in Section 1.0 that it only applies to software used in support of QA Level I activities for the NWWSI license application. However, Section 2.0 of this same procedure stipulates that this procedure also applies to QA Level II activities to the extent appropriate as defined in NVO-196-17.
4. F&S requested and received guidance from the Project Office concerning computer code validation. (RE: Letter WMPO:DHI-364, from Lester P. Skousen, Chief, Technology Development and Engineering Branch, YMP, to Richard L. Bullock, TPO, Fenix & Scisson, dated November 10, 1987). In this letter, DOE directed to F&S that for QA Level II activities, requirements for computer code validations are not mandatory for those activities that provide data which will not be used for repository licensing. F&S design personnel have stated in their interviews that no direction has been given to date concerning whether or not any of the activities F&S is involved with (including the exploratory shaft) will be used in the geologic repository licensing. Therefore, F&S has not validated any computer codes that are QA Level II.

The concern evolving here is that the Exploratory Shaft Facility (ESF) or part thereof could be used in the actual geologic repository or provide data which may be used for the repository licensing. At the present time, F&S has not been validating any of this data from commercial sources. Because it is indeterminate at this point in the project, but more importantly the possibility that this data could be used at a later date for the repository licensing process, F&S should request a definitive statement from the Project Office as to the nature of this problem.