U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. M91-048

Docket Nos. As listed in Attachment 1

License Nos. As listed in Attachment 1

Licensee: As listed in Attachment 1

Participants: As listed in Attachment 1

Meeting At: Sheraton Valley Forge, King of Prussia, Pennsylvania

Meeting Conducted: February 20 - 21, 1991

Prepared by: Astrid E Lopez 4/15/91
A. E. Lopez, Reactor Engineer, Systems Section, Engineering Branch, DRS — date

Approved by: P K Eapen 4/15/91
Dr. P. K. Eapen, Chief, Systems Section, Engineering Branch, DRS — date

Meeting Summary: The Engineering Symposium/Workshop was held to promote an open discussion of various industry topics. The meeting was attended by NRC, licensee, and other industry personnel. The topics discussed were: (1) Elements of a good engineering organization; (2) Licensee's actions with degraded conditions, including operability/reportability determinations; and (3) The modification process including 10CFR 50.59 reviews. The symposium conclusions recommended six action items for the NRC and seven action items for the industry.

Region I Meeting Report M91-048

Table of Contents

1.0 Purpose

The Engineering Symposium/Workshop was designed to promote discussion and a better understanding between the utility engineering personnel and the NRC staff regarding the engineering departments role in support of plant activities.

2.0 General Overview

The Engineering Symposium was conducted on February 20 - 21, 1991, as published in the Federal Register Notice dated January 24, 1991. Attachment 1 presents the list of persons who attended the symposium. An agenda of the symposium is provided in Attachment 2.

The Engineering Symposium began with a Call to Assembly, an Introduction, and a Welcome. Mr. J. H. Sniezek, NRC Deputy Executive Director for Operations, and Mr. E. J. Mroczka, Northeast Utilities Senior Vice President of Nuclear Engineering and Operations then addressed the symposium. Both Mr. Sniezek and Mr. Mroczka eloquently discussed the theme of the symposium, "The Engineering Role in Plant Support." They provided an excellent basis for promoting open discussion during the symposium. Attachment 3 contains the slides presented by the keynote speakers.

The afternoon concluded with the attendees participating in the first of two planned workshop sessions. The participants were assigned to one of the workshop groups. Two groups discussed the elements of a good engineering organization; three groups discussed the licensee's actions with degraded conditions including operability/reportability determinations; and three groups discussed the modification process including 10CFR 50.59 reviews. Each workshop group was lead by two facilitators, one each from the NRC and a licensee, and had approximately 15 - 25 participants.

The participants returned the next morning to the same workshop group as the day before for approximately two hours to finalize discussions and to develop recommendations.

At 10:30 a.m. on February 21, 1991, a speaker, Mr. M. R. Tresler, Diablo Canyon Engineering Manager, Pacific Gas and Electric Company, and Chairman of Region V Engineering Managers' Forum addressed the symposium. Mr. Tresler discussed the experiences at the Region V Engineering Managers' Forum. The slides from Mr. Tresler's presentation can be found in Attachment 3.

In the afternoon, the facilitators from each of the eight workshop groups presented a summary of the their groups discussions and conclusions. Attachment 4 contains slides from the facilitators presentations. The facilitators presentations were then followed by two wrap-up speakers and closing remarks by Mr. M.W. Hodges, NRC Director of the Division of Reactor Safety for Region I. The symposium adjourned at 4:20 p.m.

3.0 Summary of Workshop Group Presentations

A. Elements of a good engineering organization

The two work groups on this subject concluded the following:

1. There is no single universal engineering organizational structure that is best for all plants.

2. A good engineering organization must:

   a. prioritize its activities from a safety perspective and establish clear lines of responsibility and accountability

   b. be responsive to the needs of its customer (operations, maintenance, ...)

   c. maintain a well qualified and trained staff

   d. maintain a high quality interface with the NRC

These working groups did not recommend specific actions for the NRC or the industry groups.

B. Licensee's actions with degraded conditions including operability/reportability determinations

The three working groups on this subject concluded the following:

1. Concerns

   a. lack of well defined concepts and terms for operability

   b. lack of well defined processes for operability determination

   c. lack of adequate guidance for the use of engineering judgement in operability determinations

d. lack of adequate guidance for reportability

2. Recommendations

a. NRC establish consistent guidance on operability and reportability (NRC Action Item 1)

b. Industry develop design basis standards with NRC endorsement (NRC Action Item 2, Industry Action Item 1)

c. Industry establish guidelines for the timeliness for operability determinations with NRC endorsement (NRC Action Item 3, Industry Action Item 2)

d. NRC and Industry train their respective personnel in the use of the above guidance (NRC Action Item 4, Industry Action Item 3)

C. The modification process including 10CFR 50.59 reviews

The three working groups on this subject concluded the following:

1. the modification process including the 50.59 process has been consistently improving

2. NSAC 105 and NSAC 125 are good industry standards to provide guidance in the design process and the 50.59 review process, respectively

Weaknesses

1. design change process is cumbersome

2. temporary modifications may be bypassing the modification process

3. design bases are not adequately defined

4. control of contracted modification work is not adequate

5. inadequate prioritization and control of backlog

Recommendations

1. NRC and Industry train their respective personnel in the modification process (NRC Action Item 4, Industry Action Item 3)

2. Licensee establish clearly developed design basis documents for each unit using NRC endorsed standards (Industry Action Item 4)

3. Industry define categories of modification with NRC endorsement (NRC Action Item 5, Industry Action Item 5)

4. Industry improve NSAC 125 to provide examples of good 50.59 reviews (Industry Action Item 6)

5. NRC endorse NSAC 125 for 50.59 review (NRC Action Item 6)

6. Industry establish measures based on safety to prioritize and control backlog of engineering projects (Industry Action Item 7)

4.0 Conclusion

The symposium had good participation from all its attendees. The majority of the feedback forms received, indicated that the symposium achieved its goals, and promoted and stimulated open discussion between the NRC and the industry. The feedback also encouraged future symposiums in the engineering area. A small minority of participants did not fully agree with all the conclusions of the symposium and they provided alternate conclusions.

ATTACHMENT 1

LIST OF ATTENDEES

A. Region I Licensees

LICENSEE	DOCKET #	LICENSE #	ATTENDEES
1. BG&E	50-317 50-318	DPR-53 DPR-69	Charles Cruse Peter Katz Robert Waskey
2. Boston Edison	50-293	DPR-35	Robert Fairbank Edward Kraft
3. Conn. Yankee Atomic Power Company	50-213	DPR-61	Clint Gladding
4. Consolidated Edison Co. of NY	50-247	DPR-26	Joe Bahr John Curr Mike Lee Pete Szabados
5. Duquesne Light Company	50-334 50-412	DPR-66 CPPR-105	Kenneth E. Halliday Nelson R. Tonet
6. GPU Nuclear	50-219	DPR-16	Jim Byrne Dave Distet Greg Gurican William Heysek James W. Langenbach Max Nelson Ed O'Connor Art Rone Richard Skillman Patrick Walsh
7. Long Island Lighting Co.	50-322	NPF-19	Ed Pierpont
8. Niagara Mohawk Power Corp.	50-220 50-410	DPR-63 NPF-54	Michael Carson Gregory Gresack Rob Oleck Bill Yaeger
9. Northeast Nuclear Energy Company	50-245 50-336 50-423	DPR-21 DPR-65 NPF-49	Michael Bigiarelli Brendan J. Duffy G. Leonard Johnson John S. Keenan Edward J. Mroczka R. L. McGuinness C. Fred Sears
10. PP&L	50-387 50-388	NPF-14 NPF-22	Bob Byram F. G. Butler W. H. Gulliver J. M. Kenny George Kuczynski G. D. Miller D. P. Parsons

LICENSEE	DOCKET #	LICENSE #	ATTENDEES
11. PECO	50-352	NPF-39	Jim Basilio
	50-353	CPPR-107	William Bloomfield
			Wes Bowers
			Frank Cook
			Jack Evans
			Al Fulvio
			David Foss
			Cliff Harmon
			Dave Helwig
			Frank Hunt
			Marilyn Kray
			Rod Krich
			G. Kernahan
			Dave Meyers
			Lou Pyrah
			David Schra
			Glen Stewart
			Kevin Walsh
12. Power Authority of State of NY	50-333	DPR-59	Jerry Gullick
			Terry Herrmann
			Gus Mavrikis
			Steve Smith
			Vic Walz
13. Public Service of NH	50-443	CPPR-135	Terry Harpster
	50-444	CPPR-136	Joe Vargas
14. PSE&G	50-272	DPR-70	Richard Bashall
	50-311	DPR-75	Raymond Brown
			Moises Burzstein
			Thomas M. Crimmins
			Scott Gillespie
			Lee Griffis
			Bruce Hall
			Michael Morroni
			Bruce Preston
			Martin E. Raps
			John P. Ronafalvy
			Frank Thomson
15. Vermont Yankee Nuclear Power Corp	50-271	DPR-28	Mark Palionis
			Dean Porter
16. Yankee Atomic Electric Co.	50-029	DPR-3	Peter Anderson
			John Hoffman
			William Jones
			Dave King
			Robert Shone
			George Tsouberous

B. Licensees From Other NRC Regions

LICENSEE	ATTENDEES
1. Florida Power and Light	Bill Skelley
2. Toledo Edison	Vernon Watson

C. Other Participants

OTHER	ATTENDEES
1. Bechtel	Nancy Chapman Steve Routh David Schmit
2. Westinghouse	Rick Eastering
3. Tenera	John Elliott
4. Massachusetts Nuclear Engineer	James McKerheide
5. General Electric Nuclear Energy	Lee Lantz
6. Stone & Webster	Ajoy Banerjee Thomas Bates Marc Boothby Alan Chan Tim Chitester Louis Hirst E. J. Hubner Tom Szabo
7. NUS Corp - Florida	Michael Johnson Peter S. Jordan Eric R. Smith

D. The Nuclear Regulatory Commission

OFFICE	ATTENDEES
1. HQ	Bob Capra
2. HQ	Jin Chung
3. HQ	Dick Clark
4. HQ	Al DeAgazio
5. HQ	Richard L. Emch
6. HQ	Mort Fairtile
7. HQ	Bagchi Goutam
8. HQ	Craig C. Harbuck
9. HQ	Gary D. Holahan
10. HQ	Chris L. Hoxie
11. HQ	Eugene Imbro
12. HQ	Jeff Jacobson
13. HQ	Wayne Lanning
14. HQ	Erasmia Lois
15. HQ	Dan McDonald
16. HQ	James G. Partlow
17. HQ	Uldis Potapovs
18. HQ	Mark F. Reinhart
19. HQ	Jim Sniezek
20. HQ	John Stolz
21. HQ	David L. Wiggington
1. RII	Caudle H. Julian
2. RII	Francis Jape
3. RIII	Mark Ring
4. RIV	Johns Jaudon
1. RI	Scott Barber
2. RI	Walter Baunack
3. RI	Lee Bettenhausen
4. RI	Norman Blumberg
5. RI	Fred Bower
6. RI	Suresh K. Chaudhary
7. RI	Rich Conte
8. RI	Larry Doerflein
9. RI	Jacque P. Durr
10 RI	P.K. Eapen
11. RI	Harold Eichenholz
12. RI	Pete Eselgroth
13. RI	E. Harold Gray
14. RI	Harold I. Gregg
15. RI	Peter Habighorst
16. RI	Sam Hansell
17. RI	Donald Haverkamp
18. RI	Tom Hiltz
19. RI	M. Wayne Hodges
20. RI	Kerry Ihnen
21. RI	Jon Johnson
22. RI	Herbert Kaplan
23. RI	Paul Kaufman
24. RI	Gene Kelly
25. RI	James C. Linville
26. RI	Al Lohmeier
27. RI	Thomas T. Martin
28. RI	Marie Miller

OFFICE	ATTENDEES
29. RI	Dan Moy
30. RI	George Napuda - retired
31. RI	William Oliveira
32. RI	Steve Pindale
33. RI	Len Prividy
34. RI	John Rogge
35. RI	Glenn Tracy
36. RI	Ed Wenzinger
37. RI	Barry Westreich
38. RI	Peter Wilson

ATTACHMENT 2

Symposium/Workshop

Engineering's Role In Support Of Plant Activities

AGENDA

Wednesday, February 20, 1991

12:00 - 12:50 p.m.	Registration	
12:50 - 1:00 p.m.	Call to Assembly	Harold I. Gregg Senior Reactor Engineer Division of Reactor Safety, RI
1:00 - 1:05 p.m.	Introduction	M. Wayne Hodges Director Division of Reactor Safety, RI
1:05 - 1:15 p.m.	Welcome	Thomas T. Martin Regional Administrator, RI
1:15 - 1:55 p.m.	Keynote Speaker	James H. Sniezek Deputy Executive Director for Operations, NRC
1:55 - 2:35 p.m.	Keynote Speaker	Edward J. Mroczka Sr. Vice President Nuclear Engineering and Operations Northeast Utilities
2:35 - 3:00 p.m.	Break	
3:00 - 5:00 p.m.	Breakout Sessions	

	Topic	Room Location
A.	Elements of a Good Engineering Organization	Berwyn Room or Devon Room
B.	Licensee's Actions With Degraded Conditions Including Operability/ Reportability Determinations	Gladwyne Room, Bryn Mawr Room, or Hemlock Room
C.	The Modification Process Including 10CFR50.59 Reviews	Radnor Room, Merion Room, or Quaker Room

Thursday, February 21, 1991

8:00 - 10:00 a.m. Breakout Sessions - Refinement of most significant issues

	Topic	Room Location
A.	Elements of a Good Engineering Organization	Berwyn Room or Devon Room
B.	Licensee's Actions With Degraded Conditions Including Operability/ Reportability Determinations	Gladwyne Room, Bryn Mawr Room, or Hemlock Room
C.	The Modification Process Including 10CFR50.59 Reviews	Radnor Room, Merion Room, or Keystone Room

10:00 - 10:30 a.m.	Break	
10:30 - 11:30 a.m.	Speaker	Michael R. Tresler Engineering Manager, Diablo Canyon Pacific Gas and Electric Company Chairman of Region V Engineering Managers Forum
11:30 - 1:00 p.m.	Lunch	
1:00 - 2:15 p.m.	First Group Summary Feedback	Breakout Session Facilitators
2:15 - 2:30 p.m.	Break	
2:30 - 3:15 p.m.	Second Group Summary Feedback	Breakout Session Facilitators
3:15 - 3:35 p.m.	Wrap-up	David R. Helwig Vice President Nuclear Engineering and Services Philadelphia Electric Company
3:35 - 3:55 p.m.	Wrap-up	Jacque P. Durr Chief, Engineering Branch Division of Reactor Safety, RI
3:55 - 4:15 p.m.	Closing Remarks	M. Wayne Hodges Director Division of Reactor Safety, RI

ATTACHMENT 3

JAMES H. SNIEZEK

DEPUTY EXECUTIVE DIRECTOR FOR OPERATIONS, NRC

PRESENTATION

FOR

NRC REGION I - UTILITY

SYMPOSIUM/WORKSHOP

Engineering's Role in Plant Support

February 20-21, 1991

Sheraton Valley Forge Hotel
King of Prussia, Pennsylvania

IMPROVEMENT OF OPERATIONAL SAFETY

- SAFE ENOUGH ARGUMENT
- BACKSLIDE TOWARD INADEQUACY
- PRINCIPLE OF COST EFFECTIVE SAFETY IMPROVEMENT

RESPONSIBILITY FOR SAFETY

- UTILITY RESPONSIBLE FOR SAFETY
- NRC IS REGULATOR
- NEED FOR NUCLEAR INDUSTRY SAFETY CULTURE
- TRUST IS FOUNDATION OF NRC/UTILITY RELATIONSHIP

RELATIONSHIP WITH UTILITIES

- LICENSE BASED ON TECHNICAL/MANAGERIAL COMPETENCE
  - NRC HANDS OFF, IF TRUE
  - NRC ACTIVE INVOLVEMENT, IF NOT TRUE
- NRC EMPHASIS ON COMMUNICATION OF EXPECTATIONS
- UTILITY CERTIFICATION OF PERFORMANCE
- UTILITY RESPONSIBLE FOR SAFETY EVALUATION
- NRC RESPONSIBLE TO REGULATE

REGULATORY IMPACT SURVEY

- ESTABLISH MANAGEMENT EXPECTATIONS
- MEASURE IMPLEMENTATION OF MANAGEMENT EXPECTATIONS
- ESTABLISH A STABLE PROCESS
- CONDUCT ACTIVITIES IN A PROFESSIONAL MANNER

REGULATORY IMPACT SURVEY (CONTINUED)

- ACTIVITIES SHOULD CLEARLY ENHANCE SAFETY
- ACTIVITIES SHOULD BE COST-BENEFICIAL
- RESOURCES SHOULD BE FOCUSED ON AREAS NEEDING IMPROVEMENT
- CONDUCT A MANAGEMENT SELF-ASSESSMENT

INSPECTION PRINCIPLES

- INSPECTORS NEED TO ALWAYS BE ALERT FOR SAFETY ISSUES -- EVEN THOSE OUTSIDE THEIR AREA OF EXPERTISE
- PRIMARY EMPHASIS IS ON SAFETY WITH THE RECOGNITION THAT NRC REQUIREMENTS ARE SUPPOSED TO BE MET REGARDLESS OF SAFETY IMPORTANCE
- DEGREE OF REACTION/RESPONSE BY INSPECTORS DICTATED BY SAFETY IMPORTANCE
- ACCEPTANCE CRITERIA ARE BASED ON AGENCYWIDE POSITIONS, NOT ON INDIVIDUAL REVIEWER/INSPECTOR DESIRES

INSPECTION PRINCIPLES

- PERFORMANCE INDICATORS ARE USED TO HELP DETERMINE DIRECTION, SCOPE AND DEPTH OF INSPECTION EFFORT AND ARE NOT A DISPOSITIVE MEASURE OF PERFORMANCE BY THEMSELVES

- ANALYSIS OF MANAGEMENT EFFECTIVENESS IS BASED ON RESULTS OF MANAGEMENT EFFORTS AND NOT ON ANALYSIS OF SKILLS, STYLES OR POPULARITY

- FOCUS OF INSPECTION IS PRIMARILY ON END PRODUCT; HOWEVER, PROCESS OF ENSURING QUALITY ALSO IMPORTANT IN ORDER TO ENSURE CONSISTENT QUALITY

INSPECTION PRINCIPLES

- STANDARDS OF PROFESSIONALISM OF INSPECTORS EXCEED THE STANDARDS EXPECTED OF LICENSEE PERSONNEL
- APPLICATION OF REGULATORY EXPECTATIONS IS CONSISTENT FROM INSPECTOR TO INSPECTOR AND FROM PLANT TO PLANT
- INSPECTION APPROACH AND TECHNIQUES ARE SUCH THAT INSPECTOR AND LICENSEE TIME ARE EFFECTIVELY USED
- INSPECTORS ARE QUALIFIED COMMENSURATE WITH DIFFICULTY OF TASK

INSPECTION PRINCIPLES

- INSPECTION FINDINGS ARE ACCURATELY AND PROMPTLY COMMUNICATED TO APPROPRIATE LEVELS OF UTILITY MANAGEMENT BOTH DURING AND AT THE END OF THE INSPECTION
- INSPECTION ACTIVITIES APPROPRIATELY RECOGNIZE THE EFFORTS OF INDUSTRY SELF-EVALUATION ORGANIZATIONS SUCH AS INPO AND DO NOT INTERFERE WITH THE LICENSEE/SELF-EVALUATION ORGANIZATION INTERFACE
- NRC MANAGEMENT IS PROMPTLY INVOLVED WHEN FUNDAMENTAL DIFFERENCES CANNOT BE RESOLVED BETWEEN INSPECTOR AND LICENSEE

INSPECTION PRINCIPLES

- IN PLANT SOURCES OF INFORMATION ARE GUARDED IN ORDER TO PROMOTE FREE EXCHANGE BETWEEN STAFF AND INSPECTORS
- COMMUNICATIONS ABOUT THE LICENSEE OR LICENSEE PERSONNEL ARE CONTAINED WITHIN THE REGULATORY FRAMEWORK
- BE RECEPTIVE TO ALL ALLEGATIONS AND TREAT ALL PUBLIC INQUIRIES WITH RESPECT AND PROFESSIONAL RESPONSE
- INSPECTORS MUST GENERATE AN AURA OF INDEPENDENCE IN ALL DEALINGS WITH THE LICENSEE

SUMMARY

- MOST NRC/UTILITY INTERFACES ARE POSITIVE
- INTERFACES MUST BE STRAIGHTFORWARD AND HONEST
- RESULT IN EFFECTIVE AND EFFICIENT SAFETY PROGRAMS
- GREATER NRC EMPHASIS ON PROPER INTERFACES IN THE FUTURE

The Engineering Role In Plant Support

E. J. Mroczka
Senior Vice President
Nuclear Engineering and Operations
Northeast Utilities

NRC Region I Workshop

February 20-21, 1991

"NRC PRINCIPLES OF GOOD REGULATION"

Independence

Openness

Efficiency

Clarity

Reliability

INDEPENDENCE

- "Nothing but the highest possible standards of ethical performance and professionalism should influence regulation.
- However, independence does not imply isolation.
- All available facts and opinions must be sought openly from licensees and other interested members of the public.
- The many and possibly conflicting public interests involved must be considered.
- Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated."

OPENNESS

- "Nuclear regulation is the public's business, and it must be transacted publicly and candidly.

- The public must be informed about and have the opportunity to participate in the regulatory process as required by law.

- Open channels of communication must be maintained with Congress, other government agencies, licensees, and the public, as well as with the international nuclear community."

EFFICIENCY

- "The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities.
- The highest technical and managerial competence is required and must be a constant agency goal.
- NRC must establish means to evaluate and continually upgrade its regulatory capabilities.
- Regulatory activities should be consistent with the degree of risk reduction they achieve.
- Where several effective alternatives are available, the option which minimizes the use of resources should be adopted.
- Regulatory decisions should be made without undue delay."

INTEGRATED REGULATORY REQUIREMENTS IMPLEMENTATION SCHEDULE

- "IRRIS provides a simple mechanism that will encourage implementation of plant modifications offering the most safety for resources spent;
- help to evaluate and set balanced priorities for an entire set of pending requirements; and
- help to avoid duplication of efforts to enhance safety."

... SECY-90-347

CLARITY

- "Regulations should be coherent, logical, and practical.
- There should be a clear nexus between regulations and agency goals and objectives whether explicitly or implicitly stated.
- Agency positions should be readily understood and easily applied."

REPORTABILITY

NRC Guidance Should be Consistent
- Prompt Reports (10CFR 50.72)
- Licensee Event Reports (10CFR 50.73)

Inspection and Enforcement Should be Consistent
- Inspector to Inspector
- Region to Region

Degraded Conditions, Operability Determinations, and JCO's - Terminology and Requirements need to be worked out.

More Rewards for Self Assessment

RELIABILITY

- "Regulations should be based on the best available knowledge from research and operational experience.

- Systems interactions, technological uncertainties, and the diversity of licensees and regulatory activities must all be taken into account so that risks are maintained at an acceptably low level.

- Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition.

- Regulatory actions should always be fully consistent with written regulations and should be promptly, fairly, and decisively administered so as to lend stability to the nuclear operational and planning processes."

CONCLUSIONS

"NRC PRINCIPLES OF GOOD REGULATION"
are also
Good Principles for Engineering Support

Independence
Openness
Efficiency
Clarity
Reliability

NRC and Licensees Working Together
as Professionals

REGION V
ENGINEERING
MANAGERS
FORUM

REGION I UTILITY ENGINEERING SYMPOSIUM

REGION V ENGINEERING MANAGERS FORUM

Mike Tresler
Diablo Canyon Power Plant - PG&E
Engineering, Manager
Room A1409
333 Market Street
San Francisco, CA 94106

REGION V ENGINEERING MANAGERS FORUM

REGION 5 ENGINEERING MANAGERS' FORUM

BACKGROUND

- SCE SSFI
- Membership
  - APS
  - PGE
  - PG&E
  - SCE
  - SMUD
  - WPPS

PURPOSE

- Meet Quarterly
- Shared Knowledge / Experience
- Unified Position / Working Task Forces
- Improve Communication

REGION V ENGINEERING MANAGERS FORUM

TASK COMPLETED

- *Charter*
- *DBD Guide*
- *Proactive Engineering Guide*
- *Design Engineer Training & Qualification Guide*
- *Management Of Low Priority Engineering Tasks Guide*
- *Procurement Engineering Guide*

REGION V ENGINEERING MANAGERS FORUM

PROCUREMENT GUIDELINE

- Tech. Eval. Of Supplier Qual. / Deficiencies
- Spare / Replacement Configuration Control
- Performance History - CGD
- Commercial Grade Survey *
- Location Specific Components
- Detection Of Fraudulent Materials *
- Information Exchange

REGION V
ENGINEERING
MANAGERS
FORUM

ACTIVE SUBCOMMITTEES

- *Engineering Task Prioritization*
- *Set Points*

REGION V
ENGINEERING
MANAGERS
FORUM

POTENTIAL SUBCOMMITTEES

- *Performance Monitoring*
- *Design Process*
- *System Walkdowns*
- *Operability*
- *Procedure Review*

REGION V
ENGINEERING
MANAGERS
FORUM

BENEFITS TO DATE

- Budget / Staffing
- Leak Repair (90-05)
- EDSFI
- Setpoints
- ADV's
- INPO / NRC Support
- Issue Definition / Containment
- Shared Experience At All Levels

REGION V ENGINEERING MANAGERS FORUM

LESSONS LEARNED

- Conflicting Demand On Time
- Top Level Participation In Task Forces
- Tension Between "Set Ways" And New Guidance
- Documents Must Be Useful & Used
- Variability In D.E. Org., Staffing, Capability And Responsibility

REGION V
ENGINEERING
MANAGERS
FORUM

FUTURE

- *Add Plant To Membership*
- *Excellent Point of Reference*
- *"Tips" On Latest NRC Concerns, Perspectives & Positions*
- *United Position On Critical Issues*
- *General Mutual Support Environment*

ATTACHMENT 4

ELEMENTS OF A GOOD ENGINEERING ORGANIZATION

Group 1: Facilitators - Ed Wenzinger (NRC), Tom Crimmins (PSE&G)
Industry participants: 16, NRC participants: 5

Four key issues

a. priorities (19)
b. responsiveness (15)
c. people (8)
d. NRC interface (7)

Good engineering organizations

- prioritize
- plan
- effectively allocate resources to their work

Elements

a. long-term planning
b. priorities - setting how and who
c. emergent work
d. forced outage plan
e. orderliness vs chaos
f. communication enhanced
g. show proactive nature
h. balance long term and short term

Good engineering organizations are responsive to the needs of operations, maintenance, and day to day activities

Elements

a. mission clarity
b. physical involvement
c. joint planning/priorities
d. balance reactive and proactive
e. communications, communications, communications
f. key to maintaining design quality and configuration
g. ops and maint. understanding of basis for and demands of the design
h. balance engineering/design perspective and operations perspective

Good engineering organizations maintain a high quality interface with the NRC

Elements

a. technical competence
b. proactive assertive engineering
c. communications - listen
d. quality of process/product
e. NRC acceptance of acceptable solution
f. escalate professional differences

Group 2: Facilitators - Harold Gray (NRC), Fred Sears (Northeast Utilities)
Industry participants: 14, NRC participants: 5

Factors for consideration

a. there is no single, universal engineering structure or organization that is best for all plants
b. whatever the organization is, it must be clearly defined with respect to responsibilities and accountabilities

Attributes

a. continual improvement
b. economical operation
c. common goals
d. teamwork
e. effective self-assessment
f. conformance to requirements
g. well defined, available, usable design basis
h. configuration management
i. lessons learned application
j. new technology usage
k. customer satisfaction

Engineering concerns - "problems"

a. LTA Design Basis - documentation and organization
b. Resource Management
   1. conflicting goals and priorities both internal and external
   2. NRC interface - team inspections
   3. off normal support
c. Ineffective Processes - internal and external
d. Plant Materials - obsolescence, aging, vetip (vendors), OEM demise/dedication

Solutions

a. mission
b. strategies
c. responsibilities
d. plans, schedules, priorities, resources
e. communications, education, sharing
f. decision tools
g. staff training, development
h. cultivate positive NRC/utility relation

Conclusions

a. no single definition of engineering
b. consider all with engineering or science background and those performing in technical roles to be part of engineering
c. solutions of engineering concerns can be reached by good management practices, including consideration of mission - strategies - responsibilities - accountability, plan, schedule, train, educate
d. the functions of good engineering are many, but the intent is safe, reliable, economical plant operation.

OPERABILITY/REPORTABILITY DETERMINATIONS AND DEGRADED CONDITIONS

Group 1: Facilitators - Jon Johnson (NRC), Wes Bowers (PECO)
Industry participants: 14, NRC participants: 8

Q. How does licensee know or determine operability and reportability?

A. When there is sufficient evidence or basis that a component or system meets its design safety function(s) including operation under prescribed accident conditions. The determination must be made in a timely manner.

What is sufficient evidence?

Issue	Recommendation/solution	Who
lack of guidance on operability determinations	revise NRC inspection manual to provide improved guidance; transmit manual to licensees	NRC
lack of guidance on reportability	finish owners group guidance on reportability; transmit manual to NRC	BWROG
	develop improved guidance on reportability	NRC

What is design bases?

Issue	Recommendation/solution	Who
design bases is unbounded	publish design bases standard including guidance and component level	utility and NRC endorse
refine and clarify functional capabilities	clarify WRT safety function	
clarify WRT operability or reportability	clarify difference (if any) between design bases for operability (T.S) and reportability (50.72, 50.73)	

Timeliness of operability determinations

Issue	Recommendation/solution	Who
unclear process (accountability priority)	use a two step process 1. screen (operability determination) and 2. F/U analysis	utility/INPO
refine timeliness guidance	publish/endorse guidance - use STS LCO action times - use IPE/PRA to prioritize	NRC/NUMARC
lack of knowledge/ utility/INPO sensitivity to staff timeliness needs	train engineering support	

Suggestions for improved guidance for operability

clarify that the following can be used

- engineering judgement
- test results
- analysis
- compensatory action
- operating experience
- operating parameters
- current physical condition

clarify that PRA cannot be used

clarify that unavailability of component not required for safety function does not make system unavailable

consider NUMARC guidance on design basis definition and examples

Group 2: Facilitators - Rich Conte (NRC), Bob Byram (PP&L)
Industry participants: 13, NRC participants: 8

Format

- open forum
- aired concerns
- focused on positive aspects
- selected four key concerns
- positive aspects into process objectives
- focused on key concerns

Objectives

- assurance of nuclear safety
- clear expectations
- communication/action on generic conditions
- efficient and effective
- mutually agreeable
- eng. involvement in operability/reportability
- clear and consistent
- promote initiative/action
- foster questioning attitude
- training and development
- strengthen design documentation
- work on what's important
- enhance safety cultures that are assumed to satisfy regulatory expectations
- sensitivity to real needs of operator

Operability/Reportability major concerns

a. define concepts and terms on operability
b. define the process for operability determinations
c. use of engineering judgement

Aside Issue - Reportability

a. groups discussion focus was on operability issue
b. group generally agreed
    1. reportability criteria not to be discussed - residual issues exist but are being dealt with
    2. reportability criteria should remain separate and distinct from operability criteria but properly sequenced with operability determinations

Major concern No. 1 - Define concepts and terms

a. operability, workability, capable of perf, qualification, timeliness, degraded condition, JCO/BCO, functionality, design basis

operability	degraded condition
workability	JCO/BCO
capable of perf	functionality
qualification	design basis
timeliness	

b. distinguish postulated events (how far do you go) versus current configuration events (normal conditions)

c. avoid determinations of inoperability because of lack of documentation

d. once defined as above, distinguish workability versus functionality and/or operability versus qualification

Major concern No. 2 - Define the process

a. administrative procedure to address operability determinations (including organization roles and responsibilities) should be left to licensee initiative

b. let (responsibility not defined by group) establish process criteria which focus on: timeliness, prioritization, quality of documentation, etc. (here again licensee initiative)

c. although the NRC says that the pending guidance contains no new requirements (reports/records procedures), the reality is the opposite because of licensee initiative to establish controls

Major concern No. 3 - Use of engineering judgement

a. recognize its use as variable but viable
b. document the thought process for the engineering judgement
c. encourage people to think
d. demonstrate competence in applying engineering judgement
e. make engineers responsible and accountable for the above
f. initial through final stages of operability determination - how is engineering judgement to be applied

<u>Summary</u>

a. disseminate information
   1. pending guidance
   2. this conference
b. industry interaction at working level
c. focus on expectation as opposed to prescriptive guidance

Group 3 Facilitators - Lee Bettenhausen (NRC), Bruce Preston (PSE&G)
Industry participants: 13, NRC participants: 10

What value/criteria do you use for operability determinations - design/purchase specs - design basis licensing basis (FSAR, SER, LC, etc.), or safety limit basis (2200°F, containment pressure, etc.)?

1. technical specification values must be used if available
2. 10CFR safety limits
3. other -

example: containment fan coil units BTU capacity being tested - is tech spec operability based on

1. purchase spec - design? 100K
2. FSAR 80K
3. Ultimate safety limit - i.e., containment pressure 60K

can current conditions be used also -i.e., river water temp (heat sink) - yes

Operable - ASME code versus tech spec operability

pumps and valves

1. GL 89-04 directs that device is inoperable if test results are in action range - appropriate tech spec LCO should be entered (basis- degradation cause unknown, device could fail immediately)
2. ASME section XI allows for analysis to change action range value using 50.59, maintaining component operable per tech specs (i.e., enter LCO, do analysis, exit LCO)

pipe

section III, class 3 and B31.1 - a thru wall leak of below minimum wall condition does not automatically equate to an inoperable condition (i.e., analysis of flow and structural impact using LCO time as a marker)

Appendix R, EQ, electrical separation discrepancies versus operability:

Qualification problems such as these generally not operability problems

- electrical separation problem does not necessarily call for associated equipment to be inoperable
- Appendix R equipment still operable but compensatory actions to deal with fire need to be taken
- operability an issue if accident causes failure and loss of emergency function

Timeliness of operability calls

- no new NRC regulations
- utility develops written policy; elements include:

  a. prompt initial screen by knowledgeable group
  b. timeliness commensurate with safety significance and plant conditions; tools: PRA, LCO action statements
  c. detailed evaluation to support initial screen decision within time bounds, e.g., 3 days

How should operability guidance be promulgated?

1. NRC incorporate in inspection manual and by generic letter (in progress)
2. NUMARC/INPO take initiative for industry guidance, e.g., NSAC (need next month)
3. plant unique program with region buy in
4. NUREG or regulatory guide for utility to construct program
5. do nothing

The group favors #2

MODIFICATION PROCESS INCLUDING 50.59 REVIEWS

Group 1 Facilitators - P. K. Eapen (NRC), Nelson Tonet (DLC)
Utility participants: 6, NRC participants: 6

Discussion topics

1. 50.59 review process
2. temporary modification process
3. design change process

- reviewed strengths and weaknesses
- developed recommendations for improvement

1. 50.59 review process

strengths

- NSAC 125
- effective resource utilization

weaknesses

- needs standards
- needs guidelines for results
- lacks consistent training required

recommendations/comments

- good DBD, reduce potential for inadequate safety reviews
- improve NSAC 125 with samples of adequate/good evaluations
- for short term utility should develop standards individually
- enhance NRC inspector training

2. temporary modification process

strengths

- timely and effective utilization can help to keep the plant safe
- provides more effective utilization of resources

weaknesses

- can bypass modification process
- challenges configuration control
- reviews may lack detail
- can become numbers game

recommendations/comments

- better define maintenance vs mod upfront
- good DBDs needed to properly manage process

3. design change process

strengths

- controlled process
- maintains DBDs
- controls plant configuration

weaknesses

- process perceived as cumbersome
- potential AE or contractor interface problem
- daily plant support may detract
- potentially excessive reviews performed

recommendations/comments

- DBDs essential to be successful
- integrated living schedule provides for effective backlog control
- regulators/inspectors need better training to understand processes

Conclusions

- design change process continues to improve
- further training needed
- NSAC 125 enhancements could be beneficial
- effective screening is necessary
- integrated scheduling can provide more effective resource management

Group 2 Facilitators - Jim Linville (NRC), Bill Yaeger (Niagara Mohawk)
Industry participants: 7, NRC participants: 4

Strengths of 50.59 process

- there has been a significant improvement in safety as a result of the 50.59 process
- 50.59 process has improved greatly in the last few years. It is more substantial and better documented. Less perfunctory
- NSAC 125 and design basis reconstitution have contributed significantly to these improvements
- 50.59 process appears to work well for major modifications

Major problem areas

- difficulty in applying 50.59 process to the modification process commensurate with the nature of the modification
- major modifications
- minor modifications
- temporary modifications (including electrical jumpers and lifted leads)
- generic modifications
- design equivalent changes
- non-safety related systems

Goals

- maximize safety
- minimize resource impact

Recommendations for industry

- clearly define modification categories and which parts of the review process are applicable in order to minimize resource impact
- develop screening process similar to that suggested in NSAC 125
- establish well developed design basis
- establish generic processes to the extent possible

Recommendations for NRC

- publish a position on the acceptability of NSAC 125
- Establish clear staff guidance on application of position
- train NRC staff on application of guidance
- manage inspection and enforcement of guidance to provide consistent application with focus on potentially safety significant oversights

Group 3 Facilitators - Gene Kelly (NRC), Charles Cruse (BG&E)
Industry participants: 10, NRC participants: 4

Strengths

- 50.59 gives flexibility to utility
- good 50.59 process helps clarify design basis
- 50.59 process gives engineering a better understanding of design basis
- 50.59 process fosters well documented and assessable design basis
- NSAC 125 fills long standing void
- 50.59 enables integrated multi-disciplinary review
- 50.59 process started early helps provide design framework

Concerns/problems (in prioritized order)

- what is the safety analysis report (scope, detail, referenced documents)
- does 50.59 apply to as-found, design basis reconstitution "findings"
- "changes" - where do they end? How far should 50.59 be applied?
- distinction between licensing and design bases
- threshold for "temporary" modifications
- distinction between safety related and important to safety (and definition of the latter)
- NSAC 125 "in progress" change clarity
- 50.59 review of procedure changes
- scope/criteria for "screening"processes
- measures of 50.59/modification effectiveness

Problem 1 - what is SAR?

recommendations

- provide guidance on whether emergency plan, environmental report, and like documents are part of the SAR
- management meeting between NRC and utilities (NUMARC)
- incorporate guidance in NSAC 125
- delete items not important to safety from SAR
- add documents clarifying "licensing basis" to next SAR update (SERs, GL responses)

Problem 2 - does 50.59 process apply to "as found" design problems (design basis reconstitution)

- 50.59 process does apply to "as found" design problems
- develop "tiger team" of small dedicated engineering/licensing group to address "as found" design problems - use screening process

<u>Problem 3 -</u> <u>how far should 50.59 process be applied?</u>

- resolve problem 1 (SAR question)
- clarify need for 50.59 process
- procedure changes
- temporary mods
- long term equipment outages (silent mods)
- develop screening process
- provide training on screening criteria
- add step at end of mod process to perform self assessment of 50.59 process

<u>Conclusions</u>

- NSAC 125 is a good start but it need additional clarity
- what is SAR
- temporary mods
- procedure changes
- in progress work
- definition of important to safety

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

November 9, 1990

Mr. William H. Rasin
Director, Technical Division
Nuclear Management and Resources Council
Suite 300
1776 Eye Street N.W.
Washington, DC 20006-2496

Dear Mr. Rasin:

We have reviewed the "Design Basis Program Guidelines" developed by the Nuclear Management and Resources Council (NUMARC) forwarded to us by NUMARC's letters of May 16, July 2, and October 17, 1990. We appreciated the opportunity to interface with your staff during the development of the guidelines. We note that your staff was responsive to the comments and concerns that the U.S. Nuclear Regulatory Commission (NRC) staff expressed during the development of the guidelines.

We believe that NUMARC's approach will provide a useful framework and worthwhile insights to those utilities undertaking design basis programs of various scopes. We share your view that no single best approach exists for a design basis program. We understand that utilities must often address unique situations. Therefore, a variety of approaches can satisfy the basic need to develop a centralized location for design bases information that emphasizes the design intent and provides an index to important design documentation. It is important to stress that a facility should not be modified unless sufficient information is available to demonstrate that adequate design margins will be maintained.

We believe that Section VI of the guidelines regarding validation of the facility against current design information is of particular importance. The goal of any design reconstitution program should be to establish confidence that the existing facility is in accordance with the current design documents and that any deviations are reconciled.

The Enclosure summarizes our thoughts on several areas that the NUMARC guidelines do not address extensively. You may want to consider issuing further NUMARC guidance in these areas as you receive responses from utilities on use of the guidelines.

In the near future, the NRC will issue a NUREG document containing perspectives on utility design control programs and design document reconstitution programs gained from a survey of the programs of six licensees and one nuclear steam supply system vendor. The NUREG document will contain factual information regarding programs as they were being implemented at that time and will describe program strengths and weaknesses and problems encountered by utilities.

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We view your development of the "Design Basis Program Guidelines" to be a positive step in an area that will continue to be of great importance.

Sincerely,

Original signed by:

William T. Russell, Associate Director
for Inspection and Technical Assessment
Office of Nuclear Reactor Regulation

Enclosure:
NRC Observations of Design Document Reconstitution Programs

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DRIS R/F	RSIB R/F

*See previous concurrence

RSIB:DRIS	SC:RSIB:DRIS	C:RSIB:DRIS		D:DRIS	ADT:NRR
MAMiller*:bt	EVImbro*	WDLanning	Tech Ed**	BKGrimes	WTRussell
10/15/90	10/15/90	1?/?/90	10/17/90	10/5/90	10/5/90

MAM 10/17/90

** Reviewed by Tech Ed on 10/17/90

J.D 2 of 6

ENCLOSURE

NRC Comments on Design Document Reconstitution Programs

(1) Template Approach

The design document reconstitution (DDR) process should result in confidence that sufficient design documentation is available (a) to verify the implementation of the design bases, (b) to provide justification that key design parameters, such as the pump net positive suction head, are adequately accounted for in the design, and (c) to ensure that a structure, system, or component (SSC) will perform its intended safety function. One approach to developing a system or topical design bases document is to first identify a template of design parameters. Such a template would (a) establish and define the functionality and operability requirements of SSCs, (b) demonstrate the conformance of SSCs to the design bases, and (c) demonstrate that SSCs will perform their intended safety functions.

A review could then be performed to establish the degree to which the available design documents support the parameters defined in the template. This process would identify areas that require additional design documentation.

(2) Design Document Technical Review

The design document reconstitution program should include a technical review of the supporting design parameters, design calculations, and analyses. This technical review would verify that the design documents are technically sound and consistent with the as-built facility. The available design documents should be reviewed to identify areas where design information is technically inadequate or not consistent with the as-built facility.

(3) Concept of Essential Design Documents

In performing a design document reconstitution program, certain design documents will probably be unretrievable or will contain inconsistencies. While the NRC does not advocate the regeneration of the complete set of design documents, it is important that certain design documents are available to support plant operation. The design documents in this set will be referred to as the "essential design documents" and are further defined as Category I herein. All Category I design documents must be accurate, and those that are unretrievable need to be regenerated. Category I design documents are those documents that are necessary to support or demonstrate the conservatism of technical specification values, such as pump flow calculations or setpoint calculations. Additional design documents included in Category I would be those necessary for (a) engineering organizations to use in supporting plant operations and (b) the operators to use in quickly responding to events. Examples of Category I documents include, but are not limited to, electrical load

J.D
4 of 6

lists, setpoint lists, valve lists, instrument lists, fuse lists, breaker lists, Q-lists, diesel generator load sequencing, piping and instrumentation diagrams, flow diagrams, electrical single-line diagrams and schematics, and breaker and fuse coordination studies.

(4) Prioritization of Missing or Inadequate Documents

Use of a prioritization methodology in considering whether to regenerate missing or deficient documents can ensure that the licensee focuses resources on the more safety-significant items in a timely manner. An initial screening process would enable the licensee to determine the significance, effect on plant operability, and reportability requirements related to the missing or inadequate documentation.

One way to rank the importance of design documents according to safety significance is as follows:

Category I - Design documentation that supports or defines technical specification safety limits, limiting conditions for operation, limiting safety system setpoints or surveillance requirements. These documents demonstrate that the SSCs addressed by technical specifications will perform their active safety functions.

Category II - Design documentation that defines controlling parameters or demonstrates the active functionality of safety-related SSCs that are not explicitly addressed by the technical specifications, but that support the SSCs addressed by technical specifications such as heating, ventilating, and air conditioning systems.

Category III - Design documentation that defines controlling parameters or demonstrates active functionality of safety-related SSCs not included in Categories I or II.

Category IV - Design documentation that defines controlling parameters or demonstrates the functionality of safety-related SSCs with regard to passive considerations (e.g., seismic considerations).

Category V - Design documentation that demonstrates the design of non-safety SSCs is such that its failure would not impair the functionality of safety-related SSCs (e.g., seismic II/I considerations).

(5) Design Bases vs. Design Document Reconstitution

Reestablishment of the design bases without reconstitution of the supporting essential design documents may not provide a sufficient amount of information to support future modifications and current plant operation. The objective of a DDR program is to establish a continuity among the various levels of design information (e.g., design calculations and design bases documents) and with the physical plant characteristics of the facility. The DDR program should ensure that the design bases documents accurately reflect the source design documents, the design output documents accurately reflect the design bases, and the plant configuration is in accordance with the design output documents.

J. D
5 of 6

This information requiring document reconstitution can be evaluated in relation to the document categories, as defined herein. The NRC considers that all Category I essential documents that are inaccurate, unretrievable, or not yet produced should be regenerated in an expeditious manner. However, a licensee may be able to generate test data or use other means to establish a high level of confidence that the system can fulfill its safety functions. If so, then the licensee may be able to schedule the regeneration of the Category I document in a period of time commensurate with its evaluated safety significance.

A licensee may not need to regenerate design documents for Categories II through V if other supporting information or test data is available to demonstrate that an SSC can perform its intended safety function. For example, it may not be necessary to regenerate all missing pipe support calculations if, based on reanalysis of a sufficient sample, it can be demonstrated that adequate design margins exist. However, if a modification is proposed that would affect a pipe support, it would have to be reanalyzed if a valid analysis did not exist.

It is important to stress that a facility should not be modified unless sufficient information is available to demonstrate that adequate design margins will be maintained. Therefore, all missing calculations or design documents necessary to support a modification must be regenerated to establish a point of departure for the proposed modification and to quantify the design margin available following the proposed installation of the modification.

J-D
6 of 6