September 6, 2007

MEMORANDUM TO: Nancy L. Salgado, Chief
IOLB, (Operator Licensing and Human Performance Branch)
Division of Inspection and Regional Support (DRS)

FROM: Hironori Peterson, Chief ***/RA/***
Region III Operations Branch
Division of Reactor Safety

SUBJECT: REGION III REVIEW OF DRESDEN STATION INITIAL LICENSE EXAMINATION APPEALS

In a telephone conversation on July 3, 2007, with Mr. Dell McNeil of my staff, Mr. John Munro of your staff informally requested that the Region III Operations Branch review several disputed questions submitted by three Dresden Nuclear Station initial license applicants that failed the April 2007 initial license written examination. We have completed our review of the disputed questions and have enclosed the results of our review with this memorandum as Enclosure 1. The questions are not grouped according to the individual appeals, but are placed sequentially in the enclosure to make it easier to locate the individual questions. In summary, our review of the questions which considered statements made by the licensee, reviews of station procedures, and face-to-face interviews with station personnel, revealed that all of the questions should retain the original grading determined when the examination was administered with the exception of one question. The excepted question (Question #21) should be deleted from the examination.

With respect to Question #21, a detailed explanation is documented in Enclosure 1. A senior examiner was sent to Dresden Nuclear Power Station to develop a response to the appealed question concerning the Reactor Building Closed Cooling Water (RBCCW) System. As written, the question appears to be discriminatory and elicits only one correct answer. However, upon review of the question, the examiner found that there was an additional non-discriminatory, potentially correct answer. That answer is only correct if an applicant assumed that an off-normal plant lineup used during warmer months when service water temperatures are excessive, was in effect. The warm weather lineup typically extends from late spring through summer based on service water temperature and the Unit Supervisor opinion of operating conditions.

During the examination the applicant made an assumption (alternate service water line-up) that should not have been made and he failed to ask the proctor for guidance concerning the question. The applicants were briefed from NUREG 1021, Appendix E, Item 7 which states,

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630-829-9737

in part, a.) “if you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate to ask them before answering the question”; b.) “when answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question”; and c.) “answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the *actual plant*.” In the case of Question #21, all three of the instructions noted above were not implemented. The applicant made an assumption, he failed to ask for guidance, and the plant response to this question is different during the warmer months than that displayed on the simulator. The simulator response mimics the question stem and designated correct answer, without the high service water temperatures.

The Region III Operations Branch recognizes that two correct answers on an examination does not necessarily result in deletion of a question from an examination, rather simply, we accept two correct answers for the question. However, for this question, if an applicant makes no assumptions, but simply believes temperature will decrease because the heat load is lost, he will arrive at the same alternate correct answer. In other words, an applicant can use logical but erroneous reasoning to arrive at the correct answer without understanding how the system would respond under the given conditions in the question. For this reason, we believe the question does not adequately test an applicant’s knowledge of the system if the alternate answer is accepted as a correct answer. We recommend that the question be deleted from the examination as a non-discriminatory question rather than two correct answers accepted. Six of the seven applicants arrived at the alternate answer.

Whether the question is deleted or retained with two correct answers, two additional applicants will receive licenses at the Dresden Nuclear Station. The reactor operator’s score will change from 59/74 to 60/74 (81%) if the additional correct answer is accepted, or it will change to 59/73 (80.8%) if the question is deleted. Similar results would be applied to the Senior Reactor Operator (Upgrade) examination results. The remaining two Reactor Operator applicants will still have failing grades on the examination.

If you have any questions on our review of the disputed examination questions, please feel free to contact me or Dell McNeil of my staff for any assistance or additional information.

Docket Nos. 50-237; 50-249
License Nos. DPR-19; DPR-25

Enclosure:
Region III Appealed Question Review Results

cc w/encl: J. Munro, IOLB
S. West, RIII
A. Boland, RIII
J. Kweiser, RIII

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Region III Appealed Question Review Results

Question #10:

Why is the required quantity of boron GREATER for COLD shutdown boron weight than it is for HOT shutdown boron weight?

a. To overcome a greater RPV water level.

b. To overcome the reduction in Xenon.

c. To overcome the reduction in Samarium.

d. To overcome a reduction in voids present in the core.

Answer: b.

Applicant's Contention:

The applicant contended that there were two correct answers to Question #10; distractors (b.) and (d.). The applicant provided the definition of Hot Shutdown Boron Weight (HSBW) and the definition of Cold Shutdown Boron Weight (CSBW) from an approved Dresden Station lesson plan. The applicant then stated, "The amount of control rods inserted into the core, core moderator temperature and the length of time from the initial event all have an effect on the amount of boron needed to maintain the reactor in a shutdown condition.

Utilizing the Tech. Spec. definition of Hot Shutdown, (reactor coolant temperature greater than 212°F), and the discussion from Section 9.3.5.3 of the UFSAR that discuss boron injection and reducing power until power is too low to produce boiling therefore answer "D" could also be correct. With reactor coolant less that [sic] 212°F, voids would no longer be present and the need for a greater quantity of Boron would be needed to maintain the reactor shutdown. Without a distractor that included coolant temperature, I chose the distractor that included voids.

The definition section of Tech. Specs. 1.1 table 1.1-1 states that the difference between Hot Shutdown and Cold Shutdown is whether reactor coolant temperature is greater than or less than 212°F. This is also stated in the DEOP Bases B-6-49 and B-14-45. From an Operational standpoint with the reactor coolant temperature greater than 212°F, voiding is still occurring in the core providing negative reactivity. When reactor coolant temperature decreases below 212°F, voiding in the core will cease and coolant density will increase, adding positive reactivity. The amount of Boron added would have to overcome the reduction in voids present in the core. Due to this situation and the fact that the question is not asking "per the bases," answer "D" could also be correct.

With the words HOT and COLD bolded in the question, [SIC] led me to believe that with reactor coolant temperatures greater than 212°F voids would be present and with reactor coolant temperatures less than 212°F no voids would be present.

Both answers "B" and "D" are therefore correct."

The applicant further stated that he believed that the question was asking about Xenon effects on reactor power and about how moderator temperature affects voiding. The applicant then provided portions of DEOP 400-5 lesson plan, a Dresden Shift Technical Advisor (STA) lesson plan, a BWR Reactor Theory lesson plan, and the BWROG EPGs/SAGs.

Facility Comment:

This question was addressed in the facility's post examination comments. The facility supported two correct answers on this question, citing the same material as the applicant. The facility also stated that they had conducted simulator training sessions where the Anticipated Transient Without Scram (ATWS) scenarios were conducted and completed before Xenon would have any effect and the only thing the operators were concerned with would be the change in percent voids. The facility maintains that there are two correct answers even after the NRC response to post examination comments.

Region III Response:

In the BWROG EPGs/SAGs, Appendix B, provided by the applicant, the assumptions for determining COLD and HOT Shutdown Boron Weight were provided:

	COLD	HOT
1.		The reactor has been operating on the Maximum Extended Operating Domain load line.
2.	All control rods are fully withdrawn.	Control rods are withdrawn to the maximum rod block limit.
3.	The reactor core is at its most reactive exposure.	The reactor core is at its most reactive exposure.
4.	No Xenon is present in the reactor core.	Full power equilibrium Xenon is present in the reactor core.
5.	No voids are present in the reactor core.	No voids are present in the reactor core.
6.	RPV water is at its most reactive temperature.	RPV pressure is at 1100 psia.
7.	PRV water level is at the high level trip setpoint.	RPV water level is at the high level trip setpoint.

8.	All shutdown cooling is in service and RWCU is operating in the recirculation mode.	No shutdown cooling is in service.

Appendix B continues on to state that the following plant specific data is required to calculate Shutdown Boron Weight:

	COLD	HOT
1.	The mass of water in the recirculation, shutdown cooling, and RWCU loops, and in the RPV with RPV water level at the high level trip setpoint and RPV water temperature at 68°F.	The mass of water in the recirculation and RWCU loops, and in the RPV with RPV water level at the high level trip setpoint and RPV water temperature at the saturation temperature for the lowest SRV lit setpoint pressure.
2.	B^{10} enrichment (atomic abundance of B^{10} isotope as a fraction of all boron in the SLC tank) (0.19879 if naturally occurring boron is used).	B^{10} enrichment (atomic abundance of B^{10} isotope as a fraction of all boron in the SLC tank) (0.19879 if naturally occurring boron is used).
3.	Cold shutdown boron concentration requirement for naturally occurring boron.	Hot shutdown boron concentration requirement for naturally occurring boron.

The applicant asserted that as reactor coolant temperature goes below 212°F, voiding would cease, adding positive reactivity to the core. He stated that additional boron would have to be added to compensate for the loss of the voids. The applicant contends that this makes distractor (d.) correct. The applicant's assertion that voids go away when reactor water temperature goes below 212°F and positive reactivity is inserted with a plant cooldown is correct. However, the presence of voids is addressed above in the plant specific data required to calculate COLD or HOT shutdown boron weight. Directing your attention to item #1 in the plant specific data required to do the boron weight calculation, it refers to the mass of water in the reactor pressure vessel, the recirculation loops, the reactor water cleanup loop, and in the case of the COLD calculation, the shutdown cooling loops. The mass used in the calculations for both COLD and HOT shutdown boron weight uses assumption #5 from the assumption table above that there are no voids in any of this mass. This is a conservatism put in the boron weight calculation to assure the maximum positive reactivity that can be inserted by the loss of voids is already addressed. The calculation of HOT shutdown boron weight allows an operator to re-flood the reactor pressure vessel during an Anticipated Transient Without Scram (ATWS), knowing the reactor will not achieve criticality even if there are no voids in the coolant used to re-flood the reactor pressure vessel. In the case of the COLD shutdown boron weight, an operator knows the reactor will remain shutdown under all conditions when the vessel is

re-flooded under cold conditions. This assumption that there are no voids (whether the reactor is cold or hot), makes distractor (d.) an incorrect choice.

It is important for an operator to know that when he or she has reached Hot Shutdown Boron Weight, the core's shutdown margin is not relying on the negative reactivity inserted by voids, but it is relying on the negative reactivity inserted by Xenon. If the operator inserted Hot Shutdown Boron Weight during an accident and then stopped injecting boron, the reactor would go back to a critical condition as the Xenon decayed away. In order to achieve a condition where the reactor is shutdown under all conditions, additional boron must be injected to overcome the positive reactivity being inserted by the decay of Xenon, but not any loss of voids, as this was eliminated by assumption in the original calculation. This need to reach COLD shutdown boron weight by injecting additional boron to overcome Xenon decay makes distractor "B" the correct choice. There are other reasons for injecting additional boron, such as: 1) two shutdown cooling loops are added to the mass equation and need to be borated to the same concentration as the remainder of the reactor coolant system, and 2) the control rods at COLD shutdown are considered to be ALL withdrawn, where some rods may still be inserted at the HOT shutdown boron weight.

Conclusion:

Although voids do decrease as reactor pressure vessel temperature decreases, inserting positive reactivity, that reactivity effect is eliminated from the COLD and HOT shutdown boron weight calculations by assuming there are no voids in the reactor (maximum positive reactivity). This eliminated distractor (d.) as a possible correct answer. Because the reactor's shutdown margin is relying on Xenon concentration for the HOT shutdown boron weight and more boron must be added to overcome the decay of Xenon after the event to reach COLD shutdown boron concentration, distractor (b.) is a correct answer, and in this case, the only correct answer. Since the procedure for calculating HOT and COLD shutdown boron concentration eliminates voids as a concern during a subsequent cooldown, Region III recommends that the answer key remain unchanged for this question and distractor (b.) be retained as the only correct answer.

Region III Appealed Question Review Results

Question #14:

Unit 2 is in a refuel outage, with the following conditions:

Divers are needed to enter the Unit 2 Torus for the 5-year check for plugging of the ECCS strainers. Operations, Contract Personnel, and Engineering all have responsibilities associated with the performance of this evolution.

Of the positions listed below, who is the HIGHEST level of authority required to approve this evolution?

a. Nuclear Station Operator

b. Unit Supervisor

c. Shift Manager

d. Operations Director

Answer: d.

Applicant's Contention:

The applicant believes that distractor (b.) is also a correct answer. He stated that during refueling outages, as well as normal operations, the Unit Supervisor has control of the unit and approves all evolutions performed on that unit. He stated that per OP-AA-101-111, "Roles and Responsibilities of On-Shift Personnel," Section 4.2.7 (provided by the applicant), the Unit Supervisor authorizes testing, surveillance tests, outages, and maintenance on all equipment and systems affecting plant safety or that place the plant in a degraded mode. The Torus is part of primary containment. The applicant goes on to say that the question is asking who approves the evolution, not who approves the evolutions that require an HLA or IPA. The applicant determined his answer based on 15 years of NLO experience and his ILT OJT period during Dresden's refuel outage. The Unit Supervisor authorized all of the work being done on the unit.

Facility Comment:

The facility stated that the question grading for the exam should not change. Procedure HU-AA-1211, "Briefings - Pre-Job, Heightened Level of Awareness, Infrequent Plant Activity, and Post-Job Briefings," states that Torus diving operations require an IPA briefing, and that Senior Line Management (Operations Director) are responsible for approving evolutions that require an IPA briefing.

Region III Response:

The procedure provided by the applicant, (OP-AA-101-111) outlines the roles and responsibilities for on-shift personnel. Region III agrees that the Unit Supervisor is the on-shift

authority that authorizes plant activities for the unit he or she is supervising. However, the question did not ask who *authorizes* the activity, the question asked who is the HIGHEST level of authority that *approves* the evolution. The Unit Supervisor cannot take it upon himself or herself to conduct this particular evolution without approval of the evolution from a higher authority. After the higher authority has approved the evolution, the Unit Supervisor can authorize the evolution to be conducted during his or her shift. The applicant did not provide Procedure HU-AA-1211, "Briefings - Pre-Job, Heightened Level of Awareness, Infrequent Plant Activity, and Post-Job Briefings," which states in Section 3.1.1 that one of the responsibilities of Senior Line Management is to "Identify and approve evolutions and tests that require HLA/IPA briefings." Procedure HU-AA-1211, Section 4.4.3, states: "IPA activities may include, but are not limited to: "#6" Torus Diving Operations – confined space, rarely performed, and radiological impact."

Conclusion:

Because the Unit Supervisor does not have the authority to approve this evolution, but only to authorize its performance during the shift after it has been approved by senior line management, Region III recommends that the answer key remain unchanged for this question and distractor (d.) be retained as the only correct answer.

Region III Appealed Question Review Results

Question #21:

Unit 2 has been shutdown for 30 hours, with the following set of conditions:

- 2A and 2C SDC pumps are running.
- 2A RBCCW pump is running.
- 2/3 RBCCW pump is running, lined up to Unit 2 and powered from Unit 2.

Then the following occurred:

- Due to a breaker malfunction, Bus 23-1 lost power and was subsequently re-powered.
- RBCCW parameters have stabilized 2 hours following the transient.

What will the current RBCCW pressure AND RBCCW temperature be compared to the pre-transient values?

Current RBCCW pressure . . . . .

a. will be the same and temperature will be the same.

b. will be lower and temperature will be higher.

c. will be the same and temperature will be lower.

d. will be lower and temperature will be the same.

Answer: a.

Applicant's Contention:

The applicant stated that the Shutdown Cooling (SDC) pumps do not automatically restart after the failed bus is re-powered. This loss of the SDC pumps removes the SDC heat load from the RBCCW system. He also stated that the RBCCW system pumps automatically start after the bus is re-powered, restoring RBCCW system pressure to the same as before power to the electrical bus was lost. The applicant points out that under these conditions the only possible correct answers would be (a.) and (c.) because the other distractors have a lower post-transient RBCCW system pressure. He then points out that the difference between the two distractors is that in distractor (a.) the RBCCW temperature would remain constant and in distractor (c.) RBCCW temperature would decrease. He pointed out that there were no conditions in the question stem indicating current RBCCW temperature, nor was there any indication of what season of the year it was. He contended that when service water temperatures are high, the RBCCW TCV controlling service water flow through the RBCCW heat exchanger will be full open and unable to control the RBCCW system temperature at setpoint. The applicant provided control room logs that demonstrated that the service water system TCV setpoint has been lowered by Unit Supervisors in an attempt to force open the Service Water TCV to a full

open condition. He contended that the loss of SDC would result in a loss of heat load to the RBCCW system resulting in a decreased RBCCW system temperature since the system's temperature was already above the TCV's setpoint. He contended that distractor (c.) was correct for the current real plant conditions.

Facilty Comment:

The question grading for the exam should not change. As stated in the question stem, the unit is shutdown, which means a reduced heat load to begin with. The candidate's assumption that during the summer months the system TCV would be full open can not be assumed, since it is not stated in the stem. The question stem states that parameters have stabilized two hours after the transient. With the system parameters stabilized, the TCV would be controlling at its previous set point.

Region III Response:

The question tests three items: 1) the RBCCW pumps automatically start when their bus power supply is re-energized, 2) the shutdown cooling (SDC) pumps do not automatically start when their bus power supply is re-energized, and 3) there are temperature control valves (TCVs) in the service water system that control RBCCW system temperature. When the power supply in the question is interrupted, heat load is lost (SDC pumps do not restart), but RBCCW pumps restart. As stated by the applicant, the restart of the RBCCW pumps restricts the correct answer to distractors (a.) or (c.) because the other distractors have a decreased RBCCW system pressure. The remaining item to resolve is RBCCW system temperature. Region III agrees with the facility that the question answer is correct as written without assumptions, but only for the months when Service Water System temperature is low and the TCVs can control RBCCW system temperature at setpoint. A Region III examiner found that during warmer months (approximately April to September) the TCVs in the Service Water System that control RBCCW system temperature are full open, but cannot maintain RBCCW system temperature at the desired 90°F setpoint because the service water system temperatures are abnormally high (approximately 85°F - 87°F). With a loss of SDC provided in the question stem, there would be much less heat transfer into the RBCCW, and the RBCCW system temperature, which is above the TCV setpoint, would begin to decrease. When the RBCCW system temperature decreases below the TCV setpoint, the TCVs in the Service Water System will begin closing and control the RBCCW system temperature at the TCV setpoint. Since actual RBCCW system temperature decreases under these conditions, distactor (c.) would be correct.

To make distractor (c.) correct, however, the applicant would have to make an assumption that the question referred to conditions where the RBCCW header temperature was elevated. This information was not provided in the stem of the question. In NUREG-1021, Appendix E, "Policies and Guidelines for Taking NRC Examinations," it states, in part, that "When answering a question, do not make assumptions regarding conditions that are not specified in the question ...." Appendix E also states, "If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate to ask them before answering the question." The applicants were briefed verbatim on the contents of NUREG-1021, Appendix E, prior to the administration of the written examination, and were provided a copy of Appendix E. The applicant should not have made the assumption the plant was operating with an elevated

RBCCW system temperature. The applicant failed to ask any questions concerning the intent or initial conditions in this question. However, the applicants are also instructed that where there are differences between the simulator and the actual plant, they are to answer the question in accordance with the actual plant. At the time of the examination the service water system temperatures were high and RBCCW system temperature was above 90°F. Answering the question based on the actual service water system and RBCCW system conditions during the day of the examination would have led the applicant to select distractor (c.) as the correct answer.

Conclusion:

The question's correct answer, (a.), is not disputed. Because the Region III examiner determined that different environmental conditions affected the service water temperature and in turn abnormally affected the understood normal design operation of the RBCCW system, a second correct answer (distractor (c.)) was revealed. This would normally result in the acceptance of two correct answers to the question. However, if an applicant did not understand the three items being tested, the applicant would arrive at the same alternate answer, (c.), because he would believe the RBCCW temperature would decrease simply because of the loss of heat load. Region III believes that the question is not discriminatory if distractor (c.) is retained as a second correct answer. Subsequently, the question becomes LOD = 1 with distractor (c.) as an alternate correct answer. In addition, the applicant made an assumption with respect to RBCCW and service water system temperature conditions that placed those system conditions outside the accepted system designs. The applicant clearly disregarded the rules of taking NRC written examinations by making inappropriate assumptions and failing to ask questions to clarify the conditions of the question stem. An applicant should not be given credit for any answer where the individual has made an assumption not authorized by the proctor nor provided in the stem of the question. Region III recommends that the answer key be altered for this question and Question #21 be deleted from the examination.

Region III Appealed Question Review Results

Question # 27:

Per the UFSAR, what is the reason for having LPCI pumps operating with the Torus CLG/TEST valves throttled open following Reactor vessel flooding?

a. To ensure adequate mixing of the Torus water.

b. To maintain Torus level in the normal operating band.

c. To immediately terminate the increase in Torus temperature.

d. To terminate the increase in Torus temperature after several hours.

Answer: d.

Applicant's Contention:

The applicant contends that (b.) can also be considered a correct answer. He claims that he read the question as flooding the vessel during a transient, such as loss of all level indiction during DEOP 100 and DEOP 400-1 at Step 26. During the flooding evolution, once the vessel is full, you must maintain 100# pressure above saturation temperature. To do this, LPCI is injected to the vessel. The CLG/TEST valves would have to be opened to maintain vessel pressure by diverting LPCI discharge from the vessel to the Torus. The Torus level would be maintained in the normal operating band as the water is being removed and returned to the Torus. The applicant indicated that during his class, they had seen this evolution in the simulator many times. He answered this question based on the actions taken during these evolutions. He, therefore, believed that distractor (b.) was a correct answer.

Facility Comment:

The question grading for the exam should not change. The candidate's claims that mixing of Torus water, maintaining Torus level in normal band, or immediately terminating increasing Torus temperature, may also be correct, but can be disregarded, since the question stem states "per the UFSAR." The UFSAR states that Suppression Pool Cooling will be initiated to control pool temperature after several hours.

Region III Response:

Although the UFSAR is the supporting reference for this question, the Region accepts that the question referenced vessel flood during a transient where all vessel level indication was lost and DEOP 400-1 would be in use. The DEOP requires that the operator open 5 ADS valves to depressurize the reactor pressure vessel, allowing LPCI injection and providing a return path to the torus for water being pumped from the torus by LPCI into the reactor pressure vessel. After the reactor pressure vessel is flooded to the main steam lines, the operator is directed to maintain reactor pressure vessel level at the main stream lines. This ensures that the reactor core is covered with coolant and is not relevant to maintaining a torus level. Filling the reactor pressure vessel using LPCI will cause torus level to decrease slightly, assuming there is no

other injection source from outside containment. Once the vessel is filled, torus water level will stop decreasing, and will slowly rise as long as decay heat is being absorbed by the torus water as it flows through the reactor core (coolant expansion as it heats). The facility's UFSAR stated on page 6.2-33, "Following vessel flooding, suppression pool water is continuously recirculated through the core by the LPCI pumps. The energy associated with the core decay heat will result in a slow suppression pool heatup. Operators will initiate suppression pool cooling to control suppression pool temperature." The UFSAR does not address maintaining a torus level because the concern for this condition is heat addition to the suppression pool. Removal of the heat from the suppression pool is done to prevent structural damage to the torus.

Conclusion:

Distractor (a.) is incorrect because torus water mixing is not an issue. Distractor (b.) is incorrect because torus level is not being maintained in the normal level band by LPCI during this event. Level in the torus will go where the laws of nature require it to go as a result of pumping torus water into the reactor pressure vessel and the by the absorption of decay heat as the water passes through the reactor core, expands, and is returned to the torus. Distractor (c.) is incorrect because there is insufficient cooling capacity in suppression pool cooling to cause an immediate termination of torus temperature rise. Because LPCI does not control torus water level under the conditions specified in the question stem, Region III recommends that the answer key remain unchanged for this question and distractor (d.) be retained as the only correct answer.

Region III Appealed Question Review Results

Question #33:

Given the following conditions:

- An NLO has reported a fire in the Unit 3 Shutdown Cooling Pump Room.
- Multiple 'fire messages' have been received on the XL3 system printer.

In accordance with DOA 0010-10, FIRE/EXPLOSION, which describes the Immediate Operator Actions in response to these conditions?

Depress and release FIRE ALARM pushbutton and . . .

a. IMMEDIATELY announce the fire location on the plant PA system, AND notify Rad Protection to respond to the scene.

b. IMMEDIATELY announce the fire location on the plant PA system, AND notify Mechanical Maintenance to respond to the scene.

c. WAIT 10 seconds, then announce the fire location on the plant PA system, AND notify Rad Protection to respond to the scene.

d. WAIT 10 seconds, then announce the fire location on the plant PA system, AND notify Mechanical Maintenance to respond to the scene.

Answer: c.

Applicant's Contention:

The applicant cited, in part, the immediate operator actions from DOA 0010-10, "FIRE/EXPLOSION." He cited C.1.a(1) and stated that the step states you are to observe audible alternating tone for 10 seconds.

He then cited C.1.b and stated the step states you are to Announce the fire location on the plant public address system (repeat announcement).

He then cited C.1.c and stated the step states you are to Announce the fire location on the Operations channel of the plant radio system (repeat announcement).

He cited C.1.d and stated the step states you are to notify Radiation Protection to respoind to the scene to monitor air quality AND provide first aid as required.

He then stated that the actions of the answer selected in the answer key are not in the correct order per the DOA. He stated that waiting 10 seconds is not a step per the DOA, and that observing the wavering audible tone for 10 seconds can be completed while making the Public Address announcement. He stated that the 3 remaining answers were not in the correct order per the DOA or the incorrect department is referenced. The examinee chose answer (a.) as it is the most conservative.

Region III Appealed Question Review Results

Facility Comment:

This question was not formally addressed as a post-examination comment by the facility. However, in a question/answer analysis provided by the facility, it was noted that two people missed this question and the reason the answer was correct as graded was that the procedure steps (referring to DOA 0010-10) were numbered and must be executed in sequence.

Region III Response:

The question solicits the description of the IMMEDIATE operator actions of DOA 0010-10, "FIRE/EXPLOSION." Immediate operator actions are required to be committed to memory and, because the steps are numbered in this case, are executed in sequence. The question is testing the operator's understanding of the Immediate Action steps, in particular, what must be done after the alarm push button is depressed followed by two other possible Immediate Action steps that an operator would be required to perform, either notify Radiation Protection or Mechanical Maintenance. The question does not state or solicit a listing of all Immediate Action steps, rather, to describe actions following the alarm push button. In this particular case, the applicant must pick up the procedure at Step C.1.a.(2) where it states as part of the question stem: "Depress AND release FIRE ALARM pushbutton. The next step (C.1.a.3) requires the operator to observe an audible alternating tone for 10 seconds before proceeding to step C.1.b, which is to announce the fire location on the public address system. Step C.1.c is skipped in the correct answer (Announce the fire location over the Operations Channel of the plant radio system). Step C.1.d directs the operator to notify Radiation Protection to respond to the fire. This sequence of events and waiting for the fire alarm to stop before making the plant announcement make distractor (c.) the correct answer. The applicant's contention that distractor (a.) is correct is erroneous in that the fire alarm would drown out any verbal announcements made during the fire alarm and Step C.1.a.3 was not complete before proceeding to the next step. Step C.1.a(3) was included in the procedure to ensure plant personnel were aware of the fire by alarm, then an announcement in accordance with Step C.1.b. Further, the applicant attempts to make a case that waiting the 10 seconds is not a step in the procedure. But as noted above, Step C.1.a.3 clearly requires an operator to observe an audible alternating tone for 10 seconds before proceeding to the next step. Since the procedure steps of DOA 0010-10 must be executed in sequence and must be complete before proceeding to the next step, Region III recommends that the answer key remain unchanged for this question and distractor (c.) be retained as the only correct answer.

Region III Appealed Question Review Results

Question #34:

You are a licensed NSO performing a JPM at a Unit 2 CRD accumulator as part of requalification training. You hear a continuous 2-minute siren followed by an announcement directing all personnel NOT having emergency assignments, to report to the CLOSEST assembly area.

To which of the following areas are you required to report?

a. Main Control Room

b. Operation Support Center (OSC)

c. Unit 2 Turbine Building Main Corridor

d. Administration Building Lunchroom/Foyer Area

Answer: (c.)

Applicant Contention:

The applicant commented that there are two correct answers. The applicant referred to the Dresden Station Approved Lesson Plan Generic GSEP S-02 & Station Annual Continuing Training S-1:

- When the Assembly siren is actuated people on site are required to report to their assigned assembly area.
- If you cannot reach your assigned assembly area within 10 minutes after the siren has sounded, then you must report to the nearest assembly area.
- Assembly Area #1 is the Unit 2 Turbine Building Main Corridor, personnel in the RPA report here.
- Assembly Area #4 is the Control Room, “On Site Operation Personnel” report to the Main Control Room.

The applicant contended that since he is an “On Site Operation Personnel” he could report to the control room as his assigned assembly area. He goes on to say that he could also assemble in the Unit 2 Turbine Building Main Corridor as personnel in the RPA. He contends that it is a decision that must be made by the Licensed Operator as to which Assembly Area to report. As a Licensed Operator the applicant contends that he would report to the Main Control room to offer assistance in mitigating the consequences of the casualty, thus helping to protect the health and safety of the public. The applicant contends that distractors (a.) and (c.) are correct.

Facility Comment:

The question grading for the exam should not change. The question stem asked the candidates which assembly area was the closest, not whether or not there was a card reader

located in the assembly area. A side note is that the Unit 2 Turbine Building Trackway is adjacent to the Unit 2 Turbine Building Main Corridor.

Region III Response:

The question stem stated that personnel not having an emergency assignment were to go to the CLOSEST assembly area. The question stem also stated that the individual was performing a JPM as part of requalification training, and would therefore, not have an emergency assignment. The stem establishes that the individual is not a member of the crew currently operating the plant. Both of the lesson plans referenced by the applicant state that personnel must report to their assembly area. The applicant asserted that his reporting location was the control room. Both lesson plans stated that personnel assembling in the Control Room are the Control Room staff on duty, on-site operation[s] personnel, and the NRC resident inspectors. However, the term “On-Site Operation[s] Personnel” is not defined in any of the Dresden Station procedures. When questioned, the Operations Support Manager stated that to the best of his knowledge, the only people told to go the MCR are the current operating team of record (the crew actually on the watch). Interviews with licensed control room operators and senior training department personnel, indicated that the applicant was incorrect. The operators and trainers stated that the correct action would be to card for accountability at the Unit 2 Turbine Building Main Corridor, then get permission to proceed to the Control Room from the appropriate assembly area supervisor if the control room needed him to come there.

Both lesson plans refer to Assembly Area #1 which is the Unit 2 Turbine building Main Corridor 517' elevation (referred to as the U2 Trackway). Personnel reporting to that assembly area include (from both lesson plans): personnel within the radiologically controlled area when [the] assembly siren was initialized. The lesson plans then state that these people are to remain at the assembly area until released by [the] Assembly Area Coordinator. Since the question stem stated that the individual was doing a requalification training JPM at a Unit 2 CRD accumulator, the individual was inside the radiologically controlled area at the time of the siren and plant announcement and is required to report to the U2 Trackway Assembly Area.

Conclusion:

Based on the training lesson plans provided by the applicant that require personnel in the RCA to go the the U2 Trackway assembly area if they are in the RCA and on interviews with station personnel stating the same requirement, Region III recommends that the answer key remain unchanged for this question and distractor (c.) be retained as the only correct answer.

Region III Appealed Question Review Results

Question #59:

Unit 2 was operating at near rated power, when the following occurred:

- NSO increased Recirc flow slightly, using MASTER RECIRC FLOW CONTLR.
- Oil pressure on 2A MG Set decreased to 25 psig for 3 seconds then returned to normal.
- Oil pressure on 2B MG Set decreased to 29 psig for 7 seconds then returned to normal.

Which of the following describes the actions (if any) that are required to be taken concerning the Recirc Flow Control System?

a. NO action required.

b. Place BOTH RECIRC PP SPEED CNTLRs in MAN. Dial BOTH RECIRC PP SPEED CONTLRs potentiometers to 30%.

c. Place BOTH RECIRC PP SPEED CNTLRs in MAN. Dial the 2A RECIRC PP SPEED CONTLR potentiometer ONLY to 30%.

d. Place BOTH RECIRC PP SPEED CNTLRs in MAN. NO adjustment to the RECIRC PP SPEED CONTLR potentiometers are required.

Answer: c.

Applicant Contention:

The applicant contends that answer “A” should also be accepted as a correct answer. The applicant stated that the standby AC oil pump for the 2A MG set should have started at 27 psig and locked out the 1A scoop tube, per DAN 902-4 C1 and G2. There will be no change to recirc pump speed when the scoop tube locks out on MG set low oil pressure. The unit will be in a safe, stable condition. The applicant further stated that there are no IMMEDIATE ACTIONS to be taken after the standby AC oil pump started. He indicated that the subsequent actions that need to be taken are in DAN 902-4 C1, Step B.7, which directs the operator to enter DOP 202-12 at Step G.4 to restore the MG set scoop tube to operation. The applicant stated that he read the question as having safe, stable plant conditions. He stated that there was no urgency to reset anything until the condition was identified. He stated that he believed that distractors (a.) and (c.) would be correct answers. The applicant provided copies of DAN 902-4 C1 & G2, and DOP 202-12.

Facility Comment:

The question grading for the exam should not change. Per procedure DOP 0202-12, Step E.4, the Operator is directed to place the master and individual speed controllers in Manual mode if, anytime during operation, either scoop tube is locked out. Subsequently, when scoop tubes are

locked or the Motor Generator (MG) sets are off, then target 30% demand on the 2A/B Recirculation Pump Speed Controllers.

NRC Proposed Resolution:

The applicant stated that the standby AC oil pump for the 2A MG set should have started at 27 psig and locked out the 1A scoop tube. He stated that there will be no change to recirc pump speed when the scoop tube locks out on MG set low oil pressure. Region III agrees with the applicant that this is the way the plant responds to this condition. The applicant then stated that the plant was in a safe, stable condition. This may or may not be correct. The question indicated that something happened that caused an uncontrolled change in plant configuration. It cannot be assumed that the plant is in a safe, stable configuration and nothing further will change. For this reason, an operator must take steps to ensure a safe, stable environment actually existed under these conditions. This eliminated distractor (a.) as a correct answer. The applicant was correct when he stated that there were no immediate actions for this condition. However, the question does not ask for IMMEDIATE actions, it asks the applicant to recognize a description of correct actions to be taken following a scoop tube lock-up to put the plant in the safe, stable environment.

The correct response to this plant condition is found in procedure DOP 0202-12, Step E.4. This step directs the Operator to place the master and individual speed controllers in Manual mode if, at any time during operation, either scoop tube is locked out. After the scoop tubes are locked or the Motor Generator (MG) sets are off, the operator then targets 30% demand on the affected Recirculation Pump Speed Controller. This minimizes the opportunity for an uncontrolled reactivity excursion if the scoop tube is inadvertently unlocked. This action completes the desired response to ensure the plant is in a safe and stable condition.

The applicant stated that he assumed that the question was asking for the immediate actions, not the subsequent actions and the directions from DAN 902-4 C-5 to enter DOP 0202-12. Therefore, he determined that distractor (a.) was the correct answer. In NUREG-1021, Appendix E, “Policies and Guidelines for Taking NRC Examinations,” it stated, in part, that “When answering a question, do not make assumptions regarding conditions that are not specified in the question ....” The applicants were briefed verbatim on the contents of NUREG-1021, Appendix E prior to the administration of the written examination, and were provided a copy of Appendix E. Appendix E also directs applicants to ask the examination proctor for guidance if the question intent is unclear. The applicant did not ask for a clarification of immediate versus subsequent actions on this question during the administration of the written examination.

Conclusion:

Because the applicant did not ask any clarifying questions and made an unauthorized assumption when answering this question Region III recommends that the answer key remain unchanged for this question and distractor (c.) be retained as the only correct answer.

Region III Appealed Question Review Results

Question #80:

Which one of the following shift positions is responsible for ensuring Operations implements hanging of Clearance Orders, in the Radwaste basement, per OP-AA-101-111, Roles and Responsibilities of On-shift Personnel?

a. Unit Supervisor

b. Field Supervisor

c. Radwaste Specialist

d. Work Execution Center Supervisor

Answer: d.

Applicant's Contention:

The applicant cites OP-AA-101-111 stating that Section 4.3 lists the responsibilities of the Work Execution Center (WEC) Supervisor. He specifically cites Step 4.3.5 which stated the Work Execution Center Supervisor will DIRECT the operation of the Work Execution Center and ENSURE Operations implements schedule activities, including:

1) Performance of pre-job briefs,
2) Assignment of work,
3) Hanging of Clearances,
4) Matching workload and manpower, and
5) Post Job Critiques.

The applicant then cites Section 4.4 of OP-AA-101-111 which lists the responsibilities of the Field Supervisor. He specifically cites Steps 4.4.2, 4.4.3, and 4.4.4 which are:

4.4.2 Directly SUPERVISE license and non-licensed operators in the field.
4.4.3 ENFORCE expectations and standards and PROVIDE directing and leadership for licensed and non-licensed operators in the field.
4.4.4 DIRECT and ASSIST operators in the performance of their shift routines and routinely MONITOR and COACH operators on their performance.

The applicant stated that he chose answer "B" due to a specific location in the field was [SIC] listed in the stem of the question. He contended that both answers (b.) and (d.) are therefore correct.

Facility Comment:

This question was not formally addressed as a post-examination comment by the facility. However, in a question/answer analysis provided by the facility, it was noted that four people

missed this question with an additional note that the applicants contended that the field supervisor was the one that approves clearances.

Region III Resolution:

Region III believes that OP-AA-101-111 clearly delegates the responsibility to ENSURE Operations implements hanging of Clearance Orders to the Work Execution Supervisor. This responsibility is delegated in Step 4.3.5 (Item 3 listed above). It is his or her responsibility to ensure all clearances are completed correctly before allowing work to be performed on the affected systems. The Field Supervisor's responsibilities are to SUPERVISE, ENFORCE, DIRECT, ASSIST, MONITOR, and COACH non-licensed operators. The Field Supervisor does not need to get involved in a clearance order unless he so desires. The field supervisor may do second checks on tag-outs, but is not required to do so. He may have another qualified non-licensed operator complete the second check. The question does not ask who supervises the hanging and removing of tags, but who is responsible to ensure the tagout procedures are correctly implemented. While the field supervisor may work with individuals that are hanging and removing tags, it is the Work Execution Supervisor who has the overall responsibility to issue clearances and the overall responsibility to ensure that the correct tags are hung and removed. Since the procedure specifies that the WEC Supervisor is responsible for clearances, Region III recommends that the answer key remain unchanged for this question and distractor (d.) be retained as the only correct answer.