

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-254/OL-92-01

Docket Nos. 50-254; 50-265

License No. NPF-62

Licensee: Commonwealth Edison Company
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: Quad Cities Nuclear Power Station

Examination Administered At: Quad Cities Nuclear Power Station

Examination Conducted: (Initial) March 2 - 13, 1992
(Regual Retake) March 2, 9, 10, 1992

Examiners: J. Hammer, Pacific Northwest Laboratories (PNL)
M. Mitchell, PNL

Chief Examiner: *D. McNeil* 4/17/92
D. McNeil, RIII Date

Approved By: *D. McNeil for M.J. Jordan* 4/17/92
M. J. Jordan, Chief Date
Operator Licensing Section 1

Examination Summary

The initial examination was administered on March 2-13, 1992, (Report No. 50-254/OL-92-01). The examination was administered to six (6) Reactor Operators (ROs), nine (9) Senior Reactor Operator Instants (SROIs) (personnel not previously licensed at Quad Cities) and one (1) Senior Reactor Operator Upgrade (SROU) (operator previously licensed as an RO at Quad Cities). Examinations were administered in accordance with guidelines of NUREG 1021, Operator Licensing Examiner Standards, Revision 6.

A requalification (regual) retake examination was administered to four licensed operators during the same time period. One (1) RO took the written portion of the retake examination, one (1) RO took the JPM (walkthrough) portion of the retake examination and two (2) SROs took the dynamic simulator scenario portion of the retake examination.

Results:

Fifteen candidates taking the initial examination successfully passed the examination. One Reactor Operator candidate failed the written portion of the initial examination. All four operators taking the regual retake examination successfully passed their respective examinations.

Initial Examination:

The following is the summary of major operator strengths and weaknesses noted during the administration of the examinations.

Strengths (see Section 5 for details)

- Crew communications
- SRO command and control
- Knowledge and use of procedures

Weaknesses (see Section 5 for details)

- Shutdown plant indications
- Knowledge of Station Director Command and Control Authority
- Procedural compliance when more than one method of completing a task is available
- Pre-exam review of written examination

Regualification Retake Examination

Strengths and Weaknesses

Because of the small sampling size, no strengths or weaknesses were noted for the regual retake examinations.

REPORT DETAILS

1. Introduction and Overview

An initial license examination was administered to six (6) ROs, nine (9) SROIs and one (1) SROU at the Quad Cities Nuclear Station (QCNS). A Regualification retake examination was also administered to four licensed operators. The regual retake examination consisted of one RO taking the written portion of the exam, one RO taking the JPM (walkthrough) portion of the exam and two SROs taking the dynamic simulator portion of the exam.

Prior to administration, the initial exam's written examination was reviewed by personnel from the training and operations departments. All but two facility comments were resolved prior to exam administration. See Attachment 3 for post exam review comments and NRC resolution of comments. The simulator scenarios and JPMS were reviewed by personnel from the QCNS training department. All comments concernin the scenarios and JPMS were resolved prior to administering the operating examinations. All licensee individuals involved with the review of the examination materials signed security agreements to ensure that there was no examination compromise.

2. Examiners

D. McNeil, Chief Examiner, RIII NRC
J. Hammer, Pacific Northwest Laboratories
M. Mitchell, Pacific Northwest Laboratories

3. Persons Contacted

Facility Representatives

*Richard Bax, Station Manager
*Brian Stoub, Assistant Supt. Operations
+*Roger Armitage, Initial License Training Group Leader
*Dave Boyles, EOP Coordinator
+*Kenneth Gerling, Operations Training Supervisor
+*Wiley Graham, Simulator Training Supervisor
+*John Hoeller, Training Supervisor
*Al Pedersen, UESC
+*Timothy Schares, Operations Training Group Leader
*Joseph Sirovy, Services Director
+*Michael Swegle, License Instructor
+*Chris Symonds, Regualification Training Group Leader

NRC Representatives

- *P. Prescott, NRC Resident Inspector
- *J. Shine, NRC Resident Inspector
- +*M. Jordan, Chief, Operator Licensing Section 1, RI:1

+Denotes those present at the Training Staff Pre-exam meeting on March 13, 1992.

*Denotes those present at the Management exit meeting on March 13, 1992.

4. Summary of Results

<u>INITIAL LICENSE</u>	<u>WRITTEN Pass/Fail</u>	<u>OPERATING Pass/Fail</u>	<u>OVERALL Pass/Fail</u>
SROU	1/0	1/0	1/0
SROI	9/0	9/0	9/0
RO	5/1	6/0	5/1

<u>REQUAL LICENSE</u>	<u>WRITTEN Pass/Fail</u>	<u>OPERATING Pass/Fail</u>	<u>OVERALL Pass/Fail</u>
SRO	N/A	2/0	2/0
RO	1/0	1/0	2/0

5. Operating/Written Examination Strengths and Weaknesses

The following is a summary of generic strengths and weaknesses noted on the operating/written portions of the initial licensing examination. This information is being provided as input to the licensee's SAT based initial license and requalification training programs. No licensee response is required.

Strengths

- Crew communications were consistently clear and complete with multiple repeat-backs to ensure accuracy.
- SROs demonstrated good control room command and control throughout the simulator scenarios.
- Knowledge and use of procedures was consistently good. Operators consistently selected the right procedures for surveillance follow-up as well as during emergencies.

- EOPs were constantly re-evaluated to determine if conditions warranted re-entry into the procedures.

Weaknesses

- Indications of a shutdown plant was determined to be a significant weakness. Five out of six candidates were not able to correctly state what value Source Range Monitors (SRMs) should read during plant refueling and shutdown conditions. This is significant in that an approach to criticality could be made during refueling and these individuals would not be able to properly assess the condition of the core. The recent Nine-Mile event, where rod position indication was lost with a reactor scram, clearly demonstrated the need for operators to be able to evaluate nuclear instrumentation for shutdown information.
- While operators were knowledgeable about SRO control room command and control, they were weak on Station Director command and control authority assumed during execution of the Quad Cities Nuclear Station emergency plan. Specifically, several candidates were unable to state who could authorize ingestion of potassium iodide (KI) or who could authorize personnel to receive radiation doses in excess of 10 CFR 20 guidelines. Some of these individuals were SROs who could find themselves in a situation where they would be called upon to authorize these actions. Failure to authorize these actions could result in increased risk to the health and safety of Quad Cities Nuclear Station employees.
- During the JPM (walkthrough) portion of the examination candidates were asked to shutdown (scram) the reactor from outside the control room (simulated). The candidates used QOA 010-5, Rev. 10 as a procedure to direct their activities. The procedure directs the operators to open the breakers in the RPS Distribution Panels which supply power to panels 901-15 and 901-17 in the control room. Three of four operators incorrectly opened the RPS bus power supply breaker that is upstream of the breakers in the RPS Distribution Panels. Although tripping the power supply breaker does scram the reactor, it does not display procedural compliance. The concern raised by this action is that under other circumstances there may be another load supplied by the upstream breakers that is necessary for safe shutdown and would have been deenergized by personnel opening the wrong breaker.

- Some operators were unfamiliar with fuel bundle orientation when refueling the reactor core. Although QCNS uses a fuel handling crew to perform refuelings, any SRO licensed individual is allowed to conduct core refuelings. If these individuals were allowed to conduct core refuelings, the bundles could be mis-aligned, resulting in portions of the core exceeding established thermal limits. This represents a challenge to a fission product barrier.
- Initial license candidates were not familiar with 10 CFR 20 radiation dose limits. All were familiar with the QCNS administrative limits, but faltered when asked about federal limits, both on the written examination and during the walkthrough portion of the exam.
- Several of the P&IDs used during the exam process had mistakes on them. For example, some of the Reactor Water Clean Up P&ID transfer arrows have inappropriate coordinate references. This caused confusion when operators attempted to use the P&ID.
- During the control room walkthrough, operators were asked to start RCIC under emergency conditions. The start pushbutton had been disabled preventing pushbutton start. When operators reported back that the pushbutton had failed, they were directed to start RCIC manually. Three operators took more than 5 minutes to manually initiate RCIC. One of the three took 35 minutes to complete RCIC initiation. This was judged to be unsatisfactory due to the excessive time required to start an emergency system. Failure to expeditiously initiate emergency systems during a casualty, could lead to a challenge to a fission product barrier.
- QCNS operations and training personnel reviewed the written examination prior to administering the examination. During the post exam review eight questions on the RO test and nine questions on the SRO test were found to have two correct answers. The pre exam review is QCNS' opportunity to see and correct material presented by the NRC thus providing a more discriminating examination for QCNS personnel. The pre-exam review should have discovered more of the exam deficiencies.

6. Generic Examiner Comments:

- Plant Housekeeping was good considering there is a refueling outage in progress.

- Plant personnel in the Operations and Rad Protection Departments were extremely helpful in assisting the exam team in completing the examination in a timely manner.
- Training department personnel assigned to the initial examination were extremely helpful in assisting the exam team with the examination. Their efforts made the examination a smooth and effective examination.
- The Unit 2 control room copy of tech specs is illegible. A suggestion to replace that copy of tech specs was made.

7. Exam Materials

Exam preparation materials provided were adequate to facilitate exam development. It is noted that the licensee did not take advantage of the opportunity to include materials from their exam bank (question and JPM banks). This was provided immediately upon request by the training department. Training department personnel stated they thought the material had been provided with the other materials requested in the 90-day letter.

8. Plant Specific Simulation Facility

The simulator performed well. At one point during the dynamic scenarios the simulator computer halted. Recovery did not affect the candidates or the progression of the scenario. Enclosure 4 provides NRC comment concerning simulator response during the examination.

9. Exit Meeting

The following items were discussed during the exit meetings:

- The strengths and weaknesses noted on the operating examination. (See Section 5)
- The observations made by the examiners during exam administration. (See Sections 6 and 7)
- Regualification Retake Results. (See Enclosure 5)
- The initial exam results would be contained in the examination report and that every effort would be made to send the results within 30 working days.

ENCLOSURE 2

FACILITY COMMENTS AND NRC RESOLUTION OF COMMENTS

NRC response to facility post examination comments on the RO/SRO initial written examination administered on March 2, 1992.

QUESTION: RO No. 6

An MSIV isolation and reactor scram have occurred after a long run at 100% power. ADS valves are cycling. WHICH ONE (1) of the following states the reason that QGA 100 (Reactor Pressure Vessel) directs reactor pressure be lowered to 940 psig under these conditions?

- a. Controls RPV pressure so within the capability of high pressure injection systems to inject.
- b. Prevents subsequent reactor scram signals due to high pressure.
- c. Lowers pressure to a value corresponding to main turbine bypass valves being 100% open.
- d. Controls RPV pressure below the lowest lifting ADS relief valve setpoint.

ANSWER: d.

REFERENCE:

1. Quad Cities QDCEX 125, Page 46 of 55
2. KA 295007K304

FACILITY COMMENT:

Reactor operator candidates are not required to know the basis for procedural steps. The recall of EOP bases is considered SRO knowledge and as such we do not hold our RO's accountable for this information.

FACILITY RECOMMENDATION:

Delete Question No. 6 from the RO exam.

REFERENCE:

QAP 300-1 p. 14 and 17

NRC RESOLUTION:

Comment accepted. Question No. 6 is deleted from the RO exam.

QUESTION: RO No. 74

WHICH ONE (1) of the following states the reason that drywell sprays are not initiated with torus level above 17 feet?
Above 17 feet:

- a. chugging would occur in the downcomers that connect the drywell and torus.
- b. the torus to drywell vacuum breakers are covered and spraying the drywell could cause excessive negative pressure in the drywell.
- c. spraying the drywell would cause the Reactor Building to torus vacuum breakers to open, re-inerting the containment.
- d. the free air (nitrogen) volume above the suppression pool is inadequate to refill the drywell if it's atmosphere is mostly steam when sprays are initiated.

ANSWER: b.

REFERENCE:

1. Quad Cities ILT QGA 200 lesson plan, p. 10, B.2.b
2. QGA 200 lesson plan, obj. 4
3. KA 295012G003

FACILITY COMMENT:

Reactor operator candidates are not required to know the basis for procedural steps. The recall of EOP bases is considered SRO knowledge and as such we do not hold our RO's accountable for this information.

FACILITY RECOMMENDATION:

Delete Question No. 74 from the RO exam.

REFERENCE:

QAP 300-1, p. 14 and 17

NRC RESOLUTION:

Comment accepted, question No. 75 is deleted from the RO exam.

QUESTION: RO No. 75

WHICH ONE (1) of the following states the reason that the reactor is scrammed if torus water level cannot be maintained below the ADS Valve Tail Pipe limit?

- a. To reduce core heat and steam generation to decay heat levels, assisting in holding plant conditions below the ADS Valve Tail Pipe Limit.
- b. To reduce the probability of an ERV actuation, which would cause chugging in the ADS Valve Tail Pipe.
- c. To prevent reactor pressure from exceeding a safety limit if an ADS valve were to lift.
- d. To allow Emergency Depressurization if torus level continues to rise.

ANSWER: a.

REFERENCE:

1. Quad Cities ILT QGA 200 lesson plan, p. 36, c.1
2. KA 295029K303

FACILITY COMMENT:

Reactor operator candidates are not required to know the basis for procedural steps. The recall of EOP bases is considered SRO knowledge and as such we do not hold our RO's accountable for this information.

FACILITY RECOMMENDATION:

Delete Question No. 75 from the RO exam.

REFERENCE:

QAP 300-1 p. 14 and 17

NRC RESOLUTION:

Comment accepted, Question No. 75 is deleted from the RO exam.

QUESTION: RO No. 98

QGA-200 Primary Containment Control directs that HPCI operation be prevented if suppression pool level cannot be held above 11 feet. QGA-200 allows operation of the RCIC regardless of suppression pool level. WHICH ONE (1) of the following states the reason for this?

- a. The RCIC exhaust steam discharge is lower than the 11 foot level of the HPCI discharge.

- b. The amount of energy that the RCIC exhaust will put into the containment is approximately equal to decay heat and is within the capacity of the containment vent.
- c. The RCIC turbine is much more efficient than the HPCI turbine and the exhaust steam from RCIC cannot raise torus temperature above 110F.
- d. The RCIC turbine will trip on high steam flow if it's exhaust into the suppression pool is uncovered.

ANSWER: b.

REFERENCE:

- 1. Quad Cities ILT QGA 200 lesson plan, p. 42, d.(1).(b).3).a)
- 2. KA 295029K303

FACILITY COMMENT:

Reactor operator candidates are not required to know the basis for procedural steps. The recall of EOP bases is considered SRO knowledge and as such we do not hold our RO's accountable for this information.

FACILITY RECOMMENDATION:

Delete question No. 98 from the RO exam.

REFERENCE:

QAP 300-1 p. 14 and 17

NRC RESOLUTION:

Comment accepted, Question No. 98 is deleted from the RO exam.

QUESTION: SRO No. 16/RO No. 18

WHICH ONE (1) of the following would DEFEAT manual opening of the Torus Cooling and Test Line Valves MO-1001-34A(B) and 36A(E)?

- a. Reactor water level -59"
- b. LPCI initiation
- c. Drywell pressure less than 1 psig
- d. Containment Spray initiation

ANSWER: b.

REFERENCE:

1. Quad Cities ILT 1000 III.B.2.j. p. 50
2. Objective 9.1
3. KA 226001K102

FACILITY COMMENT:

"A" is also correct. -59" is a LPCI initiation signal.

Sufficient information to eliminate "A" as an answer is not provided i.e., how long has level been at -59" and the current value of Reactor pressure.

FACILITY RECOMMENDATION:

Accept a. and b. as correct answers.

REFERENCE:

QCOA 1000-4 Section B.2. Rev. 2
LIC 1000

NRC RESOLUTION:

Comment accepted, a. and b. are accepted as correct answers.

QUESTION: SRO No. 17/RO No. 19

A LPCI initiation signal has occurred. The Containment Cooling Permissive switch is ON with the drywell spray valves open. WHICH ONE (1) of the following sets of conditions will cause the drywell spray valves to automatically close?

- a. Drywell pressure at least 5 psig, with Reactor water level -138 inches.
- b. Drywell pressure at least 1 psig, with Reactor water level -195 inches.
- c. Drywell pressure at least 5 psig, with Reactor water level -184 inches.
- d. Drywell pressure at least 1 psig, with Reactor water level -178 inches.

ANSWER: b.

REFERENCE:

1. Quad Cities ILT 1000 III.B.2.i. p. 50

2. Objective 12.b
3. KA 226001A101

FACILITY COMMENT:

"D" is also correct. 1 psig in the Drywell will interlock the valves closed regardless of the position of the Containment Cooling permissive switch. Since the question reads "at least 1 psig" the candidate may assume that drywell pressure IS 1 psig therefore, the drywell spray valves will automatically close even though Reactor level is above 2/3 core height. This comment was accepted on the SRO exam and should be accepted on the RO exam.

FACILITY RECOMMENDATION:

Accept "B" and "D" as correct answers.

REFERENCE:

QCOP 1000-8 Section F.3. rev. 1

NRC RESOLUTION:

Comment accepted, b. and d. are accepted as correct answers.

QUESTION: SRO No. 25/RO No. 29

Given the following plant conditions:

- Unit 1 has tripped.
- Several rod positions on the full core display have no numbered position indications, and only a green background.

WHICH ONE (1) of the following describes their positions?

- a. They are fully inserted with failed position 00 reed switches.
- b. They are somewhere between the 00 position and the 48 position and driving in as a result of the scram signal.
- c. They are fully inserted and have over traveled beyond full in as a result of the scram signal.
- d. They have become uncoupled from their CRDs.

ANSWER: c.

REFERENCE:

1. Quad Cities II.E. p. 10 and 12 of 51
2. Objective 6
3. KA 214000A402

FACILITY COMMENT:

"A" is also correct. The stem does not state whether the scram is reset. If the scram is reset "A" is correct. If not, "C" is correct. Additionally, it is conceivable that those 00 reed switches have failed.

FACILITY RECOMMENDATION:

Accept "A" and "C" as correct answers.

REFERENCE:

LIC 281, LIC 300-1 and LIC 300-2

NRC RESOLUTION:

Comment accepted, a. and c. are accepted as correct answers.

QUESTION: SRO No. 27/RO No. 34

Given the following Unit 1 plant condition:

- Reactor power = 23%
- Generator Output = 23%
- Reactor Pressure = 932 psig
- Pressure Setpoint = 920 psig
- Turbine RPM = 1800
- Load Limit = 105%
- Maximum Combined Flow = 115%

WHICH ONE (1) of the following describes the plant response when a nongrounded fault occurs on the grid side of OCB 6-7? (OCBs 4-6 and 6-7 have opened to provide protection.)

- a. No turbine trip and no reactor scram
- b. No turbine trip but reactor scram
- c. Turbine trip but no reactor scram
- d. Turbine trip and reactor scram

ANSWER: a.

REFERENCE:

1. Quad Cities LIC 5100/5600 IV.B. pp. 53 of 70
2. Objective 19
3. KA 245000A312

FACILITY COMMENT:

There is not enough information in the stem to answer the question i.e., OCB noun names were not provided. The station does not expect memorization of the switchyard OCBs.

FACILITY RECOMMENDATION:

Delete the question No. 27 from the SRO exam and question No. 34 from the RO exam.

NRC RESOLUTION:

Per telecom with the On-duty Shift Engineer at QCNS, operations directs breaker switching by using OCB numbers and not noun names. Therefore, the facility's recommendation is rejected.

QUESTION: SRO No. 37/RO No. 48

Given the following plant conditions:

- Unit 1 has scrammed.
- Reactor pressure has been maintained at 780 psig for the last hour.
- Cool down of the RPV has been directed.

WHICH ONE (1) of the following is the minimum pressure that the reactor may be reduced to after one hour of cool down?

- a. 322 psig
- b. 336 psig
- c. 351 psig
- d. 366 psig

ANSWER: b.

REFERENCE:

1. Tech Spec. 3.6.A.1
2. Steam Tables
3. KA 294001A108

FACILITY COMMENT:

There is no correct answer to this question. Apparently the stem should read 880 psig instead of 780 psig for "B" to be the correct answer. However, with the distractors given, answer "A" is the most correct.

FACILITY RECOMMENDATION:

Change the answer key from "B" to "A".

REFERENCE:

Steam Tables

NRC RESOLUTION:

Comment accepted, answer key is modified to accept only a. as the correct answer.

QUESTION: SRO No. 38

Given the following conditions:

- A barrel containing contaminated cleaning material must be stored in the Unit 2 turbine floor outside turbine shielding.
- The dose is 3 mr/hr at three feet.
- Radiation Protection has erected a temporary fence around the area.

WHICH ONE (1) of the following is the classification of the fenced in area?

- a. Temporary Storage Area
- b. Radiation Area
- c. High Radiation Area
- d. Contamination Area

ANSWER: b.

REFERENCE:

1. QRP 1000-1 rev. 10 pp. 3
2. KA 294001K103

FACILITY COMMENT:

There is no correct answer to this question. Since the Turbine

floor is a Radiation Area no additional posting is required. None of the other distractors would apply to the given conditions.

FACILITY RECOMMENDATION:

Delete Question No. 38 from the SRO exam.

REFERENCE:

None provided by the facility

NRC RESOLUTION:

The question does not address posting. It asks for area classification, which is a radiation area (answer b.) However, QRP 1000-1, p. 37, Indoor Storage of Contaminated Waste Materials, states contaminated materials must be stored in a properly posted and controlled storage area. The Signs section of QRP 1000-1 states if a barrier is erected as indicated in this situation, the additional posting "Storage Area" is needed. In a telecom with the Quad Cities Rad Protection Supervisor, he indicated the facility would regard the area as a temporary storage area (answer a.). The facility comment to delete the question is rejected. However, the answer key is modified to accept answers a. or b. as correct answers.

QUESTION: SRO No. 43/RO No. 53

WHICH ONE (1) of the following is an accurate statement regarding the use of tags at the Quad Cities 1 and 2 Generating Stations?

- a. The white with red letters and a red border tag is used to ensure the protection of personnel and/or equipment; equipment with this tag should not be operated under any circumstances.
- b. The white with red letters and a red cross-hatched border tag is attached to a Master OOS Card by the personnel using the Master OOS Card for protection.
- c. The white with blue letters and a blue border tag is used for equipment protection during the period of time that Associate OOS Cards have been temporarily lifted from a component.
- d. The white Bakelite tag with red letters and a RED tag is used for equipment protection during the period of time that Associate OOS Cards have been temporarily lifted from a component.

ANSWER: d.

REFERENCE:

1. QAP 300-14 rev. 30 C. pp. 1 & 2
2. KA 294001K102

FACILITY COMMENT:

"A" is also correct. Distractor "A" technically describes a Master OOS Card. Production Instruction 1-3-A-1 states the Master Card may be attached to an isolation device. Additionally, although the Associate cards are technically "red cross-hatched borders" they are none-the less red borders as described in distractor "A". A candidate could easily assume this as the correct answer.

FACILITY RECOMMENDATION:

Accept "A" and "D" as correct answers.

REFERENCE:

Production Instruction 1-3-A-1 and QAP 300-14

NRC RESOLUTION:

Comment accepted, a. and d. are accepted as correct answers.

QUESTION: SRO No. 46/RO No. 57

Given the following plant conditions:

- RPV level 10 inches
- Drywell pressure 3 psig
- RPV pressure 1050 psig
- Drywell temperature 170F
- Reactor power 2%

WHICH ONE (1) of the following correctly states the QGA procedures that should be entered?

- a. QGA 101 and QGA 200
- b. QGA 101 and QGA 200-5
- c. QGA 100 and QGA 200
- d. QGA 100 and QGA 200-5

ANSWER: c.

REFERENCE:

1. Quad Cities QGA 100, 200, 200-5 and 300 flow charts

2. KA 295024G011

FACILITY COMMENT:

"A" is also an acceptable response. Power would not be at 2% unless all rods are not in. Operators are trained to place a high priority on power control actions during any major event. Positive confirmation the reactor will remain shutdown under all conditions is best obtained by determining that no control rods are withdrawn past 04. The operator assumes all rods are in, with the given conditions, the reactor would continue in QGA 100. The operator may assume the question is asking what procedures are in effect under current plant conditions. The stem should end with "Entry conditions have been reached for which ONE (1) of the following QGAs?" in order for "C" to be the only correct answer.

FACILITY RECOMMENDATION:

Accept "A" and "C" as correct answers.

REFERENCE:

QCAP 200-10 p. 2
Lesson plan on QGA 100 Control p. 8.

NRC RESOLUTION:

Comment accepted, a. and c. are accepted as correct answers.

QUESTION: SRO No. 50/RO No. 65

Core Spray Pump 2A is running with a flow of 4,700 gpm.
Torus conditions are:

- Level is normal. (+1 inch)
- Temperature is 190 deg-F.
- Pressure is 5 psig.

WHICH ONE (1) of the following statements is correct? (no direction has been given to violate NPSH or vortex limits).

- a. Flow must be lowered to 4,000 gpm.
- b. Flow is acceptable as is.
- c. Flow must be lowered to 3500 gpm.
- d. Core Spray must be secured.

ANSWER: a.

REFERENCE:

- 1. Quad Cities QGA 100, Detail QGA-D3, Rev 1
- 2. KA 295030K102

FACILITY COMMENT:

"C" is also correct. QGA 100 directs the operator to maintain flow below the value of the curve. Both "A" and "C" are below this curve.

FACILITY RECOMMENDATION:

Accept "a" and "c" as correct answers.

REFERENCE:

QGA 100, Detail QGA-D3

NRC RESOLUTION:

Comment accepted, a. and c. are accepted as correct answers.

QUESTION: SRO No. 72/RO No. 83

The plant is running at 100% power. Main condenser vacuum is decreasing due to air inleakage. WHICH ONE (1) of the following is the reason that the mechanical vacuum pump cannot be used to assist in maintaining vacuum with the mode switch in RUN?

- a. The pump will experience air binding.
- b. An explosion could occur.
- c. The pump will exceed design loads.
- d. The pump is interlocked OFF when the mode switch is in RUN.

ANSWER: b.

REFERENCE:

- 1. Quad Cities ILT 5450 Rev o, p. 24, II.Q.6
- 2. Quad Cities ILT 5450 Objective 6.g
- 3. KA 295025G007

FACILITY COMMENT:

"D" is also an acceptable answer. QCOP 1-1 step x. states that when SJAE are operating and main condenser backpressure is < 7" Hg. then verify the condenser mechanical vacuum pump automatically trips. One of the things to verify prior to placing the mode switch to RUN is that main condenser backpressure <7" Hg. Therefore when the mode switch is in RUN condenser vacuum must be at a value such that the mechanical vacuum pump would be interlocked off.

FACILITY RECOMMENDATION:

Accept "B" and "D" as correct answers.

REFERENCE:

QCGP 1-1 Rev. 0 step x. and step kk.(4) p. 35

NRC RESOLUTION:

The E-print for the condenser vacuum pump does not show contacts associated with the mode switch. There is no direct interlock between the vacuum pump and the mode switch. Therefore, the facility's comment is rejected.

STION: SRO No. 73/RO No. 85

A control rod block has occurred. Scanning the panels results in the following observations:

- Source range monitor (SRM) channel 22 is reading about 95 counts per second (cps)
- All other channels are reading greater than 1.90×10^4 cps
- All SRM detectors have been withdrawn to about 70% in
- Intermediate range (IRM) channel 16 detector is on range 2
- All other IRM channels are on range 3

WHICH ONE of the following states the cause of the rod block?

- a. SRM downscale
- b. Inoperable SRM channel
- c. Detector retract not permitted
- d. SRM upscale high

ANSWER: c.

REFERENCE:

1. Quad Cities ILT 0700-1 Source Range Monitoring System V.A.2
2. Objective 14
3. KA 215004A105

FACILITY COMMENT:

There is no correct answer to this question. The SRM downscale trip is bypassed when the associated IRM's are on range 3 or above. For SRM 22, the associated IRM's are 11, 12, 13, and 14. IRM 16 has no effect.

FACILITY RECOMMENDATION:

Delete the question.

REFERENCE:

4E-1411 and 4E-1455

NRC RESOLUTION:

Question No. 73 on the SRO exam and question No. 85 on the exam is deleted.

QUESTION: SRO No. 78/RO No. 88

Given the following plant conditions:

- Unit 1 is increasing power from 80% to 100% using control rods.
- Channel A of the rod block monitor (RBM) is bypassed and is not available.
- Channel B becomes inoperable.

WHICH ONE (1) of the following actions would you direct the operator to follow?

- a. Place the operable RBM channel in the tripped condition within 1 hour.
- b. Restore the inoperable RBM channel to operable status within 48 hours.
- c. Verify the reactor is not operating on a limiting control rod pattern.
- d. Reduce power with recirculation flow and continue rod withdrawal.

ANSWER: c.

REFERENCE:

- 1. Quad Cities ILT 0700-5 VII. C.2. pp. 36 of 41
- 2. Tech Spec. 3.3.B.5
- 3. Objective 15
- 4. KA 215002G011

FACILITY COMMENT:

There is no correct answer to this question. With both Rod Block Monitors INOP, rod withdrawal must be blocked regardless of whether a limiting control rod pattern exists.

FACILITY RECOMMENDATION:

Delete question No. 78 from the SRO exam and question No. 88 from the RO exam.

REFERENCE:

QOS 700-5, Rev. 5

NRC RESOLUTION:

The facility comment is rejected. ILT 700-5 page 36 discusses the requirements for the Rod Block Monitor and uses or statements to describe the requirements needed for the RBMs. The candidates were given a copy of Technical Specifications. Tech Spec 3.3.B.5 describes the correct response as c.

QUESTION: SRO No. 91/RO No. 95

WHICH ONE (1) of the following indicates the correct response to a rapid uncontrolled loss of water from the reactor cavity while fuel movement is in progress?

- a. Evacuate the refuel floor immediately and prevent refuel floor entry.
- b. If time permits raise the loaded fuel prep machine to its highest position.
- c. Place the fuel bundle being moved in the nearest fuelpool rack location prior to evacuation of the refuel floor.
- d. Leave the refuel floor after notification the Shift Engineer and the Control Room NSO.

ANSWER: a.

REFERENCE:

1. Quad Cities ILT 800 License Training Refuel Lesson, Rev. 0, page 48.
2. KA 295023A204

FACILITY COMMENT:

"C" is also a correct answer. The Immediate Operator Actions of QOA 1900-1, Loss of Water in the Spent Fuel Storage Pool or Reactor Cavity, and Level Decreasing, states, "If spent fuel is being moved in the cavity or fuel pool, immediately have the bundle placed in storage at the nearest location (in a fuel rack

or in the correct core location as per the Nuclear Component transfer list)." The Subsequent Operator Actions of this procedure then directs the evacuation of unnecessary personnel from the Reactor Building. Depending on HOW rapid and uncontrolled the loss of level, this could be the correct action to take.

FACILITY RECOMMENDATION:

Accept "A" and "C" as correct answers.

REFERENCE:

QOA 1900-1, Rev. 5.

NRJ RESOLUTION:

Comment accepted, a. and c. are accepted as correct answers.

QUESTION: SRO No. 98/RO No. 100

A loss of offsite power has occurred. Previously the plant was running at 100% power, 100% flow. While supervising the performance of the scram procedure, you notice the following conditions:

- Reactor level is +10 inches.
- Reactor power reads 2.5% on APRMs.
- Reactor pressure is 1075 psig.
- Drywell pressure is 2 psig.
- Drywell temperature is 170F

WHICH ONE (1) of the following QGA's must you enter?

- a. QGA 100 and QGA 200
- b. QGA 100 only
- c. QGA 101 and QGA 200
- d. QGA 101 only

ANSWER: b.

REFERENCE:

1. Quad Cities QGA flow charts, 100, 200, and 101, Rev. 1
2. KA 295025G011

FACILITY COMMENT:

"D" is also an acceptable response. Power would not be 2.5% unless all rods were NOT in. Operators are trained to place a high priority of power control actions during any major event. Positive confirmation the reactor will remain shutdown under all conditions is best obtained by determining that no control rods are withdrawn past 04. If the operator assumes all rods are in, with the given conditions, he would continue in QGA 100. The operator may assume the question is asking what procedures are in effect under current plant conditions. The stem should end with "Entry conditions have been reached for which ONE (1) of the following QGAs?" in order for "B" to be the only correct answer.

FACILITY RECOMMENDATION:

Accept "B" and "D" as correct answers.

REFERENCE:

QCAP 200-10 p. 2
Lesson plan on QGA 100, RPV Control p. 8

NRC RESOLUTION:

It is noted that the question is worded such that an operator can assume control rods are fully inserted (reactor power is 2.5% and decaying after the scram) or some rods are not fully inserted. This allows both answers b. and d. to be correct. Therefore the answer key is amended. Both b. and d. are accepted as correct answers.

ENCLOSURE 4

SIMULATION FACILITY REPORT

Facility Licensee: Commonwealth Edison Company,
Quad Cities Station

Facility Licensee Docket No. 50-254; 50-265

Operating Tests Administered On: March 3 - 13, 1992

During the conduct of the simulator portion of the operating tests, the simulator was noted to work well. The simulator halted once during the examination, but was restored to operating status by training personnel in an expeditious manner. No specific problems were noted concerning simulator fidelity or modelling problems.

ENCLOSURE 5

REQUALIFICATION PROGRAM EVALUATION REPORT (RETAKE)

Facility: Quad Cities Nuclear Power Station

Examiners: D. McNeil, Chief Examiner, RIII

Dates of Evaluation: March 2 - 10, 1992

Areas Evaluated: X Written X Oral X Simulator

Examination Results:

	<u>RO</u> <u>Pass/Fail</u>	<u>SRO</u> <u>Pass/Fail</u>	<u>Total</u> <u>Pass/Fail</u>	<u>Evaluation</u> <u>(S or U)</u>
Written Examination	1/0	N/A	1/0	S
JPMs (walkthrough)	1/0	N/A	1/0	S
Simulator	N/A	2/0	2/0	S
Evaluation of facility written examination grading				S

Crew Examination Results:

	<u>Crew 1</u> <u>Pass/Fail</u>	<u>Evaluation</u> <u>(S or U)</u>
Operating Examination	Pass	S

Overall Program Evaluation

Satisfactory N/A Unsatisfactory N/A

*NOTE: Due to the small sampling size no Training Program review was performed.

Submitted:

D. McNeil
D. McNeil
Examiner
04/17/92

Forwarded:

M. Jordan
M. Jordan
Section Chief
04/17/92

Approved:

G. Wright
G. Wright
Branch Chief
04/20/92