

March 10, 2005

MEMORANDUM TO: Catherine Haney, Director  
Policy and Rulemaking Program  
Division of Regulatory Improvement Programs, NRR

FROM: Joseph L. Birmingham, Project Manager */RA/*  
Policy and Rulemaking Program  
Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF JANUARY 27, 2005, MEETING WITH INDUSTRY  
FOCUS GROUP REGARDING OPERATOR LICENSING ISSUES

On January 27, 2005, the NRC staff held a public meeting with the industry focus group (FG) on operator licensing to discuss a number of operator licensing issues. Attachment 1 lists the attendees at the meeting.

This meeting was the latest in a series of meetings intended to promote the efficient, effective, and consistent preparation and administration of initial operator licensing examinations. The discussions addressed issues related to the implementation of Revision 9 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," which was issued in July 2004, licensed operator requalification programs, and simulator fidelity and testing. Attachment 2 is the agenda for the meeting; the discussion topics are summarized in Attachment 3; Attachments 4 through 6 are handouts that were distributed during the meeting, as noted in Attachment 3.

Representatives of the NRC and the industry agreed that this meeting was useful for the exchange of information on this subject and agreed to continue the periodic meetings.

Project No. 689  
Attachments: As stated  
cc w/atts: See list

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P Hiland

DTrimble

SGuenther

GUsova

JMunro

Richard Conte, RI

James Moorman, RII

Roger Lanksbury, RIII

Tony Gody, RIV

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Nuclear Energy Institute

Project No. 689

cc: Mr. Jim Davis, Director  
Operations  
Nuclear Energy Institute  
Suite 400  
1776 I Street, NW  
Washington, DC 20006-3708  
jwd@nei.org

List of Attendees - NRC / NEI Focus Group Meeting - January 27, 2005

Name	Organization
Bruce Boger	NRC / HQ
Patrick Hiland	NRC / HQ
Dave Trimble	NRC / HQ
Fred Guenther	NRC / HQ
John Munro	NRC / HQ
George Usova	NRC / HQ
Lawrence Vick	NRC / HQ
Richard Conte	NRC / RI
James Moorman	NRC / RII
Roger Lanksbury	NRC / RIII
Tony Gody	NRC / RIV
Fred Riedel	Arizona Public Service (Palo Verde)
Chuck Sizemore	NMC (Point Beach)
Gregg Ludlam	Progress Energy / CP&L
Kerry Wright	Florida Power & Light (Seabrook)
Dennis Koutouzis	Institute of Nuclear Power Operations (INPO)
Charlie Brooks	INPO
James Davis	Nuclear Energy Institute (NEI)
Joel Sorensen	NMC
Chuck Hess	PPL Susquehanna
Mike DeFrees	STPNOC
Sumner Bemis	Westinghouse (WOG)
Ken Masker	Constellation Energy
Mark McCrobie	Constellation Energy
Jeff Hansen	Exelon

AGENDA FOR PUBLIC MEETING WITH INDUSTRY FOCUS GROUP (FG)  
ON OPERATOR LICENSING ISSUES

January 27, 2005; 9:00 a.m. - 3:00 p.m.  
U.S. Nuclear Regulatory Commission  
One White Flint North, Room 7B4  
11555 Rockville Pike, Rockville, MD 20852

<u>TOPIC</u>	<u>LEAD</u>
● Introductions and Opening Remarks	NRC/FG
● Public Input	Public
● Initial Licensing Issues	NRC/FG
- Fiscal Year 2004 examination results	
- Implementing Revision 9 of NUREG-1021	
- Errata clarifications & corrections	
- Generic Fundamentals Exam status	
- Exam projections / budget for 2006 and 2007	
- Industry feedback	
● Requalification Issues	NRC/FG
- Examinations (quality and timing)	
- Maintenance of instructor qualification	
- Displacement of training in key knowledge areas (training "creep")	
- SRO proficiency watches	
- Medical Information Notice 2004-20	
● Simulator Fidelity and Testing	NRC/FG
● K/A Catalog Project Update	FG
● Safety Culture Update	NRC
● Focus Group Issues	FG
● Public Questions and Answers	Public
● Summary / Conclusion / Action Item Review	NRC/FG

## DISCUSSION SUMMARY

### Initial Licensing Issues

#### Fiscal Year (FY) 2004 Examination Results

The NRC staff briefly reviewed the initial licensing examination results for FY 2004, noting the absence of any significant trends in the overall written examination grades or the pass-rates on either the written examinations or the operating tests as a result of the transition to Revision 9 of NUREG-1021. The staff added that it was unaware of any unintended consequences as a result of the Revision 9 changes; as expected: a small number of additional applicants passed the walk-through as a result of combining the administrative and systems sections; a few more applicants failed as a result of the new cut score on the SRO-only portion of the written examination; and the simulator pass-rates were unchanged as a result of new grading procedures. The staff noted that it has posted summary graphs on the operator licensing web page and is considering the possibility of including data on the SRO-only portion of the written examinations. When questioned by the FG, the staff noted that the level of facility participation in the examination development process appears to be relatively constant, with Region II facilities continuing to lag behind the rest of the country. The FG suggested that the decision whether or not to prepare an examination generally hinges on the availability of training staff at the facility, rather than cost. The staff did note, for the record, that the recent trend has been toward slightly lower grades and pass-rates on examinations prepared by the NRC than on those prepared by facility licensees.

#### Implementing Rev. 9 of NUREG-1021; Errata Clarifications and Corrections; Industry Feedback

The NRC staff indicated that it has been pleased with the transition to Revision 9, noting that most of the examinations in FY 2004 and all the examinations since the beginning of FY 2005 (i.e., October 1, 2004) have used the new procedures. The staff requested the industry's assistance in identifying security-sensitive test materials so that they can be removed from the examination files before they are deposited in the public electronic reading room. The staff also reviewed a number of typographical errors and inconsistencies that have been identified since Revision 9 was published and requested the FG to report any additional items that might be included in an errata correction that the staff is planning to issue this spring. The FG was unaware of any significant issues regarding the implementation of Revision 9 and agreed to solicit the industry for items in need of correction. The FG enquired whether the staff will be providing any additional guidance regarding the development of questions for the SRO-only written examination and agreed to take action in that regard when informed by the staff that nothing was being planned. The FG also suggested that more guidance might be necessary to control the level of difficulty of the examinations, despite the clarification that was included in Appendix A of Revision 9. The staff encouraged the industry to participate in the item-writing workshops conducted by the NRC Regional Offices and agreed to consider the possibility of developing additional guidance, with examples of questions that were rejected by the NRC even though they were deemed acceptable by the licensee.

#### Generic Fundamentals Examination Status

The NRC staff distributed a summary of the BWR and PWR average scores for the past several years (Attachment 4), noting that the results of the 50-question 2004 examinations

compare favorably with the earlier 100-question examinations. The staff also noted that only 35 applicants took the December 2004 examination and cautioned the FG that four examinations per year may not be guaranteed if the number of applicants is too low to justify the cost. The FG members opined that it may take a while for facility licensees to coordinate their training programs with the new GFE schedule and noted that they do not anticipate a significant decline in GFE demand. Lastly, the staff reported that the industry's first pre-review of the December GFE went well and reminded the FG that the examination development time-line requires the industry to provide the reviewers' names and contact information to the NRC GFE coordinator at least 48 days before the test administration date; the staff distributed a schedule (Attachment 5) identifying the due dates through 2006.

#### Examination Projections / Budget for 2006 and 2007

The NRC staff noted that the examination projections for FY 2006 and 2007 appear to be substantially lower than recent years and cautioned the FG that facility licensees need to keep their NRC Regional Office apprised of their examination needs in order to ensure that sufficient NRC resources are budgeted for operator licensing activities.

### **Requalification Issues**

#### Training and Examinations

The NRC staff and FG discussed a number of issues related to the continuing training of licensed operators, including the quality and timing of examinations, adequacy of instructor staffing and qualification (including the training of simulator support staff), the displacement of technical training with other, less important subjects (i.e., "training creep"), and implementation of the SAT (systems approach to training) process to ensure that fuel handling supervisors are adequately trained. While the staff noted that many of the issues have been reported anecdotally and may only apply to selected facilities, the FG indicated that the industry is aware of the issues and recognizes the need for action to address the concerns. The staff informed the FG that it has communicated its concerns to the Institute of Nuclear Power Operations (INPO) for review and that INPO has been very responsive; the INPO representative acknowledged that the staff's concerns are being evaluated and have been factored into the accreditation reviews.

With regard to the timing of comprehensive written requalification examinations, the NRC staff reiterated its position stated in Regulatory Issue Summary (RIS) 2003-10, i.e., that the examination must occur during, and preferably at or near the end of, each 24-month requalification training program. If the examination is administered before the training program is completed, then, for the examination to be considered comprehensive with respect to the program (and comply with 10 CFR 55.59 (a)(2)(i)), its sampling process must include the remaining topics scheduled to be taught after the examinations are completed. The alternative would be to redefine the end of the program to coincide with the comprehensive examination and start the next 24-month program. The FG indicated that the industry will continue to struggle with this issue until the wording of the regulation is changed to provide more flexibility; however, the staff noted that resource limitations will preclude the development of a rule change for at least a couple of years.

With regard to requalification examination quality, the NRC staff indicated that poor testing practices (e.g., overly simplistic test items that do not discriminate, excessive item repetition and bank use, inadequate validation, and scoring irregularities) at some facilities are affecting the integrity of the exams and eroding the staff's confidence in the licensee's ability to identify and retrain deficient operators. The staff proposed that INPO or the industry address this concern by providing the industry with more structured guidance that would promote requalification examination quality and consistency. The INPO representative responded that the INPO action plan includes the need to determine whether such guidance is required; he estimated that a decision would be made sometime this spring.

The NRC staff informed the FG that the NRC has recently amended Appendix C, "Special and Infrequently Performed Inspections," of Inspection Manual Chapter 2515, "Light-Water Reactor Inspection Program - Operations Phase," to include IP 41500, "Training and Qualification Effectiveness." The staff noted that this will allow Regional Administrators the flexibility to initiate a training inspection if they believe it is necessary to investigate a serious performance or examination issue. Prior to this change, the reactor oversight process would have required a yellow finding in order to justify a training inspection. The FG asked why the staff believed the change was necessary, but it did not object to the amendment. The NRC staff explained that experience has shown that such inspection is, at times, required for the agency to gain a satisfactory understanding of the causes and extent of performance problems.

#### SRO Proficiency Watches

The NRC staff briefly reviewed the history of this issue, noting that Revision 9 of NUREG-1021 includes guidance regarding the proficiency of SROs who stand only RO watches but it does not address SROs who stand a combination of RO and SRO watches to satisfy the minimum quarterly proficiency requirements established in 10 CFR 55.53(e). The staff noted that it is consulting with the Office of the General Counsel on this issue and is planning to publish a RIS to clarify the requirements. The FG indicated that many sites routinely have more than the minimum required number of operators in the control room and would like to credit them all with proficiency time as long as they are in a position that requires a license per the plant's technical specifications. The FG also expressed a desire to review the staff's guidance before it is issued, in order to limit the risk of unintended consequences.

#### Medical Information Notice (IN) 2004-20

The NRC staff noted that IN 2004-20, "Recent Issues Associated With NRC Medical Requirements for Licensed Operators," was published in November 2004 to highlight concerns related to the conduct and documentation of medical examinations for licensed operators. The staff stressed that operators and facility licensees need to be more attentive to the requirement to report any significant change in medical condition to the NRC for evaluation. When questioned by the FG regarding changes in blood pressure medication, for example, the staff indicated that the facility licensee's physician needs to evaluate the operator's health to determine if a license condition (or change) might be required, noting that if the facility has any doubt regarding reportability, it never hurts to raise the issue to the NRC's attention.

The FG requested an update on the status of revising no-solo license conditions and was informed by the NRC staff that the conditions would generally be revised to conform with ES-605 of NUREG-1021, Revision 9, the next time the affected operators apply for license renewal.



The staff noted that earlier amendments would be issued upon request and added that Region IV has already amended all of its no-solo licenses.

### **Simulator Fidelity and Testing**

The NRC staff distributed Attachment 6 and briefed the FG regarding the current status of simulator fidelity and testing. The staff noted that the higher than expected number of identified fidelity problems indicates inadequacies in the conduct of previous testing and that recent inspection findings have appropriately focused more attention in this area. The staff indicated that it is assessing the need to revise the threshold for a Green Finding for fidelity deficiencies and, pending development of a formal NRC position on appropriate acceptance criteria for scenario-based testing (SBT), NRC will generally treat deficiencies in SBT as unresolved items.

The FG indicated that many plants may not understand exactly what is expected for general simulator testing, post-event testing, and the additional testing required to allow the performance of control manipulations to establish license eligibility. The FG also indicated that the practice of installing and evaluating modifications on the simulator before putting them in the plant has raised the NRC's concern regarding negative training and even caused the NRC to question whether the plant's simulator still qualifies as "plant-referenced," which could have significant training, testing, and regulatory implications (e.g., approval requirements). Based on these concerns, the FG proposed that all the stakeholders involved with simulator fidelity and testing (e.g., the NRC and FG, INPO, the ANS 3.5 subcommittee, and the simulator owners groups) meet to identify the issues and develop whatever guidance is necessary to clarify the requirements and expectations. The FG suggested that INPO or NEI should propose a date and coordinate the effort. The NRC staff acknowledged that this was a good suggestion and agreed to participate, as necessary.

### **K/A Catalog Project Update**

The FG reported that a number of NRC examiners have signed up to participate in the survey but that only one examiner has completed it so far (they noted that the industry completion rate is also low). The FG stressed that they would like at least 120 people to complete the survey, which takes about four hours. The NRC agreed to prompt its examiners to finish up as soon as possible.

### **Safety Culture Update**

The NRC staff provided a brief status report and the FG indicated that it supports the initiative.

### **Focus Group Issues**

Refer to the preceding topic headings.

### **Public Questions and Answers**

No members of the general public attended the meeting.

Attachment 4

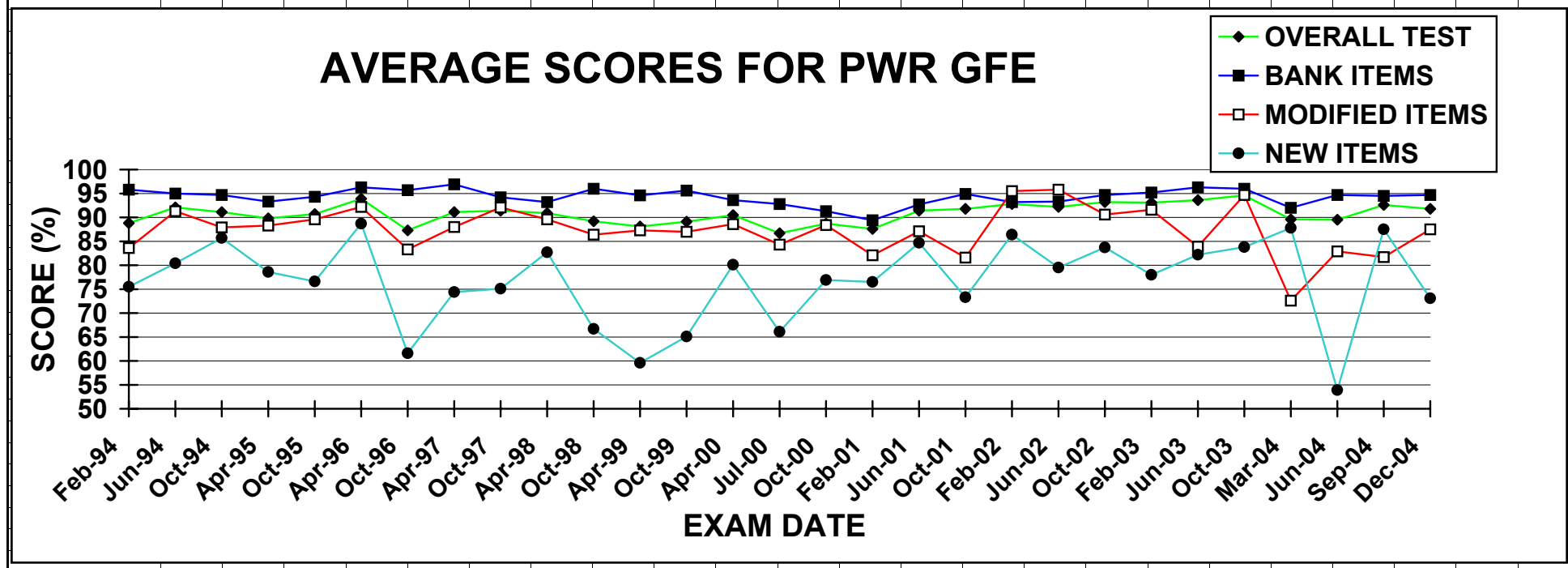
to

January 27, 2005

Operator Licensing Focus Group

Meeting Summary

	Oct-91	Feb-92	Jun-92	Oct-92	Feb-93	Jun-93	Oct-93	Feb-94	Jun-94	Oct-94	Apr-95	Oct-95	Apr-96	Oct-96	Apr-97	Oct-97	Apr-98	Oct-98	Apr-99	Oct-99	Apr-00	Jul-00	Oct-00
OVERALL TEST	89.9	92.5	92	91.3	91.2	91.3	89.4	88.8	92.1	91.1	89.8	90.7	93.9	87.3	91.1	91.4	90.9	89.2	88.1	89.1	90.5	86.7	88.7
BANK ITEMS	95.6	93.7	95.4	95.8	96.7	94.8	93.9	95.8	95	94.7	93.3	94.3	96.3	95.7	96.9	94.2	93.2	96	94.6	95.6	93.6	92.8	91.3
MODIFIED ITEMS	81.7	91	88.7	87.8	89.4	89.4	89.6	83.6	91.3	87.9	88.3	89.6	92.2	83.3	88	92.1	89.6	86.4	87.3	87	88.6	84.3	88.4
NEW ITEMS			88	81.7	71.2	81.5	66.3	75.5	80.4	85.7	78.6	76.6	88.7	61.6	74.4	75.1	82.7	66.7	59.6	65.1	80.1	66.1	76.9
	Feb-01	Jun-01	Oct-01	Feb-02	Jun-02	Oct-02	Feb-03	Jun-03	Oct-03	Mar-04	Jun-04	Sep-04	Dec-04										
OVERALL TEST	87.6	91.4	91.8	92.8	92.2	93.2	93.1	93.6	94.6	89.6	89.5	92.6	91.8										
BANK ITEMS	89.4	92.7	94.9	93.2	93.3	94.7	95.2	96.3	96	92	94.7	94.5	94.7										
MODIFIED ITEMS	82.1	87.1	81.6	95.5	95.8	90.6	91.6	83.9	94.7	72.6	82.9	81.7	87.5										
NEW ITEMS	76.5	84.7	73.3	86.4	79.5	83.7	78	82.2	83.8	87.8	53.9	87.5	73.1										
PASS RATE (%)		95.2	97	100	95.4	98.9	98.5	95.9	98.9	87	100	100	100										
<b>June 1992 to Feb 2001</b>	Overall	90.1				<b>June 2001 to Oct 2003</b>	Overall	92.8				<b>Mar 2004 to Present</b>	Overall	90.9									
	Bank	94.5					Bank	94.5					Bank	94.0									
Before GFE Website	Mod.	88.0				After GFE Website	Mod.	90.1					Mod.	81.2									
(Mostly 50/40/10 exams)	New	75.4				(All 80/10/10 exams)	New	81.5				(All 40/5/5 exams)	New	75.6									
	Pass %	95.6					Pass %	97.5					Pass %	96.8									





## **INDUSTRY REVIEWS OF GENERIC FUNDAMENTAL EXAMINATIONS (GFES):TIME LINES**

Industry members of the NRC/NEI Focus Group have requested the opportunity to review and comment upon NRC GFEs before they are administered. As agreed upon, the appropriate FG member will designate the name of one vendor reviewer (BWR and PWR) within one regional utility that is not participating in an upcoming scheduled GFE administration to perform the review.

The FG member who chooses a utility to participate in the review of the NRC GFE must notify the NRC GFE Coordinator, informing him of who the intended/designated industry GFE reviewer is to be, accompanied by specific contact information, e.g., individual, utility name, phone number, e-mail address, etc. The NRC GFE coordinator will then contact the designated reviewer with specific instructions to be followed.

The above information is to be provided to the NRC GFE Coordinator NLT 48 days before the exam administration date (**E-48**).

### **Time line requirements**

The listing below are the E-48 dates (for GFEs contracted through December 2006) to the nearest weekday, which happens to be a Friday in each case.

<b>GFE</b>	<b>E-48 Dates</b>
Dec 2004	<b>October 22, 2004</b>
Mar 2005	<b>January 21, 2005</b>
Jun 2005	<b>April 22, 2005</b>
Sep 2005	<b>July 22, 2005</b>
Dec 2005	<b>October 21, 2005</b>
Mar 2006	<b>January 20, 2006</b>
Jun 2006	<b>April 21, 2006</b>
Sep 2006	<b>July 21, 2006</b>
Dec 2006	<b>October 20, 2006</b>

Because of the contractual scheduling requirements of the GFE, any industry reviews and comments must occur within scheduled deadlines; moreover, strict adherence to examination security is of utmost importance and procedures must be followed as outlined in the Agreement of NRC Procedures for Industry-Conducted GFE Reviews.

For further questions, contact George M. Usova at 301-415-1064 or [GMU@NRC.gov](mailto:GMU@NRC.gov).

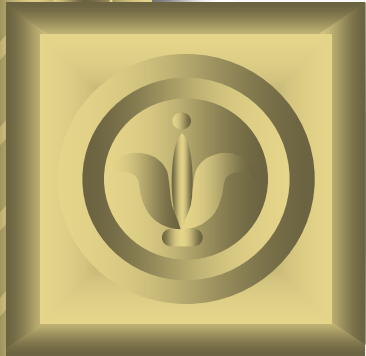
Attachment 6

to

January 27, 2005

Operator Licensing Focus Group

Meeting Summary



# NRC Simulator Update

**January 27, 2005**

**U. S. Nuclear Regulatory Commission**

**Larry Vick, NRR**



# 10 CFR 55.46 Implementation

- **Plant-referenced simulators inspected for rule compliance**
- **Simulation facilities inspected using IP-7111.11 (Requal Program)**
- **Areas of concern identified**
  - Simulator fidelity
  - Performance testing
  - Simulator negative training





# Positive Developments

- **Constructive interaction between industry and regulator**
- **Simulator issues are being identified and addressed**
- **ANS-3.5 Working Group enhanced standard in problematic areas**
  - **Core performance testing**
  - **Scenario-based-tests**
  - **Post event testing**

# Attention Areas

- **55.46 Regulatory areas of concern**
  - Simulator fidelity
  - Performance tests/testing
  - Negative training
- **ANS-3.5 requirements are not fully appreciated nor understood**
  - Not meeting standard may cause regulatory concerns
  - NRC expects adherence to the standard (e.g., scope & fidelity)



# Simulator Regulatory Schedule

- **Simulation facilities are required to be fully compliant with regulations**
- **Conduct performance testing over the life of the simulator**
- **Correcting discrepancies identified from performance testing**
- **Retain for NRC review tests results**
  - **In general, ANS-3.5 driver of tests & documentation requirements**



# Regulatory Expectations

- **Plant-referenced simulator that has sufficient scope and fidelity to:**
  - **Allow control manipulations (standard more exacting when crediting manipulations)**
  - **Respond to operator input & to normal, transient, & accidents conditions**
  - **Support operator training & examinations**



# Regulatory Impact

- **Low, if**
  - **Ongoing maintenance & testing program has been sound**
- **High, if**
  - **Not correcting discrepancies**
  - **Inadequate tests & testing**
  - **Insufficient scope & fidelity**



# Simulator Technology

- **Computer capability & capacity no longer impedes scope & fidelity**
- **Software engineering expertise is more reliable**
- **Conformance to reference plant design & performance data can withstand scrutiny**



# Regulatory References

- **10 CFR 55.46 rule**
  - **IP-71111.11 baseline (region) & quarterly (resident) inspections**
  - **Reactor Oversight Process (ROP) Significant Determination Process (SDP)**



# Regulatory Simulator Goals

- **No negative operator training due to simulator issues**
- **Sufficient scope and fidelity being maintained**
- **Timely correction of significant discrepancies**
- **Adequate performance testing**
- **Good replication of reference plant**



# Scenario-based-tests (SBTs)

- **Applicable to '98 standard**
- **Acceptability & suitability of SBT for meeting standard testing criteria**
  - **Demonstrate meaningful & adequate testing**
  - **Verify simulator's performance as compared to actual or predicted reference plant performance**
- **SBT should identify specific key parameters, automatic actions, and/or alarms, comparison to actual or predicted performance and evaluation of results**

# SBTs - Inspection Results

- **Generally, insufficient & inadequate**
- **Question of acceptability & suitability for meeting standard testing criteria**
  - **Poor demonstration of meaningful & adequate testing**
  - **Poor verification of simulator's performance as compared to actual or predicted reference plant performance**
  - **Lack of identification of specific key parameters, automatic actions, and/or alarms, and documentation of results of comparisons of these to actual or predicted reference plant performance**

## SBTs Treated as Unresolved Item (URI)

- **'98 standard required comparison to reference plant but does not provide details regarding the extent of the comparison between the simulator & actual or predicted plant performance that is required during SBT**
- **Some confusion has developed regarding proper interpretation of the standard in this area**
  - **NRC staff believes that the comparisons, to be meaningful, must include key parameters / automatic actions / alarms as described in section 4.1.4 of the standard**
- **Pending anticipated enhancements to standard & additional guidance or clarification / interpretation of existing guidance (revise or update RG 1.1 49, Rev 3)**

# 10 CFR Part 55 Requirements

- **55.4 states that the definition of “performance testing” means testing conducted to verify a simulation facility’s performance as compared to actual or predicted reference plant performance**
- **55.46 (c)(1) states that plant reference simulator must demonstrate expected plant response to operator input and to normal, transient, and accident conditions to which the simulator has been designed to respond**
- **55.46.(d)(1) requires performance to provide continued assurance of simulator fidelity**
- **To be consistent with the definition of “performance testing” in the standard and regulation, such testing must include a comparison of the results of integrated operation of the simulator to actual or predicted reference plant data.**