

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-237/OL-92-01

Docket Nos. 50-237; 50-249

License Nos. DPR-19; DPR-25

Licensee: Commonwealth Edison Company  
Licensing Department - Suite 300  
Opus West III  
1400 Opus Place  
Downers Grove, IL 60515

Facility Name: Dresden Nuclear Power Station

Examination Administered At: Dresden Training Center  
RR#1  
Morris, Illinois

Examination Conducted: July 10 and July 13-17, 1992

RIII Examiner: M. Leach

H. Peterson

Examiners: G. Buckley, Contract Examiner, PNL

K. Mikkelsen, Contract Examiner, PNL

Chief Examiner:

R. L. Doornbos  
R. L. Doornbos

Aug 31, 1992  
Date

Approved By:

M. J. Jordan  
M. J. Jordan, Chief  
Operator Licensing Section 1

Aug 31, 1992  
Date

Examination Summary

Examination Administered on July 10 and July 13 - 17, 1992  
(Report No. 50-237/OL-92/01)

Written and operating examinations were administered to 4 Reactor Operator (RO), 5 Senior Reactor Operator Instant (SROI), and 3 Senior Reactor Operator Upgrade (SROU) candidates.

Examinations were administered in accordance with the guidelines of NUREG 1021, Operator Licensing Examiner Standards, Revision 6.

Results: All candidates passed the examination.

During exam preparation the NRC became aware of the licensee's limited expectations on licensed operator administrative task knowledge. Specifically, the licensee did not require candidates to know basic administrative activities without the use of

procedures. For example, operators did not know how to sign off a procedural step that was performed outside the control room (e.g., valve alignment for a surveillance) nor were they required to know logging requirements.

10 CFR 55.41 prescribes that individuals will be examined on administrative procedures. The K&A catalog for BWR's (NUREG 1123) identifies the importance ratings for administrative topics. NUREG-1021, Examiner Standards prescribes that a specific portion of both the written and operating exams will be made up of administrative topics. We are concerned that the Dresden Station does not expect operators to maintain a base level of knowledge in this area.

## REPORT DETAILS

### 1. Examiners

- \*R. Doornbos, Chief Examiner, NRC Region III
- H. Peterson, Examiner, Region III
- M. Leach, Examiner, Region III
- G. Buckley, Contract Examiner, Pacific Northwest Laboratories (PNL)
- K. Mikkelsen, Contract Examiner, PNL

### 2. Persons Contacted

#### Facility

- \*M. Korchynsky, U-3 Operating Engineer
- \*K. Cox, ILT Group Leader (PTD)
- \*K. Garling, Operations Training (PTD)
- \*R. Oswald, Operations Training
- \*D. Schavey, Simulator Training Supervisor
- \*R. Weidner, Training Supervisor

#### U. S. Nuclear Regulatory Commission (NRC)

- \*M. J. Jordan, Chief, Operator Licensing Section 1
- \*M. Peck, Resident Inspector
- L. Vick, Examiner, Operating Licensing Branch, NRR
- \*A. Vegel, Resident Inspector (Perry)

\*Denotes those present at the Management exit meeting on July 20, 1992.

### 3. Initial Training Program Observations

The following information is provided for evaluation by the licensee via their SAT based training program. No response is required.

#### a. Written Examination

##### Strengths:

None observed

##### Weaknesses:

- The reference material initially provided to the NRC examination team was incomplete. Missing items included: administrative procedures, refueling procedures, radiation protection procedures, EOP contingency procedures, EOP lesson plans and EOP basis documents.

The licensee's policy on the required level of operator knowledge of administrative topics is inconsistent with 10 CFR 55.41, the guidance provided in NUREG/BR-0122, Revision 5, Examiners' Handbook for Developing Operating Licensing Written Examinations, and with other Commonwealth Edison nuclear sites. A significant portion of the operator's duties is governed by administrative procedures and each candidate must demonstrate a working knowledge of these topics as part of the licensing process.

The licensee's comment to all administrative exam questions was "We do not expect operators to memorize administrative procedures. There is never a case where the operator would not be able to reference the DAP if any doubt existed." As stated in DAP 7-2, Dresden Station requires the operator to have the procedure "at hand" and if there is any doubt, the procedure should be utilized.

For example, the operators were not required to know:

- how to sign off a procedural step that was performed outside the control room (e.g., valve alignment for a surveillance)
- whether a Hi APRM alarm is to be logged
- SPDS color codes indicating bad input

b. Operating Examination

Strengths:

- The operators were familiar with plant equipment locations.
- At the end of a dynamic simulator scenario, an actual electrical fire occurred in an annunciator panel. The simulator staff's recovery from the fire was professional and commendable. Exam delay time was minimal.

Weakness:

Consistent with the administrative weaknesses identified in 3.a, candidates showed weaknesses in the administrative section of the walkthrough examination. Some candidates were not aware that the walkthrough

examination included an administrative section. For example, the operators:

- did not know the methods of independent verification of valve stem position;
- When they were allowed to operate outside of Technical Specifications; and
- were unable to determine the core operating characteristics from the OD-1 computer print out.

4. General

a. Training

The training program was observed to be adequately and competently staffed. This is based on the support personnel provided for the written examination review and the operating examination.

The licensee provided post-examination comments for the written examination. The comments and resolutions are included in Enclosure 2.

b. Operations, Security, Rad Protection, Other

The examination team brought to the licensee's attention a number of procedure discrepancies. The most significant discrepancies were:

- DOP 1700-11 is less conservative than Tech Specs with regard to the available time for grab samples analysis.
- DOS 1700-01 checks for a scram alarm during a Main Steam Line Radiation Monitor surveillance but does not check to see that the RPS Group lights go out.

Over a three day period, the examination team observed that control room operators were performing few control panels walkdowns. Routine panel walkdowns can provide prompt detection of abnormal trends and conditions.

Delays were experienced at the security access point and dosimetry issue location each day of the walkthrough examination. Delays of this type have a tendency to increase candidate stress levels.

Housekeeping and material condition in the plant were generally satisfactory with the following exceptions:

- Unit 2 Standby Liquid Control tank discharge pipe temperature sensor had been removed from the system and no information tags were evident.
- Oil on the Unit 2 Standby Liquid control pump skid.
- Oil leak on 2B Recirculation Pump MG set.

5. Simulator Observations

Simulator discrepancies are noted in Attachment 3.

6. Exit Meeting

An exit meeting was held on July 20, 1992. Those attending the meeting are listed in Section 2. The following items were discussed:

- Strengths and weaknesses noted in this report.
- The general observations from Section 4.

The results of the examinations were not presented at the exit meeting. The licensee was informed that the results would be documented in the examination report which would be issued within approximately 30 - 45 days.

ENCLOSURE 2

FACILITY COMMENTS AND NRC RESOLUTION OF COMMENTS

NRC response to facility post examination comments on the DRESDEN RO/SRO written examinations administered on July 10, 1992.

QUESTION NO. 1: SRO(12), RO(16)

Which of the following will result in an isolation of the Shutdown Cooling System?

- a. Loss of 120 VAC instrument bus.
- b. Core plate differential pressure > 4 psig.
- c. Shutdown Cooling suction temperature of 350 deg F.
- d. Reactor Water level decreases down to +20 inches.

ANSWER: a

REFERENCE:

- 1. DSLP 48, SDC
- 2. 205000K601 [3.3/3.4]; A203 [3.2/3.2]

FACILITY COMMENT:

Both distractors "a" and "c" are correct answers. The test had answer "a" as being the correct answer. Distractor "c" could also be considered correct for the following reason, the Shutdown Cooling System (SDC) will isolate if the temperature of the recirculation system reaches 350 deg F, this is the same temperature at which the SDC pump's trip on high suction temperature. For the suction temperature of the SDC system to reach 350 deg F, the recirculation loop has to be at 350 deg F which will cause an isolation of the SDC system.

NRC RESOLUTION:

This comment is accepted. During the facility's pre-exam review of the written examination, this question was commented as having "NO CONCERN". The question asked which of the conditions would cause the SDC to isolate, the SDC suction temperature of 350 deg F trips the pumps, it does not cause the isolation of the SDC system. However, the assumed relationship of the recirculation temperature to the SDC suction temperature could result in misunderstanding of the question. The comment is therefore accepted, and either answers "a" or "c" have been given credit.

QUESTION NO. 2: SRO(16)

During refueling operations on Unit 2, the following plant conditions exist:

- \* Irradiated fuel is in the core
- \* Reactor Pressure Vessel (RPV) head is removed
- \* Spent Fuel Pool gates are removed
- \* Fuel Pool water level is above the low level alarm point
- \* LPCI pump "A" failed its pump operability test
- \* LPCI pumps "C" and "D" are INOPERABLE for maintenance
- \* RPV cavity temperature is 142 deg F
- \* Both loops of Core Spray (CS) failed its surveillance test and subsequently determined to be inoperable.

Which one of the following is the correct action and justification for this situation?

- a. Suspend all core alterations, and operations with the potential to drain the RPV. Restore at least one LPCI or CS pump and associated flow path within 4 hours, or establish secondary containment within the next 8 hours.
- b. Restore at least two pumps and associated flow paths to operable status within 4 hours or suspend all operations with a potential for draining the reactor vessel.
- c. No action needs to be taken since RPV head is removed, cavity is flooded with spent fuel pool gates removed, fuel pool water level above low level alarm.
- d. No action needs to be taken because the minimum requirements for low pressure Emergency Core Cooling Systems are met for the reactor in REFUEL conditions.

ANSWER: a

REFERENCE:

1. Dresden Technical Specifications 3.5.f.
2. KA 295023G003 (3.8)

FACILITY COMMENT:

Distractor "a" is incorrect. With the initial conditions given that LPCI pump B is still operable, this makes distractor "b" the correct answer. Technical Specification 3.5.F.3 is the correct reference which should be used.

NRC RESOLUTION:

This comment is accepted, correct answer has been changed to "b".

QUESTION NO. 3: SRO (60)

During an ATWS on Unit 3, operators are unable to maintain reactor level above -143 inches. The SE directs the operators to start lowering reactor water level and "maintain RPV water level between -173 inches and the level to which it was lowered." If level cannot be maintained above -173 inches, the DEOPs directs Emergency Depressurization of the reactor vessel because this is the lowest reactor level that...

- a. will generate sufficient steam to maintain the uncovered clad below 1500 deg F.
- b. will maintain the peak fuel centerline temperature of any fuel pin below 2200 deg F.
- c. can be maintained without noticeable reactor power and level oscillations occurring.
- d. can provide adequate steam generation in the covered portion of the core for steam cooling of the uncovered fuel.

ANSWER: a

REFERENCE:

Lesson Plan, DEOP Failure to Scram Series 400-5,  
Section II.A.6, Objective 2  
DEOP 400-5, Failure to Scram  
KA 295037K209 4.0/4.2 295037A202 4.1/4.2

FACILITY COMMENT:

Both distractors "a" and "d" are correct answers. The test had answer "a" as being the correct answer. Distractor "d" is also correct because -173" is the lowest level that adequate steam cooling can be assured. Reference Dresden Station Lesson Plan, "DEOP Failure to Scram/400-5", page 12 of 40, section II.B.6.a-d.

NRC RESOLUTION:

This comment is accepted. During the facility pre-exam review of the examination, distractor "d" was changed as requested by the facility from "ANY steam cooling" to "ADEQUATE steam cooling". This in turn created two possible correct answers. The comment is accepted and answers "a" and "d" have been given credit.

QUESTION NO. 4: SRO(74)

Which of the following systems/components would NOT require a second (independent) verification when being returned to service?

- a. Discharge Canal Flow Control Valve
- b. 2A Reactor Building Exhaust Fan
- c. Auxiliary Electric Room Smoke Detector
- d. 2/3 Diesel Fire Pump

ANSWER: b

REFERENCE: DAP 7-27, B.3

FACILITY COMMENT:

All distractors listed for the question require Independent Verification when being returned to service. Reference DAP 7-27, section B.3.a(3) and section B.3.b.

NRC RESOLUTION:

This comment is accepted. It is noted that this question and answer were provided by the utility during the pre-exam review.

QUESTION NO. 5: SRO(94), RO(92)

Unit 3 is in Cold Shutdown condition with Shutdown Cooling (SDC) system in service. With NO recirculation pumps running, how is Thermal Stratification prevented?

- a. Close the suction valve in the recirculation loop that SDC is lined up to.
- b. Close the discharge and discharge bypass valves in the recirculation loop that SDC is lined up to.
- c. Close both the discharge and suction valves in the recirculation loop without the SDC.
- d. Maintain reactor water level in the normal band, less than +48 inches, to take advantage of natural circulation.

ANSWER: a

REFERENCE: DSLP 48, Shutdown Cooling, A.3.d; P&ID M357

FACILITY COMMENT:

The test had answer "a" as the correct answer. Distractor "b" could also be correct. If the operator closed the Recirculation Loop discharge valve on Unit 3 in the loop which Shutdown Cooling (SDC) is lined up to, Thermal Stratification would still be prevented.

NRC RESOLUTION:

This comment is accepted. Answers "a" and "b" have been given credit.

QUESTION NO. 6: SRO(96), RO(94)

Which of the following is a minimum radiation release rate that will require the ALERT level entry into the DEOPs?

- a. 2.9 E5 uCi/sec Instantaneous Noble Gas
- b. 4.8 E5 uCi/sec Instantaneous Noble Gas
- c. 8.6 E5 uCi/sec Instantaneous Noble Gas
- d. 2.4 E6 uCi/sec Instantaneous Noble Gas

ANSWER: c

REFERENCE: DEOP 300-2; EPIP 200-T1

FACILITY COMMENT:

As noted on the pre-exam review, this question should have been open reference. The entry condition for DEOP 300-2, "Radioactive Release Control", references EPIP 200-T1 for radioactive effluent releases to the environment. To obtain the levels of radioactive release to give an Alert condition, the EPIP's must be consulted. Also two sections of the EPIP's will place the station on Alert because of radioactive effluent releases, condition 1 section 2 and condition 1 section 3. The EPIP's must be used for the operator to be sure he is meeting the correct Emergency Action Level.

NRC RESOLUTION:

This comment is accepted. The question has been deleted.

ENCLOSURE 3

SIMULATION FACILITY REPORT

Facility: Dresden Nuclear Power Station

Docket Nos. 50-237; 50-249

Operating Tests Administered On: July 13 - 17, 1992

The following documents observations made by the NRC examination team during the July, 1992 initial examination. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed:

ITEM

DESCRIPTION

Physical Fidelity

Back panel simulation does not exist for the area radiation monitors and area temperature monitors.

Off gas and chimney SPING radiation monitors are not dynamically modeled and are inoperable.

Main steam line radiation monitors are not modeled as the plant and are inoperable.

Turbine Trip

The turbine generator tripped during a loss of both stator cooling water pumps even though correct remedial actions were performed.