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US Nuclear Regulatory Commission, Region III  
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Duane Arnold Energy Center  
Docket 50-331  
Renewed Op. License No. DPR-49

April 16, 2019, NRC Initial License Written Examination Addendum

This letter contains additional information to clarify the station's position regarding Reactor Operator Written Examination Question 70 post examination comments.

Question 70 development was focused specifically on information provided in OP-AA-101-1000 "CLEARANCE AND TAGGING, ATTACHMENT 10 EXAMPLES OF WORK NOT REQUIRING A CLEARANCE". The applicable statement from the procedure was:

Changing fuses in systems less than 600 volts, using properly rated fuse pullers, is an example of general preapproved work not requiring a clearance.

The statement means worker protection from hazardous energy via a clearance order is not required when changing fuses with a 600 volt rated fuse puller in a less than 600 volt system. The statement is specific to the hazardous energy protection provided using the tool (fuse puller). Because the fuse puller provides worker protection based on its rating, worker protection via a separate clearance order is not required for the specific act of pulling the fuse. The statement is not specific to hazardous energy protection based on the worker's proximity to energized components when pulling a fuse, or a workers potential for inadvertent contact with energized components while pulling a fuse.

OP-AA-101-1000 defines Hazardous Energy as:

Any form of energy (thermal, electrical, chemical, etc.) that when released unexpectedly could result in personnel injury or equipment damage. There are two critical components to this understanding. First the energy must be of a magnitude that could cause injury to an employee; secondly the release of the energy must be unexpected or could be unexpected. The magnitude of the energy is dependent upon the type and release rate of the energy. If there is any question as to a source of energy being considered hazardous then a conservative position shall be taken and the source of energy will be

treated as hazardous and appropriate isolations techniques shall be used (e.g., Danger Tag or Locking Device for personnel protection).

OP-AA-101-1000 defines Potentially Energized Equipment as:

Possibility or potential for encountering energized equipment not isolated by a Clearance may exist at any plant location, but is most likely to be encountered within multi-purpose cabinets where equipment not associated with a Clearance is still energized. Employees shall assume that equipment is energized until it is isolated by a Clearance and tested to verify the Clearance boundaries.

OP-AA-101-1000 Section 4.1 "General Requirements for Tagging", Step 3 states:

Any worker that may be exposed to hazardous energy of any type and not utilizing Direct Control SHALL be protected by Danger Tags or Operating Permit tags with padlock(s) and be signed onto the Clearance as a Clearance Holder.

Based on the information provided in OP-AA-101-1000, the following is factual for an example involving 250 VDC:

A fuse puller rated for at least 250 VDC provides worker protection from hazardous energy specific to the act of pulling the fuse. Per OP-AA-101-1000 a clearance order is not required. Per OP-AA-101-1000 a clearance order is also not precluded from being utilized. Per OP-AA-101-1000 hazardous energy definition "...if there is any question as to a source of energy being considered hazardous then a conservative position shall be taken and the source of energy will be treated as hazardous and appropriate isolation techniques shall be used". Therefore, a clearance order would be utilized to provide worker protection from hazardous energy in the event the worker had a question if hazardous energy protection based on the worker's proximity to energized components when pulling a fuse, or a workers potential for inadvertent contact with energized components while pulling a fuse was a possibility. Per OP-AA-101-1000 in these cases a conservative position shall be taken and isolation via a clearance order utilized.

Question 70 stated:

Which of the following work tasks requires a clearance order?

Question 70 was a multiple choice question with four answer choices (A,B,C,D). To answer the question the applicant was required to unequivocally determine which one work task required a clearance order for worker protection, and which three work tasks did not require a clearance order for worker protection.

Choice A: Replacing a SBGT train Roughing Filter,

To perform this task the worker is exposed to rotating equipment if the SBGT Roughing Filter is replaced with the SBGT fan energized. The fan represents hazardous energy. Per OP-AA-101-1000, a clearance order is required to remove energy from the fan to eliminate the hazardous energy. Choice A is a correct answer to Question 70.

Choice B: Changing Fuses in a 250 VDC system,

To perform this task the worker is exposed to 250 VDC if the fuse is changed with the circuit energized. The 250 VDC represents hazardous energy. The answer choice does not provide information if a fuse puller was used to perform the task, or if the fuse puller is rated for the system voltage. The answer choice does not provide information about the worker's proximity to energized components while changing the fuse, or if the worker could potentially inadvertently contact energized components while changing the fuse.

If the applicant assumes that a fuse puller was used, that fuse puller was rated for at least 250 VDC, the worker was not in proximity to any energized components and the worker could not inadvertently contact any energized components while pulling the fuse, then a clearance order is not required for worker protection. Per OP-AA-101-1000, Attachment 10, a clearance order is not required to change a fuse in a 250 VDC system if a properly rated fuse puller is used.

If the applicant does not make these assumptions and considers only the answer choice words provided, then a clearance order is required for worker protection. Per OP-AA-101-1000, a conservative position shall be taken and the source of energy will be treated as hazardous and appropriate isolation techniques shall be used if there is any question as to the source of energy being hazardous.

Based on how the applicant assesses the answer choice wording, the applicant could accurately determine a clearance order was required, making Choice B a correct answer to Question 70.

Choice C: Changing the Domestic Water Filter,

To perform this task the worker is not exposed to hazardous energy. The task is controlled by an operating instruction. Valve positions are procedurally controlled. Per OP-AA-101-1000 a clearance order is not required to perform this task. Choice C is not a correct answer to Question 70.

Choice D: Liquid nitrogen tank delivery/refill,

To perform this task the worker is not exposed to hazardous energy. The task is controlled by an operating instruction. Valve positions are procedurally controlled. Per OP-AA-101-1000 a clearance order is not required to perform this task. Choice D is not a correct answer to Question 70.

Question 70 required the applicant to determine when a clearance is required for a set of work tasks. "When required" is different from "when not required". OP-AA-101-1000 Attachment 10 provides an example allowing fuse removal with a proper tool that does not require a clearance order. The example does not prevent the use of a clearance order for hazardous energy removal based on the circumstances of the activity. OP-AA-101-1000 instructs one to be conservative in answering if hazardous energy exists, and if it exists, then it is to be isolated with a clearance order.

The applicant would use his/her knowledge and background in answering Question 70. The station reviewed historical clearance orders and found that in at least one case, the applicant was involved in a clearance order for pulling 250 VDC fuses. For that clearance order the fuses pulled were large 250 VDC in-line power fuses. 250 VDC fuses are used for in-line and control power applications.

The station feels that after further technical information has been reviewed, there is a basis for the applicant's choice to be accepted as an alternate answer. The distractor did not provide sufficient information of the hazards present (or not present) such as system under load, amp rating of fuse, proximity to possible energized components, etc., to eliminate "Changing fuses in a 250VDC system as an answer. In the experience of the individual the work task required a clearance order. This is supported by OP-AA-101-1000. Please see attached documentation in previous correspondence.

Based upon this and the previously provided information for the station position for the exam comment regarding Question 70 on the RO written examination, the stations feels Choice B should be accepted as another correct answer.

Our original positions on Question 10 and Question 28 remain the same and we will not be pursuing any further consideration.

This letter contains no new commitments.



Dean Curtland  
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Nextera Energy Duane Arnold, LLC

Enclosure None