

Central File



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JAN 24 1991

MEMORANDUM FOR: Jack W. Igoe, Director
 Division of Licensee Performance
 and Quality Evaluation
 Office of Nuclear Reactor Regulation

FROM: E. William Brach, Chief
 Performance and Quality Evaluation Branch
 Division of Licensee Performance and
 Quality Evaluation
 Office of Nuclear Reactor Regulation

SUBJECT: REPORT OF ASQC INTERFACE MEETING

Other NRC personnel and I participated in a meeting with members of the ASQC Energy Division Nuclear Facilities Committee [formerly the Committee for Quality Assurance of Operating Power Plants] at the Holiday Inn Crown Plaza on Wednesday morning, January 16, 1991. Enclosure 1 is a list of attendees. The meeting was an information exchange on topics of common interest. Topics discussed included performance-based QA and Section 17.3 of the Standard Review Plan, procurement of commercial grade items and their dedication to safety-related application, joint utility audits, software QA and Part 2.7 of NQA-2, status of QA Regulatory Guides, and the use of NQA-1. Enclosure 2 is the material supplied by the staff as a basis for some of the discussion. Enclosure 3 is a set of draft guidelines for performing assessments and technical evaluations that has been prepared by the committee. There is some consideration being given to issuing the guidelines as an ASQC standard.

The meeting was useful to the staff in that it provided an opportunity to learn some of the industry thinking, comments, and questions from those involved in carrying out the NRC regulations and guidelines in the discipline of QA. Also, several committee members volunteered to forward to the staff a copy of their procedures for the control of computer software. This may allow us to proceed with the software QA work planned on FIN L-1523. The meeting also allowed the staff to respond to the industry

Contact: Jack Spraul
 X-21023

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 MEETING
 X-2-4-1, PT. 50
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Memorandum for Jack W. Roe

comments presented and to receive immediate industry feedback on the subjects listed in the above paragraph.

At the end of the meeting, the staff agreed that annual meetings of this type are useful to the staff and should be continued.

Original signed by E. William Brach

E. William Brach, Chief
Performance and Quality Evaluation
Branch
Division of Licensee Performance
and Quality Evaluation
Office of Nuclear Reactor Regulation

Enclosures: As stated

cc: W. T. Russell
J. G. Partlow

DISTRIBUTION:

Central File
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Staff Attendees

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-----	-----	-----	-----	-----	-----
NAME:	JGSpraul	EMMcKenna	EWBrach	:	:
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DATE:	01/23/91	01/23/91	01/23/91	:	:

Memorandum for Jack W. Roe

ENCLOSURE 1

ASQC ENERGY DIVISION
 NUCLEAR FACILITIES COMMITTEE
 ATTENDANCE SHEET

EXECUTIVE CONFERENCE/NRC INTERFACE

DATE: 1/16/81

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ASQC ENERGY DIVISION
 NUCLEAR FACILITIES COMMITTEE
 ATTENDANCE SHEET

EXECUTIVE COUNCIL/NRC INTERFACE

DATE: 1/16/91

PLEASE PRINT NAME	COMPANY NAME AND MAILING ADDRESS	BUSINESS PHONE	HOME PHONE
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Brian Grimes	USNRC / DRES	(301) 492-0903	
GREG CULINA	USNEC / DRES/VIB	(301) 492-3221	
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Memorandum for Jack W. Roe

ENCLOSURE 2

PERFORMANCE-BASED QUALITY ASSURANCE

- SRP 17.3 ISSUED - AUGUST 1990
- PERFORMANCE-BASED ACCEPTANCE CRITERIA:
 - MANAGEMENT
 - PERFORMANCE/VERIFICATION
 - SELF-ASSESSMENT
- NOT A BACKFIT
- REFERENCES LATEST CONSENSUS NQA STANDARDS
- EMPHASIZES GRADED APPROACH
- LESS PRESCRIPTIVE

Plan for NRC Assessment of
Improvements in Licensee Procurement
and Dedication Programs

I. REGIONAL COORDINATION

Input will be solicited from each Region on which sites are potential candidates for an assessment. The regions will be asked informally to identify potential candidates that show signs of improving procurement and dedication programs and sites whose programs are generally considered weak.

The Vendor Inspection Branch (VIB) will meet with regional management and regional team members prior to the assessment as part of the assessment preparation. VIB personnel may also brief resident inspectors as to the plan during counterpart meetings.

II. SITE SELECTION

After receiving the informal input on potential candidates from regional management, VIB will propose sites for the assessments and will coordinate the selections with NRR's Divisions of Reactor Projects. Final site selection will be the responsibility of NRR and Regional management and will reflect inspection impacts.

III. ASSESSMENTS

The NRC will perform approximately eight assessments beginning in the first calendar quarter of 1991. The assessment teams will be lead by a NRR senior team leader from VIB and will include headquarters and regional inspectors.

Each assessment will consist of one week of onsite activities. An entrance meeting will be held at the beginning of the week to familiarize licensee management with the purpose and objectives of the assessment. Emphasis will be placed on the fact that the intent of the assessment is to evaluate progress made by the licensee in reviewing, revising and improving their procurement and dedication programs in response to NRC generic communications and recent inspection findings as well as NUMARC initiatives. The licensee will be clearly informed that this is not an inspection to determine programmatic compliance to NRC regulations. Any specific hardware deficiencies identified during the assessment will be identified to the licensee and provided to the region for appropriate followup. Programmatic deficiencies will be identified and discussed during the exit interview and included in the assessment reports. The team will assess improvements made by the licensee in their procurement and dedication programs, including the extent of their implementation of the NUMARC initiative on dedication of commercial grade items for safety-related applications and an evaluation of the status of review and implementation of the NUMARC comprehensive procurement initiative.

The conduct of the assessment will include a review by the team of the licensee's program as it existed in mid-1989 and earlier for comparison to the program in existence at the time of the assessment. This review should provide a basis on which the NRC can assess the changes/improvements made by the licensee during the pause in NRC programmatic inspections. Further, the assessment team will select a sample of late 1990-1991 procurements to review the licensee's implementation of the revised program. The assessment team will also review the licensee's plans and schedules for any additional program reviews, revisions or changes and will note their consistency with the commitments contained in the NUMARC initiatives.

The assessment will be conducted in accordance with the guidelines provided in the attachment.

Although the assessment is not intended to identify violations or deviations, an exit interview will be held to discuss the team's observations. Strengths and weaknesses will be discussed. NRR and Regional SES management are expected to attend the exit meetings.

An assessment report will be prepared which will be provided to the licensee and made part of the public record.

IV. TEAM MAKEUP

Each assessment team will consist of three or four members as follows:

- Team leader (VIB senior team leader)
- 1 or 2 team members from VIB
- 1 team member from the affected region

NRR and Regional SES management are expected to attend the exit meeting preparation and the exit meeting.

V. ASSESSMENT CONCLUSIONS

Following completion of the assessments, VIB will prepare a Commission Paper presenting the results of the assessments and recommendations as to future NRC actions. The Commission Paper will include a summary of the major findings of the assessments, including the identification of strengths and weaknesses found in licensee's programs. The paper will also address the status of implementation of the NUMARC initiatives.

GUIDELINES FOR THE ASSESSMENT OF IMPROVEMENTS IN LICENSEE PROCUREMENT AND DEDICATION PROGRAMS

PURPOSE

To provide guidance for the assessment of the efforts to improve licensee's programs for the procurement and dedication of commercial-grade items for safety-related applications in accordance with 10 CFR Part 50, Appendix B. Also to provide guidance to assess the status of nuclear power plant licensee's implementation of the Nuclear Utility Management and Resource Council's (NUMARC's) initiatives on procurement and commercial-grade dedication.

OBJECTIVE

During the pause in NRC programmatic inspections of licensee's procurement and dedication programs, the NRC is monitoring the improvements licensees are making in those programs by conducting assessments of their programs and maintaining close interaction with the nuclear industry through participation in conferences, panels and meetings. The objective of the assessments is to determine the effectiveness of efforts undertaken by licensees to improve procurement and commercial-grade dedication programs. The staff has provided some of the elements of effective commercial-grade dedication programs in Generic Letter 89-02, "Actions to Improve the Detection of Counterfeit and Fraudulently Marketed Products." The NRC will also assess the extent of implementation of the NUMARC procurement initiatives.

BACKGROUND

On August 24, 1990, the staff forwarded to the Commission a paper, "NUMARC Initiatives on Procurement" (SECY-90-304) which reported to the Commission the status of NUMARC's initiatives on general procurement practices. The paper included a summary of the NUMARC initiatives provided to the NRC. The paper also informed the Commission that the staff would conduct assessments at selected sites to review licensee's implementation of improved commercial-grade item dedication programs and to assess improvements made in the areas covered by the NUMARC initiatives. The results of these assessments are to be reported to the Commission in January 1992.

GUIDANCE

The guidance provided applies to all assessment team members.

- A. Evaluate the efforts to improve licensee programs for procurement and commercial-grade dedication of items for use in safety-related applications. The basis on which to evaluate the licensee's program is 10 CFR Part 50, Appendix B and related licensee commitments. Also evaluate

the status of implementation of the NUMARC initiative on commercial-grade dedication. The NUMARC initiative calls for licensees to meet the intent of the guidance provided in EPRI NP-5652, "Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07)." The NRC staff conditionally endorsed the EPRI guideline in GL 89-02.

1. Review the licensee's previous (mid-1989 and earlier) procurement and commercial-grade dedication program and compare to the existing program. Evaluate the improvements. If necessary, the team may review selected previous procurement packages for comparison to current packages being reviewed in step 2.
2. Review two procurement and dedication packages for commercial grade items completed by the licensee in late 1990 or 1991 in the electrical area and two in the mechanical area. The packages selected should differ in complexity.
3. Evaluate the extent to which the licensee's dedication program meets the requirements of 10 CFR Part 50, Appendix B (reference also EPRI NP-5652 as modified by NRC Generic Letter 89-02).
4. Determine if engineering and other technical personnel are involved in the procurement process including participating in vendor audits, the development of procurement specifications, and the development of receipt testing or inspection requirements. Specifically examine the extent to which critical characteristics are determined and factored into the procurement and acceptance process.
5. Determine if the licensee has established product acceptance methods (e.g., verification testing or audits) at the front end of the procurement process and factored them into the initial procurement requisitions and specifications. Determine whether verification testing requirements are properly included in the receipt process and appropriate personnel (engineers and/or technicians) are identified.
6. Determine how the licensee ensures product acceptability (through traceability or performance tests and/or inspections) for material which is not procured through normal supply channels. Determine if the licensee has developed a methodology for assuring an adequate basis for the acceptance of Certificates of Conformance.
7. If current licensee dedication activities identify shortcomings in specific vendor products or in program functions, determine if the licensee has reviewed previous procurements for the suitability of that equipment for safety-related applications.
8. Where actual deficiencies are identified, determine if the licensee has taken corrective action. If the deficiencies are identified by the assessment team, assure the NRC resident inspector is properly notified so that he or she may take appropriate action.

9. Examine changes in staffing levels, training and other resources (including management involvement and commitment) applied to the procurement and commercial-grade dedication program since January 1990.
- B. Assess the status of the licensee's implementation of the NUMARC comprehensive procurement initiative.
1. Assess the status of the licensee's review and assessment of the improvements suggested by NUMARC as summarized in the enclosure to SECY-90-304. The initiative calls for licensee review to be complete by July 1, 1991 and implementation actions to be completed by July 1, 1992.
 2. Where possible, review the status of improvements to licensee programs made in response to the NUMARC initiatives in the following areas:
 - a. Vendor audits - Determine if the licensee has incorporated the use of performance based audits into the audit program.

Determine if the licensee is utilizing the guidance provide in EPRI NP-6630, "Guidelines For Performance Based Supplier Audits (NCIG-16)."

Determine if the licensee has an adequate basis for not using performance based audits (i.e. the use of other product verification methods) in their procurement process.
 - b. Tests and/or inspections - Determine if the licensee has included enhanced post-receipt verification testing or inspection to assure the quality and performance capability of purchased items.

Determine if the licensee is implementing the guidance provided in EPRI NP-6629, "Guidelines for the Procurement and Receipt of Items for Nuclear Power Plants (NCIG-15)" relative to tests and inspections in their post-receipt verification activities (appropriate sections of the EPRI guidelines are specified in the NUMARC initiatives summarized in SECY-90-304).
 - c. Obsolescence - Determine if the licensee is addressing the replacement of obsolete components.

Determine if obsolete items are replaced utilizing the surplus market and if the licensee ensures product quality through use of traceability to the original equipment manufacturer, or performance tests or inspections.

Determine if the licensee is utilizing the guidance contained in EPRI NP-6406, "Guideline for the Technical Evaluation of Replacement Items in Nuclear Power Plants (NCIG-11)" and EPRI

NP-5638, "Guidelines for Preparing Specifications in Nuclear Power Plants (NCIG-04)" in their technical evaluation and procurement process.

- d. Information exchange - Determine if the licensee is exchanging procurement information through joint audits or other information networks.

Determine if procurement information is exchanged within the utility organization and shared within the nuclear industry.

- e. General - Determine if the licensee is implementing the remaining aspects of the comprehensive procurement initiatives.
- C. Determine if changes made to the licensee's receipt inspection and testing program, commercial-grade dedication program, or other quality programs would increase the likelihood of detecting fraudulently marketed vendor products. Determine if the licensee has reviewed NRC Information Notices relating to substandard materials and taken appropriate actions (reference also Information Notice (IN) 89-70, "Possible Indications of Misrepresented Vendor Products" and IN 89-70, Supplement 1.

REPORTS

The assessment results will be documented in an assessment report which will be provided to the licensee and made available to the public. The report will be prepared in the format of an inspection report (reference NRC Inspection Manual Chapter 0610) and will be dispatched by the appropriate projects division of NRR. Any enforcement items which may be identified during the assessment will be communicated to the appropriate regional office by separate correspondence.

REFERENCES

10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants"

Generic Letter 89-02, "Actions to Improve the Detection of Counterfeit and Fraudulently Marketed Products"

SECY-90-304, "NUMARC Initiatives on Procurement"

EPRI NP-5652, "Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07)"

EPRI NP-6630, "Guidelines For Performance Based Supplier Audits (NCIG-16)."

EPRI NP-6629, "Guidelines for the Procurement and Receipt of Items for Nuclear Power Plants (NCIG-15)"

EPRI NP-6406, "Guideline for the Technical Evaluation of Replacement Items in Nuclear Power Plants (NCIG-11)"

EPRI NP-5638, "Guidelines for Preparing Specifications in Nuclear Power Plants (NCIG-04)"

NRC Information Notice No. 89-70, "Possible Indications of Misrepresented Vendor Products"

SOFTWARE QUALITY ASSURANCE

- CONTRACT WITH BROOKHAVEN NATIONAL LAB
- SURVEY PLANTS (NQA-2, PART 2.7)
- IF APPROPRIATE:
 - PREPARE SQA INSPECTION PROCEDURE
 - TRAIN INSPECTORS
 - PERFORM INSPECTIONS
 - MODIFY TO REFLECT LESSONS LEARNED
- SURVEY PLANT SELECTION (VOLUNTEERS?)

REGULATORY GUIDE 1.28 REV. 4
QUALITY ASSURANCE PROGRAM REQUIREMENTS FOR NUCLEAR FACILITIES

**ENDORSES NGA-1 1989 & 1A ADDENDA QUALITY ASSURANCE PROGRAM REQUIREMENTS
FOR NUCLEAR FACILITIES**

ISSUES

- **PROCUREMENT OF COMMERCIAL GRADE ITEMS (GL 89-02)**
- **QUALIFICATION OF NDE PERSONNEL
SNT-TC-1A-1988 WITH MODIFICATIONS
TO ADDRESS RECERTIFICATION OF INDIVIDUALS NOT PRACTICING
CONTINUALLY**

NOTEWORTHY CHANGES

- **CONFIGURATION MANAGEMENT**
- **PRIORITIZATION OF INTERNAL AUDITS--WITH RELAXATION OF SCHEDULE**
- **N - TYPE CERTIFICATE HOLDER'S PROGRAM ACCEPTED FOR CODE STAMPED
ITEMS**

REGULATORY GUIDE 1.33 REV 3

ADMINISTRATIVE CONTROLS AND QA FOR THE OPERATIONAL PHASE OF NUCLEAR POWER PLANT

ENDORSES ANS 3.2 ADMINISTRATIVE CONTROLS AND QA FOR THE OPERATIONAL PHASE OF NUCLEAR POWER PLANTS

ISSUES

- ANS 3.2 1988 KNOWN TO LACK RELEVANT GUIDANCE ISSUED AS GLs AND BULLETINS
- COMPLETE BODY OF MISSING GUIDANCE SCATTERED AMONG MANY DOCUMENTS
 - GUIDANCE SEARCH ABOUT TO BE INITIATED

FUTURE

- WILL MAKE RELEVANT GUIDANCE AVAILABLE TO ANS 3.2 GROUP IN ABOUT 6 MONTHS
- EXPECT TO ENDORSE ANS 3.2 1993

NEW GUIDE
QA REQUIREMENTS FOR NUCLEAR FACILITY APPLICATIONS

ENDORSES NQA-2 1989 & 2B ADDENDA QA REQUIREMENTS FOR NUCLEAR FACILITY APPLICATIONS

PREPARING A DOCUMENT COMPARING ENDORSED VERSIONS OF THE N45 DAUGHTERS TO NQA-2 1989 & 2B ADDENDA

WILL HAVE HIGHEST PRIORITY AFTER RG 1.28 IS ISSUED

GUIDES TO BE WITHDRAWN AS A GROUP

GUIDES RELATED TO NOA-1 WHILE RG 1.28 R4 IS OUT FOR PUBLIC COMMENT

GUIDES RELATED TO NOA-2 AFTER NOA-2 IS ISSUED FINAL

QA RELATED REG GUIDE DEVELOPMENT/REVISION ACTIVITIES

NUMBER	ABBREVIATED TITLE	PUBLIC COMMENTS	PUBLISHED FINAL
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1.26	QUALITY GROUP CLASSIFICATIONS FOR WATER-, STEAM-, AND RADIOACTIVE WASTE CONTAINING COMPONENTS OF NPPS		
1.28	QA PROGRAM REQUIREMENTS (DESIGN AND CONSTRUCTION) REV 4	4/91	10/91
1.30	QA REQUIREMENTS FOR INSTALLATION, INSPECTION, AND TESTING OF INST. AND ELECTRIC EQUIPMENT	WITHDRAWAL	6/93
1.33	QA PROGRAM REQUIREMENTS (OPERATION) REV 3	9/93	3/95
1.37	QA REQTS FOR CLEANING FLUID SYSTEMS AND ASSOC. COMPONENTS OF NPPS	WITHDRAWAL	6/93
1.38	QA REQTS FOR PACKAGING, SHIPPING RECEIVING AND STORAGE OF ITEMS FOR NPPS	WITHDRAWAL	6/93
1.39	HOUSEKEEPING REQTS FOR NPPS	WITHDRAWAL	6/93
1.54	QA REQTS FOR PROTECTIVE COATINGS APPLIED TO NPPS	UNDER CONSIDERATION	
1.58	QUALIFICATIONS OF NPP INSPECTION EXAMINATION AND TESTING PERSONNEL	WITHDRAWAL	5/91
1.64	QA REQUIREMENTS FOR THE DESIGN OF NPPs	WITHDRAWAL	2/92
1.74	QUALITY ASSURANCE TERMS AND DEFINITIONS	ALREADY WITHDRAWN	
1.88	COLLECTION, STORAGE AND MAINTENANCE OF NPP QA RECORDS	WITHDRAWAL	5/91

QA RELATED REG GUIDE DEVELOPMENT/REVISION ACTIVITIES

NUMBER	ABBREVIATED TITLE	PUBLIC COMMENTS	PUBLISHED FINAL

1.94	QA REQTS FOR INSTALLATION, INSP- ECTION, AND TESTING OF STRUCTURAL CONCRETE AND STEEL DURING CONSTR- UCTION OF NPPS	WITHDRAWAL	6/93
1.116	QA REQTS FOR INSTALLATION INSP- ECTION AND TESTING OF MECHANICAL SYSTEMS	WITHDRAWAL	6/93
1.123	QA REQTS FOR CONTROL OF PROCUREMENT OF ITEMS AND SERVICES FOR NPPs	WITHDRAWAL	5/91
1.144	AUDITING OF QA PROGRAMS FOR NPPS	WITHDRAWAL	5/91
1.146	QUALIFICATIONS OF QA PROGRAM AUDIT PERSONNEL FOR NP's	WITHDRAWAL	5/91
X.X13	QA REQUIREMENTS FOR CERTAIN ACTIVITIES CONDUCTED IN NPPS (NQA-2)	8/92	2/93
X.X01	RECORDS IMPORTANT FOR DECOMMISSIONING NUCLEAR REACTORS	DG1006 ISSUED FOR COMMENT	
DG 1009	STANDARD FORMAT AND CONTENT OF TECHNICAL INFORMATION FOR APPLICANTS TO RENEW NUCLEAR PLANT OPERATING LICENSES	6/91(?)	

SESSION ? CONFIGURATION MANAGEMENT TUTORIAL

MODERATOR - Owen Gormley, Quality Assurance Specialist, US Nuclear Regulatory Commission, MS NL/S 169, Washington, DC 20555
Phone (301)4923743; FAX (301)4437804

Subsession A

Topic 1 Uses for Configuration Management
Speaker Joseph Ludford, Senior Consulting Engineer, Computer Sciences Corporation, 4600 Powder Mill Rd, Beltsville, MD 20705 Phone (301)5728586; FAX (301)9370818

Topic 2 Configuration Management Program Overview
- Program Elements
- Tools
- References and Guides

Speaker Linda Roy, Management Consultant, MACTEC, Suite 1100, 101 Convention Center Dr, Las Vegas NV 89109 Phone (702)7947370; FAX (702)7947125

Topic 3 Assembling Existing Processes into a Configuration Management Program

Speaker George Kast, Principal Engineer, General Physics Corp, 6700 Alexander Bell Dr, Columbia, MD 21046 Phone (301)2902526; FAX (301)2902600

Subsession B

Topic 4 Choosing Configuration Items in a Nuclear Power Plant
Speaker

Topic 5 Configuration Audits; How They Feed Back to Design Analysis

Speaker To Be Announced

Topic 6 Supplier Control and Vendor Manual Upgrade

Speaker David Fortin, Supervisor of Configuration Management, Virginia Power, 500 Dominion Blvd, Glen Allen, VA 23060 Phone (804)2732103; FAX

James Jaquess Section Manager Plant Engineering, ABB Impell, 333 Research Ct, Norcross, GA 30092 Phone (404)4415274; FAX (404)4415384

DRAFT CONCEPT WORDS
FOR A CONFIGURATION MANAGEMENT REGULATORY POSITION

8. CONFIGURATION MANAGEMENT

Section 2, "Design Input" of supplement 3S-1 requires that applicable design inputs, such as design bases, performance requirements, regulatory requirements, codes, and standards, shall be identified and documented, and their selection reviewed and approved by the responsible design organization. It further requires that changes from approved design inputs, including the reason for the changes, shall be identified, approved, documented and controlled. These activities should be extended to cover the full scope of activities covered by the standard, and should provide for identification of the entity responsible for ensuring the congruence between the safety related physical facility features and analyses and other design outputs. These activities should provide for the collection of the safety related design outputs in a form which allows them to be passed on to the next entity assigned responsibility for the facility. It should also provide for periodic verification that the current design outputs satisfy the design input requirements, and for verifying that the current physical facility is congruent with the current design outputs.

USE OF NOA-1

- DEPARTMENT OF ENERGY
- ASME B&PV CODE, SECTION III
- UTILITIES:
 - NIAGARA MOHAWK -
NINE MILE POINT
 - COMMONWEALTH EDISON
 - BRAIDWOOD
 - BYRON
 - DRESDEN
 - LASALLE
 - QUAD CITIES
 - ZION

Memorandum for Jack W. Roe

ENCLOSURE 3

GUIDELINES FOR PERFORMANCE OF ASSESSMENTS AND TECHNICAL EVALUATIONS

DEVELOPED BY :

THE ASSESSMENT AND TECHNICAL EVALUATIONS SUBCOMMITTEE
OF
THE ASQC ENERGY DIVISION COMMITTEE
FOR
QUALITY ASSURANCE OF OPERATING POWER PLANTS

ORDER OF GUIDELINE ELEMENTS

o	PURPOSE.....	Page 2
o	SCOPE.....	Page 2
o	BACKGROUND.....	Page 2
o	DEFINITIONS.....	Page 3
o	METHODOLOGY.....	Page 4
	I. Preparation.....	Page 4
	II. Conduct of Assessments.....	Page 9
	III. Conduct of Technical Evaluations.....	Page 10
	IV. Team Meetings.....	Page 12
	V. Management Status Briefings.....	Page 12
	VI. Evaluation.....	Page 13
o	REPORTING.....	Page 13
o	FOLLOWUP.....	Page 14
o	ATTACHMENTS.....	Page 15

PURPOSE

This document provides industry guidelines for the performance of assessments and technical evaluations of quality programs, plant processes, and management controls. This document establishes the relationship of assessments and technical evaluations with audits and surveillances. Use of the principles in this document should provide management with assessment and technical evaluation results that relate to overall effectiveness, efficiency, or technical adequacy from a management oriented perspective.

SCOPE

These guidelines address personnel selection, planning, performing, evaluating, reporting, and follow-up activities associated with the conduct of assessments and technical evaluations. These management evaluation principles apply to any industry.

BACKGROUND

The Energy Division of the American Society for Quality Control organized a Subcommittee consisting of representatives from utilities, government agencies and energy consultants, to develop basic guidelines for conducting assessments and technical evaluations to provide management with results regarding performance, technical adequacy, or effectiveness of quality programs, plant processes and management controls.

To aid in the development of the guidelines, the Subcommittee conducted an industry-wide survey to gain baseline information on current practices utilized in the energy industry. The results of the survey revealed that industry has a wide diversity of interpretation regarding assessments and technical evaluations and their relationship to the more standard reviews accomplished through audits and surveillances. This diversity of interpretation indicated to the Subcommittee that guidelines would be beneficial in providing the background and understanding for a more consistent application of the techniques and philosophies associated with assessments and technical evaluations.

To demonstrate the progression and relationship of the different verification and evaluation methods used within industry, the Subcommittee developed the evaluation method hierarchy shown in Attachment A. The hierarchy shows the diversion from evaluating for pure conformance to specific requirements to the broader-based management-oriented evaluations and is based on the following concepts:

Inspections are item or characteristic oriented and are generally accomplished by Quality Control inspectors or peer level personnel and are based on witnessing conformance to specified requirements through hold points, or verifying conformance to specified requirements through observation or measurement.

QA surveillances are process or activity oriented, tend to be limited in overall scope and the results are generally based on evaluating conformance to specified procedural requirements or good practices.

QA audits tend to be broader in scope than surveillances and more focused on procedural compliance and overall performance results.

Technical evaluations are concerned with technical parameters and proper implementation of technical requirements. Technical evaluations may be limited or broad-scoped but focus on the overall technical adequacy of products or processes and are primarily oriented toward the technical adequacy of the end use product.

Assessments are management oriented and focus on goals, objectives, management controls, and overall improvements in efficiency and effectiveness and may be subjective in nature.

DEFINITIONS

- Assessment - An evaluation of the effectiveness of quality programs, processes, and management controls in achieving management goals and objectives, improving plant performance, and assuring plant safety and reliability.
- Audit - A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation.
- Inspection - Examination or measurement to verify whether an item or activity conforms to specified requirements.
- Surveillance - The act of observing real time activities and/or reviewing documentation to verify conformance with specified requirements and industry good practices, and to evaluate their adequacy and effectiveness.

Technical Evaluation - A review of components, processes, and products to determine if they are technically adequate and consistent with design bases and technical requirements and are achieving desired results.

METHODOLOGY

These guidelines present general methodologies containing concepts that can be adapted to the particular assessment or technical evaluation being accomplished. An assessment or technical evaluation can be accomplished by one person or a team, and can be accomplished on a particular subject area on a one-time basis or periodically, such as quarterly or annually.

I. PREPARATION

A. Purpose

The intent of an assessment is to critically evaluate through real-time observations, interviews, and procedural and document reviews, the overall efficiency and effectiveness of an activity and to report conclusions to management relative to meeting management goals and objectives. The major thrust should focus on improving organizational efficiency, product quality, plant performance, safety, and reliability. In general, an assessment is conducted from a level above the detailed activities and is not directly involved in evaluating strict procedural compliance. Assessments can be general in nature by crossing multiple activities, organizational boundaries, and company policies, or can be focused on a specific functional area or activity.

The intent of a technical evaluation is to critically evaluate through real-time observation, technical analyses, interviews, and licensing basis document and end-use document reviews, the overall technical adequacy of an activity and the acceptability of end products to assure the design bases are met and that safety function or plant safety and reliability are not compromised. In general, technical evaluations are involved with technical parameters and overall technical adequacy and are not directly involved in evaluating programmatic aspects or strict procedural compliance. Technical evaluations do not focus on administrative functions or processes but are generally concerned with technical issues or engineering matters such as calculations, analyses, plant equipment functions, plant system function, and system or component operation and testing. These evaluations can be broad and cover an entire system or several systems or can be concerned with a single calculation or component.

As indicated above, assessments and technical evaluations will not normally focus on compliance with procedures. However, it must be recognized that compliance with procedures is mandatory and any noted non-compliances while accomplishing an assessment or technical evaluation must be addressed.

B. Scope

The scope of assessments should be determined through review of the controls that govern activities related to implementation of management goals and objectives. The scope of technical evaluations should be determined through review of the technical parameters that relate to adequacy of the activity or system being evaluated. Considerations which may influence the scope of assessments or technical evaluations include licensing basis requirements, commitments, organizations, management policies, industry problems, industry practices, industry-wide codes, issues or concerns, equipment problems, operational problems, externally identified concerns, past performance, and plant indicators.

A clear understanding of management expectations must be obtained prior to commencing the assessment or technical evaluation to assure the correct focus is maintained and that management agrees with the intended approach.

C. Scheduling

Timeframes for accomplishing assessments or technical evaluations should be determined by the management of the organization initiating the evaluation, or by the leader, based on management input. Duration may be either long or short term in nature depending on:

- o Scope;
- o Location of personnel, organizations, or documents (multiple or single);
- o Resource availability (personnel, facilities, time),
- o Budgetary constraints;
- o Coordination with other verification activities scheduled or in progress.

Affected organizations should be notified a reasonable time before commencement of the assessment or technical evaluation. This notification should be in writing and include such information as purpose, scope, schedule, and names of personnel.

D. Personnel

The importance of having personnel with direct experience and expertise in the area of review cannot be over-emphasized. Based upon the scope of the assessment or technical evaluation, individuals who have the necessary technical or operational background to find significant, but often subtle conditions requiring corrective action, are necessary. Management must ensure that qualified personnel with the necessary capabilities are used to accurately observe and evaluate an activity.

Since assessments and technical evaluations can address a wide variety of subjects, these guidelines do not attempt to provide specific qualification requirements. Personnel should be matched with their appropriate areas of expertise based on education and experience. If a team is used, the team must have the proper mix of personnel. When selecting technical participants from line and technical organizations, their independence from the areas to be evaluated, their availability during the scheduled time frame, their breadth of knowledge, budget and time constraints, and facility access requirements must be considered. If internal expertise is not available due to lack of independence or availability, then outside assistance may be required. In some instances, it may be desirable for certain team members to have responsibilities in the areas being reviewed to assure accurate understanding of the processes and to enhance ownership of the results. The qualifications of prospective team members must be thoroughly reviewed to verify suitability for assigned tasks.

Management must provide the resources and ensure staff commitment to complete effective assessments and technical evaluations within schedule and budgetary constraints. The number of personnel is typically three to seven for an assessment, or one to five for a technical evaluation, but both are influenced by scope, budget and schedule. The major consideration for personnel selection is an accurate determination of the scope, specific functional areas, specific technical parameters, components, or products to be evaluated.

The purpose and scope of assessments and technical evaluations will determine if personnel need to be completely independent of the activity being reviewed. In some cases, the best qualified personnel to conduct assessments or technical evaluations will be those who have responsibilities in the areas being evaluated. Independence should be maintained to the extent of not reviewing an evaluator's own work. The overall credibility of assessment results will be affected by the qualifications and objectivity of assessment personnel; or for a technical evaluation, by the technical competence of the technical evaluation personnel and the depth and detail of the evaluation.

E. Planning

Upfront planning and preparation is vital to timely completion and effectiveness of any type of assessment or technical evaluation. The more thought and planning at this point will lead to timely execution and minimal impact on the affected organizations and plant operations.

Assessment planning may include:

- o Reviewing source and requirement documents and identifying applicable requirements;
- o Identifying the applicable commitments;
- o Identifying the hierarchy of management controls;
- o Identifying organizational roles and responsibilities;
- o Flowcharting processes from objectives and goals to the end results and identifying key controls and management interfaces important to successful implementation;
- o Reviewing past evaluation documents and results;
- o Reviewing related industry experience;
- o Identifying appropriate performance indicators relevant to the specific functional areas;
- o Defining assignments for assessment personnel;
- o Determining additional training needs of assessment personnel;
- o Identifying applicable assessment techniques; and
- o Interviewing organizations to be assessed to identify any concerns they may have.

An assessment plan should be developed that identifies the performance measures to be assessed. The measures should be sufficiently broad and kept on a high enough level to relate to overall adequacy of the specific functional areas being evaluated. They should be performance-based and relate to management goals and objectives and process effectiveness.

Technical evaluation planning may include:

- o Identifying the applicable licensing basis documents;
- o Identifying the applicable calculations and design basis documents;
- o Identifying the applicable technical requirements;
- o Identifying the applicable design, operations, maintenance, test documents, etc. that implement technical requirements;
- o Identifying the applicable commitments;
- o Determining the depth of review required and type of analyses required;
- o Establishing organizational interfaces required;
- o Determining accessibility of equipment and components;

- o Reviewing related industry experience;
- o Identifying equipment inspections and tests to be performed; and
- o Identifying performance history and appropriate performance indicators relevant to the functional areas.

A technical evaluation plan should be developed that identifies the specific criteria to be evaluated. The criteria should be sufficiently broad to relate to the overall technical adequacy of the activity, component, or documents being evaluated. They should be performance-based to the extent possible and relate to the technical adequacy of the end product produced. The technical evaluation plan should address whether a vertical slice type of review will be used, whether alternate calculations will be used, the approximate size of sample, use of plant tests, use of walkdowns, or equipment inspection, etc.

F. Personnel Orientation

After personnel selection, orientation sessions should be conducted such that each individual understands the reasons and approach for the assessment or technical evaluation. A briefing by appropriate management is often beneficial to explain the need for, and importance of the assessment or technical evaluation. Orientation may include the following:

- o An understanding of the purpose, scope, and objectives;
- o Identification of internal and external interfaces in the affected organizations;
- o An understanding by personnel of their individual assignments;
- o Personnel familiarization with applicable and available source data;
- o Schedule requirements for performance of the assessment or technical evaluation, pre and post briefings, and report submittals;
- o Requirements for in-process personnel meetings;
- o Requirements for status briefings of responsible management;
- o Requirements for protocol to be followed during the conduct of the assessment or technical evaluation.

In addition, any needed general and specialized training in the appropriate functional areas; root cause analysis and validation; or methods of observing, interviewing, and investigating should be administered.

II CONDUCT OF ASSESSMENTS

Assessments should be performed by conducting personnel interviews, observing processes and activities, conducting human factor reviews, and documentation reviews, as appropriate. A broad perspective should be maintained during the conduct of the assessment and effort should not be expended focusing on process implementation details.

A. Interviews

Interviews of personnel should be at all levels in the assessed organizations and not just managers or supervisors. Interviews conducted by assessment personnel should address directly, or evaluate indirectly, the following items as defined by the assessment scope:

- o Organizational culture and values;
- o Management's performance expectations;
- o Organizational commitment to, and understanding of, management objectives;
- o Personnel qualifications and experience;
- o Job knowledge and understanding of responsibilities;
- o Line organization personnel opinions regarding efficiency and effectiveness of the assessed processes;
- o Aggressive pursuit to enhance or upgrade procedures;
- o Horizontal and vertical communications effectiveness;
- o Knowledge of organizational structure and interfaces;
- o Line organization morale, motivation, and concerns;
- o Availability of resources to accomplish tasks;
- o Employee development initiatives;
- o Management involvement and control in daily activities;
- o Management accountability and ownership of assessed areas;
- o Management responsiveness to problems and corrective actions.
- o Proactive work environment.

B. Observations

Real-time observations made during assessments should focus on overall process efficiency and adequacy, satisfactory performance to achieve management objectives, and activities that affect safety and reliability of the facility. Emphasis should be placed on how well management controls produce intended results rather than strict compliance to procedures. Generally, observations should be random and not planned or announced as to exact activity or time. Observations should be planned to encompass a representative sample of work in progress.

C. Document Reviews

Document reviews should be conducted when appropriate to meet the objectives of the assessment. When document reviews are considered necessary, attention should be focused on the intended purpose of the process and how well the documents meet the objectives of management. Reviews should evaluate the acceptability of the end product and not focus on the in-process documentation details.

D. Surveys

Informational surveys may be used by assessment personnel to gather data from a large number of people. This information may be used to redirect or focus the assessment and confirm interview results or observations.

III CONDUCT OF TECHNICAL EVALUATIONS

Technical evaluations should be performed through the use of document reviews, tests, technical analyses, system walkdowns, human factor reviews, equipment inspections, observations, and personnel interviews, as appropriate. The evaluation should focus on the technical adequacy of the activity and not on strict compliance with procedures.

A. Document Reviews

Document reviews should center on licensing basis documents, design basis documents, calculations, vendor information, and operations, maintenance, or test documents that implement technical requirements or technical parameters. The reviews should assure these requirements and commitments are contained in the implementing documents and that the documents are technically adequate.

B. Tests

Equipment or system operational, functional, or design basis tests may be conducted to gather hardware related data. Testing can be used to verify that a component or system meets functional or design performance requirements. The use of plant testing depends on equipment status, system status and accessibility. The technical parameters and prerequisites of the test must be consistent with design requirements.

C. Technical Analyses

Technical analysis should be used in every technical evaluation. Technical analysis by qualified technical specialists may include:

- o Independent reanalysis using the same methodologies utilized in the original analysis;
- o Reanalysis using different methodologies (i.e., alternate calculations) to compare results to the original analysis;
- o Partial reanalysis of certain areas to compare results;
- o Comparison of design inputs, including assumptions, to design output for reasonableness, based on the logic of the original analysis.

Technical analysis should assure that proper design process has been followed; that all assumptions and inputs are credible and confirmed; that relevant analysis has been used; that the design parameters are accurately translated into implementing plant documents; and that design and plant configuration control are maintained through the use of these implementing plant documents.

D. System Walkdowns

System walkdowns can provide important information regarding the as-built plant configuration compared to actual design requirements. It is good practice to evaluate the field configuration whenever possible. Changes in the installed configuration from the engineering design basis can account for deviations from performance expectations and can create unreviewed safety questions. In addition, a number of minor approved changes can create a cumulative effect that no longer supports the overall design basis.

E. Equipment Inspections

Equipment inspections should be accomplished whenever possible to gain hardware related data. These can be visual inspections of operating equipment, review of equipment history, or nondestructive or destructive examination of equipment removed from service. These inspections may provide critical information that could prevent equipment failures or detect failure of equipment to meet design requirements.

F. Observations

Real-time observations made during technical evaluations should focus on the adequacy of the end product, satisfactory performance of operational functions, and any activities that affect safety and reliability of the facility. Generally, observations should not be announced as to exact activity or time. Depending on the evaluation activity, real-time observations may not always be possible.

G. Interviews

Personnel interviews should be conducted as needed to determine methodologies used, assumptions made, technical analyses utilized, and technical expertise in the areas under evaluation. Historical facts can be obtained from persons who witnessed events relevant to the technical evaluation. In general, interviews should be used to gather information pertinent to the scope of the evaluation and to substantiate findings.

IV TEAM MEETINGS

Frequent team interface meetings should be conducted, preferably on a daily basis to discuss in-process results, developments, concerns, and to fully develop emerging issues. Personnel synergism should be encouraged and emphasized to obtain benefit from the expertise of all personnel and to allow redirection of the effort as necessary. These meetings will help ensure that the assessment or technical evaluation plan has been completed and that supporting documentation is properly identified.

V MANAGEMENT STATUS BRIEFINGS

Periodic management status briefings while the assessment or technical evaluation is in progress ensure a complete understanding of issues by responsible management. These communications can be critical in ensuring that an understanding exists between evaluation personnel and the responsible organization. Resolutions and courses of action can be developed at these communication sessions.

VI EVALUATION

Evaluation of the information gathered forms the basis for conclusions and recommendations regarding process effectiveness, management controls, or overall technical adequacy of the activity. The information gathered should be consolidated, categorized into similar areas, and summarized for each categorized area. The information should then be analyzed to identify weaknesses, strengths, and trends.

Conclusions for assessments are developed by prioritizing results in terms of significance in meeting management objectives with regard to process effectiveness and management controls, and determining if performance results meet the criteria included in the assessment plan.

Conclusions for technical evaluations are developed by prioritizing results in terms of significance in meeting the design basis, plant configuration control, safety and plant reliability. Conclusions are drawn relative to technical adequacy, consistency with the design basis, operating parameters and achieving desired results.

The final step of the evaluation process is to determine the degree to which the overall objectives were met. At any point in the evaluation process it may be determined that further reviews are necessary to adequately complete the assessment or technical evaluation in accordance with management expectations.

REPORTING

At the conclusion of the evaluation process, a final management debriefing should be conducted to present the results, conclusions, and recommendations of the assessment or technical evaluation personnel. A written report approved by the team leader which presents the results of the assessment or technical evaluation should be issued within four weeks following the management debriefing to allow for timely response and implementation of corrective actions. Preliminary distribution of draft reports can be beneficial. Typical report elements that should be addressed are:

Executive Summary - This section should contain the assessment or technical evaluation purpose, a brief description of the scope, a summary of the results, and overall conclusions and recommendations. These conclusions should address the significance of the results. Generally this section should not be more than one page in length and should emphasize the significant evaluation results for the intended management level.

Purpose - Provide a statement of the assessment or technical evaluation purpose describing the overall objectives and reasons for accomplishing the assessment or technical evaluation.

Scope - Provide a detailed description of the boundaries and limitations of the assessment or technical evaluation. The scope should include the activities and processes evaluated, major types of documents reviewed, and functional areas, components, or systems covered.

Methodology - Describe techniques and approaches used to gather information and formulate conclusions.

Results - Presentation of results includes categorization of problem areas and discussions relative to these problems areas. Terms to be used for identifying specific issues are dependent on the individual organization's terminology. Identified deficiencies or violations should be documented in the appropriate corrective action system by the responsible organization and should be cross referenced in the report.

Conclusions - Conclusions should be presented for each area evaluated. Strengths and weaknesses should be identified.

Recommendations - Recommendations for improvements should be presented for each categorized problem area considering technical adequacy, quality, safety, good practices, efficiency, effectiveness, and resources.

Attachments - Documents to be considered for inclusion in attachments are schedules, team experience summary, process flow charts, personnel contacted, test results, survey results and detailed documentation lists.

FOLLOWUP

Followup activities subsequent to the final report are dependent on the corrective action system of the organization and management direction. In some cases, management may not consider followup to be necessary, based on the original intent of the evaluation or the results and recommendations of the evaluation. In other cases, followup may be beneficial to assess effectiveness of improvements made by responsible organizations. Followup activities can range from an evaluation of the same original scope, to a review of the actions taken to resolve individual problem areas. Personnel designated to followup can be the team personnel, other independent personnel, or personnel from the evaluated areas.

EVALUATION METHOD HIERARCHY

