UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 2, 1997

REISSUED TO CORRECT THE DATE OF MEETING

MEMORANDUM TO: David B. Matthews, Chief
Generic Issues and Environmental
Projects Branch
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

FROM: Melinda Malloy, Project Manager
Generic Issues and Environmental
Projects Branch
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MEETING WITH THE NUCLEAR ENERGY INSTITUTE (NEI) AND LICENSEE REPRESENTATIVES ON QUALITY-ASSURANCE-RELATED TOPICS

On February 27, 1997, representatives of the U.S. Nuclear Regulatory Commission (NRC) met with representatives of the Nuclear Energy Institute (NEI), Arizona Public Service Company's Palo Verde Nuclear Generating Station (PVNGS), and Houston Lighting & Power Company's South Texas Project (STP) at the NRC's offices in Rockville, Maryland. The purpose of the meeting was to discuss NEI's concerns related to graded quality assurance (GQA) activities with volunteer plants (Grand Gulf Nuclear Station, PVNGS, and STP), performance-based QA activities, the potential impact on the volunteer plants of the draft regulatory guide (RG) on GQA, and the status of the staff's review of the petition for rulemaking on 10 CFR 50.54(a) which was filed by NEI on behalf of the nuclear utilities. These concerns were articulated in an October 10, 1996, letter from Ralph Beedle to Ashok Thadani (NRC) (see Accession No. 9610230003 for this letter). The list of meeting attendees is provided in Attachment 1.

1. Performance-Based Regulations and Graded QA

NEI presented an outline of what the industry considers are necessary steps to improve the regulatory process for QA (Attachment 2). NEI reiterated its concurrence with the staff position on policy issues discussed in SECY-96-218, "Quarterly Status Update for the Probabilistic Risk Assessment (PRA) Implementation Plan, Including a Discussion of Four Emerging Policy Issues Associated with Risk-Informed Performance-Based Regulation," dated October 11, 1996, as well as with the associated staff requirements memorandum from the Commission, dated January 22, 1997. NEI stated that probabilistic safety assessment (PSA) techniques constitute an invaluable tool for implementing the maintenance rule. NEI also stated that while the risk-informed approaches are similar for in-service testing (IST) and GQA, it acknowledged limitations in modeling the effect of GQA changes in the PRA model.

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The staff emphasized its continuing commitment to resolving the risk-informed, performance-based regulatory issues discussed in SECY-96-218. The staff indicated that there are certain concerns related to PSA which must be addressed. Specifically, the staff is concerned that the industry has not yet developed or demonstrated a sufficiently sound process (i.e., scrutable and repeatable) that would guide the consistent implementation of PSA technology in all suitable regulatory areas, while at the same time maintaining the necessary regulatory and safety margins. Another remaining area of concern for the staff is the quality of the PRA models and the scope of their modeling. Despite these concerns, the staff continues to encourage industry in using PSA techniques for GQA; as well as for other regulatory applications (e.g., IST, Improved Standard Technical Specifications (iSTS), etc.).

Although it intends to proceed cautiously with a risk-informed, performance-based regulatory regime until all safety and regulatory implications are fully understood, the staff does not share the industry's perception that little progress has been made in agency efforts aimed at increasing the use of PSA tools in regulatory decision-making processes. As an example of progress in this area, the staff cited the amendment to the STP Technical Specifications.

NEI emphasized that in its opinion, the GQA initiative is a prime candidate to pursue for performance-based regulatory improvements. NEI outlined its conceptual framework for a performance-based monitoring approach. NEI also expressed its intent to meet again with the staff in April 1997 to further discuss the approach and to develop plans for a pilot implementation.

2. Staff Activities with Graded QA Volunteer Plants

The Houston Lighting and Power (HL&P) Company representatives presented a brief synopsis of GQA activities at the STP site (Attachment 3). The presentation included an historical summary, a description of the QA program changes needed to implement a GQA program at the STP, the status of current activities, and an account of safety significance categorization of the first two systems. The HL&P representatives expressed concerns about their planned GQA approach in light of the uncertainties associated with their perceptions on upcoming guidance from the draft RG on GQA.

The Arizona Public Service (APS) Company representatives discussed the GQA efforts at the PVNGS. Their presentation slides are provided in Attachment 4. Functional areas that the licensee has selected for application of GQA include procurement and audits. Other areas that have been identified for potential application include environmental equipment qualification, commodities, and the critical vendors list. The APS representatives expressed an interest in continuing the dialogue with the staff in trying to resolve previous comments and concerns identified during past staff site visits.

The representatives from NEI and the GQA volunteer plants present at the meeting stated that the staff's expectations on the level of detail needed for an acceptable risk-ranking process for GQA remains unclear. Specifically, they stated they were unaware of the need to include quantitative PRA sensitivity analyses as part of the structures, systems, and components (SSCs) safety significant categorization process. The staff's initial thoughts on needed studies was discussed during the February 21, 1997, briefing on the draft RG on GQA to the Advisory Committee on Reactor Safeguards (ACRS). The staff identified two types of studies; one involving changes in the PRA model to reduce the categorization dependence on highly uncertain PRA models (e.g., operator recovery and common-cause failures); and the other to investigate the aggregate risk impact of implementing GQA by simultaneously varying the failure probability of all low-safety-significant SSCs.

The staff clarified that these were not new staff concerns and that requests for additional information (RAIs) sent to HL&P (on the STP), as a graded QA volunteer, included questions regarding such studies. HL&P's response to the RAIs was that some model sensitivity studies were planned, but that the identified aggregate risk sensitivity issue would be controlled by the performance monitoring feedback loop. Similar responses to similar RAIs were also received from Entergy for Grand Gulf and the APS for the PVNGS. The staff reiterated the importance of satisfying technical issues in this area.

NEI stated that the industry remains concerned about staff expectations on GQA which it believes to be contained in the draft RG and which remain unknown to the volunteers plants. The staff acknowledged the concerns and stated that in keeping with its commitments to the Commission, its goal is to issue all risk-informed RGs for public comment no later than April 1997.

3. Petition for Rulemaking on 10 CFR 50.54(a) and Performance-Based QA

NEI emphasized that while the industry does not believe that changes in the provisions of Appendix B to 10 CFR Part 50 are necessary, a change to the provisions of 10 CFR 50.54(a) is needed if the industry is to be allowed to move forward on performance-based approaches to implementing QA programs. NEI presented its early concept of performance-based QA indicators (see Attachment 2) which would provide monitoring and trending data for utilities to identify degrading conditions and to take corrective actions as necessary. Such an approach rests on the assumption that licensees would have flexibility (not currently available under 10 CFR 50.54(a)) to change or re-arrange their QA program implementation without prior NRC approval. NEI reiterated its belief that the current QA program change process is too cumbersome and that more balance is needed.

The staff agreed that it is appropriate to evaluate the 10 CFR 50.54(a) QA program change process to find objectively acceptable alternatives to the threshold for reporting QA program changes requiring prior approval by the NRC. The staff emphasized,

however, that the outcome of the NEI petition should not prevent or inhibit progress in GQA activities at the volunteer plants.

At the conclusion of the meeting, both NEI and the staff agreed that progress can be made towards a more performance-based regulatory framework and agreed to meet to continue the dialogue once the risk-informed RGs are issued for public comment.

This summary was prepared with input provided by the staff of the Quality Assurance and Maintenance Branch, Division of Reactor Controls and Human Factors, Office of Nuclear Reactor Regulation (NRR) and the staff of the Probabilistic Safety Assessment Branch, Division of Systems Safety and Analysis, NRR.

Attachments:
1. List of Attendees
2. NEI's Briefing Slides
3. HL&P's Briefing Slides
4. APS's Briefing Slides

Project No. 689

cc w/atts: See next page

Distribution for Summary of Meeting w/ NEI on QA-Related Topics dated April 2, 1997

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LHiggins, OIG
JMoore, OGC
BBordenick, OGC
MBiamonte, EDO
WDean, EDO

MEETING ON QA-RELATED TOPICS

February 27, 1997

List of Attendees

Name	Organization
Ralph Beedle	Nuclear Energy Institute
MaryAnn Biamonte	NRC/EDO
Suzanne Black	NRC/NRR/HQMB
Larry Campbell	NRC/NRR/HQMB
Mike Cheok	NRC/NRR/SPSB
Stephen Dinsmore	NRC/NRR/SPSB
Jack Donohew	NRC/NRR/DRPW
Ed Ford	NRC/NRR/HQMB
Rosemary Fullner	Arizona Public Service Co./Palo Verde
Robert Gramm	NRC/NRR/HQMB
Owen Gormley	NRC/RES/GSIB
Dale Harmon	Westinghouse Energy Systems
Walter P. Haass	NRC/NRR/HQMB
Adrian Heymer	Nuclear Energy Institute
Lee Higgins	NRC/OIG
Gary Holahan	NRC/NRR/DSSA
Robert Jones	NRC/NRR/SPSB
Michael Knapik	McGraw-Hill
Donald Lamontagne	Arizona Public Service Co./Palo Verde
Robert M. Latta	NRC/NRR/HQMB
Richard P. Lynskey	Tennessee Valley Authority
Mark McBurnett	Houston Lighting & Power Co./ STP
Juan Peralta	NRC/NRR/HQMB
Tony Pietrangelo	Nuclear Energy Institute
Mike Polak	Baltimore Gas & Electric Co.
Roy Rehkugler	Houston Lighting & Power Co./ STP
Mark Rubin	NRC/DSSA/SPSB
R. Lee Spessard	NRC/NRR/DRCH
Donald Taylor	NRC/NRR/HQMB
Ashok Thadani	NRR/ADT

Attachment 1

List of Attendees

Name	Organization
Roger D. Walker	TU Electric
H. Roy Woods	NRC/RES/PRAB
Altheia Wyche	SERCH Licensing/Bechtel

Abbreviations

ADT	Associate Director for Technical Assessment
Co.	Company
DRPW	Division of Reactor Projects - III & IV
DRCH	Division of Reactor Controls and Human Factors
DSSA	Division of Systems Safety and Analysis
EDO	Office of the Executive Director for Operations
GSIB	Generic Safety Issues Branch
HQMB	Quality Assurance and Maintenance Branch
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OIG	Office of the Inspector General
PRAB	Probabilistic Risk Analysis Branch
RES	Office of Nuclear Regulatory Research
SPSB	Probabilistic Safety Assessment Branch
STP	South Texas Project

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IMPROVING THE REGULATORY PROCESS FOR QA

NRC - NEI Meeting

February 27, 1997

Attachment 2

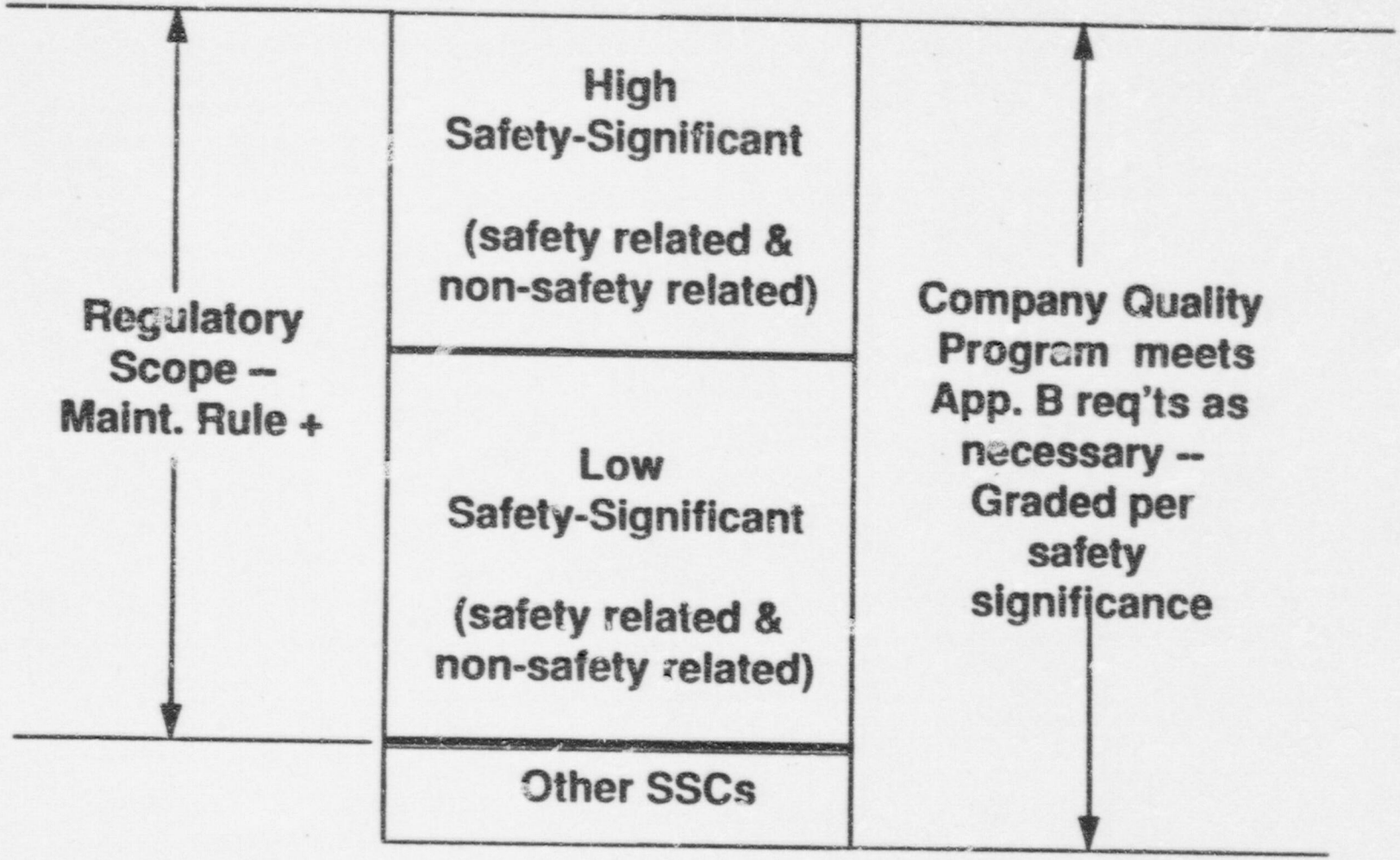
IMPROVING THE REGULATORY PROCESS FOR QA

- Clarify statements made in NEI letter 10/10/96
  - Use of PSA
  - QA Program for low safety significant SSCs
- Improved approach needed for assessing QA program effectiveness -- performance-based
  - Monitoring plant (equipment, personnel, process)
  - Precursors for declining plant performance
- Graded QA Draft Reg. Guide
  - Uncertainty
  - Status

NEI LETTER ON GRADED QA 10/10/96

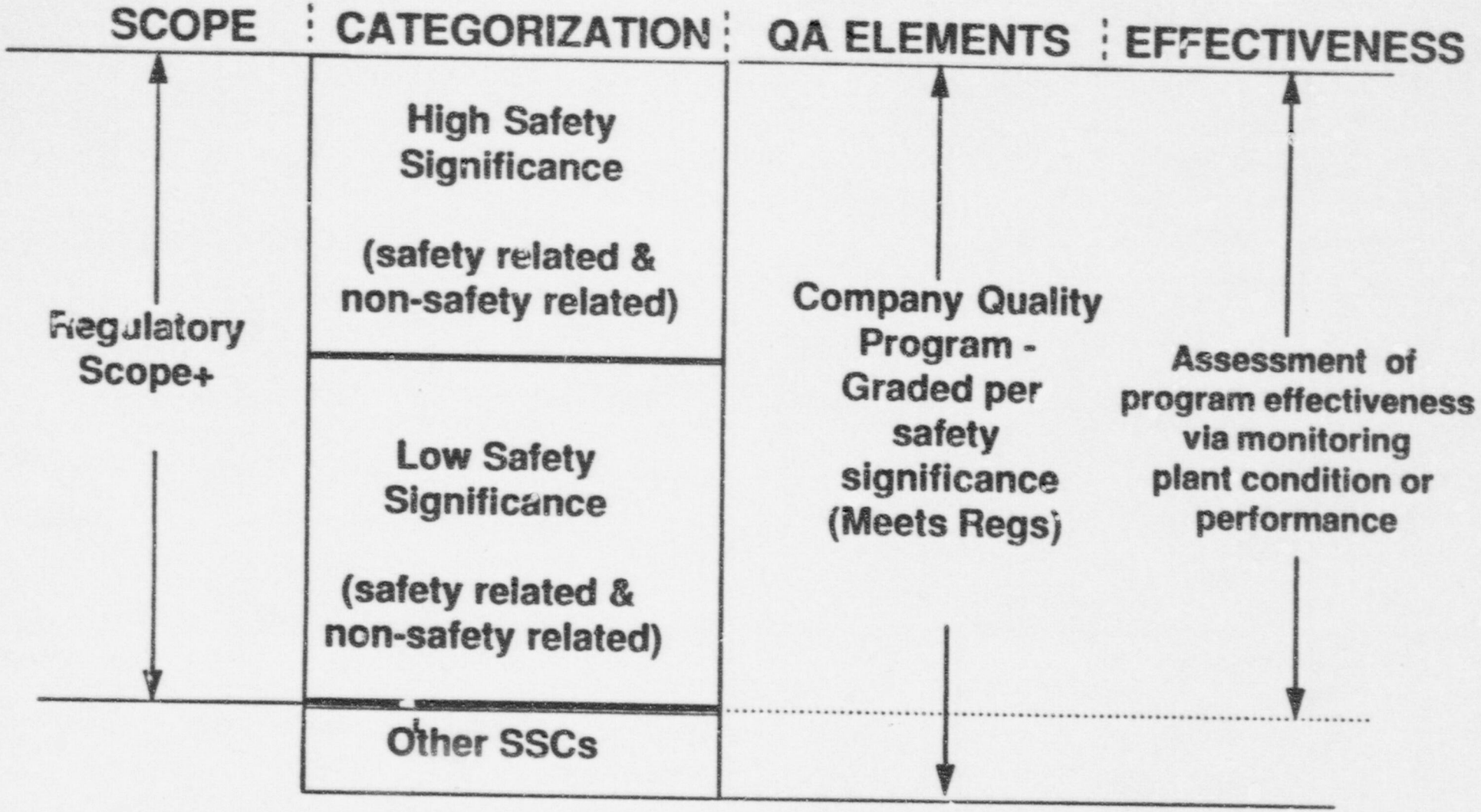
- industry uncertainty
  - progress & industrywide benefit
- NRC - pilot project meetings
  - RAIs
  - Industry perceptions
- Uncertainty over adequacy of QA program for low safety significant SSCs
- ACRS briefings
  - Apparent convergence at Nov. 1996 briefing
  - Uncertainty in Feb. 1997 briefing

GRADED APPROACH TO IMPLEMENTING QUALITY



Reg. Scope = Maint. Rule Scope + Other SSCs from Other Regs.

PERFORMANCE-BASED QA



+Reg. Scope = Maint. Rule SSCs + Other SSCs from Other Regs.

PERFORMANCE-BASED APPROACH TO ASSESS QA PROGRAM EFFECTIVENESS

- Current assessment -- programmatic compliance
  - Focus is on literal program implementation
  - Limited focus on safety significance, results
- Improved approach -- performance-based
  - Prime focus on results -- organizational functions
  - Enhances feedback for graded QA
  - Improved tool for management oversight

PERFORMANCE-BASED REGULATION

- 1/22/97 SRM on SECY 96-218 recommendations on performance-based implementation of the regulations
  - Measurable parameters
  - Objective criteria
  - Licensee flexibility on how to meet criteria
  - Failure to meet criteria will not result in an intolerable outcome
- QA -- Plant management process
  - Regulatory aspect -- provides reasonable assurance that safety functions will be performed

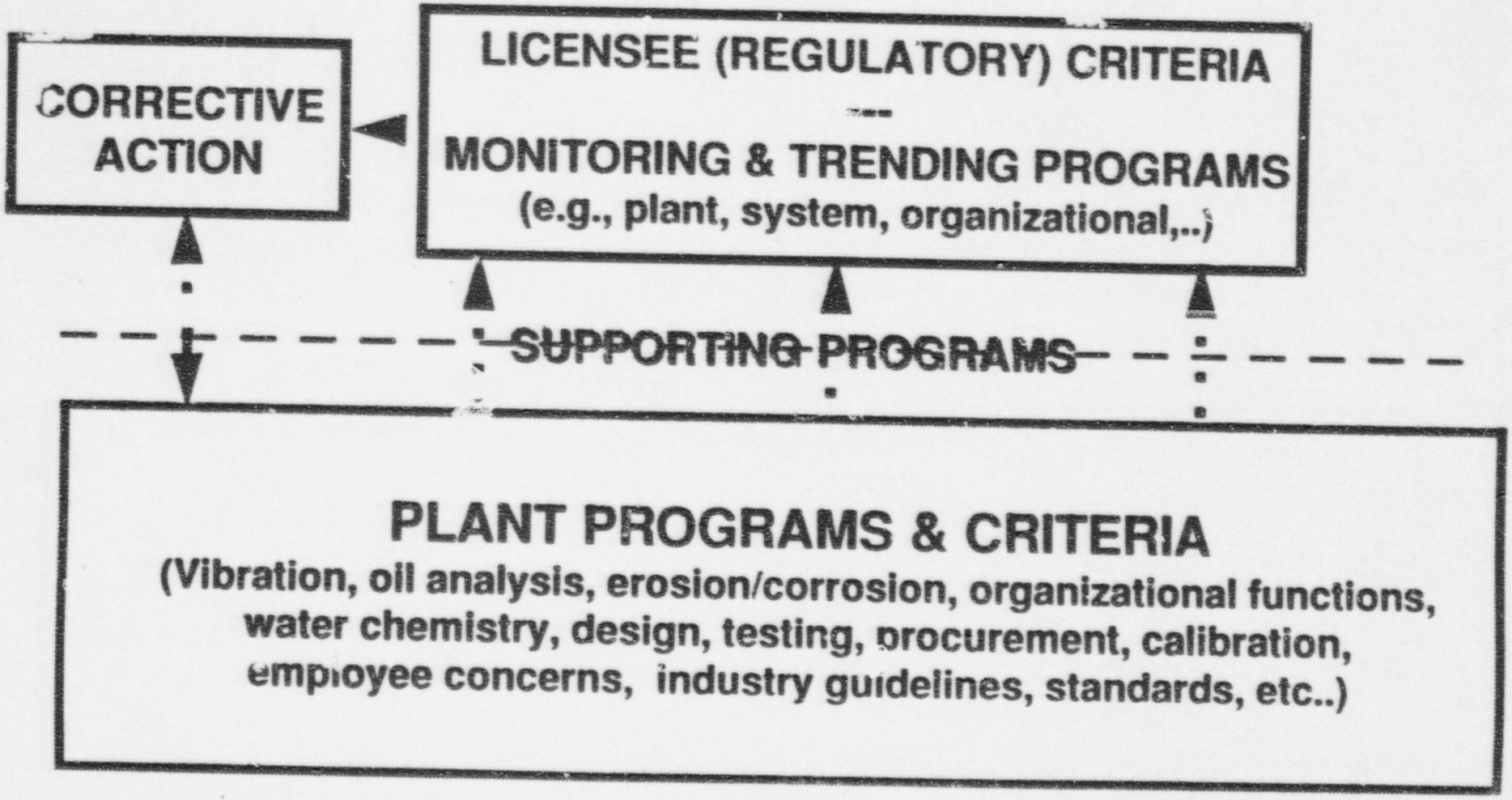
PERFORMANCE-BASED QA ASSESSMENT

- Monitoring plant (equipment, people, process)
- Equipment -- level of monitoring very similar to that of the maintenance rule
- Process & people -- level of monitoring similar to that established in licensee management monitoring programs
- Performance-Based QA indicators provide earlier identification of declining plant performance
  - Developing leading indicators

PERFORMANCE-BASED QA

- Monitoring & trending indicators
- Failure to meet criteria
  - Perform a cause determination
  - Focus on cause and correction before criteria are violated -- if necessary, through QA program changes
- Significant incentive to meet indicators
  - Assures protection of public health & safety while focusing resources more effectively
  - Consistent process for licensee/NRC assessment of plant performance

EFFECTIVENESS ASSESSMENT
PERFORMANCE-BASED QA



REGULATORY CHANGES TO IMPLEMENT IMPROVED APPROACH

- 10 CFR 50.54(a)
- Compatibility with SRM on SECY 96-218
  - Licensee flexibility in meeting the criteria (Appendix B & monitoring criteria)
- Options to NEI petition
  - Discussed in April 30, 1996 NEI - NRC meeting
  - Summarized in NEI May 30, 1996 letter to NRC
- Further dialogue would be beneficial

DRAFT PERFORMANCE-BASED QA PLAN

- Amend and improve the regulatory change process for QA programs - §50.54(a)
- NRC involvement and endorsement of industry guideline for the development of:
  - indicators
  - criteria
  - assessment process
- Licensees implement performance-based QA per guideline recommendations

GRADED QUALITY ASSURANCE AT SOUTH TEXAS PROJECT

February 27, 1997

Attachment 3

GRADED QUALITY ASSURANCE AT STP
HISTORY

April 1995	-	Entered into agreement with NRC staff as volunteer (Pilot) plant
March 1996	-	Submitted revised QA plan depicting Graded QA
August 1996	-	Received NRC comments/questions
January 1997	-	Submitted draft QA Plan revision (major format)

GRADED QUALITY ASSURANCE AT STP
SITE STATUS

- Implementing procedures, Expert Panel, GQA Working Group in place and working
- Two system reviews (essential cooling water, radiation monitoring) are completed and approved by Expert Panel
- Third system (Emergency Diesel Generators) nearly completed
- Reviews of 24 additional systems will occur in 1997
- The GQA process has been frozen past the point of Expert Panel review/approval of system review packages

GRADED QUALITY ASSURANCE AT STP
THREE LEVELS OF PROGRAM CONTROLS

FULL:	Highest possible levels of control/oversight - applied to safety related, high important items
BASIC:	Lesser levels of control/oversight - applied to other safety related items
TARGETED:	Select levels of control/oversight - applied to non-safety related, risk important items

GRADED QUALITY ASSURANCE AT STP
FIRST TWO SYSTEMS REVIEW RESULTS

ESSENTIAL COOLING WATER COMPONENTS

Full QA - 6 Basic QA - 1,050 Targeted QA - 307 No QA - 43

RADIATION MONITORING COMPONENTS

Full QA - 0 Basic QA - 388 Targeted QA - 1,131 No QA 303

GRADED QUALITY ASSURANCE AT STP
GQA BENEFITS

- Increased Nuclear Safety
- Increased cost effectiveness (STP anticipates approximately $1.5 million savings per year in procurement costs alone)

GRADED QUALITY ASSURANCE AT STP

STP plans to proceed with GQA Program implementation June 1, 1997

Palo Verde Nuclear Generating Station

Graded Quality Assurance

Presented by

Donald Lamontagne

February 27, 1997

Attachment 4

Graded Quality Assurance

Functional Areas

- **Procurement**
- **QA Audits and Evaluations**

Graded Quality Assurance

Procurement Improvements Made In 1996

- **Selection and Documentation of Critical Verification Attributes**
- **Post-Installation Testing**
- **Equipment Failure Feedback Mechanisms**
- **Seismic Qualification**

Graded Quality Assurance

1997 Procurement Initiatives

- **Emphasize Increased Use of Graded QA**
- **Equipment Qualification**
- **Commodities**
- **Critical Vendors List**

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