

DOE-RL BWIP AUDIT 8703  
OF  
OFFICE OF ASSISTANT MANAGER FOR  
COMMERCIAL NUCLEAR WASTE  
AND THE BASALT WASTE ISOLATION DIVISION

AMC AUDIT REPORT  
APRIL 14-16, 1987

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## **1.0 INTRODUCTION**

The Department of Energy - Richland's (DOE-RL) Assistant Manager for Commercial Nuclear Waste (AMC) Quality Systems Division conducted an audit of the AMC Office and the Basalt Waste Isolation Division activities on April 14-16, 1987. The objective of this audit was to evaluate management's control of the project's Quality Assurance Program by the BWI Division and the Office of AMC. The organizations audited, listed by title, were:

Office of Assistant Manager for Nuclear Waste  
Basalt Waste Isolation Division (Office)  
Engineering and Construction Branch  
Geoscience and Technology Branch  
Licensing/Environmental/Safety Branch

The Document Control Center was also contacted several times during the audit when investigating document control activities. The intent was not to audit the DCC, but to understand the system and obtain documents to verify information gathered during the audit of AMC and the BWI Division.

The audit basis was the eighteen criteria of 10CFR50, Appendix B, which are further clarified in ANSI/ASME NQA-1-1986, and the BWIP Quality Assurance Plan, Rev. 2. The eighteen criteria were subdivided into multiple elements (hereafter called Program Elements) so that the auditors would specifically and consistently examine the same activities within each organization. Table 1 identifies those applicable program elements which were examined during the audit.

Attachment 1, Administrative Data, identifies auditors, observers, and meeting attendees.

## **2.0 OVERALL QUALITY ASSURANCE PROGRAM ASSESSMENT**

Those program elements of the QA Program which are the responsibility of the AMC Office and BWI Division are judged to be satisfactorily documented, managed, and controlled. There were no unsatisfactory conditions noted that resulted in issuing a Quality Audit Finding.

While there were no quality audit findings, there were some observations noted in Section 5.0 the audit team felt should be noted as opportunities for improvement. The audit team judged the audited organizations to be satisfactorily managing their QA program responsibilities.

## **3.0 APPROACH**

Preaudit research established the fact that activities performed to date by the Assistant Manager and the Deputy Assistant Manager for Commercial Nuclear Waste (AMC) and by the Basalt Waste Isolation Division (BWI) were

largely management overview in nature, with little direct participation in technical analyses. Exceptions involved participation in the review for design studies and establishment of site-specific issues resolution strategy. Applicable QA program elements for those activities, as shown on the matrix of Table 1, were 3.1A, 3.1B and 6.3. In addition, generic requirements pertaining to overall program management (i.e., provision enabling the QA program to function) were identified as generally applicable; those elements are also shown in Table 1 under Criteria I, II, V, VI, XV and XVI.

The following QA administrative procedures (BPs) were determined to be applicable either in a generic or enabling sense or in specific appropriate applications.

BP 1.1, Rev. 1, Organization	(Generic)
BP 1.7, Rev. 1, Commitment/Action Tracking	(Generic)
BP 1.8, Rev. 2, Correspondence Control	(Generic)
BP 1.11, Rev. 2, Stop Work	(Generic)
BP 2.1, Rev. 1, Quality Assurance Program Assessment	(Generic)
BP 2.5, Rev. 1, Personnel Training	(Generic)
BP 3.3, Rev. 1, Peer Review	(Specific)
BP 6.3, Rev. 2, Review and Approval of Specific Documents	(Specific)

The audit checklist was designed to evaluate AMC and BWI management involvement in the QA program (with respect to BP 1.1 and 1.11) by interview and examination of correspondence and meeting minutes. For implementation of the generic provisions and compliance with procedural requirements for (specific) technical activities, the checklist addressed examination of samples of appropriate evidence.

#### **4.0 AUDIT PERFORMANCE**

##### **4.1 SPECIFIC TECHNICAL CONTROLS**

###### **A. Peer Review**

Although BWI Branches have not yet convened any formal peer reviews, and BWI personnel have not participated as peer reviewers in contractor peer reviews, the Chief, Geoscience and Technology Branch, has established a mechanism for initiating peer reviews that is independent of those commissioned by BWIP contractors. See Section 5.0, Commendable Practices.

###### **B. Review of Contractor Technical Documents**

Procedure BP 6.3, Review and Approval of External Documents, requires that reviewers document their comments on Review Comment/Resolution (RCR) forms and assure that their comments are resolved to their satisfaction (or escalate disagreements). Interviews with the Branch Chiefs, of BWI indicated that review comments are consistently resolved with their reviewers.

The audit team reviewed RCRs retrieved from the Records Management Systems for the following contractor documents:

Test Control Plan (RHO), #BWI-AP-011, Rev. 0

Records Management Plan, #SD-BWI-AP-001, Rev. 3

Exploratory Shaft Construction Plan, #SD-BWI-PD-023, Rev. 0

All DOE comments had been resolved, and the resolutions had been countersigned by the reviewers.

#### 4.2 GENERIC PROVISIONS

##### A. Training

The audit team examined training records for three individuals from each of the three BWI Branches:

E&C - P. L. Boileau  
B. L. Nicoll  
V. T. Smith

GS&T - M. J. Furman  
A. G. Lassila  
D. J. Squires

LES - J. E. Mecca  
A. J. Bell  
S. C. Whitfield

The records were in order, contained all information required by BP 2.5, Training and Indoctrination, and showed these individuals to have received all training required for their job assignments.

##### B. Stop Work

The audit team examined the stop work records for the only two Stop Work Orders (SWOs) issued by the AMC to date - the Peer Review SWO issued to Rockwell during the conduct of Audit 8604, and the general SWO issued to Rockwell 5-1-86. The detailed list of documents examined is available for inspection in the audit file.

The documentation was in order and was in compliance with BP 1.11, Stop Work. In addition, as the lifting of the general SWO will be contingent on the AMC's readiness review process, the audit team verified compliance of Readiness Review Board activities to date with AMC's Project Management Directive (PMD) 19.11.

### **C. Correspondence Control**

Recent Surveillance QSD-053, AMC BWIP Correspondence Control, included interviews with all AMC and BWI secretaries and examination of their correspondence logs, of DCC correspondence logs, of DCC correspondence, and of selected correspondence. The surveillance found controls to be in full compliance with BP 1.8, and the results were incorporated in this audit.

### **D. Commitment/Action Tracking**

The AMC commitment/action tracking system was recently subjected to Surveillance QSD-063. Two QAFs were issued, one each to the Director, BWI, and the Director, QSD, for failure to comply with the Action Tracking Report update provisions of BP 1.7. This audit did not reexamine this area, but takes note of the fact corrective action is now underway as a result of the surveillance.

### **E. QA Program Assessment**

No management assessments of the QA program have been performed to date. However, the audit team verified that an assessment has been scheduled for June, 1987, and that arrangements are being made in compliance with requirements of BP 2.1.

### **F. Overall QA Program Management**

The audit team interviewed the management personnel of AMC and BWI to determine management effectiveness in support of the QA program. Management commitment was judged to be very high, as judged on the basis of responses to structured sequence of key questions. However, three areas of potential vulnerability were identified and are described in Section 6.0, Observations.

## **5.0 COMMENDABLE PRACTICES**

Two areas of project contribution are worth noting.

1. Discussion with the Engineering and Construction Branch brought out that in at least three specific activities, including the proposed BWIP records storage facility, DOE-RL had provided guidance to Rockwell in determination of correct Graded Quality levels. The problem of assigning impractical quality levels has been recognized. Engineering and Construction is continuing to assist in the assignment of practical quality levels so that Rockwell can become proficient in use of the rationale.

2. A mechanism has been developed independently by the Geoscience and Technology Branch to facilitate obtaining an independent Peer Review when the need for a DOE second look arises. Funds are transferred to the DOE Grand Junction Office for use when specific peer reviews are commissioned by BWI. The arrangement itself does not constitute a procurement; when it is determined that a particular issue warrants a separate peer review, the Geoscience and Technology Branch will specify the desired scope, and the Grand Junction Office will authorize their technical contractor to identify appropriate reviewers, document their qualifications and perform the required review. It should be noted that each such commissioned peer review will be required to comply with applicable provisions of the BWI project QA program.

## **6.0 OBSERVATIONS**

The audit team noted three conditions which, while not deficiencies, will require continuing alertness on the part of AMC and BWI management.

1. Branch functional charters (BP 1.1) overlap to some extent; that is, both the Engineering and Construction and the Geoscience and Technology Branch are responsible for the same kinds of decisions and overview with respect to activities within their respective technical areas. This condition is inherent to all multidiscipline operations. Each of the technical branches will normally be assigned responsibility for project activities within its discipline areas. In a data collecting mode, however, it may often prove feasible to obtain both engineering and geologic data during an activity that is seen as basically engineering or basically geoscientific. The risk is that a lapse in communication could result in failure to recognize such opportunities, or in compromising the validity of other data. BWI Branches appear to be coping effectively, but continued vigilance will be required to insure that Branch interfaces remain effective.
2. Formal exchange of direction, responses and information between DOE-RL and BWIP contractors is slowed to some extent by correspondence protocol. Protocol is essential to maintain necessary levels of control and appropriate contractual safeguards, and recent delegation of approval authority within AMC for specific types of communication is evidence that the degree for precaution is tailored to the nature of the communication. Further, the audit team notes that AMC and BWI management make effective use of direct contacts with their contractor counterparts to provide for advance communication. However, the project is somewhat vulnerable to the appearance of slow resolution of issues if judgment is based solely on the record of formal correspondence.

3. BWI Branches might consider ways to encourage greater feedback from their contractor counterparts on day-to-day effects of QA program implementation. Although QSD is charged with verification that required QA measures are in place and being exercised, it is important to recognize that technical responsibility for defining specific controls, and for determining quality levels, includes a responsibility for continuing assessment of implementation as seen from the technical point of view.



**ATTACHMENT 1 ..**  
**Administrative Data**

Name	Affiliation	Attendance		
		Entrance	Interview	Exit
JH Anttonen	Office of Assistant Manager for Nuclear Waste - Assistant Manager		X	X
OL Olson	Office of Assistant Manager for Nuclear Waste - Deputy Assistant Manager	X	X	X
JJ Keating	Basalt Waste Isolation Division -Director	X	X	X
RA Holten	Engineering and Construction Branch - Chief	X	X	
DH Dahlem	Geoscience and Technology Branch Chief	X	X	X
JE Mecca	Licensing/Environmental/Safety Branch - Chief	X	X	
AJ Bell	Licensing/Environmental/Safety Branch - Technical Information Specialist		X	
PE LaMont	Engineering/Construction Branch -Project Engineer			X
RP Saget	Quality Systems Division - Director	X		X
TK Subramanian	DOE QA Engineer	X		X

Name	Affiliation	Attendance		
		Entrance	Interview	Exit
TH Gamon	Quality Verification - Group Leader	X		X
M Witherspoon	Quality Program Development - Group Leader	X		X
WB Williams	Audit Team Leader	X	X	X
JH Rusk	Auditor	X	X	X
RP O'Brien	Auditor	X	X	X
AJ Alkezweeny	Observer - CERT - Tribal On-Site Representative	X	X	X
WH Burke	Observer - CTVIR - Umatilla Tribe Representative	X	X	X

**TABLE 1**  
**DOE-RL QUALITY AUDIT 8703**  
**ORGANIZATION versus QA PROGRAM ELEMENT**

ELEMENT	AMC	E&C	G&T	LES	DCC	BWI		
1.1 Basic QA Program Responsibility	M					M		
1.2 Internal Organization For QA	M					M		
1.3 Designation of QA Program Responsibilities	X		X	X		X		
1.4 Delegation of Functional Responsibility	M							
1.5 Stop Work Authority	X	X	X	X		X		
1.6 Organizational Interface Control		X	X	X		X		
2.1 Program Description								
2.2 Definition of Scope								
2.3 Graded Controls		X	X	X				
2.4 Controlled Conditions								
2.5 Training and Indoctrination		X	X	X		X		
2.6 Personnel Qualification								
2.7 Management Assessment of Program Effectiveness	M							
3.1A Control of Design Inputs		X						
3.2A Control of Design Process								
3.3A Design Verification								

LEGEND: X = Required by NQA-1 and Review Plan  
 R = Required by Review Plan but not by NQA-1  
 A = Was Required by NQA-1, but Review Plan moved requirement to 3B  
 M = Audit for effectiveness of management  
 E = Audit for effectiveness only

# **ORGANIZATION versus QA PROGRAM ELEMENT**

ELEMENT	AMC	E&C	G&T	LES	DCC	BWI		
3.4A Control of Design Changes								
3.5A Control of Design Interfaces								
3.6A Design Documentation and Records								
3.7A Design Deficiency Control								
3.1B Control of Inputs		X	X	X				
3.2B Control of Planning Process								
3.3B Technical Verification of Planning and Test Procedures								
3.4B Planning and Test Procedures Change Control								
4.1 Procurement Document Control								
4.2 Procurement Document Review								
4.3 Control of Changes to Procurement Documents								
5.1 Procedures		X	X	X				
5.2 Procedure Compliance		X	X	X				

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 A = Was Required by NQA-1, but Review Plan moved requirement to 3B  
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# **ORGANIZATION versus QA PROGRAM ELEMENT**

ELEMENT	AMC	E&C	G&T	LES	DCC	BWI		
6.1 Controlled Document List(s)					X			
6.3 Document Review		X	X	X				
6.4 Document Approval/ Issue Controls		X	X	X	X			
6.5 Document Change Controls		X	X	X	X			
6.6 Distribution Controls								
6.7 System(s) for ascertaining document status					X			
7.1 Procurement planning								
7.2 Supplier Selection								
7.3 Bid Evaluation								
7.4 In Process Performance Verification								
7.5 Control of Supplier Furnished Documentation								
7.6 Control of Procurement Changes								
7.7 Acceptance of Purchased Items or Services								
7.8 Commercial Grade Items/ Services								
8.1 Identification System(s) for Items/Samples								
8.2 Item/Sample Controls								

**LEGEND:** X = Required by NQA-1 and Review Plan  
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# **ORGANIZATION versus QA PROGRAM ELEMENT**

ELEMENT	AMC	E&C	G&T	LES	DCC	BWI		
8.3 Verification of Item/ Sample Identity Prior To Use								
9.1 Identification (Design- ation) of Special Processes								
9.2 Qualification of Special Processes/Personnel/Equip								
9.3 Special Process Documentation/Records								
10.1 Verification/Inspection Planning								
10.2 In-Process Verification/ Inspection								
10.3 Acceptance or Final Verification/Inspection								
11.1 Establishment of Test Requirements								
11.3 Test Procedures								
11.4 Test Documentation and Records								
11.5 Evaluation of Test Results								
12.1 M&TE Selection								
12.2 Calibration Controls								
12.3 M&TE Handling and Storage								

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# **ORGANIZATION versus QA PROGRAM ELEMENT**

ELEMENT	AMC	E&C	G&T	LES	DCC	BWI		
12.4 Traceability of M&TE Usage								
12.5 Impact Evaluation for Out of Calibration Incidents								
13.1 Establishment of Spec. Packaging, Handling, Storage and Shipping Reqmts and Instructions								
13.2 Use and Control of Handling Equipment								
13.3 Marking/Labeling of Containers/Packages								
13.4 Inventory Control and Security								
14.1 Inspection/Test Status Indicating System								
15.1 Distinguishing Identification of Nonconforming Items								
15.2 Nonconformance Reporting								
15.3 Evaluation/Disposition Controls		X	X	X				
15.4 Nonconformance Closeout								
16.1 Identifying/Reporting/Correction of Conditions Adverse to Quality		X	X	X	X			
16.2 Evaluation of Potential Impact/Significance								

**LEGEND:** X = Required by NQA-1 and Review Plan  
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# **ORGANIZATION versus QA PROGRAM ELEMENT**

ELEMENT	AMC	E&C	G&T	LES	DCC	BWI		
16.3 Determination of Cause (Significant Problems)								
16.4 Action to Prevent Recurrence								
16.5 Documentation and Reporting to Management								
16.6 Follow-up								
17.1 Designation of Documents To Become Records								
17.2 Control of Working Documents								
17.3 Authentication/Validation of Completed Documents								
17.4 Record Indexing								
17.5 Traceability Between Record and Activity								
17.6 Record Classification By Retention Time								
17.7 Control of Changes to Formal Record								
17.8 Record Submittal Controls								
17.9 Record Controls/Protec- tion during Processing to Archives								
17.10 Status During Processing								

**LEGEND:** X = Required by NQA-1 and Review Plan  
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# **ORGANIZATION versus QA PROGRAM ELEMENT**

ELEMENT	AMC	E&C	G&T	LES	DCC	BWI		
17.11 Storage Controls for for Archival Records								
17.12 Archival Records Preservation Measures								
17.13 Security-Protection of Archival Records								
17.14 Protection of Archives from Disaster								
17.15 Record Retrievability								
17.16 Record Disposition/Dis- posal Planning & Controls								
18.1 Audit Scheduling								
18.2 Audit Preparation/ Team Selection								
18.3 Audit Performance/ Documentation								
18.4 Audit Reporting								
18.5 Resolution/Corrective Action for Adverse Findings								
18.6 Audit Follow-up								
18.7 Audit Records								

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