In accordance with examination security guidance contained in NUREG 1021, Revision 11, APS requests that the material contained in the enclosures be withheld from public disclosure until after the examinations are complete.

NUREG 1021/10 CFR 55

Palo Verde
Nuclear Generating Station
P.O. Box 52034
Phoenix, AZ 85072
Mail Station 7636
Tel 623 393 5379

102-08206-MEK/BG
December 15, 2020

S. A. Morris, Regional Administrator
U.S. Nuclear Regulatory Commission, Region IV
1600 E. Lamar Blvd.
Arlington, TX 76011-4511

Reference: NRC letter, "Palo Verde Nuclear Generating Station, Units 1, 2, and 3 – Notification of NRC Initial Operating Licensing Examination, dated January 29, 2020" [Agency Document Access and Management System (ADAMS) Accession No. ML20029F010]

Dear Sir:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)**
Units 1, 2, and 3 Docket Nos. STN 50-528, 50-529, 50-530
2020 Post-Exam Comments and Analysis Submittal

Arizona Public Service Company (APS) management has completed its review of the initial operator licensing examination conducted Nov 30 through Dec 10, 2020. Per NUREG 1021, Rev 11, Section ES-501 (C.l.b), this letter provides the required post examination documents. There were no substantive comments made by the applicants following the written examination. Enclosed examination documents are:

1. HARD COPY:
    - Graded written examinations including each applicant's original answer sheet
    - Original exam cover sheet for each applicant with grades filled in
    - A clean copy of each applicant's answer sheet (made prior to grading)
    - Completed ES-403-1, Written Examination Grading Quality Checklist
2. ELECTRONIC COPY (on CD):
    - Master examination(s) and answer key(s), annotated to indicate any changes made while administering and grading the examlnation(s) – (No changes made)
    - Any questions asked by and answers given to the applicants during administration of the written exam
    - All examination administration or post-examination review comments made by the facility licensee and the applicants after the written examination and/or operating tests

In accordance with examination security guidance contained in NUREG 1021, Revision 11, APS requests that the material contained in the enclosures be withheld from public disclosure until after the examinations are complete.

- Written examination seating chart
- Results of any written exam performance analysis that was performed, with recommended substantive changes
- Justification for any recommended exam changes (no changes recommended)
- ES-201-3, Examination Security Agreement, as of 12-15-20 (completed ES-201-3 will be provided when all personnel have signed off security agreement)
- Copies of condition reports written or to be written as a means to improve exam processes, procedure quality, training quality, exam security, simulator fidelity, and any other general topics that relate to the exam process

As discussed with the Chief Examiner, APS will obtain post-exam signatures from individuals who had detailed knowledge of any part of the operating tests or written examination and electronically forward completed Form(s) ES-201-3, "Examination Security Agreement," with the appropriate pre- and post-examination signatures.

In accordance with examination security guidance contained in NUREG 1021 Revision 11 and ES-201, APS requests that the NRC Region IV office delay public release of the proposed and final operating test, written examinations and answer keys for a period of 2 years from the date of the examination completion.

No commitments are being made to the NRC by this letter.

If you have any questions or require additional information, please contact Jarred J. Shaver, Nuclear Training Section Leader, at (623) 393-4519.

Sincerely,

Kura, Matthew E(Z04774)

Digitally signed by Kura, Matthew E(Z04774)
DN: cn=Kura, Matthew E(Z04774)
Date: 2020.12.15 13:17:22 -07'00'

Matthew E. Kura
Department Leader, Regulatory Affairs, Compliance

MEK/BG

In accordance with examination security guidance contained in NUREG 1021, Revision 11, APS requests that the material contained in the enclosures be withheld from public disclosure until after the examinations are complete.

Enclosures:

1. HARD COPY:
   - Graded written examinations including each applicant's original answer sheet
   - Original exam cover sheet for each applicant with grades filled in
   - A clean copy of each applicant's answer sheet (made prior to grading)
   - Completed ES-403-1, Written Examination Grading Quality Checklist
2. ELECTRONIC COPY (on CD):
   - Master examination(s) and answer key(s), annotated to indicate any changes made while administering and grading the examination(s) – (No changes made)
   - Any questions asked by and answers given to the applicants during administration of the written exam
   - All examination administration or post-examination review comments made by the facility licensee and the applicants after the written examination and/or operating tests
   - Written examination seating chart
   - Results of any written exam performance analysis that was performed, with recommended substantive changes
   - Justification for any recommended exam changes (no changes recommended)
   - ES-201-3, Examination Security Agreement, as of 12-15-20 (completed ES-201-3 will be provided when all personnel have signed off security agreement)
   - Copies of condition reports written or to be written as a means to improve exam processes, procedure quality, training quality, exam security, simulator fidelity, and any other general topics that relate to the exam process

cc: (w/o enclosure)
G. E. Werner — NRC Region IV, Chief, Operations Branch
C. A. Peabody — NRC Senior Resident Inspector for PVNGS

(w enclosure)
C. C. Osterholtz — NRC Region IV, Chief Examiner
J. A. Bridges — NRC Region IV, Licensing Assistant, Operations Branch

Withhold from Public Disclosure
Per NUREG 1021, Revision 11

Enclosures

1. HARD COPY:
   - Graded written examinations including each applicant's original answer sheet
   - Original exam cover sheet for each applicant with grades filled in
   - A clean copy of each applicant's answer sheet (made prior to grading)
   - Completed ES-403-1, Written Examination Grading Quality Checklist

2. ELECTRONIC COPY (on CD):
   - Master examination(s) and answer key(s), annotated to indicate any changes made while administering and grading the examination(s) – (No changes made)
   - Any questions asked by and answers given to the applicants during administration of the written exam
   - All examination administration or post-examination review comments made by the facility licensee and the applicants after the written examination and/or operating tests
   - Written examination seating chart
   - Results of any written exam performance analysis that was performed, with recommended substantive changes
   - Justification for any recommended exam changes (no changes recommended)
   - ES-201-3, Examination Security Agreement, as of 12-15-20 (completed ES-201-3 will be provided when all personnel have signed off security agreement)
   - Copies of condition reports written or to be written as a means to improve exam processes, procedure quality, training quality, exam security, simulator fidelity, and any other general topics that relate to the exam process

In accordance with examination security guidance contained in NUREG 1021, Revision 11, material contained in the enclosures shall be withheld from public disclosure until after the examinations are complete. APS requests withholding of this material for 2 years from the completion of examinations to align with the completion of the two-year training cycle.

Questions Missed by 50% or More of the Class on 2020 NRC Initial Written Exam

Q# 10		K/A: SGTR: Knowledge of the operational implications of the following concepts as they apply to the SGTR: Use of steam tables
Question		Given the following conditions: • Unit 2 was tripped due to a SG tube rupture on SG #1 • The CRS entered 40EP-9EO04, SGTR The BOP should lower Steam Generator pressures to a MAXIMUM of ___(1)___ to ensure that ___(2)___ is at the required temperature prior to isolating SG #1.
50%	A.	(1) 950 psia (2) Thot
0%	B.	(1) 950 psia (2) Tcold
50%	C.	(1) 1135 psia (2) Thot
0%	D.	(1) 1135 psia (2) Tcold

Technically Correct?	Yes
Operationally Valid?	Maybe. The normal direction for lowering Thot following a SGTR is to lower Thot to < 540°F in order to isolate the SG. However this question was written to ask what steam pressure (based on the KA) to lower SG pressure to. In the event there was a loss of RCS temperature indication, this would be a valid method to ensure < 540°F.
Covered In Training?	Lowering Thot to < 540°F is certainly covered in training, however using a target SG pressure is not covered. Use of steam tables is covered though so students should have the ability to navigate the question without issue.
Appropriate for Job?	Yes, the concept is appropriate for the job, however the methodology used in this question is not generally done.
Action Needed?	No action needed since the concept is already trained and well known, however the question should be looked at closer prior to future use based on the evolution not being something is normally performed by crews.
Conclusion:	Question is technically valid and the general concepts in the question are well trained, however further evaluation should be done prior to future use.

Q# 12		K/A: Loss of Main Feedwater: Knowledge of the operational implications of the following concepts as they apply to the Loss of Feedwater: Components, capacity, and function of emergency systems.
Question		Given the following conditions: • Unit 1 tripped due to a complete loss of Main Feedwater • AFB-P01 has been manually started and aligned to feed both SGs Subsequently: • AFAS-1 actautes With NO operator action, how should the AFAS-1 affect the current feed lineup? AFA-P01 should start and feed ___(1)___ and AFB-P01 should be feeding ___(2)___ .
43%	A.	(1) SG #1 ONLY (2) SG #1 ONLY
57%	B.	(1) SG #1 ONLY (2) both SGs
0%	C.	(1) both SGs (2) SG #1 ONLY
0%	D.	(1) both SGs (2) both SGs

Technically Correct?	Yes
Operationally Valid?	Yes
Covered In Training?	Yes
Appropriate for Job?	Yes
Action Needed?	No. This concept is trained in the classroom and in the simulator, and this concept is tested on periodic written exams as well as simulator exams.
Conclusion:	Feedback from the class was that this question was fair and although this concept was well trained, they doubted themselves and decided that they thought it would make more sense that the system would continue to feed SG 2 from AFB-P01 while also feeding SG 1 from both pumps. No action needed.

Q# 21		K/A: Accidental Liquid Radwaste Release: Knowledge of the interrelations between the Accidental Liquid Radwaste Release and the following: Radioactive gas monitors
Question		Given the following conditions: • A leak on Liquid Radwaste Holdup Tank, LRN-T01C, caused a Lo-Lo Level Alarm at the Liquid Radwaste Annunciator Panel, LRN-E01 (1) When LRN-T01C, Lo-Lo Level alarm annunciates a trip signal should be sent to… (2) Airborne radioactivity vented from any Liquid Radwaste Holdup Tank should be detected INITIALLY by ___(2)___ .
0%	A.	(1) ALL Liquid Radwaste Holdup Tank Pumps (2) RU-143, Plant Vent radiation monitor
50%	B.	(1) ALL Liquid Radwaste Holdup Tank Pumps (2) RU-14, Radwaste Building Ventilation Exhaust Filter Inlet radiation monitor
0%	C.	(1) ONLY Liquid Radwaste Holdup Tank Pump, LRN-P01C (2) RU-143, Plant Vent radiation monitor
50%	D.	(1) ONLY Liquid Radwaste Holdup Tank Pump, LRN-P01C (2) RU-14, Radwaste Building Ventilation Exhaust Filter Inlet radiation monitor

Technically Correct?	Yes
Operationally Valid?	Yes
Covered In Training?	Yes, lightly
Appropriate for Job?	Yes
Action Needed?	Yes. Students in class felt that while RW systems are trained during LOIT, there are very few questions on these systems during the program. They also felt as though since none of the students in this all-instant SRO class they were at a disadvantage with RW systems since they are lightly evaluated and there are very few questions in the program about the RW systems.
Conclusion:	Recommendation from the class was to perform a Needs Analysis to evaluate the need to ask more questions on RW systems thoughout the program to better prepare students for RW questions on their Audit and NRC written exams. Additionally, there was a recommendation for the creation of a 1-2 page study guide with several highly testable concepts such as RMs, system interlocks, and release flowpaths for quick refresher training prior to the Audit and NRC exams.

Q# 67		K/A: Conduct of Operations: Knowledge of the administrative requirements for temporary management directives, such as standing orders, night orders, operations memos, etc.
Question		Given the following conditions: • An Operational Decision Making Issue (ODMI) has been issued for a Pressurizer Safety Valve that is leaking by • The crew is calculating RCS leakage from the Pressurizer Safety Valve every hour to determine if 1 GPM is exceeded and additional action needs to be taken The ODMI Action Plan is approved by the ___(1)___ and if 1 GPM is exceeded, the crew should refer to the ___(2)___ point section of the ODMI.
0%	A.	(1) Plant Manager (2) hold
50%	B.	(1) Plant Manager (2) trigger
0%	C.	(1) Operations Director (2) hold
50%	D.	(1) Operations Director (2) trigger

Technically Correct?	Yes
Operationally Valid?	Yes
Covered In Training?	Yes, lightly
Appropriate for Job?	Yes
Action Needed?	No
Conclusion:	Although Conduct of Operations and Decision Making Processes are covered in LOIT, they are not necessarily covered in great depths. However the class felt as though the primary reason for missing this question was the fact that each of them came from other stations and most of the applicants who did not know the answer based their choice on prior plant knowledge, which happened to be incorrect at PVNGS.

Q# 70		K/A: Equipment Control: Knowledge of the process for managing maintenance activities during power operations, such as risk assessments, work prioritization, and coordination with the transmission system operator
Question		Given the following conditions: • All Units are operating at 100% power • There is required maintenance on Westwing #1 transmission line • An Auxiliary Operator needs to access the switchyard to hang a clearance Per 40DP-9OP34, Switchyard Administrative Controls: (1) Auxiliary Operator access to the Switchyard may be granted by… (2) In order to hang the clearance, a Switching Order is REQUIRED to be provided by…
0%	A.	(1) ANY of the Unit SMs (2) the Energy Control Center ONLY
0%	B.	(1) ANY of the Unit SMs (2) The Energy Control Center AND Salt River Project
43%	C.	(1) The Unit 1 SM ONLY (2) the Energy Control Center ONLY
57%	D.	(1) The Unit 1 SM ONLY (2) The Energy Control Center AND Salt River Project

Technically Correct?	Yes
Operationally Valid?	Yes
Covered In Training?	Yes
Appropriate for Job?	Yes
Action Needed?	No
Conclusion:	While this concept is trained in LOIT, it is information more likely reinforced from time on shift, and given the OJT assignments due to COVID, in which students remained in one unit during OJT instead of moving from unit to unit, it is likely that those who did not perform OJT in Unit 1 were less exposed to switchyard operations than those who did OJT in Unit 1.

Q# 79		K/A: Loss of Main Feedwater: Knowledge of limiting conditions for operations and safety limits
Question		Per Technical Specification Basis for LCO 3.3.1, RPS Instrumentation – Operating, which of the following RPS trips mitigates a Feedwater Line Break? 1. Departure from Nucleate Boiling Low 2. Containment Pressure High 3. Pressurizer Pressure High
14%	A.	2 ONLY
50%	B.	3 ONLY
7%	C.	1 AND 2 ONLY
29%	D.	1 AND 3 ONLY

Technically Correct?	Yes
Operationally Valid?	Yes
Covered In Training?	Yes
Appropriate for Job?	Yes
Action Needed?	No
Conclusion:	While the basis for TS is taught and required knowledge for SROs, the SROs in this class were less familiar with the accidents mitigated by each individual RPS trips.

Q# 80		K/A: Station Blackout: Ability to determine or interpret the following as they apply to a Station Blackout: Faults and lockouts that must be cleared prior to re-energizing buses
Question		Given the following conditions: • Unit 1 is in a blackout condition • The 'B' EDG is OOS and will not be available for the next 6 hours Per Appendix 55, Restore DG A to PBA-S03, which of the following faults can the crew attempt to reset in order to restore power to PBA-S03? 1. Overspeed trip of the 'A' EDG 2. Generator Differential trip of the 'A' EDG 3. Overcurrent trip of the 'A' EDG Output Breaker
0%	A.	2 ONLY
0%	B.	3 ONLY
50%	C.	1 AND 2 ONLY
50%	D.	1 AND 3 ONLY

Technically Correct?	Yes
Operationally Valid?	Yes
Covered In Training?	Yes
Appropriate for Job?	Yes
Action Needed?	Yes
Conclusion:	Given the limited number of items in 10CFR55.43 for SRO level question topics, LOIT should evaluate the level of detail in training and evaluations when training on EOP sub-appendices such as Appendix 55. This is commonly used information for use on SRO NRC Initial written exams and it appears as though the training on these topics may not be adequately preparing initial license candidates for Audit and NRC written exams.