

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

Report No. 99900503/80-01

Program No. 51200

Company: Burns and Roe, Inc.
496 Kinderkamack Road
Oradell, New Jersey 07649

Inspection at: Oradell, New Jersey; Woodbury, New York;
and Paramus, New Jersey

Inspection Conducted: April 14-18, 1980

Inspector: C. J. Hale/fo 5-6-80
D. F. Fox, Contractor Inspector Date
Program Evaluation Section
Vendor Inspection Branch

Observer: D. G. Breaux 5/5/80
D. G. Breaux, Intern Date
Program Evaluation Section
Vendor Inspection Branch

Approved by: C. J. Hale 5-6-80
C. J. Hale, Chief Date
Program Evaluation Section
Vendor Inspection Branch

Summary

Inspection conducted on April 14-18, 1980, (99900503/80-01)

Areas Inspected: Implementation of Title 10 CFR 50 Appendix B, and Topical Report B&ROE-COM4-1-NP-1A, including QA manual review, initial QA program inspection, and action on previous inspection findings. The inspection involved forty three (43) inspector hours on-site by one (1) USNRC inspector.

Results: During this inspection, five (5) deviations were identified. No unresolved items were identified.

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Deviations: Follow-up on Previous Inspection Findings -- Certain commitments to the NRC in the WPPSS/WNP-2 PSAR were not being implemented in the quality assurance program at Burns and Roe. (See Notice of Deviation, Item A).
QA Manual Review - Organizational changes were not submitted to the NRC within the required time period. (See Notice of Deviation, Item B). Initial QA Program Inspection - Certain safety-related calculations did not exhibit the required verification statement (See Notice of Deviation, Item C); certain audits were not performed in accordance with approved procedures (See Notice of Deviation, Item D); and a source Verification Plan was not contained in the Vendor Surveillance Project Plan as required (See Notice of Deviation, Item E).

DETAILS SECTION

(Prepared by D. F. Fox)

A. Persons Contacted

J. C. Archer, Chief Engineer, Civil Engineering
R. Baldwin, Supervisor, Nuclear Engineering
H. Barjian, Manager, Purchasing
*J. M. Blas, Home Office QA Manager
J. Cirilli, Manager, Vendor Surveillance
M. Crane, Senior Supervising Engineer
*J. W. DeLooper, Manager, Quality Audits
*J. R. Ellwanger, Supervisor, Licensing
S. Fox, Group Supervisor, Instrumentation
J. R. Gorga, Manager, Piping Engineering
J. F. O'Donnell, Group Supervisor, Civil Engineering
*M. Ramchandani, Group Supervisor, Stress Analysis
*W. P. Rausch, Director, Quality Assurance
S. Rifaey, Group Supervisor, Mechanical Engineering
S. Satpute, Senior Electrical Engineer
C. Scarlett, Supervisor, Nuclear Engineering
*R. E. Snaith, Senior Project Engineer
E. P. Stergakos, Specialist, Nuclear Analysis
*J. J. Verderber, Project Engineering Manager
P. M. Verity, Supervisor, QA Records
E. J. Wagner, Deputy Director, Engineering
R. E. Woodward, Director, Architecture
J. Zalavadia, Group Supervisor, Heating and Air Conditioning
*M. Zizza, Vice President, Engineering and Design

*Denotes those present at the exit meeting.

B. Action on Previous Inspection Findings

(Closed) Unresolved Item (Report No. 79-02): The quality assurance program being implemented for the WNP-2 Project did not appear to incorporate certain commitments made to the NRC in the WPPSS/WNP-2 PSAR.

This unresolved item was elevated to a deviation from commitment. See Notice of Deviation, Item A.

C. QA Manual Review

1. Objectives

The objectives of this area of the inspection were to determine that the Burns and Roe Nuclear Quality Assurance Manual:

- a. Accurately reflects the commitments in the approved Burns and Roe Topical Report B&ROE-COM4-1-NP-1A with respect to the eighteen quality assurance program criteria contained in Appendix B to 10 CFR Part 50.
- b. Contains or references appropriate procedures, and identifies applicable codes, standards and regulatory requirements, for performing quality related activities for items and services important to safety in a nuclear power plant.

2. Method of Accomplishment

Review of the following documents to determine if the above objectives were accomplished:

- a. The B&Roe (Burns and Roe, Incorporated) Topical Report B&ROE-COM4-1-NP-1A, Burns and Roe, Inc. Nuclear Quality Assurance Manual (NQAM), dated February 15, 1978, to determine the corporate QA programmatic commitments.
- b. Section I of Part IV of the B&Roe Corporate Operations Manual.
- c. The B&Roe NQAM which was determined to be identical with the B&Roe Topical Report.
- d. Applicable sections of procedures in the following functional areas:
 - 1) Fifteen (15) quality assurance procedures
 - 2) Fifteen (15) engineering and design procedures
 - 3) Five (5) procurement procedures
 - 4) Fifteen (15) project management procedures
 - 5) Thirty-seven (37) project unique procedures

6) One (1) construction management procedure

7) One (1) contract administration procedure

3. Findings

a. Deviations from Commitment

See Notice of Deviation, Item B.

b. Unresolved or Follow-up Items

None.

c. Comments

Except as noted in Paragraph C.3.a above, the inspector concluded that the commitments to quality contained in the Topical Report appear to be correctly translated into procedures, that when implemented, should result in a viable quality assurance program for items and services important to safety in a nuclear power plant.

D. Initial QA Program Inspection

1. Objectives

The objectives of this area of the inspection were to determine that:

- a. The necessary facilities, organization, written and approved procedures and instructions, and practices for the quality assurance program are in place and are being implemented.
- b. The quality assurance program is being implemented within the defined scope of supply for current nuclear projects.

2. Method of Accomplishment

Review of the following documents to determine if the above

- a. The following documents were reviewed to determine the specific WPPSS WNP-2 Project quality related commitments, procedures, instructions and standards.
- (1) Section D.2 (WPPSS QA Program) and Section D.3 (B&Roe QA Program) of the PSAR for WPPSS Hanford No. 2 Nuclear Power Plant.
 - (2) Chapter 17 and the Regulatory Guide commitments of the FSAR for WPPSS Hanford No. 2 Nuclear Power Plant.
 - (3) The appropriate sections (policies and procedures) of the B&Roe Project Plan and the Project Quality Assurance Manual to determine that the corporate programmatic commitments to quality were accurately reflected in the approved in-place quality assurance program for the WPPSS WNP/2 project (Washington Public Power System Hanford No. 2 Nuclear Power Plant) consistent with the B&Roe scope of supply for the project.
 - (4) The appropriate sections of the B&Roe Corporate Engineering Standards Manual, the B&Roe WPPSS Project Engineering Criteria Document, and the Roe Associates Architect Standard Design Criteria.
- b. The following documents were reviewed to determine if the quality assurance program delineated in the NQAM was being effectively implemented on the WPPSS WNP-2 Project:
- AE/NSSS/Owners Interface Agreement (1)
 - Design Calculations (18)
 - Design Change Requests (6)
 - Design Criteria Documents (7)
 - Design Drawings (12)
 - Design/Technical Specifications (10)
 - Design Verification Report⁺ (2)
 - Internal Audits (9)

Management Assessment Audits (2)
Procurement Document Packages (6)
Project Engineering Directives (4)
QA Records (9)
Source Surveillance Reports (9)
Source Verification Plans (2)
System Descriptions (7)
Technical Audits (3)
Technical Memoranda/Reports (7)

3. Findings

a. Deviations from Commitment

See Notice of Deviation, Items C, D, and E.

- (1) With respect to Item C, Calculations 8.14.43 and 8.14.46 did not exhibit the required statement.
- (2) With respect to Item D, audits BR80-03, BR80-4 and BR80-5 did not have all required Recommendation Blocks completed nor did the corresponding audit files contain the required checklists.
- (3) With respect to Item E, the source verification plan for contract C-12409 could not be located during the inspections.

b. Unresolved Items

None

c. Follow-up Items

- (1) The start-up logic (auto start versus manual start) for the emergency diesel generators when a LOCA occurs will be reviewed during a future inspection.
- (2) The basis for establishing the ISI (Inservice Inspection) design and access criteria for the Auxiliary Feedwater piping system will be evaluated during a future inspection.

- (1) Comments on specific sections of the B&Roe Topical Report (not project specific)
- (a) NRC Acceptance of QA Topical Report - See Notice of Deviation, Item B.
 - (b) Index - Chapter XIII is not specifically listed.
 - (c) Preamble - The title, "Director, Quality Assurance," is not correct
 - (d) Chapter I - Organization: The Corporate, Project and Quality Assurance organizations are not as currently structured.
 - (e) Chapter II - Quality Assurance Program: There does not appear to be provisions for updating the committed quality assurance program to accurately reflect changes in the B&Roe scope of work. The Procedure and Regulation Guide Matrices are not current.
 - (f) Chapter III - Design Control: There does not appear to be provisions for retention of records which document interdisciplinary reviews of design documents and design verification activities.

The requirements for reviewing, checking approving and classifying safety-related drawings (by B&Roe personnel) do not appear to be consistent within and between nuclear projects.

- (g) Chapter VI - Document Control: The meaning of the phrase "Topical Reports" is not clear."
- (h) Chapter XVII - Quality Assurance Records: There does not appear to be provisions for assuring the integrity of QA Records.

Note: The engineering and quality assurance management acknowledged the non-adherences to procedural and committed requirements and discussed plans for both corrective and preventive action. The management further stated that the B&Roe Topical Report would be reviewed and revised as necessary.

- d. Except as noted in Paragraphs D.3.a through D.3.c. above, the inspector concluded that (with respect to the commitments contained in the Topical Report and thus the Nuclear Quality Assurance Manual): (1) the commitments to quality contained in

the Topical Report appear to be correctly translated into a viable quality assurance program; (2) the necessary facilities, organization, written and approved procedures and instructions, and practices for implementing the quality assurance program are defined and appear to be in place; and (3) the quality assurance program appears to be implemented within the defined scope of supply for current nuclear projects.

E. Exit Interview

An exit interview was held with management representatives on March 28, 1980. In addition to these individuals indicated by an asterisk in paragraph A of the Details Section, the meeting was attended by:

D. J. McCormick, Manager, Corporate QA.

The inspector summarized the scope and findings of the inspection. Management comments were generally for clarification only, or acknowledgement of statements by the inspector.