Exelon Generation®

Dresden Nuclear Power Station
6500 North Dresden Road
Morris, IL 60450

10 CFR 50.74

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SVPLTR: #20-0041

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
2443 Warrenville Road - Suite 210
Lisle, IL 60532-4352

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Subject: Submittal of Post 2020 Dresden Initial License Written Examination Comments

In accordance with NUREG 1021, ES-402 E. (4) and (5), enclosed are the post examination comments for the 2020 Dresden Initial License Written Examination. This submittal includes comments made on four questions from the initial License Exam candidates and the corresponding facility response for each of these questions.

Should you have any questions concerning this letter, please contact Ryan Sprengel, Regulatory Assurance Manager, at (815) 416-2800.

Respectfully,

Peter J. Karaba
Site Vice President
Dresden Nuclear Power Station

Enclosure: Post 2020 Dresden Initial License Written Exam Comments

CC (without enclosure):
Chief, NRC Operator Licensing Branch
Regional Administrator – NRC Region III
Senior Resident Inspector, Dresden Station

# FACILITY POST-EXAMINATION COMMENTS FOR THE DRESDEN INITIAL EXAM – JUNE 2020

Dresden ILT Class 19-1 (2020-301) NRC Written Exam Questions asked by candidates during administration of the exam (original forms submitted are included with the candidate answer sheets):

- Matt Jursich (Docket #55-74850) – Question 42
    - Question/Comment – Am I to assume that the answers are all inclusive to the running pumps? For example, if the answer does not list the pump, then the pump is not running?
    - Station response – No further information is required, answer question as stated.
- Matt Jursich (Docket #55-74850) – Question 94
    - Question/Comment – Have the 4 channels for the 38.5% Scram Bypass been picked-up? 30% power is right at the limit and I've seen and been told it can vary around 30%.
    - Station response – No further information is required, answer question as stated.

**Post Examination Comments and Resolutions:**

Site personnel both uploaded to the NRC Box (electronic storage used for the exam submittals) and mailed to the Chief Examiner comments to questions 23, 34, 81, and 88. The comments and resolutions are attached

# ILT 19-1 (2020-301) Facility/Applicant Comments

**Question 23**

The Operations department is working 8 hour shifts.

You are performing APPENDIX A on U2 for SHIFT 2.

To ensure required Tech Spec, TRM, and ODCM required surveillance intervals are met, complete the required surveillance checks per this Appendix by ___(1)___. You must notify the Unit Supervisor ___(2)___ this requirement is **NOT** met.

A. (1) 1100
(2) IF

B. (1) 1100
(2) BEFORE

C. (1) 1500
(2) IF

D. (1) 1500
(2) BEFORE

Answer: B

**Applicant Comment (55-74856)**:

The question asks the time interval for completion of APPENDIX A in order to meet the Tech Spec, TRM, and ODCM surveillance requirements, and the appropriate time to notify the Unit Supervisor in the event that the requirement is NOT met.

It is recommended to consider both A and B to be correct answers because general instruction A.2 from Attachment A of Appendix A specifically states IF any limit is exceeded OR Tech Spec required surveillance can NOT be completed, then notify the Unit Supervisor. Additionally, general instruction A.2 from Attachment A of Appendix A states to ensure that the Tech Spec, TRM, and ODCM required surveillance intervals are met, the surveillance checks must be completed within the first half of operating shift, and the Unit Supervisor be notified BEFORE this requirement is NOT met.

Therefore, both the key answer, B, (i.e., (1) 1100, (2) BEFORE) and, A, (i.e., (1) 1100, (2) IF) are correct.

**Facility Position on Applicant Comment:**

The question grading for the exam should not change.

Per Operations review, the facility has determined that A.1 and A.2 address different aspects of Surveillance Requirements, and that the question is accurate as written. General Instruction A.1 addresses requirements for completing Tech Spec, TRM and ODCM required surveillances within the first half of the operating shift or notifying the Unit Supervisor BEFORE this requirement is not met (which would by 11 am, per the stem of the question). General Instruction A.2 addresses notifying the Unit Supervisor if any Tech Spec required surveillance can NOT be completed, or if a Tech Spec required limit is found to be exceeded.

# ILT 19-1 (2020-301) Facility/Applicant Comments

**Question 34**

Unit 2 is at rated power with a normal electrical line-up.

- The U2 EDG is being synchronized to Bus 24-1, per DOS 6600-01, DIESEL GENERATOR SURVEILLANCE TESTS.

In order to line up the U2 EDG to Bus 24-1, the operator would ensure that:

1) **INCOMING** voltage is slightly higher than **RUNNING** voltage to prevent_____(1)_____ .

2) To minimize the potential for motorizing the EDG, the EDG output breaker is closed when the synchroscope is at approximately the twelve (12) o'clock position, rotating approximately one (1) revolution every 30 seconds in the _____(2)_____ direction.

A. (1) inductive power loading on the EDG
(2) fast

B. (1) inductive power loading on the EDG
(2) slow

C. (1) capacitive power loading on the EDG
(2) fast

D. (1) capacitive power loading on the EDG
(2) slow

Answer: C

**Applicant Comment (55-74856):**

The question asks the proper method to line up the Emergency Diesel Generator (EDG) to its respective Bus per DOA 6600-1, “Diesel Generator Surveillance Test”.

It is recommended to consider both, C, (i.e., (1) capacitive power loading on EDG (2)fast), and, A, (i.e., (1)inductive power loading on the EDG (2)fast) to be correct answers.

The Note on page 36 of DOS 6600-01 states that when synchronizing the EDG to the Bus, the Synchroscope should rotate one revolution in approximately 30 seconds in the FAST direction. The breaker should be closed just before the pointer reaches the vertical position. Incoming voltage should be SLIGHTLY higher than the running voltage. These conditions will help prevent high transient current in the generator or a reverse power trip. to allow the oncoming generator to generate a small amount of reactive power, thus not weakening the generator field.

Chapter 5 of BWR Generic Fundamentals Components, “Motors and Generators” defines Reactive Power as the power consumed in an AC circuit because of the expansion and contraction of magnetic (inductive) ad electrostatic (capacitive) fields, which is expressed in volt-amperes-reactive (VAR). Lagging Power Factor is indicative of purely inductive loads such as motors and Leading Power Factor is indicative of purely capacitive loads.

With positive VARs (Lagging Power Factor), the D/G is only SLIGHTLY inductive when closing the breaker to the respective Bus. This is to ensure that D/G is neither overexcited (inductive) nor underexcited (capacitive), which would result in EDG overloading and subsequent breaker trip.

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Therefore, by raising the incoming voltage only SLIGHTLY higher than the running voltage, the operator aims to prevent both capacitive and inductive power loading on the EDG so that a breaker trip would not occur due to overloading. Thus, both the key answer, C, (i.e., (1) capacitive power loading on EDG (2)fast), and, A, (i.e., (1)inductive power loading on the EDG (2)fast) are correct.

**Facility Position on Applicant Comment:**

The question grading for the exam should not change.

Per Operations review, the facility has determined the question is accurate as written. Negative VARS would be indicative of capacitive loading, which is not desirable, since this could potentially lead to motoring the EDG.

# ILT 19-1 (2020-301) Facility/Applicant Comments

**Question 81**

Unit 2 was operating at near rated power, with the SBGT system control switches in the following positions:

- 2/3A - PRI
- 2/3B - STBY

A transient occurs causing RPV water level trend down to -15 inches.

Two minutes later:

- Aux NSO reports that the 2/3A and 2/3 B SBGT are de-energized.
- RPV water level has recovered to 10 inches.

The Unit Supervisor will direct entering __(1)___ and take action to ___(2)___

A. (1) DOA 7500-01, STANDBY GAS TREATMENT SYSTEM FAN TRIP
(2) place 2/3A SBGT to OFF **AND** then 2/3B SBGT to START.

B. (1) DOA 5750-01, VENTILATION SYSTEM FAILURE
(2) place 2/3A SBGT to OFF **AND** then 2/3B SBGT to START.

C. (1) DOA 7500-01, STANDBY GAS TREATMENT SYSTEM FAN TRIP
(2) Restart Reactor Building ventilation supply and exhaust fans.

D. (1) DOA 5750-01, VENTILATION SYSTEM FAILURE
(2) Restart Reactor Building ventilation supply and exhaust fans.

Answer: A

**Applicant Comment (55-74856)**:

The question asks what abnormal operating procedure is entered and what action is taken if both Primary and Standby trains of SBGT are "De-Energized" after receipt of a valid Group 2 containment isolation signal due to RPV Level dropping below the Low setpoint. It is also stated that level is found to have recovered to above the Low Level Setpoint after two minutes.

It is recommended to consider both A and D to be correct answers because both DOA 5750-01, "Ventilation System Failure", and DOA 7500-01, "Standby Gas Treatment System Fan Trip". entry conditions exist in the stem of the question. DOA 5750-01 lists Group 2 isolation as a symptom that constitutes an entry condition. DOA 7500-01 is entered due to both SBGT trains being "De-Energized" when an initiation signal is present

Additionally, per step D.1.b of DOA 7500-01, the Primary train of SBGT is placed in OFF and the Standby train is placed in START. However, due to the fact that both trains are known to be "De-Energized" per the stem of the question, neither train will initiate, which translates to a safety function not fulfilled with Reactor Building DP rendered less negative. With knowledge of SBGT being Inoperable/Unavailable, the Unit Supervisor may direct the operator to restart Reactor Building Ventilation.

Since Reactor Water Level has recovered to above the Group 2 containment isolation setpoint, a Group 2 isolation signal is NO longer present, and the 2/3A and 2/3B trains of SBGT are "De-Energized" per the stem. General guidance D.3.b of DOA 5750-01 can be used to restart ventilation fans in accordance with the appropriate DOP.

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Step B.2 of DAN 902(3)-5 E-5 identifies DOP 0500-13, "Plant Restoration from PCIS Group 2 Isolation", as the appropriate DOP to restore the plant if the Group 2 isolation signal is NO longer present. Step G.1 of DOP 0500-13 provides the guidance necessary to reset the PCIS Group 2 isolation logic, and step G.3 outlines the steps necessary to restore Reactor Building ventilation and securing SBGT.

Therefore, both the key answer, A, (i.e. (1) DOA 7500-01 STANDBY GAS TREATMENT SYSTEM FAN TRIP (2)Place 2/3A SBGT to OFF AND then 2/3B to START), and D (I.e., (1)DOA 5750-01, VENTILATION SYSTEM FAILURE (2)Restart Reactor Building ventilation supply and exhaust fans) are correct.

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**Facility Position on Applicant Comment:**

The station agrees with the challenge that 'A' and 'D' are both correct answer choices.

'A' is a correct choice due to the direction provided in DOA 7500-01 subsequent actions to start the standby train if it did not start.

'D' is also correct due to the following. DOA 5750-01, VENTILATION SYSTEM FAILURE, would be entered due to a loss of Reactor Building Ventilation caused by a group two isolation on reactor water level. Per the question stem, the condition driving a group 2 isolation signal has cleared, which would allow the group 2 isolation to be reset and Reactor Building Ventilation to be re-started. DOA 5750-01 directs restoring ventilation per the appropriate DOP. DOP 0500-13, PLANT RESTORATIONFROM PCIS GROUP 2 ISOLATION, provides the guidance to reset the group 2 isolation and restart Reactor Building Ventilation.

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# ILT 19-1 (2020-301) Facility/Applicant Comments

**Question 88**

Unit 2 was operating at near rated power when a transient occurred, resulting in the following conditions:

- Torus water level is 30 feet.
- Drywell pressure is 1.31 psig and increasing 0.1 psig/10 minutes.
- Current Iodine-131 sample is 2.0 X $10^{-8}$ uCi/cc.
- Current Beta/Gamma (total particulate) is 5.0 X $10^{-7}$ uCi/cc.
- Radiation protection is unavailable to perform an off-site dose calculation.

The Unit Supervisor is required to direct the Operating team to vent the Drywell to the ___(1)___ system in accordance with ___(2)___ , to reduce Drywell pressure.

A. (1) SBGT;
(2) DEOP 500-4, CONTAINMENT VENTING

B. (1) SBGT;
(2) DOP 1600-01, NORMAL PRESSURE CONTROL OF THE DRYWELL

C. (1) Rx Building Vent;
(2) DEOP 500-4, CONTAINMENT VENTING

D. (1) Rx Building Vent;
(2) DOP 1600-01, NORMAL PRESSURE CONTROL OF THE DRYWELL

Answer: B

**Applicant Comment (55-74856):**

The question asks the appropriate Drywell vent path and procedure to use for the conditions described in the stem.

It is recommended to change the correct answer from B (i.e., (1)SBGT (2)DOP 1600-1, NORMAL PRESSURE CONTROL OF THE DRYWELL) to A (i.e., (1)SBGT (2)DEOP 0500-04, CONTAINMENT VENTING). First part of both A and B are correct because with the given radiation levels, the Drywell is required to be vented to the SBGT per the limitations and actions of DOP 1600-05.

However, per section F.8 of the limitation and actions of DEOP 0500-04, “Containment Venting”, DEOP 0500-04 is the preferred procedure for venting containment in DEOP’s and SAMG’s. With Torus Water Level at 30 ft, a DEOP 200-1, “Primary Containment Control”, entry condition exists. DEOP 200-1 requires a reactor Scram before Torus Water Level rises to 18.5 ft. Following the Scram, setpoint setdown actuated by the Feedwater Level Control (FWLC) system will lower RPV Water Level below the Group 2 containment isolation setpoint, which causes a Group 2 containment isolation. Subsequently, DEOP 100-1, “RPV Control”, is entered and if Torus Water Level can not be restored and held below 18.5 ft, DEOP 200-1 directs a blowdown in accordance with DEOP 400-2, “Emergency Depressurization”. Therefore, DEOP 0500-04 is the preferred procedure for venting the Drywell for the conditions described in the stem of the question.

In contrast, prerequisite D.2 of DOP 1600-1, “Normal Pressure Control of the Drywell or Torus”, states that RPV level must be greater than the Group 2 containment isolation setpoint. DOP 1600-1 does NOT provide guidance to reset the Group 2 containment isolation. As previously stated, RPV Water Level is lowered below the Group 2

containment isolation setpoint via the setpoint setdown function of the FWLC system. Therefore, DOP 1600-1 alone is NOT the preferred procedure to vent the Drywell for the conditions described in the stem of the question.

In conclusion, A (i.e., (1)SBGT (2)DEOP 0500-04, CONTAINMENT VENTING) is the correct answer as the Drywell is vented to SBGT using DEOP 0500-4 given the condition in the stem of the question.

**Facility Position on Applicant Comment:**

The question grading for the exam should not change.

Per Operations review, the facility has determined that 'A' is not correct. Although DEOP 0500-04 can be used to vent primary containment via the SBGT, operators are not allowed to vent primary containment using DEOP 0500-04 unless the Primary Containment Pressure Limit (PCPL) is being challenged; or a decision has been made to perform early venting of containment per the override in the pressure leg of DEOP 0200-01. Given the conditions in the stem, PCPL is not being challenged, and conditions for early venting are not met.