CATEGORY 2

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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50-325 Brunswick Steam Electric Plant, Unit 1, Carolina Powe 05000325
50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
AUTH.NAME AUTHOR AFFILIATION
CHRISTENSEN,H. Region 2 (Post 820201)
RECIP.NAME RECIPIENT AFFILIATION
HINNANT,C.S. Carolina Power & Light Co.

SUBJECT: Informs that on 990812-13,Region II hosted training managers conference on recent changes to operator licensing program. List of attendees,slide presentations & list of questions received from participants encl.

DISTRIBUTION CODE: IE42D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 86
TITLE: Operator Licensing Examination Reports

NOTES:Application for permit renewal filed. 05000400

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September 1, 1999

Carolina Power and Light Company
ATTN: Mr. C. S. Hinnant, Senior Vice President
and Chief Nuclear Office
Nuclear Generation
411 Fayetteville, Street
P. O. Box 1551
Raleigh, NC 27602

SUBJECT: TRAINING MANAGERS CONFERENCE MEETING SUMMARY

Dear: Mr. Hinnant:

On August 12 - 13, 1999, Region II hosted a Training Managers Conference on recent changes to the operator licensing program. The meeting covered changes to the Regulations, the Examination Standards (NUREG 1021), the new inspection program, and other training issues.

Enclosure 1 is the list of attendees and Enclosure 2 is a copy of the slide presentations. Enclosure 3 is a list of questions received from the participants. These questions will be reviewed and addressed at a future date.

If you have any questions concerning the conference, please contact me at 404-562-4638.

Sincerely,

Original signed by
Harold O. Christensen

Harold O. Christensen, Chief
Operator Licensing and
Human Performance Branch
Division of Reactor Safety

Docket Nos. 50-325, 50-324,50-400, 50-261
License Nos. DPR-71, DPR-62, NNPF-63, DPR-23

Enclosures: 1. List of Attendees
2. Licensee Presentation Handouts
3. Participants Questions

cc w/encls: (See page 2)

LTR encl

ADD: RES/DET 1 1

IE42

cc w/encls:
J. S. Keenan
Vice President
Brunswick Steam Electric Plant
P. O. Box 10429
Southport, NC 28461

J. J. Lyash, Director
Site Operations
Brunswick Steam Electric Plant
Carolina Power & Light
Electronic Mail Distribution

K. R. Jury, Manager
Regulatory Affairs
Carolina Power & Light Company
Brunswick Steam Electric Plant
Electronic Mail Distribution

James Scarola
Vice President - Harris Plant
Shearon Harris Nuclear Power Plant
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Bo Clark
Plant General Manager--Harris Plant
Carolina Power & Light Company
Shearon Harris Nuclear Power Plant
Electronic Mail Distribution

Johnny H. Eads, Supervisor
Licensing/Regulatory Programs
Carolina Power & Light Company
Shearon Harris Nuclear Power Plant
Electronic Mail Distribution

Distribution w/encls: (See page 3)

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Vice President
H. B. Robinson Steam Electric Plant Unit 2
3581 West Entrance Road
Hartsville, SC 29550

Plant General Manager
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant
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H. K. Chernoff, Supervisor
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Distribution w/encl:
A. Hansen, NRR
R. Laufer, NRR
R. Subbaratnam, NRR
R. Gallo, NRR
D. Trimble, NRR
R. Conte, RI
D. Hill, RIII
J. Pellet, RIV
PUBLIC

OFFICE	RII:DRS	RII:DRP													
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LIST OF ATTENDEES

U. S. NUCLEAR REGULATORY COMMISSION

Luis A. Reyes, Regional Administrator
Victor McCree, Deputy Director, Division of Reactor Safety (DRS)
Harold Christensen, Chief, Operator Licensing & Human Performance Branch, (OLHP), DRS
Fred Guenther, Senior Reactor Engineer, Nuclear Reactor Regulator
Ronald F. Aiello, Reactor Engineer, OLHP, DRS
Richard S. Baldwin, Reactor Engineer, OLHP, DRS
Michael E. Ernstes, Reactor Engineer, OLHP, DRS
George T. Hopper, Reactor Engineer, OLHP, DRS
Larry S. Mellen, Reactor Engineer, OLHP, DRS
Beverly Michael, Licensing Assistant, OLHP, DRS
Mark S. Miller, Reactor Engineer, OLHP, DRS
Charles Payne, Reactor Engineer, OLHP, DRS
Marvin Skyes, Reactor Engineer, OLHP, DRS
Hironori Peterson, Senior Examiner, Region III

LICENSEE

CAROLINA POWER AND LIGHT COMPANY
Max Herrell, Training Manager, Brunswick
Ralph Mullis, Operations Training Superintendent, Brunswick
Gregg Ludlam, Supervisor - Operator Continue Training, Brunswick
Mark Keef, Training Manager, Harris
Thomas Natale, Operations Training Manager, Robinson

DUKE ENERGY CORPORATION
Al Lindsay, Training Manager, Catawba
James Teofilac, Operations Training Manager, Catawba
Al Orton, Operations Training Manager, McGuire
Ronnie White, Site Training Manager, McGuire
Robby Pope, Supervisor of License Requal Training, McGuire
Gary Veller, Operations Human Performance Manager, McGuire
Tom Coutu, Superintendent of Operations, Oconee
John Steely, Supervisor Nuclear Operator Training, Oconee
Paul Stovall, Manager Operator Training, Oconee
Scott Hollingsworth, Operations Training Liaison, Oconee
Rick Robinson, Operations Training Liaison, Oconee
Jack Brission, Operations, Oconee

FLORIDA POWER AND LIGHT COMPANY
Mark Shepard, Operations Training Supervisor, St. Lucie
Jo Magennis, Nuclear Assurance, St. Lucie
Maria Lacal, Training Manager, Turkey Point
Phillip Finegan, Operations Training Supervisor, Turkey Point
Bill Burrow, Online Schedule Supervisor, Turkey Point

FLORIDA POWER CORPORATION
Ken McCall, Operations Training Manager, Crystal River
Frank Dola, Senior Nuclear Operations Specialist, Crystal River
Tony Roberts, {FRG Corporation} Representative

SOUTHERN NUCLEAR OPERATING COMPANY, INC.
Scott Fulmer, Training Manager, Farley
Joe Powell, Nuclear Operations Senior Instructor, Farley
Gerry Laska, Nuclear Operations Instructor, Farley
Gary O'Hustede, Operation Training Plant Instructor, Farley
John Lewis, Training Manager, Hatch
Steven Grantham, Operations Training Supervisor, Hatch
Robert Brown, Plant Training & Emergency Preparedness Manager, Vogtle

SOUTH CAROLINA ELECTRIC AND GAS COMPANY
Albert Koon, Operations Training Manager, Summer
Perry Ramicone, Lead Instructor Exam Development, Summer
James Callicott, Training Evaluation Coordinator, Summer

TENNESSEE VALLEY AUTHORITY
Daniel Sanchez, Training Manager, Browns Ferry
Ardie Champion, Operations Training Manage, Browns Ferry
Denny Campbell, Shift Operations Supervisor Instructor, Browns Ferry
John Parshall, Shift Operations Supervisor Instructor, Browns Ferry
Richared Driscoll, Training Manager, Sequoyah
Walt Hunt, Operations Training Manager, Sequoyah
John Rodden, Operations Training Manager, Watts Bar
Tom Wallace, Operations Superintendent, Watts Bar

VIRGINIA ELECTRIC AND POWER COMPANY
Joe Scott, Operations Training Supervisor, North Anna
Steve Crawford, Senior Instructor Nuclear, North Anna
David Llewellyn, Superintendent of Nuclear Training, Surry
Harold McCallum, Operations Training Supervisor, Surry
Michael Brady, Supervisor of Nuclear Training, Surry

OTHERS
James Makucin, INPO
Bob Post, NEI

WELCOME TO

U. S. NUCLEAR REGULATORY COMMISSION
REGION II

TRAINING MANAGER'S CONFERENCE
AUGUST 12-13, 1999

SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH SW, SUITE 23T85
ATLANTA, GA 30303

ENCLOSURE 2

REGION II TRAINING MANAGER CONFERENCE AGENDA

Sam Nunn Atlanta Federal Center
(Bridge Conference Room B)

Thursday, August 12, 1999

8:30 - 9:00 a.m.	Introduction	L. Reyes V. McCree C. Christensen
9:00 - 10:00 a.m.	Summary of Significant NUREG 1021 Changes	C. Christensen
10:00 -10:15 a.m.	Break	
10:15 - 11:45 a.m.	ES-200 Series (Exam Process)	M. Emstes
11:45 a.m. - 1:00 p.m.	Lunch	
1:00 - 2:00 p.m.	Changes in the NRC	B. Boger
2:00 - 2:15 p.m.	Break	
2:15 - 3:45 p.m.	ES-300 Series (Operating Test)	R. Aiello
3:45 - 4:00 p.m.	Break	
4:00 - 5:00 p.m.	New Inspection Program	C. Christensen

Friday, August 13, 1999

8:00 - 8:15 a.m.	Day 2 Opening Remarks	C. Christensen
8:15 - 9:45 a.m.	ES-400 Series (Written Exams)	R. Baldwin
9:45 - 10:00 a.m.	Break	
10:00 - 11:00 a.m.	ES-500 Series (Post-Exam Process)	C. Payne
11:00 a.m. - 12:00 p.m.	Recent Training Program Issues	G. Hopper
12:00 - 1:00 p.m.	Lunch	
1:00 - 2:00 p.m.	ES - 600 Series (Requal Program)	M. Sykes G. Hopper
2:00 - 3:00 p.m.	Closing Remarks	L. Reyes V. McCree C. Christensen

TRAINING MANAGERS CONFERENCE

August 12 - 13, 1999

TRAINING MANAGERS CONFERENCE

INTRODUCTION

Luis Reyes
Victor McCree
Chris Christensen

TRAINING MANAGERS CONFERENCE

AGENDA - DAY ONE

▸ 8:30 a.m.	Introduction
▸ 9:00 a.m.	NUREG 1021 Changes
▸ 10:00 a.m.	Break
▸ 10:15 a.m.	Exam Process
▸ 11:45 a.m.	Lunch
▸ 1:00 p.m.	Changes in the NRC
▸ 2:00 p.m.	Break
▸ 2:15 p.m.	Operating Test
▸ 3:45 p.m.	Break
▸ 4:00 p.m.	New Inspection Program
▸ 5:00 p.m.	End Day One

TRAINING MANAGERS CONFERENCE

VICTOR M. McCREE

Deputy Director, Division of Reactor Safety
Region II
August 12 - 13, 1999

REGULATORY TRENDS

- BACKGROUND
- DESCRIBE THE CHALLENGE FACING NRR
- EXPLAIN HOW NRR IS MEETING THE CHALLENGE
- DISCUSS HOW NRR IS DEFINING SUCCESS
- DISCUSS STATUS OF HIGH PRIORITY AREAS FOR ACTION
- THEN, NOW AND THE FUTURE

BACKGROUND

- U.S. Nuclear Reactor Industry Average Safety Performance Has Improved Steadily
  - Number of Accident Sequence Precursors Declined Significantly Since 1984
  - Five of The NRC Tracked Performance Indicators Show Significant Improvement Since 1985 (automatic scrams, safety system actuations, significant events, equipment forced outages and collective radiation exposure)
- Challenge Is to Define Programs (In Rapidly Changing Business And Regulatory Environments) at a Level Which:
  - Maintain Safety
  - Reduce Unnecessary Regulatory Burden
  - Increase Public Confidence
  - Improve Efficiency And Effectiveness

AREAS OF NRC STAKEHOLDER CONCERN

- Senate & House Committee Reports on NRC Appropriations - Early June, 1998
- Commission Meeting With Stakeholders - July 17 & Nov. 13, 1998
- NRC Oversight Hearing With Senate Subcommittee - July 30, 1998
- Regulatory Framework Needs to Be Predictable, Objective, And Timely
- Concern Exists That Some NRC Regulations And Regulator Practice Pose Unnecessary Burden on Licensees
- In Deregulated Electric Utility Environment, Unnecessary Regulatory Burden Is of Significant Concern to Licensees
- Need For Continuous Improvement in Regulatory Effectiveness And Efficiency

POST-HEARING TASKING MEMO

- Memo From Chairman to EDO - August 7, 1998
- Identifies Commission Proposed High Priority Areas For Action
- Tasking Memo Response - August 25, 1998 - Contains Short And Long Term Actions (Updated Monthly)
- Maintaining Safety Remains Highest Priority
- Many Tasks Previously Identified And in Operating Plan; Remaining Tasks Added
- Some Existing Tasks May Be Appropriate to Slow, Defer, Cancel, Other to Accelerate
- Challenge Is to Maintain Safety While Reducing Unnecessary Burden

PERFORMANCE GOALS

FOCUS ATTENTION TO MEASURE NUCLEAR REACTOR SAFETY PROGRAM OUTCOMES:

- MAINTAIN SAFETY
- REDUCE UNNECESSARY REGULATORY BURDEN
- INCREASE PUBLIC CONFIDENCE
- INCREASE EFFICIENCY/EFFECTIVENESS OF KEY NRC PROCESSES

Determined by NRC Nuclear Reactor Regulation Team Working With Contractor to Define And Implement Planning, Budgeting, And Performance Management Process (PBPM)

PRIMARY AREAS OF AGENCY FOCUS

- Risk-Informed And Performance-Based Regulation
- Reactor Inspection And Enforcement
- Reactor Licensee Performance Assessment
- Reactor Licensing And Oversight
- NRC Organizational Structure And Resources
- Other Agency Programs And Areas of Focus (I.e. License Transfers, Dry Cask Storage, Decommissioning)
- Uranium Recovery Issues
- Changes to NRC's Hearing Process

REACTOR OVERSIGHT PROCESS IMPROVEMENTS

ASSESSMENT, INSPECTION AND ENFORCEMENT

- Suspended SALP Program, Modified Periodic Plant Reviews
- Performance Results Will Be Evaluated to Determine When Enhanced NRC Diagnosis of Licensee Performance Is Warranted. A Risk-Informed Baseline Inspection Program Will Be Performed For All Sites.
- Framework: Performance Indicators And Risk-Informed Inspection Results Will Be Used to Measure Licensee Safety Performance. Results Will Be Evaluated Using Equivalent Risk-Informed Scales. (Thresholds)
- Inspections Will Become More Risk-Informed and Results Will Be Evaluated For Their Risk Significance Using Rules-Based (Examples) Scale.
- Assessment: a Streamlined, Structured Review Process Will Be Used. An Action Matrix Will Provide Consistency in Making Response Decisions.

REGULATORY FRAMEWORK

Please See Handout

ACTION MATRIX

Please See Handout

TRAINING MANAGERS CONFERENCE

AGENDA - DAY TWO

▪ 8:00 a.m.	Opening Remarks
▪ 8:15 a.m.	Written Examination
▪ 9:45 a.m.	Break
▪ 10:00 a.m.	Post Exam Process
▪ 11:00 a.m.	Recent Training Program Issues
▪ 12:00 p.m.	Lunch
▪ 1:00 p.m.	Requal Program
▪ 2:00 p.m.	Closing Remarks

Question From the Last Training Managers Conference

November 5, 1998

- Need to stay flexible on exam schedule and do not wait until the last minute to accept the criteria from licensee. Suggested method was to accept the criteria early in process of the prep week. Would prefer to have 30-45 days prior to the scheduled Exam.
  - The Finial Rev 8 Examiner Standard now request that Outlines be sent 75 days prior to the exam date and that the Exam be sent 45 days prior to the exam date. This can be negotiated with the Chief Examiner.

Last Conference Questions

- The NRC should publish the exam schedule early. Suggestion was to publish at least 1 year in advance.
  - An Operator Licensing WEB page will be coming soon and it will have the exam schedules. Additionally, we have been sending confirmation letters to each licensee on the exam schedule.
- Recommend the NRC turn over the GFES to the Licensee.
  - The near term we plan to go to three GFES exams per year. Long Term we plan to develop a computerized GFES.

Last Conference Questions

- The issue of written exams and limited staff in NRC create a "de facto" situation for licensees to have to write their own exams.
  - For FY2000 we are writing more exams and Headquarters has requested for additional resourses. However you may be requested to write an exam if you want a given date.
- The issue of tying up exam writers.
  - The security requirements are like Requal exam requirements now.

Questions for last Conference

- There is inconsistency in the examiner standards and the K/A manual. For example the sampling plan and Part 20 references.
  - Final Rev 8 issued, however we need more information to better answer questions.
- In using the Requal procedure, is the NRC going to inspect manipulations for reactivity levels on an individual basis? Or can the record be maintained as a team.
  - Records should be individual because the license is issued to an individual.

Questions for last Conference

- Would like NRC clarification on following the 10 CFR for an SAT program rather than following the guidance in the memo once issued by the Director of NRR.
  - You can follow your SAT based program, however if you have a Tech Spec or FSAR requirement you need to follow those requirements or get them changed.
- Written exams are getting harder due to the raising cognitive levels. Can there be less of acceptance % for the higher level.
  - Rev 8 placed a limit on the higher level questions 50 -60% and no more. Additionally, the time limit for the exam has been extended to 5 hours.

SUMMARY OF SIGNIFICANT CHANGES OR CLARIFICATIONS

Chris Christensen

SUMMARY OF SIGNIFICANT CHANGES OR CLARIFICATIONS

- Changes to 10 CFR 55
  - New 10 CFR 55.40
    - Exams Prepared Using NUREG-1021
    - Licensees may Prepare, Proctor and Grade Written Exam
    - Licensees May Prepare Operating Test
    - Licensees Shall Establish Procedures to Control Exam Security and Integrity When Preparing Examinations
    - Authorized Representative Shall Approve Exams Before Submittal to NRC
    - Licensees Must Receive NRC Approval of Exam
    - NRC shall Prepare, Proctor and Grade Examinations Upon Licensee's Written Request

SUMMARY OF SIGNIFICANT CHANGES OR CLARIFICATIONS

- Changes to 10 CFR 55
  - 10 CFR 55.49
    - Was Revised to Clarify Compromise and Security Expectations
- Changes to NUREG 1021
  - ES 200 Series: Examination Process
    - Due dates for Exam Outline and Draft Exam Advanced
    - Personnel Restrictions are Like Requal
    - The Region May Approve Separating the Written Exam and Operating Test By up to 30 Days

SUMMARY OF SIGNIFICANT CHANGES OR CLARIFICATIONS

- Changes to NUREG 1021
  - ES 300 Series: Operating Tests
    - Dominant Accident Sequences Should Be Considered for Sampling During Operating Test
    - Prescripted JPM Questions Deleted
      - Can use follow-up questions for Cause
      - Alternate path JPMs Increased to 40%
    - No Reuse of Material on Subsequent Days
    - STA Use OK per Licensee Practice

SUMMARY OF SIGNIFICANT CHANGES OR CLARIFICATIONS

- Changes to NUREG 1021
  - ES 400 Series: Written Examination
    - Systematic Sampling Required for Outline Construction
    - Learning Objectives Not Required
    - Higher Cognitive Questions 50 - 60% of Exam
    - New and Updated Forms
    - 30 Question Sampling Review
    - Exam Time Raised to 5 Hours
    - Clean Copy of Answer Sheet Required
  - ES 500 Series: Post Examination
    - May Hold License for 80-81% Passes
    - Administrative Review Process Streamlined
      - Licensee May be Requested to Provide Reference Material and Technical Information

SUMMARY OF SIGNIFICANT CHANGE OR CLARIFICATIONS

- Changes to NUREG 1021
  - ES 600 Series: Requalification
    - Test Item Duplication Expectations Clarified
    - Licensed Operators Detailed Off-site Clarified
    - Proficiency Watch Expectations Clarified
  - ES 70O Series: Limited SRO
    - 50 Question Written Examination
  - Appendices
    - Guidance for Developing Multiple Choice Questions in App. B
    - App. E - Clarified Making Assumptions
    - App. F - Defined:
      - Responsible Power Plant Experience
      - Technical Specifications as a Reference

Examination Process
ES-200 Series

Mike Ernstes

ES-201

Examination Process

B. Facility developed examinations must meet the following:

(1) comply with NUREG-1021
(2) establish, implement and maintain security procedures
(3) exam submittals must be approved by an authorized representative
(4) NRC must approve the proposed examinations.

C.1.a Requests for NRC administration of examinations must be in writing in accordance with 10 CFR 55.40 (c).

Respond to NRC annual administrative letter and keep region appraised of any changes. Contact Region II OLB Branch Chief by phone to negotiate exam dates and development options. Partial development may be negotiated.

ES-201

Examination Process

C.1.b The agency enforcement policy applies to exam compromise.

Attachment 1 has a section called "Other Considerations" which was not in Interim Rev. 8 which summarizes some exam security and integrity issues

C.1.e The amount of reference material requested from the facility licensee will be adjusted based on the NRC's level of involvement in the examination development process. The Chief examiner will discuss reference material content and due dates during the phone call prior to the 120-day letter.

The licensee is requested to submit three copies of the outlines and examinations. Only one copy of the references is required. (Region II request)

C.1.f A facility supervisor or manager shall independently review the examination outlines and the proposed exams before they are submitted to the NRC.

ES-201

Examination Process

C.1.g An authorized representative of the facility licensee shall approve the submittals before sending them to the NRC for review. The authorized representative is not the same person as the facility reviewer. The authorized representative will be the same person that the 120-day letter is sent to. He does not need to review the test items nor be on the security agreement.

C.1.j Facility is encouraged to communicate significant concerns with the content for difficulty of the NRC prepared exam of the changes that the NRC has directed for its proposed exam.

C.1.k Facility will make any necessary changes to the examinations as agreed upon with the NRC.

C.2.c About four months before the examination, the Chief Examiner will call the facility to discuss the nine items listed. Negotiation of delivery dates may be made to allow most efficient review.

C.2.f Examiners have the option to not participate in the prep week visit.

ES-201

Examination Process

C.2.h The written and operating portions of the exams may be split by up to 30 days.

C.2.i Branch Chief will sign the QA sheets when he is satisfied that the examinations are ready for administration.

C.3.f "Sampling Review" of the written examination shall be completed within one week of receiving the examination and the balance of the review completed in two weeks after receipt.

C.3.j SRO upgrades filling an RO or BOP position do not need to be evaluated individually.

ES-201

Examination Process

D.2.a Facility should limit access to only those portions which the individual bears responsibility.

D.2.b Gives examples of "prohibited activities" for individuals on the Security Agreement.

Supervisors and managers on the Security Agreement may continue their general oversight of the training program including review of examinations and remedial training. They may not provide individual applicant feedback.

ES-202

Preparing and Review Operator Licensing Applications

C.1.a If more than six months have passed since an applicant's medical examination, the facility shall certify that the applicant has not developed any reportable condition.

C.2.b The requirement for five significant reactivity manipulations is clarified.

D.3 Eligibility criteria for Limited Senior Reactor Operators moved from ES-701.

ES-204

Processing Waiver Request

D.1.a A retake examination must take place within one year of the date on which the denial of the orginal application became final.

D.1.g The region may waive the requirements for an examination if the applicant was previously licensed at the same facility. Must have terminated participation in requal less than two years ago.

D.1.h The region may accept applications and administer exams to applicants who have not completed their five reactivity manipulations due to extended shutdown. A cold or refueling license will be issued.

ES-205

Generic Fundamentals Examination Program

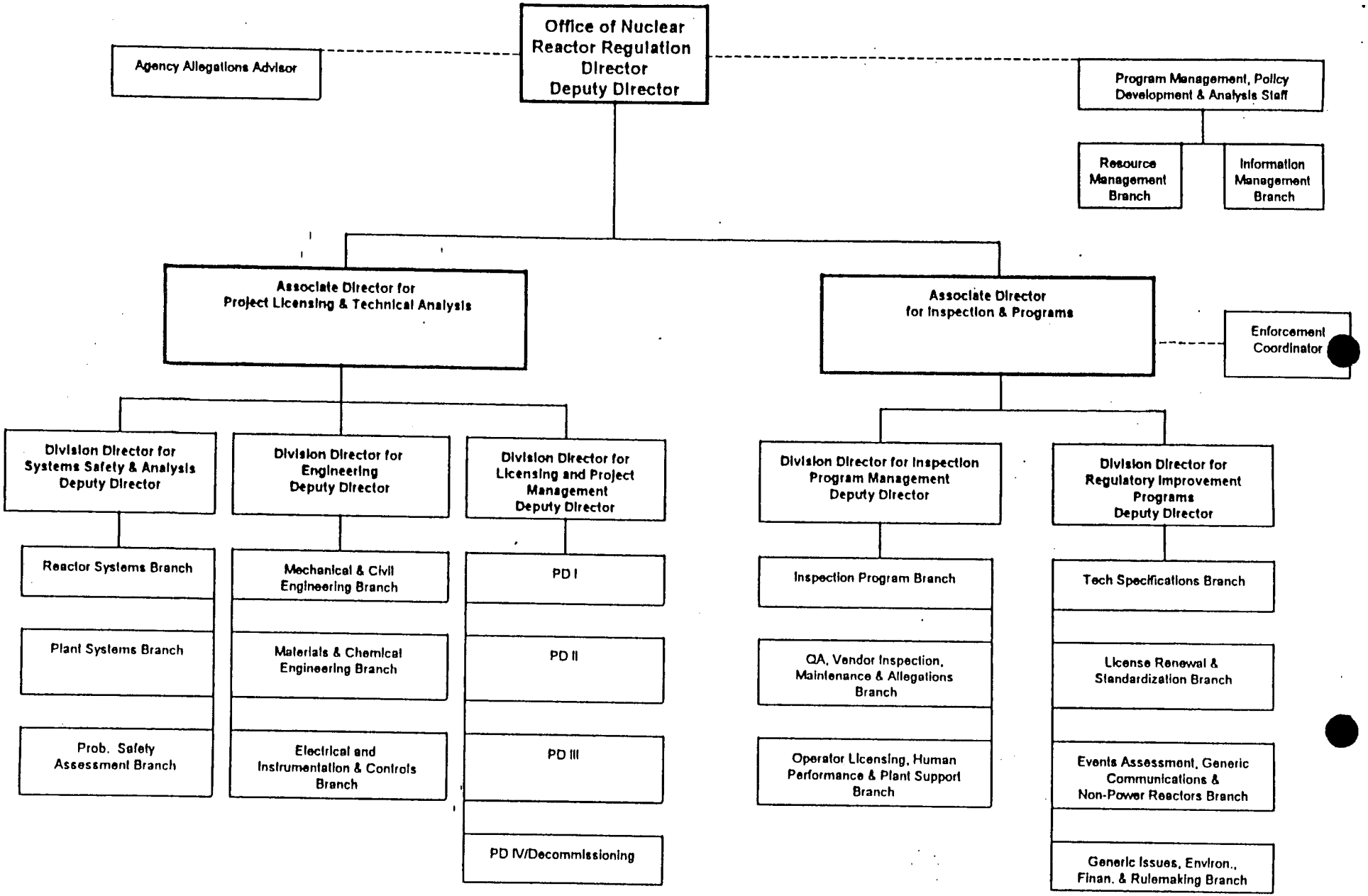
C.1.a Facility licensees should notify the NRR operator licensing program office if they add or delete an individual from their previously submitted registration letter for the GFES before the examination is administered.

A third GFES is possible in 2000. October 1999, February 2000, & June 2000 are likely dates.

The GFES exam date is always the Wednesday after the first Sunday of the month.

TRAINING MANAGER CONFERENCE
REGION II OFFICES
AUGUST 12, 1999

BRUCE A. BOGER, DIRECTOR
DIVISION OF INSPECTION PROGRAM MANAGEMENT
OFFICE OF NUCLEAR REACTOR REGULATION


Office of Nuclear Reactor Regulation
Director
Deputy Director
Agency Allegations Advisor
Program Management, Policy Development & Analysis Staff
Resource Management Branch
Information Management Branch
Associate Director for Project Licensing & Technical Analysis
Associate Director for Inspection & Programs
Enforcement Coordinator
Division Director for Systems Safety & Analysis Deputy Director
Division Director for Engineering Deputy Director
Division Director for Licensing and Project Management Deputy Director
Division Director for Inspection Program Management Deputy Director
Division Director for Regulatory Improvement Programs Deputy Director
Reactor Systems Branch
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Prob. Safety Assessment Branch
Mechanical & Civil Engineering Branch
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QA, Vendor Inspection, Maintenance & Allegations Branch
Operator Licensing, Human Performance & Plant Support Branch
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License Renewal & Standardization Branch
Events Assessment, Generic Communications & Non-Power Reactors Branch
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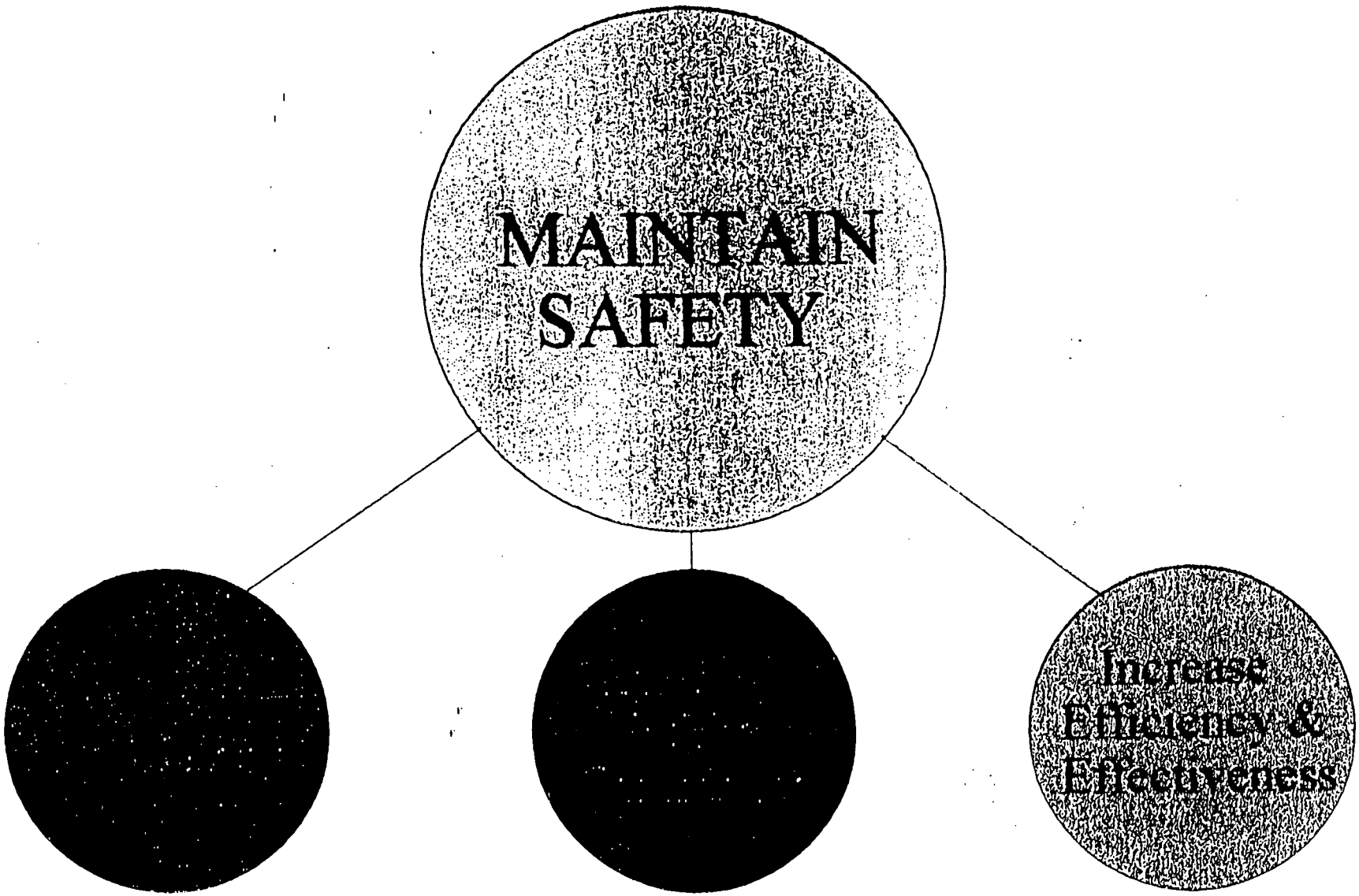
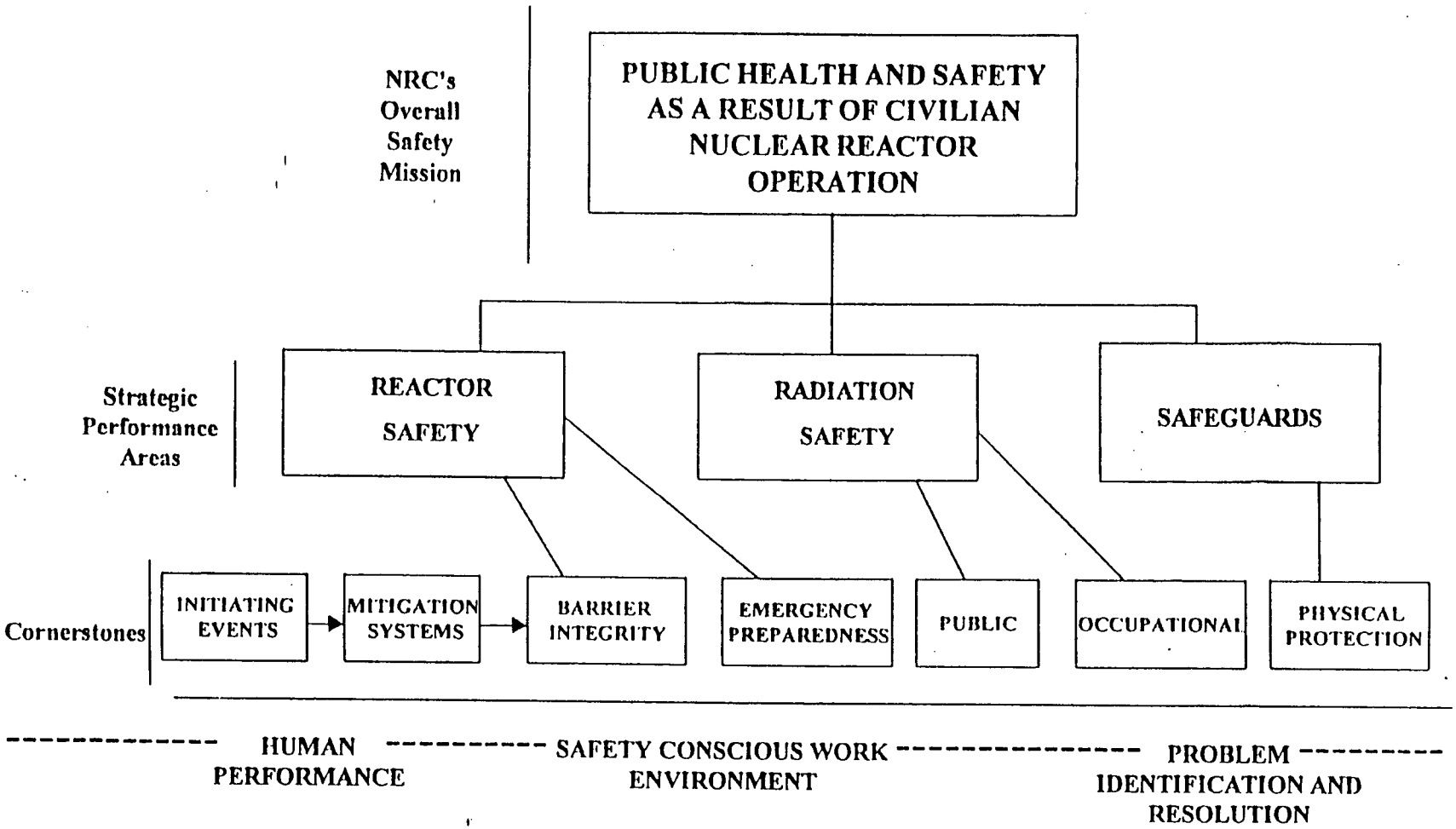
PERFORMANCE GOALS



FOCUS ON ACHIEVING OUTCOMES

REGULATORY FRAMEWORK



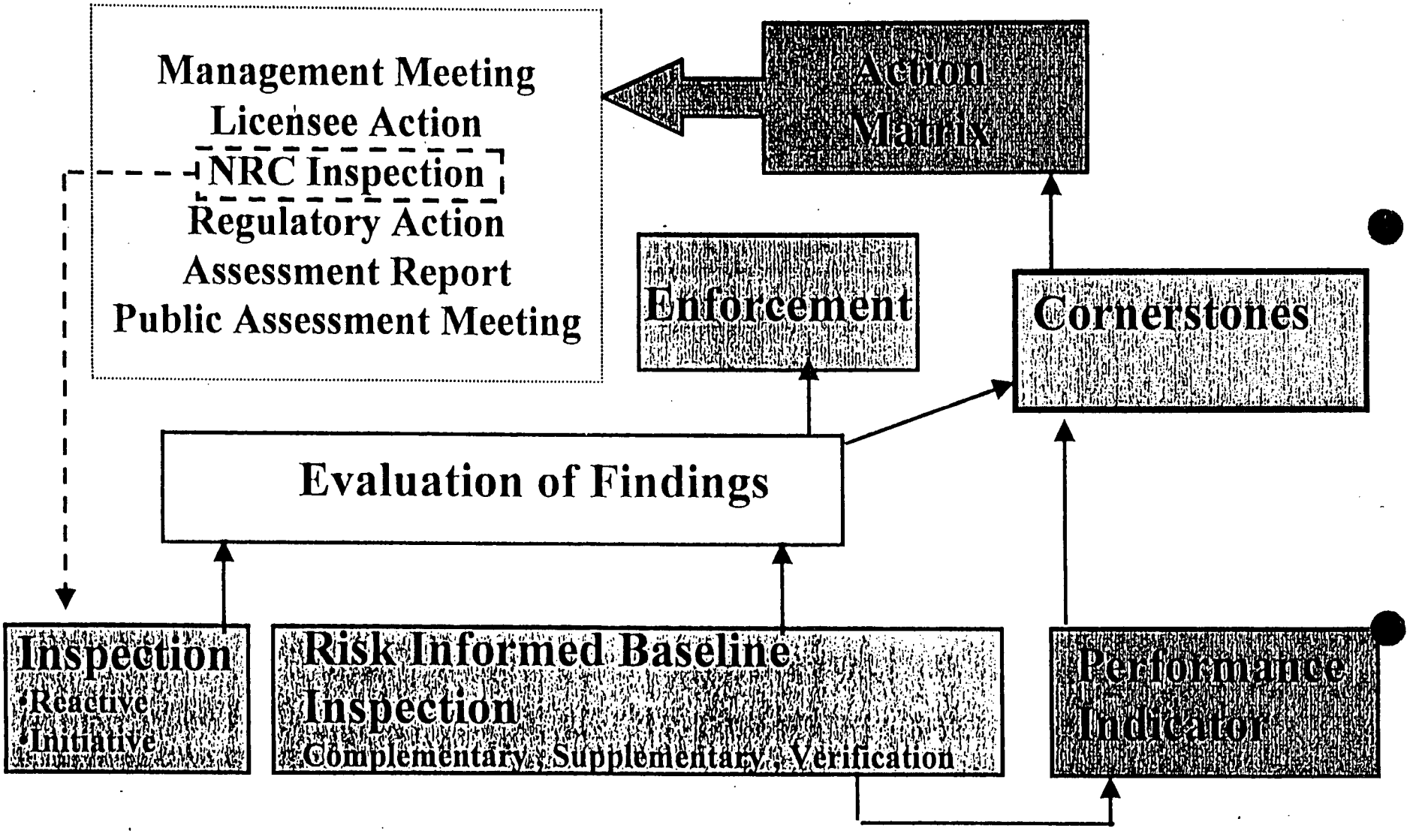
- PERFORMANCE INDICATOR
- INSPECTION
- OTHER INFORMATION SOURCES
- DECISION THRESHOLDS

Table 1 - PERFORMANCE INDICATORS				
Cornerstone	**Indicator**		**Thresholds**	
			Increased Regulatory Response Band	**Required Regulatory Response Band**
Initiating Events	Unplanned Scrams per 7000 Critical Hours (automatic and manual scrams during the previous four quarters)		>3.0	>6.0
	Scrams with a Loss of Normal Heat Removal (over the previous 12 quarters)		>4.0	>10.0
	Unplanned Power Changes per 7000 Critical Hours (over previous four quarters)		>8.0	N/A
Mitigating Systems	Safety System Unavailability (SSU) (average of previous 12 quarters)	**All Plants** ¶ Emergency Power ¶ >2EDG ¶ **BWRs** ¶ HPCI ¶ HPCS ¶ RCIC ¶ RHR ¶ **PWRs** ¶ HPSI ¶ AFW ¶ RHR	¶ >3.8% ¶ >3.8% ¶ ¶ >4.0% ¶ >1.5% ¶ >4.0% ¶ >2.0% ¶ ¶ >2.0% ¶ >2.0% ¶ >2.0%	¶ >5.0% ¶ >10.0% ¶ ¶ >12.0% ¶ >4.0% ¶ >12.0% ¶ >5.0% ¶ ¶ >5.0% ¶ >6.0% ¶ >5.0%
	Safety System Functional Failures (over previous four quarters)		>5.0	N/A

Table 1 - PERFORMANCE INDICATORS Cont'd

Cornerstone	Indicator	Thresholds	
		Increased Regulatory Response Band	Required Regulatory Response Band
Barriers ¶ → Fuel Cladding ¶	Reactor Coolant System (RCS) Specific Activity (maximum monthly values, percent of Tech. Spec limit, during previous four quarters)	>50.0%	>100%
→ Reactor Coolant System ¶	RCS Identified Leak Rate (maximum monthly values, percent of Tech. Spec. limit, during previous four quarters)	>50.0%	>100%
→ Containment	Containment Leakage (maximum monthly values, percentage of L_A over the previous four quarters)	>60.0%	N/A
Emergency Preparedness	Drill/Exercise Performance (over previous eight quarters)	<90.0%	<70.0%
	ERO Drill Participation (percentage of Key ERO personnel that have participated in a drill or exercise in the previous eight quarters)	<80.0% ¶	<60.0% ¶
	Alert and Notification System Reliability (percentage reliability during previous four quarters)	<94.0%	<90.0%
Occupational Radiation Safety ¶	Occupational Exposure Control Effectiveness (occurrences during previous 12 quarters)	>5	>11
Public Radiation Safety	RETS/ODCM Radiological Effluent Occurrence (occurrences during previous four quarters)	>1	>3
Physical Protection	Protected Area Security Equipment Performance Index (over a four quarter period)	>0.05	>0.15
	Personnel Screening Program Performance (reportable events during the previous four quarters)	>2	>5
	Fitness-for-Duty (FFD)/Personnel Reliability Program Performance (reportable events during the previous four	>2	>5

Plant Oversight Process



ACTION MATRIX

	LICENSEE PERFORMANCE INCREASING SAFETY SIGNIFICANCE --------->					
RESULTS		All Assessment Inputs (Performance Indicators (PIs) and Inspection Findings) Green; Cornerstone Objectives Fully Met	One or Two White Inputs (in different cornerstones) in a Strategic Performance Area; Cornerstone Objectives Fully Met	One Degraded Cornerstone (2 White Inputs or 1 Yellow Input) or any 3 White Inputs in a Strategic Performance Area; Cornerstone Objectives Met with Minimal Reduction in Safety Margin	Repetitive Degraded Cornerstone, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or 1 Red Input[1]; Cornerstone Objectives Met with Longstanding Issues or Significant Reduction in Safety Margin	Overall Unacceptable Performance; Plants Not Permitted to Operate Within this Band, Unacceptable Margin to Safety
RESPONSE	Regulatory Conference	Routine Senior Resident Inspector (SRI) Interaction	Branch Chief (BC) or Division Director (DD) Meet with Licensee	DD or Regional Administrator (RA) Meet with Licensee	EDO (or Commission) Meet with Senior Licensee Management	Commission meeting with Senior Licensee Management
	Licensee Action	Licensee Corrective Action	Licensee Corrective Action with NRC Oversight	Licensee Self Assessment with NRC Oversight	Licensee Performance Improvement Plan with NRC Oversight	
	NRC Inspection	Risk-Informed Baseline Inspection Program (Baseline)	Baseline and Inspection Follow-up	Baseline and Inspection Focused on Cause of Degradation	Baseline and Team Inspection Focused on Cause of Degradation	
	Regulatory Actions	None	Document Response to Degrading Area in Inspection Report	Docket Response to Degrading Condition	-10 CFR 2.204 DFI -10 CFR 50.54(f) Letter - CAL/Order	Order to Modify, Suspend, or Revoke Licensed Activities
COMMUNICATION	Assessment Report	DD review/sign assessment report (w/ inspection plan)	DD review/sign assessment report (w/ inspection plan)	RA review/sign assessment report (w/ inspection plan)	RA review/sign assessment report (w/ inspection plan) Commission Informed	
	Public Assessment Meeting	SRI or BC Meet with Licensee	BC or DD Meet with Licensee	RA Discuss Performance with Licensee	EDO (or Commission) Discuss Performance with Senior Licensee Management	Commission Meeting with Senior Licensee anagement
	<---------- Regional Review / Agency Review ----------					

Operator/Technician Fatigue

- "Policy on Factors Causing Fatigue of Operating Personnel at Nuclear Power Plants" (GL 82-12)
- Policy implemented through technical specifications
- Recent allegations and Congressional interest
- Use of overtime at some plants not consistent with policy guidelines
- NRC to reassess policy statement

10 CFR 55.31(a)(5)
Reactivity Manipulations

Current Rule

- Requires 5 significant control manipulations that affect reactivity or power to be performed by each license applicant
- Must be performed on the actual plant

Proposed Rule

- Would continue to accept use of the actual plant -***or***-
- Would allow use of the simulation facility -***if***-
  - Control manipulations are evolutions that are part of the SAT-based, Commission-approved training program,

    -***and***-
  - core and thermal-hydraulic models reflect the actual core that exists or will be loaded at the time of the applicant's operator's license examination, -***and***- simulator fidelity has been assured by testing

Related Regulatory Activity

- Regulatory Guide 1.149 is being revised to endorse ANSI/ANS 3.5-1998.
- 10 CFR 55.45 is being revised to reduce unnecessary regulatory burden.

ES-301

Final Rev 8 Change Overview

Purpose "A"

All applicants for reactor operator (RO) and senior reactor operator (SRO) licenses at power reactor facilities are required to take an operating test, unless it has been waived in accordance with 10 CFR 55.47 (refer to ES-204). The specific content of the operating test depends on the type of license for which the applicant has applied.

This standard describes the procedure for developing operating tests that meet the requirements of 10 CFR 55.45, including the use of reactor plant simulation facilities and the conduct of multi-unit evaluations.

Background "B"

To the extent applicable, the operating test will require the applicant to demonstrate an understanding of, and the ability to perform, the actions necessary to accomplish a representative sampling from the 13 items identified in 10 CFR 55.45(a) ***(all 13 items do not need to be sampled on every operating test)***.

In addition, the content of the operating test will be identified, in part, from learning objectives contained in the facility licensee's training program and from information in the final safety analysis report, system description manuals and operating procedures, the facility license and license amendments, licensee event reports, and other materials requested from the facility licensee by the Commission.

Category "B"

Control Room Systems and Facility Walk-through (B.2)

Category B is divided into two subcategories. The first and larger subcategory (B.1, "Control Room Systems") focuses on those systems with which licensed operators are most involved (i.e., those having controls and indications in the main control room). The second subcategory (B.2, "Facility Walk-Through") ensures that the applicant is familiar with the design and operation of systems located outside the main control room.

The applicant's knowledge and abilities relative to each system are evaluated by administering JPMs and, when necessary, specific follow-up questions based on the applicant's performance of each JPM.

Category "C"

Integrated Plant Operations (B.3)

Each applicant must demonstrate proficiency on every competency applicable to his or her license level. The only exception is that SRO Competency Number 5, "Control Board Operations," is optional for SRO-upgrade applicants

(i.e., SRO-upgrade applicants do not have to fill a position that requires control board operations; however, if they do rotate into such a position, they will be graded on this competency even though they may not be individually observed by an NRC examiner, as discussed in ES-302).

INSTRUCTIONS

General Guidelines (D.1.a)

To minimize predictability and maintain test integrity, varied subjects, systems, and operations shall be evaluated with applicants that are not being examined at the same time, unless measures are taken to preclude interaction among the applicants.

The same JPMs and simulator scenarios shall not be repeated on successive days.

General Guidelines (D.1.a) cont

Operating tests written by the facility licensee may not duplicate test items ***(simulator scenarios or JPMs) from the applicants' audit test (or tests if the applicant is retaking the examination)*** given at or near the end of the license training class. Simulator events and *JPMs* that are similar to those that were tested on the audit examination are permitted provided the actions required to mitigate the transient or complete the task

(e.g., using an alternate path as discussed in Appendix C) are significantly different from those required during the audit examination. The facility licensee shall identify for the NRC chief examiner those simulator events and JPMs that are similar to those that were tested on the audit examination.

General Guidelines (D.1.d)

When selecting and developing materials (JPMs, scenarios, and questions) for the operating test, ensure that the materials contribute to the test's overall capacity to differentiate between those applicants who are competent to safely operate the plant and those who are not. ***Additionally, all of the test items should include the three facets of test validity (i.e., content, operational, and discrimination) discussed in Appendix A.***

Any test items that, when missed, would raise questions regarding adequate justification for denying the applicant's license should not be included on the operating test.

General Guidelines (D.1.i)

Every facet of the operating test, ***including the prescripted Category A questions and answers, the JPMs for Categories A and B, and the Category C simulator scenarios, should be planned,*** researched, validated, and documented to the maximum extent possible before the test is administered.

That is *** B E F O R E ***

General Guidelines (D.1.j)

Examiners who will be administering the operating tests but were not involved in their development are expected to research and study the topics and systems to be examined on the operating test so that they are prepared to ask whatever performance-based follow-up questions might be necessary to determine if the applicant is competent in those areas.

As stated in 10 CFR 55.45(a), the operating test requires the applicant to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a representative sample from among 13 items listed in the rule.

General Guidelines (D.1.j) cont

If the applicant correctly performs a JPM (including both critical and noncritical steps) and demonstrates familiarity with the equipment and procedures, it is not necessary to ask any follow-up questions.

However, if the applicant fails to accomplish the task standard for the JPM or demonstrates a lack of understanding regarding the equipment and procedures such as having difficulty locating information, control board indications, or controls, the examiner must be prepared to ask performance-based follow-up questions, as necessary, to clarify or confirm the applicant's understanding of the system as it relates to the task that was performed.

General Guidelines (D.1.l)

The prescripted questions for ***Category A and the performance-based follow-up questions for Category B may include a combination of open- and closed-reference items.*** Open-reference items that require applicants to apply their knowledge of the plant to postulated normal, abnormal, and emergency situations are preferred.

Closed-reference items may be used to evaluate the immediate actions of emergency and other procedures, certain automatic actions, operating characteristics, interlocks, set points, ***and routine administrative activities, as appropriate to the facility.***

Refer to Attachment 1 for more guidance regarding the development and use of prescripted open reference questions for Category A of the walk-through test. To the extent possible, the concepts in the attachment should also be applied to performance-based follow-up questions.

Catagory "A"

Administrative Topics (D.2.b)

For each administrative subject, determine the best method for evaluating the applicant's knowledge or ability in that area. Although a performance-based evaluation, using a single administrative JPM is generally preferred, two prescripted questions may be used to conduct the evaluation in each specific subject area selected for evaluation.

The questions may be associated with Category B JPMs or they may be administered separately.

Administrative Topics (D.2.g)

Forward the completed outline to the NRC chief examiner so that it is *received* by the date agreed upon with the NRC regional office at the time the examination arrangements were confirmed; the outline is normally ***due approximately 75 days*** before the scheduled examination date. Refer to ES-201 for additional instructions regarding the review and submittal of the examination outline.

Administrative Topics (D.2.h)

After the NRC chief examiner approves the operating test outline, prepare the final Category A test materials in accordance with the general operating test guidelines in Section D.1, the open-reference question guidelines in Appendix B, and the JPM guidelines in Appendix C.

(i.e., the JPMs, prescripted questions, and answers)

Control Room Systems and Facility Walk-Through

Specific Instructions For Category "B" (D.3)

This category of the operating test evaluates the applicant on systems-related K/As by having the applicant perform selected tasks and, when necessary, based on the applicant's performance, probing his or her knowledge of the task and its associated system with specific follow-up questions.

The Category B tasks are *in addition to* and should be *different from* the events and evolutions conducted during Category C, "Integrated Plant Operations."

Specific Instructions For Category "B" (D.3.a) cont

The 10 systems and evolutions selected for RO and SRO-I applicants should evaluate at least 7 different safety functions. All of the systems and evolutions in each subcategory of the test should be selected from different safety function lists, and the same system or evolution should not be used to evaluate more than one safety function in each subcategory. ***For PWR operating tests, the primary and secondary systems listed under Safety Function 4, "Heat Removal From Reactor Core," in Section 1.9 of NUREG-1122 may be treated as separate safety functions; i.e., two systems, one primary and one secondary, may be selected from Safety Function 4.***

Specific Instructions For Category "B" (D.3.a) cont

The 10 systems and evolutions selected for RO and SRO-I applicants should evaluate at least 7 different safety functions. All of the systems and evolutions in each subcategory of the test should be selected from different safety function lists, and the same system or evolution should not be used to evaluate more than one safety function in each subcategory.

For PWR operating tests, the primary and secondary systems listed under Safety Function 4, "Heat Removal From Reactor Core," in Section 1.9 of NUREG-1122 may be treated as separate safety functions; i.e., two systems, one primary and one secondary, may be selected from Safety Function 4.

Specific Instructions For Category "B" (D.3.b)

For each system selected for evaluation, select from the applicable K/A catalog or the facility licensee's site-specific task list *one* task for which a JPM exists or can be developed. Review the associated simulator outline if it has already been prepared (refer to Section D.4), and avoid those tasks that have already been selected for evaluation on the dynamic simulator test.

The JPMs should, individually and as a group, have meaningful performance requirements that will provide a legitimate basis for evaluating the applicant's understanding of and ability to safely operate the associated systems and the plant (as required by 10 CFR 55.45).

Specific Instructions For Category "B" (D.3.b) cont

At least one of the tasks shall be related to a shutdown or low-power condition, and 40 percent of the tasks ***(i.e., 4/10 for ROs and instant SROs and 2/5 for upgrade SROs) shall require the applicant to execute alternate paths within the facility's operating procedures.***

In addition, at least one of the tasks conducted in the plant (i.e., Subcategory B.2) shall evaluate the applicant's ability to implement actions required during an emergency or abnormal condition, and another shall require the applicant to enter the RCA.

This provides an excellent opportunity for the applicant to discuss or demonstrate the radiation control subjects described in Administrative Topic A.3.

Specific Instructions For Category "B" (D.3.c)

Forward the completed walk-through test outline to the NRC chief examiner so that it is *received* by the date agreed upon with the NRC regional office at the time the examination arrangements were confirmed; the outlines are normally due ***approximately 75 days*** before the scheduled examination date. Refer to ES-201 for additional instructions regarding the review and submittal of examination outlines.

Specific Instructions For Category "B" (D.3.e)

Submit the entire operating test package to the designated facility reviewer or the NRC chief examiner, as appropriate, for review and approval in accordance with Section E. The test must be received by the NRC chief examiner ***approximately 45 days before the scheduled review date,*** unless other arrangements have been made.

Integrated Plant Operations

Specific Instructions For Category "C" (D.4.d)

Each scenario set must, at a minimum, require each applicant to respond to the types of evolutions, failures, and transients in the quantities identified for the applicant's license level on Form ES-301-5, "Transient and Event Checklist." An applicant should only be given credit for those events that require the applicant to perform verifiable actions that provide insight to the applicant's competence.

The required instrument and component failures should normally be completed before starting the major transient; those that are initiated after the major transient should be carefully reviewed because they may require little applicant action and provide little insight regarding their performance.

Specific Instructions For Category "C" (D.4.d) cont

Each event should only be counted once per applicant.

For example: a power change can be counted as a normal evolution OR as a reactivity manipulation.

Similarly, a component failure that immediately results in a major transient counts as one or the other, but not both.

Specific Instructions For Category "C" (D.4.d) cont

Any normal evolution, component failure, or abnormal event (other than a reactor trip or other automatic power reduction) that requires the operator to perform a controlled power or reactivity change will satisfy the requirement for a reactivity manipulation.

This includes events such as an emergency boration, a dropped rod recovery, a significant rod bank realignment, or a manual reactor power reduction in response to a secondary system upset. Such events may produce a more timely operator and plant response than a normal power change.

Specific Instructions For Category "C" (D.4.d) cont

If the facility licensee normally operates with and is required by its technical specifications to have more than two ROs in the control room, the chief examiner may authorize the use of additional surrogates to fill out the crews.

In such cases, take care in planning the scenarios to ensure that the additional operators do not reduce the examiners' ability to evaluate each applicant on the required number of events and on every competency and rating factor.

Specific Instructions For Category "C" (D.4.e)

When the proposed simulator operating test outlines are complete, forward them to the NRC chief examiner so they are *received* by the date agreed upon with the NRC regional office at the time the examination arrangements were confirmed; the outlines are normally due *approximately 75 days* before the scheduled examination date. Refer to ES-201 for additional instructions regarding the review and submittal of the examination outlines.

Specific Instructions For Category "C" (D.4.g)

Submit the entire operating test package to the designated facility reviewer or the NRC chief examiner, as appropriate, for review and approval in accordance with Section E.

The test must be received by the NRC chief examiner ***approximately 45 days*** before the scheduled administration date, unless other arrangements have been made.

QUALITY REVIEWS

Facility Management Review (E.1)

If the operating test was prepared by the facility licensee, ***the preliminary outline and the proposed test shall*** be independently reviewed by a supervisor or manager before they are submitted to the NRC regional office for review and approval in accordance with ES-201.

The reviewer should evaluate the outline and test using the criteria on Forms ES-201-2, ES-301-3, and ES-301-4 and include the signed forms (for each different operating test) in the examination package submitted to the NRC in accordance with ES-201.

ATACHMENTS

Attachment 1 (F)

"Open-Reference Question Guidelines"

Open-Reference Question Guidelines

1. The most appropriate format is the short-answer question, which requires the applicant to compose a response rather than select from among a set of alternative responses, as is the case with multiple-choice, matching, and true/false questions.

2. Provide clear, explicit directions/guidelines for answering the question so that the applicant understands what constitutes a fully correct response. Choose words carefully to ensure that the stipulations and requirements of the question are appropriately conveyed. Words such as "evaluate," "outline," and "explain," can invite a lot of detail that is not necessarily relevant.

Open-Reference Question Guidelines (cont)

3. Make sure that the expected response matches (and is limited to) the requirements posed in the question. Consider the amount of partial credit to be granted for an incomplete answer. For questions requiring computation, specify the degree of precision expected. Try to make the answer turn out to be whole numbers.

4. Avoid giving away part or all of the answer by the way the question is worded. For example: "If the letdown line became obstructed, could boration of the plant be accomplished shortly after a reactor trip to put the plant in cold shutdown? If so, how?" A test-wise applicant can realize that the answer has to be yes, or else the second part of the question would have read something like "If not, why not?

Open-Reference Question Guidelines (cont)

5. Avoid what could be considered "trick" questions in which the expected answer does not precisely match the question. For example, asking "How [do] the SI termination criteria change following an SI reinitiation?" implies that the termination criteria will change, when in actuality they do not.

6. Do not use direct look-up questions that only require the applicant to recall where to find the answer to the question. The operational orientation required of questions on the walk-through test and the applicant's access to reference documents, argue against the use of questions that test for recall and memorization. Any questions that do not require any analysis, synthesis, or application of information by the applicant should be answerable without the aid of reference materials. Refer to ES-602, Attachment 1, for a more detailed discussion of direct look-up questions.

Open-Reference Question Guidelines (cont)

7. *Questions should also adhere to the generic item construction principles and guidelines in Appendix B. Moreover, Form ES-602-1, "NRC Checklist for Open-Reference Test Items," contains a list of questions that can be used to evaluate the suitability of the questions for the walk-through portion of the operating test.*

   Although the checklist was developed for use in evaluating requalification written examinations, all of the criteria except 9, 10, 11, and the K/A rating on item 7 are generically applicable.

602-1 Excerpt

Items 9, 10, and 11

9. Is the question appropriate for the written examination and the selected format (e.g., short answer or multiple choice)?

10. Do questions in Section A take advantage of the simulator control room setting?

11. Does any question have the potential of being a "double-jeopardy" question?

ES FORMS

ES-301-1, 2, 3, 4, 5, and 6

Examples of LOW discrimination JPMs

---- ☹ ----

1. Reset the Turbine Driven AFW Pump Trip Throttle Valve (PWR)
2. Actuate ADS (single critical step) (BWR)
3. Start the Hydrogen Recombiner (without a fault)
4. Locally borate the RCS with the emergency manual boration valve (PWR)

Examples of DISCRIMINATORY JPMs

++++ ☺ ++++

1. Dropped rod recovery (drop a second rod during recovery requiring reactor trip)
2. Local start of equipment with failures requiring the use of alternate procedures.

ES-302

Final Rev 8 Change Overview

Purpose "A"

This standard describes how to administer operating tests to initial license applicants in accordance with the requirements of 10 CFR 55.45. It includes policies and guidelines for administering both the walk-through and the integrated plant operations categories of the operating test. It is assumed that the operating test was prepared in accordance with ES-301.

Background "B"

As noted in ES-201, facility licensees will generally prepare proposed operating tests in accordance with ES-301 and submit them to the responsible NRC regional office for review and approval.

Regardless of whether it was prepared by the facility licensee or the NRC, every operating test will be independently administered and graded by an NRC licensing examiner in accordance with the instructions contained herein and in ES-303.

Responsibilities "C"

Facility Licensee (C.1.b)

Safeguard the integrity and security of the operating tests *in accordance with facility procedures established pursuant to 10 CFR 55.40(b)(2)* and the guidelines discussed in Attachment 1 of ES-201.

Responsibilities "C"

NRC Regional Office (C.2.a)

Work with the facility contact to coordinate the operating test administration schedule in a manner that maximizes efficiency and maintains security.

Normally, the operating tests should be administered within 30 days before or after the written examinations. The region shall obtain concurrence from the NRR operator licensing program office if the examination dates diverge by more than 30 days. (Refer to ES-201 for additional guidance regarding examinations that have to be rescheduled to achieve an acceptable product.)

Test Administration Instructions and Policies (D)

General (D.1.d)

Normally, an NRC examiner will be assigned to individually evaluate each applicant during the simulator operating test. However, if a three-person operating crew consists entirely of senior reactor operator (SRO) upgrade applicants (who do not have to be evaluated on the control boards), the chief examiner may assign only two examiners to observe the crew.

Although the applicants in the reactor operator and balance of plant positions may not be individually evaluated, they will be held accountable for any errors that occur as a result of their action(s) or inaction(s) and graded on their ability to "Operate the Control Boards" (i.e., SRO Competency 5). SRO-instant applicants will always be individually evaluated by an NRC examiner regardless what operating position they are filling during a given scenario.

General (D.1.j)

Although the simulation facility operator will normally assume the role of the other personnel that the applicants direct or notify regarding plant operations, the chief examiner may permit other members of the facility training or operations staff *(e.g., a shift technical advisor (STA)) to augment the operating shift team if necessary.*

The chief examiner shall fully brief those individuals regarding their responsibilities, reporting requirements, duties, and level of participation before the operating test begins. The examiners must not restrict the surrogate operators' activities to such an extent that the applicants being evaluated are required to assume responsibilities beyond the scope of their position.

The surrogate operators will be expected to assume the full responsibilities of the roles they take in the operating test. *Consultations with an STA shall be conducted in accordance with the facility licensee's normal control room practice; e.g., an STA shall not be stationed in the simulator if they are on-call at the site.*

Walk-Through (Categories A and B) (D.2.b)

To the extent possible, the examiner should have the applicant perform the control room JPMs on the simulator, rather than asking the applicant to describe how he or she would accomplish the task.

If the examiner observes a discrepancy between the simulator setup and the conditions specified in a JPM, then the examiner shall stop the JPM and correct the situation, as necessary.

If the task can be completed with different values (e.g., wind direction when determining a protective action recommendation during an emergency), then the examiner shall document the differences and coordinate with the facility contact and the NRC chief examiner to validate the applicant's response under the actual conditions.

Walk-Through (Categories A and B) (D.2.f)

As stated in 10 CFR 55.45(a), the operating test requires the applicant to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a representative sample from among 13 items listed in the rule.

If the applicant correctly performs a JPM (including both critical and noncritical steps) and demonstrates familiarity with the equipment and procedures, the examiner should infer that the applicant's understanding of the system/task is adequate and refrain from asking follow-up questions.

However, if the applicant fails to accomplish the task standard for the JPM, exhibits behavior that demonstrates a lack of familiarity with the equipment and procedures, or is unable to locate information, control board indications, or controls, the examiner should ask performance-based follow-up questions as necessary to clarify or confirm the applicant's understanding of the system as it relates to the task that was performed.

Walk-Through (Categories A and B) (D.2.f) cont

Similarly, if the applicant gives an ambiguous answer to a prescripted administrative question in Category A, the examiner is expected to ask probing questions to ensure that the applicant understood the original question and the applicable knowledge or ability.

The examiner shall document all performance-based questions and answers for later evaluation.

If an applicant volunteers additional or corrected information after having completed a task or question, the examiner shall offer the applicant the opportunity to take whatever actions would be required in a similar situation in the plant.

The examiner will record any revisions to previously performed tasks or answers for consideration when grading the operating test per ES-303.

Walk-Through (Categories A and B) (D.2.g)

The examiner should practice other good walk-through evaluation techniques as discussed in Section D of Appendix C.

Walk-Through (Categories A and B) (D.2.o)

If the simulation facility should become inoperable and cause excessive delay of the operating tests, the chief examiner should discuss the situation with the facility licensee and the responsible regional supervisor so that management can make a decision regarding the conduct of the operating tests. It may be necessary to reschedule the simulator examinations for a later date.

The simulator should be considered inoperable under any of the following conditions:

- *The simulator exhibits a mass/energy imbalance, erratic logic, or inexplicable panel indications during model execution.*
- *The simulator exhibits unplanned and unexplained events or malfunctions that cause the applicants to divert from the expected responses and success path of the planned scenario.*

Walk-Through (Categories A and B) (D.2.o) cont

- *The simulator automatically goes to the "freeze" state during a scenario or a "beyond simulated limits" alarm is received on the instructor station.*
- *The simulator instructor informs the examination team that a software module has halted or "kicked out."*

Occurrence of any of these abnormal simulator operating conditions during an examination constitutes sufficient cause to stop the scenario. Evaluations of the applicants' performance during any of these simulator malfunction conditions may be unreliable.

When the simulator has been restored to full operability, the chief examiner will determine if the scenario requires replacement, may be resumed in progress, or may be restarted from the beginning.

ES-303

Final Rev 8 Change Overview

Purpose "A"

This standard describes the procedures for documenting all categories of the operating test, collating the data to arrive at a pass or fail recommendation, and reviewing the documentation to ensure quality.

Background "B"

This standard assumes that the operating test was prepared and administered in accordance with ES-301 and ES-302, respectively.

The procedures contained herein require the examiner to evaluate each applicant's performance on the operating test and make a judgement as to whether the applicant's level of knowledge and understanding meet the minimum requirements to safely operate the facility for which the license is sought.

The examiner evaluates each noted deficiency in light of the total breadth of knowledge and ability demonstrated by the applicant in that subject area.

Responsibilities "C"

NRC Examiner of Record (C.2)

As soon as possible after administering the test, the examiner of record shall review, evaluate, and finalize each applicant's operating test documentation in accordance with the instructions in Section D.

If an applicant made an error with serious safety consequences, the examiner may recommend an operating test failure even if the grading instructions in Section D would normally result in a passing grade. Under such circumstances, the examiner shall thoroughly justify and document the basis for the failure in accordance with Section D.3.b.

Moreover, the NRC regional office shall obtain written concurrence from the NRR operator licensing program office before completing the licensing action.

Grading and Documentation Instructions "D"

Evaluate the Applicant's Performance
Form ES-303-1, Category B (D.2.b)

To determine a grade for the systems/JPMs listed on Form ES-303-1, evaluate each deficiency coded in the rough notes for Category B. If the following criteria are met, assign a satisfactory grade by placing an "S" in the "Evaluation" column for that system/JPM; otherwise enter a "U":

- Time-critical JPMs must be completed within the allotted time.

Evaluate the Applicant's Performance
Form ES-303-1, Category B (D.2.b) cont

The task standard for the JPM must be accomplished by correctly completing all of the critical steps.

- If the applicant initially missed a critical step, but later performed it correctly and accomplished the task standard without degrading the condition of the system or the plant, the applicant's performance on that JPM should be graded as satisfactory.

  However, the applicant's error shall be documented in accordance with Section D.3.

Evaluate the Applicant's Performance
Form ES-303-1, Category B (D.2.b) cont

- *The responses to any performance-based follow-up questions asked pursuant to Section D.2.f of ES-302 must confirm that the applicant's understanding of the system/JPM is satisfactory.*

  If the follow-up questions reveal that the applicant's understanding of the system/JPM is seriously deficient, the examiner may recommend an unsatisfactory grade for the system even though the applicant successfully completed the task standard for the JPM. The basis for the recommendation shall be thoroughly justified and documented in accordance with Section D.3.

Evaluate the Applicant's Performance
Form ES-303-1, Category B (D.2.b) cont

Conversely, if the applicant did not accomplish the task standard and follow-up questioning revealed that the failure was caused by a deficiency in the procedure or some other factor beyond the applicant's control, the examiner may still recommend a satisfactory grade for the system/JPM.

Once again, the basis for the recommendation shall be thoroughly justified and documented in accordance with Section D.3.

Evaluate the Applicant's Performance
Form ES-303-1, Category B (D.2.b) cont

After grading the applicant's performance with respect to all the Category B systems, determine an overall grade for Category B by calculating the percentage of satisfactory system grades.

If the applicant has an "S" on at least 80 percent of the systems examined, the applicant passes Category B and receives an "S" overall. If the applicant has an "S" on fewer than 80 percent of the systems, the applicant fails Category B and receives a "U" overall.

Document the applicant's grade by placing an "S" or a "U" in block B, "Control Room Systems and Facility Walk-Through," in the "Operating Test Summary" on page 1 of Form ES-303-1. Enter "N/E" if this category was waived in accordance with ES-204. Document and justify every deficiency in accordance with Section D.3.

Evaluate the Applicant's Performance
Form ES-303-1, Category C (D.2.c)

Using Form ES-303-3 or ES-303-4, depending on the applicant's license level, evaluate any deficiencies coded for Category C. Circle the integral rating value (1 through 3) corresponding to the behavioral anchor that most accurately reflects the applicant's performance. A rating of "1" would be justified if the applicant missed a critical task (i.e., by omission or incorrect performance) or committed multiple errors of lesser significance that have a bearing on the rating factor.

Missing one or more critical tasks does not necessarily mean that the applicant will fail the simulator test, nor does success on every critical task prevent the examiner from recommending a failure if the applicant had other deficiencies that, in the aggregate, justify the failure based on the competency evaluations. ***As discussed in ES-301, Competency 5 is optional for SRO upgrade applicants. However, the examiner shall evaluate Competency 5 if the applicant rotated into an operating crew position that required the applicant to manipulate the controls.***

Document and justify every deficiency in accordance with Section D.3.

Finalize the Documentation (D.3.b)

Deficiencies that do not contribute to an operating test Category failure shall also be documented.

However, a brief statement describing the error and the expected action or response is generally sufficient.

Examiners should keep in mind that their licensing recommendation and the associated documentation are subject to review by the chief examiner and NRC regional office management.

Therefore, the documentation should contain sufficient detail so that the independent reviewer, responsible supervisor, and licensing official can make a logical decision in support of the examiner's recommendation to deny or issue the license.

Finalize the Documentation (D.3.b) cont

Retain rough documentation until the chief examiner and NRC regional office management have reviewed the examiner's recommendations and concurred in the results (refer to ES-501).

Examiners shall retain all applicable notes and documentation associated with proposed denials until the denials become final.

Examiners are advised that such notes would be subject to disclosure if requested under the Freedom of Information Act.

Form ES-303-1

Individual Examination Report

ES 303-1

Appendix C

Final Rev 8 Change Overview

Purpose "A"

This Appendix provides a framework for preparing and evaluating job performance measures (JPMs) to ensure they are of appropriate substance and format for initial operator licensing and requalification examinations. The following elements are discussed in detail or attached for information:

- a basic procedure for developing new JPMs (Section B), including forms to document the JPM and to assess the quality of the product (Form ES-C-1 and ES-C-2)
- guidelines for the development and use of alternate-path JPMs (Section C)
- a discussion of walk-through evaluation techniques (Section D)

-THE PRESCRIPTED QUESTION BULLET WAS DELETED

Development and Reviewing JPMs "B"

ALL PRESCRIPTED QUESTION DEVELOPMENT PARAGRAPHS WERE DELETED

Attachments/Forms

ATTACHMENT 1, PRESCRIPTED QUESTION SAMPLES WERE DELETED

TRAINING MANAGERS CONFERENCE

NEW INSPECTION PROGRAM

NEW INSPECTION PROGRAM

- The New Program Will Establish Baseline Inspections Common to All Plants
  - Inspection Beyond the Baseline Will Be Performed at Plants Below a Specified Threshold
    - Predicated on Performance Indicators
    - Inspection Findings
    - Response to Specific Events or Problems
- Baseline Inspections will Be Grounded on "Cornerstone" Areas
  - Focused on "Risk Significant" Activities and Systems
  - Focused on How Utilities Find and Fix Problems
  - Focused on How Utilities Accept and Encourage Employees to Raise Safety Issues

NEW INSPECTION PROGRAM

- Major Parts of the Baseline Inspection Program
  - Inspect Areas Not Covered By Performance Indicators
  - Inspect to Verify the Performance Indicators
  - Inspect/Review Effectiveness of Finding and Resolving Problems (Corrective Action Program)
- CORNERSTONES
  - Monitor Performance in Three Areas:
    - Reactor Safety
    - Radiation Safety
    - Security

NEW INSPECTION PROGRAM

Cornerstones

- Reactor Safety
  - Initiating Events
  - Mitigation Systems
  - Barrier Integrity
  - Emergency Preparedness
- Radiation Safety
  - Plant Worker
  - General Public
- Security
  - Physical Protection

New Inspection Program

Cornerstone Cross-Cutting Elements

- Cross-Cutting Elements
  - – Element that Effect Each Cornerstone
  - Human Performance
  - Ability to Raise Safety Issues
  - Finding and Fixing Problems

NEW INSPECTION PROGRAM

Major Elements of the Baseline Program

- The Program is Indicative and Not Diagnostic
  - Program Delineates Specific Inspection Activities
  - Inspection Findings are Evaluated for Significance
  - Diagnostic/Root Cause Determinations Done By Supplemental Inspection Program

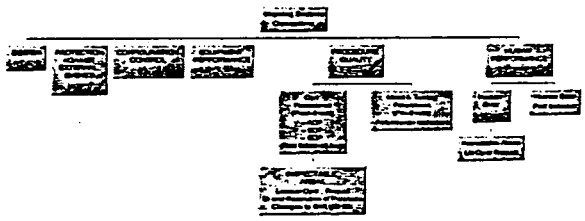
NEW INSPECTION PROGRAM

Major Element of Baseline Program

- Baseline Program is Risk Informed
  - Inspectable Areas Selected based on Significance from a Risk Perspective
  - Risk Factor in to Program Four Ways
    - Inspectable Areas are Based on Importance to Measuring Cornerstone Objective
    - Inspection Frequency and Number of Activities and Time Spend Inspecting Based on Risk
    - Selection of Inspection Activities in Each Inspectable Area Based on a Risk Matrix Modified by Plant Specific Information
    - Inspectors Are Trained in the Use of Risk Information
- Baseline Program is the Minimum Program

NEW INSPECTION PROGRAM

Cornerstone link to Inspectable Areas



NEW INSPECTION PROGRAM

PERFORMANCE INDICATORS

- Initiating Events:
  - Unplanned Reactor Shutdown
  - Loss of Normal Rx Cooling Sys Following Unplanned Shutdown
  - Transients - Unplanned Events that result in Rx Power Change
- Mitigating Systems:
  - Safety Systems Not Available
    - Specific ECCS
    - Emergency Power Systems
  - Safety System Failures

NEW INSPECTION PROGRAM

Performance Indicators

- Integrity of Barriers :
  - Fuel Cladding (coolant activity)
  - Rx Cooling System Leak Rate
  - Rx Containment Leak Rate
- Emergency Preparedness:
  - Emergency Response Organization Drill Performance
  - Readiness of Emergency Response Organization
  - Availability of Notification System

NEW INSPECTION PROGRAM

Performance Indicators

- Occupational Radiation Safety:
  - Compliance with Regulations for Controlling Access to Radiation Areas in Plant
  - Uncontrolled Radiation Exposures to Workers Greater than 10% of Regulatory Limit
- Public Radiation Safety:
  - Effluent Releases Requiring Reporting Under NRC Regulations and License Conditions

NEW INSPECTION PROGRAM

Performance Indicators

- Physical Protection:
  - Security System Equipment Availability
  - Personnel Screening Program Performance
  - Employee Fitness-for-Duty Program Effectiveness

NEW INSPECTION PROGRAM

Inspection Findings / Performance Indicator Data

- Inspection Findings:
  - Inspector Observations are Evaluated to Determine Significance
  - Use Defined Process: Significance Determination Process
- Performance Indicators:
  - Thresholds Set Regulatory Response
    - Example :
      - Drill/Exercise Performance - The percentage of all Drill, exercise, and actual opportunities that were performed in a timely and accurately during the previous eight quarters

NEW INSPECTION PROGRAM

Regulatory Response

- Significance Determination Process
  - Characterize the Risk Significance of Issue
  - Each Issue is evaluated and assigned a color Using a Process Flow Chart
    - GREEN: Licensee Response
    - White: Increased Regulatory Response
    - Yellow: Required Regulatory Response
    - Red: Plant Not Permitted to Operated within this Band

NEW INSPECTION PROCESS

PILOT PROGRAM

- Two Pilot Plants Per Region
  - Sequoyah
  - Harris
- Pilot Program Commenced June 1999
- Full Implementation of New Inspection Program by April 2000

NUCLEAR REGULATORY COMMISSION

TRAINING MANAGERS CONFERENCE

RICK BALDWIN

Training Managers Conference

Changes & Clarifications to ES-401, Part 1
PREPARING INITIAL SITE-SPECIFIC WRITTEN EXAMS

- D.1.b The outline must be systematically selected. Shall not use the site specific K/A catalog

  The Plant Wide Generic (PWG) Tier 3 should NOT include system generic tasks. The topics for PWG Tier 1 & 2 and the four K/A categories for Tier 3 Shall be selected from section 2, Generic Knowledge and Abilities from the K/A catalog.

- D.1.c 10 site-specific K/As may replace 10 systematic sample items, for details or issues, with basis and Chief Examiner approval.

- D.1.d Ensure outline samples at least every K/A area twice and the SRO samples topics required by 10 CFR 55.43(b).

ES-401** PWR SRO Examination Outline** Form ES-401-3

acility: Date of Exa

am: Exam Level:

Tier	Group	K/A Category Points											Point Total
		K 1	K 2	K 3	K 4	K 5	K 6	A 1	A 2	A 3	A 4	G *	
1. Emergency & Abnormal Plant Evolutions	1												24
	2												16
	3												3
	Tier Totals												43
2. Plant Systems	1												19
	2												17
	3												4
	Tier Totals												40

3. Generic Knowledge and Abilities	Cat 1	Cat 2	Cat 3	Cat 4	Point Total
					17

Training Managers Conference

Changes & Clarifications to ES-401, Part II

- D.2.a Use existing, modified or new questions. If deviation from submitted sample is necessary discuss with the Chief. Be able to discuss why the change was necessary. Document those reasons.
- D.2.c The written examination MUST be 50-60% higher cognitive order items. (NO more NO less)
- D.2.d The SRO only questions on an exam must be at the SRO level, not just questions at the RO level. These should be distributed amongst the 3 tiers.

Training Managers Conference

Changes & Clarifications to ES-401, Part III

- D.2.f Retake examinations may NOT have any overlap or reuse items from the failed license examination.

  No overlap between NRC examination and audit unless independently developed. Then only 5 questions allowed.

  Repeat of ONLY 25 questions from last 2 NRC examinations and items used in training.
- D.2.g Facility learning objective references are encouraged but not required.

  If learning objectives are not available, this does not invalidate the question provided it has appropriate K/A and technical references.

Training Managers Conference

Changes & Clarifications to ES-401, Part IV

- D.2.g The draft examination must be received at least 45 days before the examination.
- E.2.a NRC will review and get supervisory review before discussing with licensee.
- E.2.c The NRC WILL perform a 30 question sample review, will review all new plus modified, questions, if required. The sample will include 10 new and 20 modified questions. (All 125 questions will undergo a review.)

  Questions previously reviewed and approved by the NRC for that facility will have limited review for unacceptable flaws per ES-401-9.

Training Managers Conference

Changes & Clarifications to ES-401, Part V

- E.2.c If the sample shows less than 6 items are unacceptable, detailed review of the rest of the examination will continue. If greater than 6 items are found unacceptable, NRC MAY return the examination or we may complete its review. Review will use ES-401-9.

  If the examination is returned, we expect that the licensee correct the identified flaws and those like kind flaws that were not specifically identified to the rest of the questions.

- E.3.a The NRC Supervisor MUST review and approve all unacceptable item comments.
- E.3.b The NRC supervisor WILL review and approve each comment that would require the licensee to rework a NRC-validated question. (Previously used test items.)

ES-401 | Written Examination Review Worksheet | Form ES-401-9

Q#	1. LOK (F/H)	2. LOD (1-5)	3. Psychometric Flaws					4. Job Content Flaws				5. U/E/S
			Stem Focus	Cues	T/F	Cred. Dist.	Partial	Job-Link	Minutia	#/units	Back-ward	

Instructions

Refer to Appendix B for additional information regarding each of the following concepts. [illegible]

1. Enter the level of knowledge (LOK) of each question as either (F)undamental or (H)igher cognitive level.

2. Enter the level of difficulty (LOD) of each question using a 1 - 5 (easy - difficult) rating scale (questions in the 2 - 4 range are acceptable).

3. Check the appropriate box if a psychometric flaw is identified: [illegible]

4. Check the appropriate box if a job content error is identified: [illegible]

5. [illegible]

6. [illegible]

Training Managers Conference

Changes & Clarifications to ES-401, Part VI

- E.4 Final validation of examination after incorporating changes is recommended but NOT required.
- Att. 1 Describes an acceptable sampling methodology for systematic selection for the written outline.
- Form 401-7 Modified version of this form provides blanks to record test item count for reuse from the last examinations, the source of the questions and the cognitive level for the questions for the examination.
- Form 401-9 Written examination Review Worksheet. Used to keep track of sampled questions.

ES-401 | Written Examination Quality Checklist | Form ES-401-7

Facility:	Date of Exam:	Exam Level: RO/SRO

Item Description				Initial a	b	c
1	Questions and answers technically accurate and applicable to facility					
2	a. NRC K/As referenced for all questions b. Facility learning objectives referenced as available					
3	RO/SRO overlap is no more than 75 percent, and SRO questions are appropriate per Section D.2.d of ES-401					
4	No more than 25 questions are duplicated from (practice exams, quizzes, and) the last two NRC licensing exams; enter the actual number of duplicated questions at right	NRC	Other			
5	(No (Less than 5 percent) question duplication from the license screening/audit exam (if independently written))					
6	Bank use meets limits (no more than 50 percent from the bank, at least 10 percent new, and the rest modified); enter the actual question distribution at right	Bank	Modified	New		
7	Between 50 and 60 percent of the questions on the exam (including 10 new questions) are written at the comprehension/analysis level; enter the actual question distribution at right	Memory	C/A			
8	References/handouts provided do not give away answers					

Training Managers Conference

Changes & Clarifications to ES-402, Part I
ADMINISTERING INITIAL WRITTEN EXAMINATIONS

- C.1.a The licensee has to maintain security of the examinations.
- C.1.e The licensee may use machine-gradable sheets but not required.
- C.2.a The licensee is allowed to administer an NRC developed examination.
- C.2.b During a licensee administered written exam, the NRC MUST be on site or available by phone.

  After NRC approval, the written exam may be administered any time within 30 days of the operating test.

Training Managers Conference

Changes & Clarifications to ES-402, Part II
ADMINISTERING INITIAL WRITTEN EXAMINATIONS

- D.4.d New time limit for the written is 5 hours. It can be extended by 30 minute increments, with PRIOR NRC approval. The new time limit should not change the development process.
- E.4 Licensee should submit formal comments within 5 working days after the written examination is administered.

Training Managers Conference

Changes & Clarifications to ES-403
GRADING INITIAL SITE-SPECIFIC WRITTEN EXAMS

- C.1.b If NRC developed, licensee has responsibility to submit comments concerning changes to the examination.
- C.2.b NRC may allow the licensee to machine grade a NRC developed written examination.
- D.1.a Do NOT delete any question or change an answer without a valid reference. Unreasonable or unstated assumptions do not justify a change.
- D.2.a Copy each applicant's answer sheet, and set aside. Do NOT mark on the original until all comments are finalized.
- D.2.d If you decide to share PRELIMINARY grades do so with caution. The NRC MAY NOT accept all the licensee's changes.

Training Managers Conference

Changes and Clarifications To Appendix B
Written Examination Guidelines, Part I

- C.1.a K/A references are required but Learning Objectives are desired. This is a check and balance on the facilities training program.
- C.1.b Make sure the question matches the intent of the K/A.
- C.1.c Discrimination validity is defined. "...the key purpose of any test item is to assess important K/As at a level that distinguishes between safe and unsafe applicants."
- Implementation requires subjective judgement in constructing the stem and distractors.

Training Managers Conference

Changes and Clarifications To Appendix B
Written Examination Guidelines, Part II

- C.2.a Multiple Choice questions which require the "MOST CORRECT" answer are NOT allowed. Use a procedural reference!
- C.2.f All the information in the stem should be relevant. (Don't play find the rock.) Don't add secondary pieces of information in the stem that are not relevant, in order to make the question look more difficult.
- C.2.n Use of generically correct answers is allowed, but the stem needs to be written such that the stem makes them clearly incorrect.

ES-501

INITIAL POST-EXAMINATION ACTIVITIES

D. Charles Payne
August 13, 1999

ES-501

SUMMARY OF CHANGES

- Supervisor or manager shall confirm grading quality and sign QA sheet.
- CE independent regrade for 78~82%.
- Potentially hold passes 80~81%.
- Exam report content more clearly defined.
- PDR records defined.
- New letter for delayed results.

ES-501

- C.1 No changes to facility requirements.
- Note that clean copy of written exam answer sheet is expected to be provided.
- C.2 No changes to regional requirements.
- Note criteria for determining written exam validity following post-exam comments.
- 5% changes/deletions → facility explanation.
- 10% deletions → evaluate adequate sample.

ES-501

- D.1 Facility management exam reviews.
- Supervisor or manager shall confirm quality of grading is licensee graded written and sign QA check sheet. Used to be "authorized facility representative."
- Signed QA form represents facility senior management concurrence with ***individual and collective*** exam results.

ES-501

- D.2 Chief Examiner reviews.
- No post-exam change will be accepted without a valid plant reference. Uncontrolled lesson plans are not acceptable.
- Verify answer key used as template or to machine grade written exam is accurate.
- Independently review every borderline written exam (78-82%).

ES-501

- D.3 NRC management review.
- Pass letters for applicants who passed exam but licenses are being withheld.
- If pass written exam with 80-81% and another applicant fails, will hold license until assured pass/fail decision not affected.
- For delayed licenses, shall ensure still medically fit within last 24 months, not developed permanent physical or mental condition, and up to date in requal.
- If > 3 months pass, advise licensee to properly activate license per 10 CFR 55.53(f).

ES-501

- E.1 and E.2 No significant changes.
- Region still will retain EOPs, AOPs, E-Plan and Tech Specs for incident response.
- E.3 Exam report documentation. Some significant changes.
- Previous revisions stated generic exam report content requirements. Rev. 8 spells out specific types of issues to be included.

ES-501

- Factual description of test item changes including type and number of psychometric enhancements made.
- Conclusions regarding adequacy of facility proposed exams <u>are not required</u> and should only be considered if have a programmatic issue.
- Any delay in administering the exam and the reason, and any extensions of the written exam time beyond five hours.
- Any exam security issues/incidents.

ES-501

- All simulator deficiencies encountered while preparing or conducting operating tests will be documented in Simulation Facility Report.
- Generic comments submitted by licensee regarding exams or the process are welcome and will be included in exam report. These do not require regional response or resolution.
- Region will ensure SRO upgrade applicants that fail exam still comply with 10 CFR 55 before resuming RO duties.

ES-501

- PDR records will include the following:
  - exam outlines
  - draft and final written
  - draft and final operating tests
  - associated QA check sheets
  - "Other documents"
- Intermediate working copies not needed to be sent to PDR unless provided to facility licensee to facilitate communication.

ES-502

PROCESSING REQUESTS FOR ADMINISTRATIVE REVIEWS AND HEARINGS AFTER INITIAL LICENSE DENIAL

D. Charles Payne
August 13, 1999

ES-502

SUMMARY OF CHANGES

- Reorganized to remove detailed sample letters and administrative review procedures.
- New section noting expectation of facility licensee support during appeals.
- New section to better define NRC responsibilities.
- Administrative review process streamlined.

ES-502

- C.1 Applicant responsibilities. No changes.
- Has 20 days to act on proposed denial. Has 3 options:

1. Do nothing.
2. Request reconsideration.
3. Request a hearing.

- If application denied because of training or experience, can reapply when corrected.

ES-502

- C.2 Facility licensee responsibilities. New section.
- Facility is expected to provide reference materials and technical support as necessary for NRC to evaluate and resolve concerns raised by applicant.
- This includes organizationally supporting the response provided in the answer key.

ES-502

- C.3 NRC responsibilities. New section but no new responsibilities.
- Splits out our responsibilities from mechanics of the review process.
- Application denials will be processed per D.1.
- Admin reviews will be processed per D.2.
- Hearings will be conducted per 10 CFR 2, subpart L.

ES-502

- D.1 Application denial admin review.
- Not many have occurred in Region II. But be cautious of potential outcomes should one be required.
- HQ generally will complete the review within 60 days.
- Since draft applications are not due until 30 days before exam, any issue with eligibility most likely will result in the applicant missing the scheduled exam.

ES-502

- D.2 Exam failure. Some minor changes.
- Detailed administrative review procedures and sample letters have been removed and incorporated into separate internal NRC documents.
- Added option to review the appeal internally at HQ.
- HQ chooses how to process the appeal.

1. Can review internally
2. Can refer to affected region
3. Can convene an appeal panel

TEST ITEM DUPLICATION

THE ISSUE

Is it an acceptable practice to readminister an identical examination to separate crews that have been separated in time over the finite testing period of the biennial written exam ?

MAJOR ISSUES REVOLVING AROUND REPETITIVE USE OF TEST ITEMS

TESTING EFFECTIVENESS

- Do you have a testing practice that measures up to sound and accepted principles of testing?
- Are your examination conditions (size scope, discrimination quality) relatively uniform among crews.

DEFINITIONS

- DISCRIMINATION VALIDITY -
- The ability to discriminate or to make some distinction along a continuum of examinee performance to determine whether or not your operators have sufficiently 'mastered" the knowledge, skills, abilities, and other attributes to perform their jobs.
- **PREDICTABILITY OF A TEST -**
- The ability to forecast or anticipate the test items or topics that will appear on an examination.

- **Previously administered test items reduce examination integrity because examination discrimination is reduced.**
- **When the bank of items is known or anticipated prior to the examination, the exam is highly predictable. Discrimination is reduced because the cognitive level at which the examinees are tested could decrease to the simple recognition level.**
- **To assume that the capability for items within an examination to discriminate, over time, in the same manner as those items discriminated on the first and second examinations is naive.**

QUESTION

✧ **How does excessive repetitive use of test items over a short interval of time affect examination validity ?**

- If the examinees know or can anticipate the precise and limited pool from which the test items will be drawn, they will tend to only study from that pool and may likely exclude a larger domain of job knowledge.
- When high percentages of test item duplication takes place (e.g., >50%), the discriminant validity of the examination comes under question.
- Successive administrations of the same or closely similar examinations to different crews over the period covering the biennial written exam raises the potential for compromising examination integrity.

GOAL

- Achieve uniform testing conditions among crews as best as can reasonably be achieved so that the exam will be a reliable tool for assessing operator competence.

ACCEPTABLE PRACTICE

➤ To minimize the potential of reduced discriminant validity, a 50% portion of any readministered examination should consist of a replacement of modified or new items of like-kind content, psychometric attributes, and difficulty levels. Moreover, when items are to be repeated among successive crews, they should be repeated in a distributed manner and approximately equally over all previous exams so as to reduce predictability of a disproportionately large number of item coming form the most recent examination.

SUMMARY

- Successive administrations of the same biennial requalification examination to different crews undergoing the same requalification training is considered unacceptable. This would seriously question the discriminant validity of the exam.
- W hen the content to be tested becomes highly predictable, and the boundaries of what will likely be tested are known to the candidate, then the candidate will likely prepare ONLY to that level demanded by the examination.
- Improper testing practices will likely lead to an erosion of knowledge and long term decline in operator performance.

WHY

YOU MAY ASK ?

- ➤ When testing is diminished in level or ommitted in kind, knowlege degradation occurs.
- ➤ The subtle but important coercion implicit in preparation for an examination is lost.
- ➤ Attention will be focused on what leads to visible success for a candidate .
- ➤ The loss of specific content area study can result in knowlege gaps that cause operator errors.

ES-601/602

CONDUCTING NRC REQUALIFICATION EXAMINATIONS

- NO SIGNIFICANT REV. 8 CHANGES
- REACTIVE INSPECTION / EXAMINATION
- SCOPE DETERMINATIONS BASED ON:
  - PLANT PERFORMANCE
  - INSPECTION PROGRAM RESULTS
  - INITIAL AND REQUAL RESULTS
  - OTHER FACTORS

ES-601/602

CONDUCTING NRC REQUAL IFICATION EXAMINATIONS

- NRC CONDUCTED OPERATOR REQUAL EXAM COMPOSED OF THREE PARTS:
- TWO SECTION OPEN-REFERENCE WRITTEN
  - PLANT AND CONTROL SYSTEMS
  - ADMINISTRATIVE CONTROLS/ PROCEDURAL LIMITS
- WALK-THROUGH EVALUATION
- DYNAMIC SIMULATOR

ES-601/602

CONDUCTING NRC REQUALIFICATION EXAMINATIONS

- EVALUATION OF REQUAL PROGRAM AND OPERATORS
  - MINIMUM 12 OPERATORS REQUIRED
  - 3/4 OF OPERATORS MUST PASS EXAM
  - 2/3 OF THE CREWS MUST PASS THE SIMULATOR EXAM

Licensed Operator Requalification

Inspection Procedure 71111

REACTOR SAFETY-INITIATING EVENTS, MITIGATING SYSTEMS , BARRIER INTEGRITY

Attachment 11

INSPECTION OBJECTIVE

- To independently gather baseline inspection indicators to determine whether licensee performance meets the following cornerstone objectives:

- Initiating Events: To limit the frequency of those events that upset plant stability and challenge critical safety functions, during shutdown as well as power operations.
- Mitigating Systems: To ensure the availability, reliability, and capability of systems that mitigate initiating events to prevent reactor accidents.
- Barrier Integrity: To ensure that physical barriers protect the public form radionuclide releases caused by accidents.

REQUALIFICATION CORNERSTONES

- Mitigating systems (75%)
- Barrier Integrity (25%)
- Emergency Preparedness

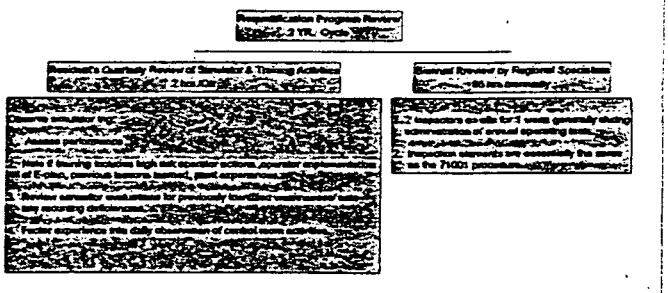
Inspection Bases

- Inspection supports cornerstones because it can assess operator performance adequacy in responding to events. This inspection evaluates operator performance in mitigating the consequences of events. Poor operator performance results in increase risk due to the human performance factors terms, and assumed operator recovery rates and personnel induced common cause error rates assumed in the facilities IPEs.

INSPECTION AREA VERIFIES:

- Procedure quality and human performance which are both key attributes of the Mitigating Systems cornerstone for which there are no performance indicators.
- Human performance which is also a key attribute of the Barrier Integrity cornerstone for which there are no performance indicators.

PROCESS OUTLINE



FY 00 REGION II EXAMINATION SCHEDULE

Revised August 6, 1999

Date	Facility Docket No.	Number of Candidates	Type of Activity	Chief Examiner	Examination Author
9/27/99	Catawba 50-413	3 RO 1 SROU	Retake	R. Baldwin	Licensee
10/4/99	Hatch 50-321		Initial Prep	C. Payne	
10/18/99 11/1/98	Hatch 50-321	10 SROI 2 SROU	Initial	C. Payne	NRC / Licensee
11/8/99	Crystal River 50-302		Requal Inspection	G. Hopper	
11/6/99	Browns Ferry 50-260		Requal Inspection	C. Payne	
11/29/99	Sequoyah 50-327		Requal Inspection	L. Mellen	
11/29/99	Vogtle 50-424		Initial Prep	R. Baldwin	
12/6/99	St. Lucie 50-335		Requal Inspection	G. Hopper	
12/13/99	Vogtle 50-424	1 RO 3 SROI 2 SROU	Initial	R. Baldwin	NRC
1/10-2/14/00	Farley 50-348		Requal Inspection	TBD	
1/10-2/7/00	Turkey Point 50-280		Requal Inspection	TBD	
1/24/00	St Lucie 50-335		Initial Prep	TBD	
1/31/00	Brunswick 50-325		Initial Prep	G. Hopper	
2/7/00	St Lucie 50-335	5 RO 1 SROI 2 SROU	Retake	TBD	
2/ - 3/00	North Anna 50-338		Requal Inspection	TBD	
2/14/00 2/21/00	Brunswick 50-325	12 RO 4 SROI	Initial	G. Hopper	NRC
4/24/00	Farley 50-348		Initial Prep	M. Ernstes	
4/24/00	McGuire 50-369		Initial Prep	C. Payne	
5/8/00 5/22/00	Farley 50-348	6 RO 6 SROI	Initial	M. Ernstes	Licensee
5/8/00 5/22/00	McGuire 50-369	6 RO 2 SROI 5 SROU	Initial	C. Payne	Licensee
5/29/00	Browns Ferry 50-259		Initial Prep	L. Mellen	
6/12-7/14/00	McGuire 50-369		Requal Inspection	TBD	

Date	Facility Docket No.	Number of Candidates	Type of Activity	Chief Examiner	Examination Author
6/12/00 6/26/00	Browns Ferry 50-259	10 RO 3 SROI 3 SROU	Initial	L. Mellen	NRC
6/26/00	Oconee 50-269		Initial Prep	G. Hopper	
7/10/00 7/17/00	Oconee 50-269	8 RO 2 SROI 3 SROU	Initial	G. Hopper	Licensee
7/24/00	Summer 50-395		Initial Prep	M. Ernstes	
7/24/00	Sequoyah 50-327		Initial Prep	C. Payne	
8/00	Hatch		Requal Inspection	TBD	
8/7/00	Summer 50-395	8 SROU	Initial	M. Ernstes	NRC
8/7/00	Sequoyah 50-327	5 RO 4 SROU 3 SROI	Initial	C. Payne	Licensee / NRC
8/14/00	Crystal River 50-302		Initial Prep	TBD	
8/28/00 9/11/00	Crystal River 50-302	3 RO 3 SROI 3 SROU	Initial	TBD	Licensee
8/28/00	North Anna 50-338		Initial Prep	R. Aiello	
8/28/00	Surry 50-280		Initial Prep	R. Baldwin	
9/18/00 9/25/00	North Anna 50-338	7 RO 1 SROI 3 SROU	Initial	R. Aiello	Licensee / NRC
9/18/00 9/25/00	Surry 50-280	8 RO 2 SROI 3 SROU	Initial	R. Baldwin	Licensee / NRC
FY 2001					
11/13/00	St. Lucie 50-335		Initial Prep	C. Payne	
11/13/00	Turkey Point 50-250		Initial Prep	G. Hopper	
11/27/00	Harris 50-400		Initial Prep	M. Ernstes	
12/4/00	St. Lucie 50-335	4 SROI 5 SROU	Initial	C. Payne	Licensee
12/4/00 12/18/00	Turkey Point 50-250	16	Initial	G. Hopper	NRC
12/11/00	Harris 50-400	3 RO 2 SROI 3 SROU	Initial	M. Ernstes	Licensee
3/26/01	Robinson 50-261	7 RO 5 SROU	Initial	TBD	TBD

Date	Facility Docket No.	Number of Candidates	Type of Activity	Chief Examiner	Examination Author
4/01	Vogtle 50-424	16	Initial	TBD	NRC
4/01	Catawba 50-413	18	Initial	TBD	Licensee
5/01	Watts Bar 50-390	7 RO 3 SROI 6 SROU	Initial	TBD	Licensee

TRAINING MANAGERS CONFERENCE

August 12-13, 1999

COMMENTS/QUESTIONS

A. Written Examination Questions:

1. The most common issue raised by Hot License Candidates and Requal license holders surround the issue of "trick questions" and operator written exams not being a fair test of operator knowledge.

2. If INPO creates a national initial licensed operator exam bank, will the NRC consider the INPO bank to be current questions that cannot be used as new questions on the exam to be developed?

3. Do not feel that the written exam is a discriminatory tool. How many people do poorly on the written exam that are not weak on the operating test? Let us use our process to take care of the written with our audit exam.

4. The utilities should NOT be the ones to develop the sample plan. This should be developed by the NRC for all examinations administered in the region.

5. NRC needs to understand that increased difficulty of exam process is a negative motivator and could be a distraction to competent board operators. Recommend Survey to Understand Scope and Potential Impact on Safe Plant Operations.

6. Evaluate changing initial exam grading to a curve for pass/fail.

7. Exam difficulty his gone beyond reason and is impacting the requal program. People are not willing to put up with the hassle and it does not result in better operators. It is impossible to meet question standards and avoid "Tricky" questions, very knowledgeable operators can appear less that competent based on complexity of question rather than a test of knowledge.

8. The NRC exam has become an exercise in exam taking skills instead of a knowledge assessment.

9. Would you comment on the following proposal ? Have a "team" from the utility come to the region and work directly with the chief examiner to develop the written exam. I would propose that a team of experienced utility instructions could bring the exam bank and associated reference material and they, with the chief, could produce the written exam in less than 40 hours.

   Benefits - lower man hours cost, reduced security concerns (less time on site), fever negative exam report corrects.

10. If the utility is producing the written exam, when (how may days/weeks) is your expectation for the chief to get the sample plan to the utility? The point is - getting the sample plan in accordance with NUREG 1021 will not work.

11. In light of the NRC's new goals of reducing unnecessary regulatory burden and increasing efficiency and effectiveness, would it be possible to allow a licensee to build an initial license exam entirely from the bank (rather than 50% new questions), assuming the bank was an appropriate size and security concerns could be solved.

12. The examination process seems to be getting harder as compared to a few years ago.

13. Once we use a comprehensive level question, does it become a knowledge base questions the next time we use it.

14. We may want to have an exam writing workshop.

B. Operating Examination Questions:

1. The continuous racheting of expectations is bypassing the SAT process. Example - Cannot use a high importance JPM because it is perceived to be too easy, and operators are trained and tested on it.

2. Current subjectivity on what is a discriminatory JPM with the removal of the questions.

3. Need region workshops to calibrate us on future JPM direction.

4. Why can't the selection of JPM's for the license exam be driven by the SAT process and K/A value? "Low discriminatory valve" is a euphemism for "too easy" and as a result, the difficulty of the exam is racheting up to an unreasonable level. This is contrary to the NRC stated goals.

5. Open Reference Tech Spec. - it's too complicated to memorize. Tech Specs should be open reference or better yet covered by Operating Exams (JPM). We do not want our Operators to spend valuable time memorizing ITS, nor do we want them to operate from memory.

6. Operating Exam - Section "A" Admin. (Category): This "category" of the new exam process needs to be integrated into the written and JPM (walk thru) segments, and eliminated as a separate entity - only a couple of areas are examined, with no margin for error! An individual can scope high on the written exam, do excellent on the simulator, and pass all of the systems JPMs yet fail to get licensed due to not passing a couple of admin "questions" - the knowledge and/or abilities could easily be included with other exam segments.

C. Licensed Operator Experience Questions:

1. What are experience requirements for SRO/RO?

2. For a SAT-based program, what and where are the requirements for "responsible power plant" experience?

3. Question - Experience Requirements

   - 3 years
   - 1 year
   - 6 months on site

   What are the real requirements if you have SAT based program?

4. "Responsible" power plant experience

   - This issue needs to be resolved
   - INPO, NRC, NEI need to determine the specifics and let us know.
   - We need to know without reservation that SRO-instant candidates meet this ambiguous "experience" requirements prior to them entering a license class.

D. SAT Program Questions:

1. What is/where do I find my "Commission Approved" Training program?

2. How familiar are, and what kind of training have the examiners received on the SAT process? How familiar (knowledgeable) are the headquarters management on the SAT process? What kind of training have they received?

E. Reactivity Manipulation Questions:

1. 10 CFR 55.59 - the use of SAT based program vice regulatory based programs. Why do you have to track individual control manipulations if you have a SAT based program?

2. "Control Manipulations" in Requal - a prior guidance from previous NRC meeting clearly indicated bean counting control manipulation from the Denton letter was a thing of the past - SAT based requal training would naturally contain a large portion of the annual/biennial tasks and evolutions, therefore, program participants would be involved during simulator training/evaluation, and/or annual Op. Eval. JPMs; "individuals simulator critical tasks" went away and "crew critical tasks" were required.

Teamwork/communications command's control/by the team was the most important. Bottom line - the implied expectation expressed on 8/12/99 is not congruent with that provided in 1989 by T. Peebles, S. Lawyer, and others who provides us guidance. It appears that we are returning to the middle to early 80's again.

3. Reactivity Manipulations: 1) For ILO training what is the status of allowing simulator manipulations. (when unable to perform in-plant): also, define (What constitutes a control manipulation); why is a rod operability surveillance ok at one plant but not another? What constitutes a large change? 2) For LOCT - INPO's policy for tracking manipulation seems to be in conflict w/NRC requirement (INPO doesn't require tracking on individual basis).

F. <u>GFES Questons or Concerns:</u>

1. 2000 GFES Dates: Licensee have developed schedules and allocated resources to participate in a April GFES. Changing to a February, June, October schedule would be disruptive, perhaps a April, June schedule for 2000 would allow for a smooth transition (others Licensees made same comment).

2. In order to facilitate transition to administering 3 GFE/year, is it possible to consider administering exams in April, June, and October during year 2000? This would minimize the impact on utilities that already have an exam scheduled. If implementation occurs in FY 2000 and exams are given in February, June, and October (as proposed), unnecessary burden on these utilities could result.

G. <u>Miscellaneous Questions:</u>

1. ES-302 - General (D.1.j) - What determines if a STA is "necessary"?

2. When evaluating SRO success in "Classifying the REP" during the operating exam, what criteria do the examiners use for, when to start the 15 minute clock (expectation)? (15 minute from event to classification)

3. Use of instructors is still an issue. The use of an instructor, who is on the exam security agreement, can't teach candidates attending the Requal program. This is an unnecessary burden on resource restrictions.

4. Is there some way to do a better distribution of clarifications/rulings from one site in the region to another? This would help all of us meet your expectations.