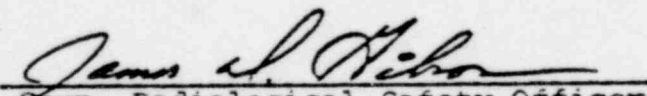


RMQAP

RADIOACTIVE MATERIALS QUALITY ASSURANCE PROGRAM

January 1, 1979

Approval:


Corp. Radiological Safety Officer

Stone & Webster Engineering Corporation
Boston, Massachusetts
NRC License No. 20-05600-02/03

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INTRODUCTION

It is the policy of Stone & Webster Engineering Corporation to receive, possess, use, or transfer licensed materials in accordance with regulatory requirements. To this end, the corporation has established this quality assurance program which delineates the requirements and tasks assigned to various elements of the Stone & Webster organization to achieve our stated objectives. The design and fabrication of radioactive material shipping packages or storage/exposure devices shall not be conducted under this quality assurance program.

This program is organized into 7 sections which correspond to the management principles delineated in Appendix E of 10CFR71 and is responsive both to Appendix E and the requirements as applicable under our NRC radioactive materials licenses 20-05600-02 and 03 for industrial radiography.

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1.0 ORGANIZATION

- 1.1 The management of the Stone & Webster Engineering Corporation retains all responsibility for the Corporation's Radioactive Material Quality Assurance Program in regards to the receipt, use, storage, and shipment of all radioactive materials by Corporate employees. The Corporate Radiological Safety Officer (RSO) is that individual designated by Corporate Management as the responsible individual for development and overall implementation of the Corporation's Radioactive Material Quality Assurance Program. He has been vested with the authority and organizational freedom to identify quality problems, to initiate, recommend, or provide solutions, and to verify implementation of solutions.
- 1.2 Site Radiological Safety Officers (SRSOs) are those individuals trained and appointed by the Corporate Radiological Safety Officer to act as the Site representatives for the Corporate RSO on all matters relating to the implementation of the Corporate Radioactive Material Quality Assurance Program. These individuals are responsible for direct supervision of all operations requiring the receipt, use, handling, storage, packaging or shipment of radioactive materials by Corporate employees. (See Appendixes 1 and 2 for Organizational Chart and Responsibility Matrix).

2.0 QUALITY ASSURANCE PROGRAM

- 2.1 This program document communicates the corporate QA policy and commitments to personnel responsible for the development and implementation of procedures associated with the handling, storage, shipping, and packaging of radioactive materials. These procedures are in manuals with a controlled distribution to all affected personnel as directed by department management. Scheduled training is conducted on the applicable quality policies, manuals and procedures. A scheduled audit program assures that they are implemented.
- 2.2 Contractors and subcontractors employed by S&W to perform services utilizing radioactive materials

shall submit their QA programs and/or evidence of compliance to the requirements of 10CFR71 to the RSO for review and approval.

2.3 The requirements for this quality assurance program are as follows:

2.3.1 This program applies to the handling, storage, shipping, and packaging of radioactive materials by Stone & Webster.

2.3.2 Procedures shall be established to implement the requirement of this program.

2.3.3 Personnel performing functions required by this program shall meet established training and experience requirements. (See Appendix III).

2.3.4 Revisions to this program and/or procedures supporting this program shall be revised in accordance with established procedures.

2.3.5 Activities affecting quality shall be documented, as appropriate, in drawings, specifications, instructions, and procedures.

2.3.6 Verification of activities affecting quality shall be accomplished through established audit functions.

2.3.7 All packages procured shall meet the requirements of 10CFR71 and shall be approved for use by S&W prior to procurement.

2.3.8 All specifications or purchase orders shall require the manufacturer of the package to submit evidence that the package meets the regulatory requirements, i.e., Certificate of Compliance, or an audit shall be performed to provide assurance that the manufacturer has an approved program and that it is in effect.

2.3.9 All contractors and subcontractors utilized by S&W shall show evidence that the

radioactive material packages utilized by them meet the requirements of 10CFR71.

2.4 The Corporate Radiological Safety Officer (RSO) shall:

2.4.1 Assure that all radioactive material packages received by the corporation are designed and manufactured under a Quality Assurance Program approved by the Nuclear Regulatory Commission for all packages designed or fabricated after 1, January 1979.

NOTE: This requirement may be satisfied by receiving a certification to this effect from the manufacturer.

2.4.2 Develop management systems and methods to implement the quality assurance program for radioactive material handling, storage, shipping, and packaging.

2.4.3 Indoctrinate and provide continuing education to personnel performing activities affecting the performance of this program.

2.4.4 Coordinate the program of establishing an S&W position on regulatory requirements.

2.4.5 Appoint the Site Radiological Safety Officer with the concurrence of the supplying activity.

2.4.6 Maintain identifiable and retrievable records.

2.4.7 Maintain and control a file of all records documenting competency of S&W personnel performing functions within this program, i.e., RSO, SRSO, or other designated individuals.

- 2.5 The Engineering Assurance Division shall:
- 2.5.1 Perform independent audits of the storage, handling, shipping, and packaging of radioactive materials records.
 - 2.5.2 Maintain identifiable and retrievable records of all audits performed upon the QA program.

3.0 DOCUMENT CONTROL

- 3.1 The review, approval, and distribution of documents, including changes thereto, which relate to shipping, packaging, storage, and handling of radioactive materials, shall be controlled through the use of written procedures.
- 3.2 A method of document change shall be established that includes the same approval circuit as the original document and is performed in accordance with written procedures that have been approved by management.
- 3.3 The distribution of documents shall be controlled to ensure that only authorized documents are in use at the locations where prescribed activities are being performed. Provisions shall be included for the retrieval, control, or destruction of out-dated documents.
- 3.4 The RSO shall prepare and issue procedures which provide control over documents that prescribe activities related to the control of shipping, packaging, and handling of radioactive materials and shall insure that all QA functions be conducted in accordance with the latest applicable changes to these procedures.
- 3.5 The Site RSO shall maintain all documents as required by applicable procedures.
- 3.6 Applicable regulatory requirements will be periodically reviewed. Areas which require modification will be accomplished through established document control procedures. (See Appendix IV).

4.0 HANDLING, STORAGE, AND SHIPPING

- 4.1 Packages of radioactive materials will only be handled, stored, or shipped in accordance with established written safety procedures.
- 4.2 The handling, storage, shipping, cleaning, and preservation of equipment shall be controlled to prevent damage or deterioration. The specific work shall be accomplished by qualified individuals in accordance with preplanned work and inspection instructions.
- 4.3 Shipments shall not be made unless all tests, certifications, acceptances, and final inspections have been completed.
- 4.4 The RSO shall establish all procedures for handling, storage, and shipping of radioactive materials.
- 4.5 The Site RSO shall supervise the handling, storage, and shipping of radioactive materials in accordance with established written procedures. He shall document all activities in accordance with established requirements and ensure that the quality of containers or packages for radioactive materials is maintained throughout storage so that no degradation or deterioration is evident. He shall report all abnormalities to the KSO for resolution.

5.0 INSPECTIONS, TESTS, AND OPERATING STATUS

- 5.1 Inspections, tests, and operating status of packages for the shipment of radioactive materials shall be controlled by established written procedures.
- 5.2 The status of packages shall be maintained by tagging, labeling, marking, or log entries.
- 5.3 Nonconforming packages shall be uniquely identified and controlled.
- 5.4 The RSO shall establish procedures in accordance with applicable regulations and corporate requirements for the inspection, testing, and

operating status checks on packages for radioactive materials. He shall also provide procedures for the disposition of all nonconforming items including all required notifications.

- 5.5 The Site RSO or other designated individual shall perform inspections and tests of the operational status of items at his facility in accordance to established requirements and shall ensure that only, acceptable items are used or shipped. He shall also maintain all documentation required regarding the status of inspections and tests.

6.0 QUALITY ASSURANCE RECORD.

- 6.1 Written procedures shall be established for the collection, collation, and maintenance of quality records which furnish objective evidence of package approvals, inspections, tests, operating logs, audit results, personnel training and qualifications and shipments of materials.
- 6.2 The RSO shall specify records to be generated and their disposition. He shall also establish control methods for auditing of records maintenance procedures and records retrieval.
- 6.3 The Site RSO shall; implement, control, and maintain a working file at the site for required records. He shall assemble and verify the completeness of quality records associated with packaging, shipping, handling, and storage of radioactive materials.

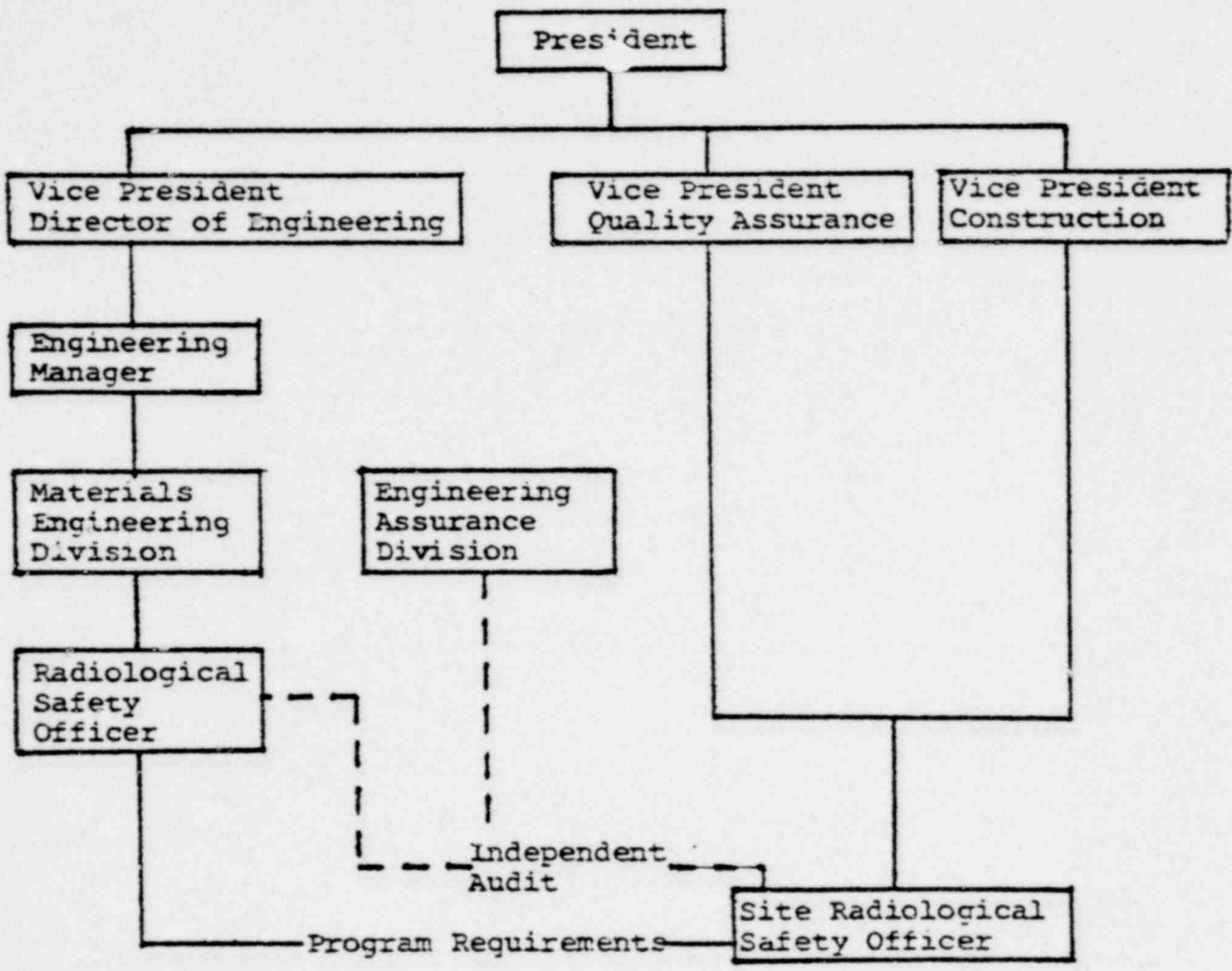
7.0 AUDITS

- 7.1 Audit programs shall be established to ensure that quality assurance activities are in compliance with the requirements of this program and related procedures and to determine the effectiveness of the quality assurance program for radioactive materials.
- 7.2 The audit program shall provide a planned and scheduled system of audits on Stone & Webster internal operations, contractors, subcontractors, and vendors. The program shall include provisions

for reporting nonconforming conditions to the responsible levels of management for any necessary corrective action. Deficient areas shall be promptly reaudited to assure accomplishment of the corrective action.

- 7.3 Audits shall be performed in accordance with written procedures or checklists by appropriately trained personnel.
- 7.4 Audit schedules shall be provided to interested parties, as requested.
- 7.6 Audit reports shall be made available for review by interested parties, as requested, at the S&W office having custody of the audit report files.
- 7.7 The Vice President, Director of Engineering, shall periodically assess the implementation of the quality assurance program for radioactive materials to ensure compliance with Appendix L of 10CFR71. Copies of the audit findings and recommendations shall be submitted to the President of Stone & Webster Engineering Corporation, as requested.
- 7.8 The RSO shall establish audit schedules and provide copies to interested parties. He shall also conduct audits of engineering site, vendor, contractor, and subcontractor activities that determine compliance with the requirements of this program and other applicable documents and maintain copies of all audits performed.
- 7.9 The Engineering Assurance Division shall establish audit schedules and provide copies to interested parties. It shall conduct independent audits of engineering, site, vendor, and subcontractor activities that determine compliance with the requirements of this program and other applicable documents. The EA Division shall also maintain records of all audits performed.

APPENDIX I
ORGANIZATION CHART



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APPENDIX II

CORPORATE RADIOACTIVE MATERIALS QUALITY ASSURANCE PROGRAM
RESPONSIBILITY MATRIX

<u>O. A. Function</u>	<u>Presi- dent</u>	<u>Engi- neering Assur- ance</u>	<u>Corporate R.S.O.</u>	<u>Site R.S.O./ Desig- nated Indi- vidual</u>
1) Program Development	A-B	C	A-B-D-E	
2) Training			A-B-D-E	
3) Certifications			A-B-D-E	
4) Testing			A-B-D-E	
5) Documentation			A-B-D-E	D-E
6) Documentation Change		C	A-B-D-E	
7) Audits		E	A-B-D-E	
8) Receiving			A-B-D-E	D-E
9) Use/Handling/Storage			A-B-D-E	D-E
10) Packaging/Shipping			A-B-D-E	B-D-E

KEY: A - Approve
B - Accept
C - Concur
D - Initiate
E - Perform

APPENDIX III

QUALIFICATION AND EXPERIENCE REQUIREMENTS
S&W PERSONNEL
ASSOCIATED WITH THE QUALITY ASSURANCE PROGRAM
FOR RADIOACTIVE MATERIALS

<u>Title</u>	<u>Education</u>	<u>Background Experience</u>
V.P., Director of Engineering	BS/BA	Minimum of 10 years in responsible assignments in heavy construction management, engineering, or quality assurance. At least two years of this time should be in the nuclear field with emphasis on project/division management
Engineering Manager	BS/BA	Minimum of 10 years in responsible assignments in engineering and design, quality assurance and control, power station construction and/or operation.
Chief Engineer, Engineering Assurance	BS/BA	Minimum of five years in responsible assignments in engineering, quality assurance and control, inspection, and/or auditing.
Chief Engineer, Materials Engineering	BS/BA	Minimum of five years in responsible assignments in engineering, quality assurance and control, inspection, and/or auditing.
Radiological Safety Officer	BS/BA	Minimum of five years in responsible assignments in engineering, construction, or quality assurance. At least two years of this time should be in the nuclear field or radiography

<u>Title</u>	<u>Education</u>	<u>Background Experience</u>
Site Radiological Safety Officer or Other Designated Individual	BS or high school	with the emphasis on radiation protection. A degree and 0-2 years of experience in quality assurance including inspec- tion and testing or safety associated with heavy con- struction activities.
	OR	High school graduate and five years of experience in inspection and testing or safety associated with heavy construction activi- ties.

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Revision 0
1/1/79

APPENDIX IV

REFERENCE DOCUMENTS

1. S&W Corporate Radiological Safety Manual
2. S&W Engineering Department Procedures and Policies
3. S&W Standard Quality Assurance Program Manual
4. Code of Federal Regulations, Part 49, Section 173.389 - 398
5. NRC Regulatory Guides: 7.1, 7.2, 7.3, 7.4, 7.5, and 7.7

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