DCS

OCT 19 1992

Docket No. 50-410

Mr. B. Ralph Sylvia
Executive Vice President - Nuclear
Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212

Dear Mr. Sylvia:

SUBJECT: MEETING TO DISCUSS LICENSED OPERATOR EXAMINATION ISSUES

On September 10, 1992, a meeting (open for public observation) was held between the NRC staff and the Niagara Mohawk Power Corporation at the NRC Regional Office in King of Prussia, Pennsylvania. The purpose of the meeting was to discuss issues raised during the operator licensing examinations given earlier this year. Enclosures 1 and 2 provide a summary of the meeting. Your staff addressed all of the issues raised by the NRC in an objective and mutually beneficial manner.

Enclosure 1 clarifies misconceptions noted in the related Unit 1 and Unit 2 examination reports. Licensee representatives acknowledged the need for improvement in certain areas.

No response is required. Your cooperation with our staff in these matters is appreciated.

Sincerely,

Original Signed By

Lee H. Bettenhausen, Chief
Operations Branch
Division of Reactor Safety

Enclosures:
1. Meeting Summary
2. NMP Presentation to NRC on September 10, 1992
3. List of Attendees

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cc w/encls:
J. Firlit, Vice President - Nuclear Support
C. Terry, Vice President - Nuclear Engineering
J. Perry, Vice President - Quality Assurance
Vice President - Nuclear Generation
K. Dahlberg, Unit 1 Plant Manager
M. McCormick, Unit 2 Plant Manager
D. Greene, Manager, Licensing
J. Warden, New York Consumer Protection Branch
G. Wilson, Senior Attorney
M. Wetterhahn, Winston and Strawn
Director, Power Division, Department of Public Service, State of New York
C. Donaldson, Esquire, Assistant Attorney General, New York Department of Law
K. Abraham, PAO (2)
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New York, SLO Designee

bcc w/encls:
Region I Docket Room (with concurrences)
L. Bettenhausen, DRS
R. Conte, DRS
J. Williams, DRS
C. Cowgill, DRP
J. Yerokun, DRP
L. Nicholson, DRP
S. Greenlee, DRP
W. Schmidt, SRI - Nine Mile
V. McCree, OEDO
R. Capra, NRR
J. Menning, NRR
D. Brinkman, NRR
R. Gallo, OLB, NRR
W. Dean, OLB, NRR
D. Lange, OLB, NRR
DRS/EB SALP Coordinator
D. Holody, EO
OL Facility File
DRS File

RI:DRS	RI:DRS	RI:DRS
Williams/ajk/dmg	Conte	Bettenhausen
10/14/92	10/16/92	10/16/92

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ENCLOSURE 1

NINE MILE POINT UNITS 1 & 2 MEETING SUMMARY

LICENSED OPERATOR EXAMINATION ISSUES

SEPTEMBER 10, 1992

1.0 OBJECTIVE

The objective of this meeting was to discuss issues raised during the operator licensing examinations given in May and June of 1992.

2.0 SUMMARY

The NRC staff requested that the licensee address the issues associated with:

- RO/SRO eligibility requirements
- Incomplete examination reference materials
- RO and SRO performance differences on the written exam
- CSO (an RO) as a supervisory position over other ROs

The licensee discussed these issues as they covered the material in a handout provided (Enclosure 2). Licensee representatives acknowledged the need for enhancing Unit 2 reference material and upgrading RO applicant knowledge or ability in the system response area.

The NRC staff agreed with the licensee that problems with Unit 2 reference materials were not noted with Unit 1's reference materials. The NRC staff also agreed that all reference material that had been requested was provided and this may not have been clear in Examination Report 50-410/92-06.

3.0 CONCLUSION

The meeting was of mutual benefit to both organizations. The licensee addressed all of the issues raised by the NRC staff. NRC staff agreed to clarify possible misconceptions associated with Units 1 and 2 similarities and the fact that all Unit 2 reference material requested by the NRC was provided.

ENCLOSURE 2

NINE MILE POINT

OPERATIONS TRAINING PROGRAMS

LESSONS LEARNED

Meeting with USNRC

September 10, 1992

Proposed Agenda

Introduction and Expectations - Bob Smith/Lee Bettenhausen

- NMPC represented by:

  Bob Smith - Manager Training - Nuclear
  Bob Sanaker - General Supervisor - Operations Training Unit 1
  Rick Slade - General Supervisor - Operations Training Unit 2

Unit 1 Exam Report Lessons Learned

Unit 2 Exam Report Lessons Learned

Unit 2 Exam Analysis Lessons Learned

Open Discussion

- Recommendation for improving the examination process.

Unit 1 Operations Training Lessons Learned

As similarly noted in a recent NMP2 examination and for this examination, it appeared that SRO level of knowledge on plant systems and their ability to predict system response as a result of component malfunctions was markedly greater than that of RO level of knowledge.

SRO candidates were prepared for this examination both by the curriculum and by their previous experience. The candidates' experience includes:

- Engineering
- Nuclear Licensing Department Manager
- Extensive Operations Experience
- Extensive Technical Support Experience

SRO and RO candidates attended the same classroom instruction.

During Simulator training, SRO's focused on:

- Use of procedures and predicting plant response to events.
- Command and control.

RO's focused on:

- Use of procedures.
- Responding to EOP entry conditions (as directed by SRO).
- Individual system/component response.

After considerable review of both examinations, it appears this situation is related to the quality of the reference training material.

NMPC finds this statement contradictory to the statement in a previous paragraph which states "...8 of 9 applicants passed the examination and were well prepared for the examinations."

Unit 1 Operations Training Lessons Learned

Written exam weaknesses identified in knowledge of:	Unit 1 Operations Training will ensure the following is in the RO/SRO training material.
• *Personnel stay time in a high radiation field.*	• More emphasis on stay time calculations in various radiation fields.
• *Liquid Poison Pump injection capabilities.*	• Additional diagnostic evaluation of liquid poison pump capabilities.
• *Recirculation Pump speed control during pump start.*	• Improved controls and indications on MG set block diagram.
• *Emergency cooling system isolation valve control when remote shutdown switch is in the emergency position.*	• More detail will be included in the text for Emergency Cooling steam isolation valves.
• *The method resulting in the largest dp across the Control Rod drive piston for inserting control rods.*	• More detail will be included in the text on how to establish the largest dp across the Control Rod Drive piston during control rod insertion.

Unit 1 Operations Training Lessons Learned

Walkthrough exam weaknesses:

• *Explanation of reactor pressure response to MSIV closure at 40% reactor power.*	• We will review our theory training and ensure it addresses temperature and pressure changes at various power levels and their affect on the reactor.
• *RO familiarity with the general content of technical specifications.*	• We will increase emphasis on RO knowledge of technical specifications during classroom and simulator training and plant walkthroughs.

Unit 1 Operations Training Lessons Learned

Simulator exam weaknesses:

The ability to restore the emergency diesel generators coincident with a loss of off site power.

N1-SOP-5 is in the process of being configured in flow chart format. This should help license candidates master the understanding and implementation of this procedure. As we conduct simulator training, we will ensure that the license candidates are able to effectively implement SOP-5 and restore power to the safeguards buses after a loss of off site power coincident with emergency diesel generator malfunctions.

Unit 2 Operations Training Lessons Learned

Initial examinations were administered to four Reactor Operator, seven Senior Operator, and three Limited Senior reactor Operator candidates. Twelve of the candidates passed all portions of the examination, while two Reactor Operator candidates failed the written portion of the exam.

A remediation program has been developed. One of the two Reactor Operator candidates is currently scheduled to retake the written exam portion the week of November 16, 1992.

Unit 2 Operations Training Lessons Learned

Eligibility requirements for Reactor Operator candidates were confused. The facility used NUREG-1021 as a guide and was not fully aware of the requirements specified in the technical specifications.

- Nuclear Training program procedure NTP-TQS-101, "Training of Licensed Operator Candidates" states "...should comply with the requirements of Section ES-202 of NUREG-1021."
- Requirements of Tech. Spec. Section 6.3 currently are not detailed in this lower tiered procedure. The next revision of NTP-TQS-101 will more clearly define the requirements of Tech. Spec. Section 6.3.
- Licensing is currently working with Training to update Tech. Spec. Section 6.3 and 6.4 with the next administrative amendment.

Unit 2 Operations Training Lessons Learned

The simulator examination uncovered a weakness in the Control Room organization. Communications were ineffective at times of high activity, and the CSO (an RO) was placed at risk of directing the licensed activities of other RO's.

NMPC agrees. Future license classes will use a different organizational structure for the simulator portion of the exam. This will consist of an SRO and two RO's.

Unit 2 Operations Training Lessons Learned

A number of procedure deficiencies were noted by the examiners.

- NRC discussed these with the facility during the exam and at the exit meeting. Efforts were taken to correct these deficiencies.
- A comprehensive operations procedure upgrade project is in progress.

Unit 2 Operations Training Lessons Learned

The reference material provided to the NRC for examinations preparation was incomplete. It also lacked the detail required for generation of an operationally oriented exam. The training materials had a number of weaknesses.

The material was not all included in the initial submittal.

NMPC identified the following as possible causes for the incomplete initial mailing.

- NMPC mailed materials from a previous mailing list, not realizing that these mailing lists may have been negotiated somewhat different than what is required per the examiners standard. A list specific to NMP2 training materials has been generated which parallels ES-201 of NUREG-1021.

- A potential weakness in management oversight may have been attributed to the incomplete initial mailings. Additional oversight for future mailings will be in place as a result of the lessons learned from this exam.

Learning objectives did not always match job tasks.

- NMPC agrees that our learning objectives may not always match job tasks. In early July, NMPC benchmarked two USNRC Region 1 utilities looking specifically at their training materials. Based upon our benchmarking, we have determined that we could do better at clearly linking supporting enabling objectives to our existing terminal learning objectives. Our plans are to implement these changes concurrent with future revisions to training materials.

It also lacked detail required for generation of an operationally oriented exam.

- Our benchmarking noted that many detailed specifics were put into training procedures directly from their operating procedures. (For example: All annunciator responses and their required actions.) NMPC's approach to this is somewhat different. We do not put a lot of procedure details within our training materials. Our basis for this is to maintain our training material current and still be cost effective. Additionally, familiarizing Operators with procedures and the many other available reference materials is essential for them to perform day to day operations at the plant.

- Each NMPC license candidate was provided a complete set of operating procedures with their operations technologies. Lesson plans ensured Instructors covered the operating and annunciator response procedures.

- Our benchmarking did point out that some differences existed in the amount of interrelating system malfunctions and their effects on system response. NMPC is currently evaluating existing lesson material and intends to upgrade its materials in this area as applicable.

Also, many learning objectives did not have standards of performance stated in them.

- NMP2 terminal objectives are a reinstatement of the job tasks and utilize the operating procedures as the standard to which performance is measured.
- NMP2 enabling objectives state the action statement and utilize the front portion of lesson plans to imply the condition and standard expected of the trainees.

Unit 2 Operations Training Lessons Learned

Candidates' inability to predict plant or system response to failures was a weakness noted from an analysis of the written exam. This could be related to the weakness noted in the lack of detail in the training material. The RO candidates were weaker than the SRO's in this area.

Statement from Section 2.2, "...there is a general weakness in the ability of the candidates to predict plant or system response to equipment failures."

Statement from Section 2.2, "Thirteen questions dealing with system response were missed by >50% or more of the RO's."

Statement from Section 2.2, "This weakness was stronger among the Reactor Operator candidates."

NMPC performed an extensive analysis of both RO and SRO written exams. This was performed on Unit 2 only based upon available time and resources. We assumed all questions administered to candidates were valid. We look for questions which were missed by ≥50% of the candidates tested. NMPC analysis differs from the analysis described in Section 2.2 of the written exam report.

- NMPC does not agree, based upon the following results of the NMPC exam analysis.

  RO Exam

  Four of seventeen(24%) system response questions were missed by ≥50% of the candidates.

  SRO Exam

  Zero of thirteen (0%) system response questions were missed by ≥50% of the candidates.

- This statement appears to be true, however, it should be noted that the RO's had more questions in this area and fewer RO candidates took an exam.

- RO's performance as compared against other areas of the RO exam indicate further emphasis may need to be placed in this area. NMPC plans to do this in the classroom and simulator settings for future classes.

Statement from Section 2.2, "This weakness was stronger among the Reactor Operator candidates." (Cont'd)

- The difference between SRO and RO performance in this area can be explained by the SRO's past experience and educational background. (Refer to Unit One's lessons learned - similar conclusions for Unit Two.)
- Though RO's and SRO's both receive the same training it can be expected that an SRO generally will process and synthesize plant information more readily than an RO candidate, based upon previous experiences.

Unit 2 Operations Exam Analysis Lessons Learned

Assumptions:

- All questions were valid operationally oriented questions.

How the Analysis was Conducted:

- Each question by each candidate was looked at to determine whether candidates failed or passed.

- The following categories were established to determine if a possible generic weakness existed.

  1. **Systems** - Directly system related such as set point, operational, or design.
  2. **EOP's** - Sorted directly to an EOP K&A number.
  3. **Abnormals** - Sorted directly to "Abnormal" K&A number.
  4. **Administrative** - Related to plant administrative requirements.
  5. **Procedure** - Specific reference to annunciator response/procedural steps/precautions and limitations/bases etc. that required detailed knowledge of procedural content.
  6. **Negative Questions** - Contained the word NOT.
  7. **System Response** - Related to knowledge of equipment or system response to failure or degradation of component or system/equipment failure. Ability to predict plant response.
  8. **K&A** - Questions which did not ask what the K&A was supposed to determine.

- Two independent checks were performed to determine what categories each question fell under.

- A check of those questions missed by $\geq$50% of the candidates for each exam

Category	RO Exam	SRO Exam
Systems	10%	11%
EOP's	0%	6%
Abnormals	11%	4%
Administrative	8%	11%
Negative Questions	13%	13%
Procedure Questions	20%	11%
System Response	24%	0%
K&A (X-REF)	25%	27%

Unit 2 Operations Exam Analysis Lessons Learned

OTHER SIGNIFICANT INFORMATION TAKEN INTO CONSIDERATION DURING THE EXAM ANALYSIS:

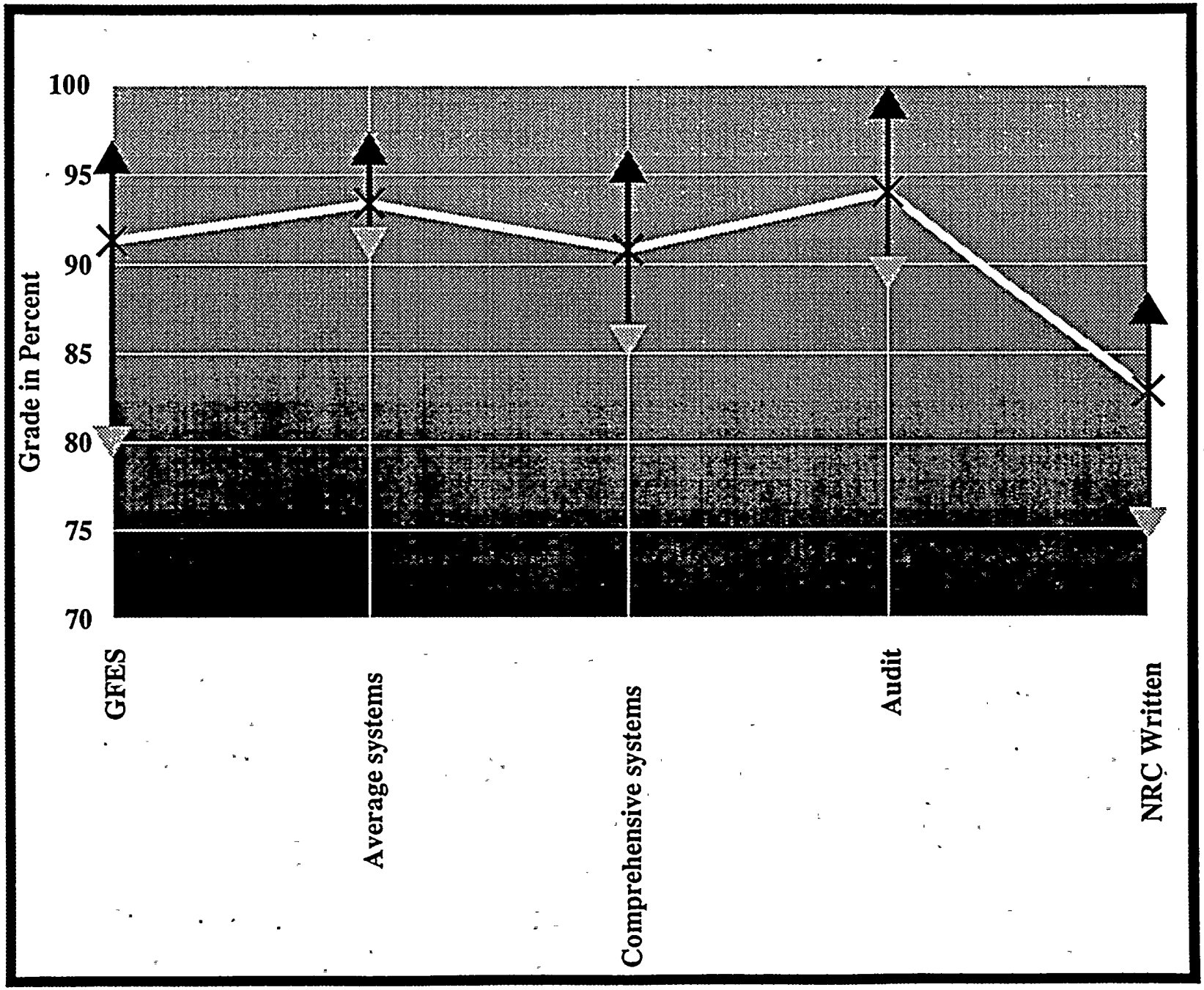
- All but one candidate took the allowed four hours to complete the exam.
- The (RO) candidate who left -1.5 hours early failed with a 79.2%.
- Through interviews, most candidates felt pressured for time based upon the difficulty and complexity of the first half of the exam.
- NMPC and the NRC spent four hours validating the first thirty-five (35) questions.
- NMPC met with the section chief after review of the first thirty-five questions to discuss cognitive level of questions being at a level normally administered to licensed requal.
- Approximately 60% of the questions were re-written by the exam team.
  -40% - Reworded to better clarify what was being asked.
  -20% - Technical problems.
- NMPC normally writes positive type questions when evaluating trainees. Through interviews, candidates struggled with the negative questions. They had to read these type of questions many times before answering. 15% of both exams consisted of negative type questions.
- The entire class performed on the average of -9 points lower than previous written evaluations. (See Attached)
- All candidates passed the simulator and walkthrough portion of the exam.
- NMPC administered all previously administered NRC exams, past audit exams, and two recently administered NRC Region 1 exams to the license candidates prior to sitting the May exam.
- Several questions were either deleted or other answers accepted during post exam review.
- Through interviews, many candidates felt that this was the most challenging exam they had taken.

Unit 2 Operations Exam Analysis Lessons Learned

Conclusions:

- Strengths: (<5%)
  - RO's knowledge of EOP related questions.
  - SRO's knowledge of predicting system responses.
  - SRO's knowledge of responding to abnormal plant conditions.
- Areas for Improvement: (>20%)
  - RO's knowledge of predicting plant system responses.
- No one system was identified as needing further training in the next class.
- The class as a whole performed lower than expected. (See Attached)
- Candidates used a lot of time answering negative type questions. Reduce the number of negative questions. Studies have shown them to be confusing and trainees do not do as well on them.
- Candidates felt pressured for time. Distribute the easier questions over the first part of each exam section.
- NMPC needs to better prepare its candidates to take exams written at this level of difficulty.
- NMPC needs to be better prepared for the exam review.

Unit 2 1992 Exam Analysis



ENCLOSURE 3

MEETING ATTENDEES

NRC

Lee Bettenhausen, Chief, Operations Branch, DRS
Rich Conte, Chief, BWR Section, Operations Branch
Herb Williams, Senior Operations Engineer, DRS
Sam Hansell, Operations Engineer, DRS
Art Burritt, Operations Engineer, DRS
Carl Sisco, Operations Engineer, DRS
Bill Maier, Operations Engineer, DRS

Niagara Mohawk Power Corporation

Robert Smith, Manager, Training - Nuclear
Robert Sanaker, General Supervisor - Operations Training, Unit 1
Richard Slade, General Supervisor - Operations Training, Unit 2