SummerRAIsPEm Resource

From: Gleaves, Bill
Sent: Monday, July 25, 2016 10:30 AM
To: SummerRAIsPEm Resource
Cc: Kallan, Paul
Subject: VCS draft in-plant JPM exemption - 7-12-16
Attachments: VCS draft inplant JPM exemption - 7-12-16.docx

Importance: High

From: RICE, APRIL R [mailto:ARICE@scana.com]
Sent: Tuesday, July 12, 2016 2:10 PM
To: Kallan, Paul <Paul.Kallan@nrc.gov>
Cc: Gleaves, Bill <Bill.Gleaves@nrc.gov>
Subject: [External_Sender] FW: VCS final draft inplant JPM exemption - 7-12-16

Per you request.
April

Hearing Identifier: Summer_COL_eRAIs
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Created By: Bill.Gleaves@nrc.gov

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Ronald A. Jones
Vice President
New Nuclear Operations

July XX, 2016

Docket Nos.: 52-027
52-028

NND-16-0266
10 CFR 55.11
10 CFR 55.40(a) and (b)
10 CFR 55.45(b)

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station Units 2 and 3
Request for an Exemption: Operator Licensing

Reference: Southern Nuclear Operating Company Letter ND-16-0747, "Southern Nuclear Operating Company Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Revised Request for Exemption and RAI Response: Operator Licensing," dated May 27, 2016

Ladies and Gentlemen:

Pursuant to 10 CFR 55.11, "Specific Exemptions," South Carolina Electric & Gas Company (SCE&G) requests an exemption from the plant walkthrough requirement of 10 CFR 55.45(b), "Operating Tests, Implementation and Administration," and from the requirements of 10 CFR 55.40(a) and (b), "Written Examinations and Operating Tests, Implementation," for Virgil C. Summer Nuclear Station Units 2 and 3 (VCS). Specifically, an exemption is requested from the following requirements of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," which are incorporated by reference into 10 CFR 55.40(a) and (b):

- NUREG-1021, section ES-301.D.4.a, evaluate three in-plant Job Performance Measures (JPMs)
- NUREG-1021, section ES-301.D.4.b, entry into the radiologically controlled area (RCA)

These exemptions are necessary because these requirements cannot be met at the present time due to the current state of VCS Unit 2 construction.

The exemption is necessary to ensure SCE&G has licensed operators prior to fuel receipt for VCS Unit 2.

SCE&G intends to use as much of the completed plant as possible for both JPM and training purposes. However, it is anticipated that this exemption will be required until the Commission makes its finding under 10 CFR 52.103(g) for Unit 2.

These exemptions are authorized by law, will not endanger life or property, and are otherwise in the public interest.

This submittal is similar to an exemption requested by Southern Nuclear Operating Company for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (Reference) and addresses associated NRC Requests for Additional Information (RAIs) related to the VEGP exemption request.

Enclosure 1 provides background information, related regulations and discussion related to the plant walkthrough requirements of 10 CFR 55.45(b).

Enclosure 2 addresses RAIs related to the VEGP exemption request (Reference).

This letter contains no regulatory commitments.

To support the Operations training schedule, SCE&G requests staff approval of this exemption by August 5, 2016.

Should you have any questions regarding this request, please contact April Rice, Manager, Nuclear Licensing, New Nuclear Deployment, at (803) 941-9858, or by email at arice@scana.com.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this __ day of _____, 2016.

Sincerely,

Ronald A. Jones
Vice President
New Nuclear Operations

RJ/gs

Enclosure 1: Plant Walkthrough Exemptions

Enclosure 2: Information Related to the Vogtle Electric Generating Plant (VEGP) Units 3 and 4 NRC Requests for Additional Information (RAIs) on VEGP Plant Walkthrough Exemptions

c: Paul Kallan
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South Carolina Electric & Gas Company

Virgil C. Summer Nuclear Station (VCS) Units 2 and 3

ND-16-0266

Enclosure 1

Plant Walkthrough Exemptions

(This Enclosure consists of 19 pages, including this cover page)

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1.0 Summary Description:

Pursuant to 10 CFR 55.11, “Specific Exemptions,” South Carolina Electric & Gas Company (SCE&G) requests an exemption from the plant walkthrough requirement of 10 CFR 55.45(b), “Operating Tests, Implementation and Administration,” and from the requirements of 10 CFR 55.40(a) and (b), “Written Examinations and Operating Tests, Implementation,” for Virgil C. Summer Nuclear Station Units 2 and 3 (VCS). Specifically, an exemption is requested from the following requirements of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," which are incorporated by reference into 10 CFR 55.40(a) and (b):

- NUREG-1021, section ES-301.D.4.a, evaluate three in-plant Job Performance Measures (JPMs)
- NUREG-1021, section ES-301.D.4.b, entry into the radiologically controlled area (RCA)

These exemptions are necessary because these requirements cannot be met at the present time due to the current state of VCS Unit 2 construction.

2.0 Detailed Description:

The plant walkthrough portion of an operating test at a site with an operating reactor is normally administered by conducting in-plant Job Performance Measures (JPMs) on location in the plant. This enables the Examiner to evaluate the applicant’s knowledge and familiarity with the plant layout and equipment locations. The applicant simulates performing the actions of the JPM at or near the equipment location and the Examiner engages the applicant in discussion as necessary to complete the evaluation. In-plant JPMs rarely require the applicant to actually perform the activity being evaluated because doing so would result in operation of the plant by an un-licensed operator. NUREG-1021, ES-301, Attachment 2, page 21 requires that the Examiner “*actually observe the applicant perform an action, or in the case of a JPM in the plant, describe exactly what it takes to perform an action*.”

During construction of a new plant, the majority of the operating tests (i.e., the simulator operating test, the control room JPMs, and the administrative topic JPMs) can be performed independent of construction activities. Only the in-plant systems JPMs cannot be performed using existing evaluation methods until a sufficient amount of equipment is installed in the plant to ensure a quality testing environment. The VCS Updated Final Safety Analysis Report (UFSAR) includes a Cold License Training Plan that describes acceptable methods SCE&G can use to meet On-the-Job Training (OJT) requirements until plant construction is completed. However, 10 CFR 55.45(b), 55.40(a) and 55.40(b) make no similar provision for NRC Staff to administer plant walkthroughs during plant construction.

This exemption is needed because it is not possible to perform the three in-plant JPMs or a Radiologically Controlled Area (RCA) entry using existing evaluation methods until a sufficient amount of equipment is installed in the plant to ensure a quality testing environment.

2.1 In-Plant JPM Exemption

10 CFR 55.40(a) directs the Commission to use the criteria in NUREG-1021 to evaluate operating tests. 10 CFR 55.45(b) requires the operating test administered to licensed operator applicants to include a plant walkthrough. NRC Staff (Examiners) administer the plant walkthrough. NUREG-1021, section ES-301.B, states the walkthrough portion of the operating test consists of two parts, "Administrative Topics" and "Control Room/In-Plant Systems." NUREG-1021, section ES-301.D.4.a, differentiates between Control Room JPMs and In-Plant Systems JPMs. It further specifies that the in-plant portion consists of three JPMs. NUREG-1021, Appendix E, section D.1, states that Examiners will use job performance measures (JPMs) to evaluate the areas covered during the walkthrough test.

An exemption from the plant walkthrough requirements of 10 CFR 55.45(b), 55.40(a) and 55.40(b) is necessary because it is not possible for Examiners to administer the three in-plant JPMs as described in NUREG-1021, given the current state of VCS Unit 2 construction.

2.2 RCA Entry Exemption

As just described in Section 2.1, NUREG-1021 states that the in-plant portion of the examination consists of three JPMs. NUREG-1021, section ES-301.D.4.b, requires that at least one of the tasks conducted in the plant "shall require the applicant to enter the RCA." This is also stated on Form ES-201-2, "Examination Outline Quality Checklist," Section 3.a.(5) which states in part that, "RCA tasks meet the criteria on the form" and discussed on ES-301, Section D.3.d, "Radiation Control," which states, "This topic may be covered in conjunction with the JPMs prepared for the in-plant systems walk-through. One possibility is to evaluate these subjects during the required entry into the Radiologically Controlled Area (RCA)."

An exemption from the plant walkthrough requirements of 10 CFR 55.45(b), 55.40(a) and 55.40(b) is necessary because it is not possible to enter the VCS Unit 2 RCA given the current state of VCS Unit 2 construction.

3.0 Compliance Methods:

3.1 Administration of In-Plant JPMs using Cold License Training Plan Methods

The NRC has concluded that "NEI 06-13A 'Template for an Industry Training Program description,' Revision 1, complies with the applicable NRC regulations, guidance, and industry standards and can be utilized by applicants for COLAs." NEI 06-13A, Appendix A, "Cold License Training Plan," Section 13.2A.3, "Conduct of On-the-Job Training (OJT)," states, "Until plant construction is completed, acceptable methods for the conduct of on-the-job training include discussion, simulation, and use of mockup equipment and virtual reality technology." These requirements were subsequently incorporated into the VCS Unit 2 and 3 UFSAR, Section 13.2A, "Cold License Training Plan."

SCE&G proposes utilizing similar methods for administering in-plant JPMs that the NRC has already determined are acceptable for training licensed operator applicants. Utilizing cold license training plan evaluation methods during the administration of in-plant JPMs aligns examination evaluation methods with those contained in the VCS license and serves to maintain examination conditions that are uniform and consistent with training conditions and current exam methodology for in-plant walkthroughs described in NUREG-1021. Incorporating cold license training plan methods aligns the requirements of 10 CFR 55.45(b) and the VCS Units 2 and 3 UFSAR, thereby permitting examination of the 13 items described in 10 CFR 55.45(a). This represents little deviation from how JPMs are administered at operating reactor sites, because any questions, discussions, or other cold licensing methods used for task evaluation will still follow the NUREG-1021 JPM development process, which requires the NRC Examination Chief and Examiners to review JPMs to ensure that they discriminate at an agreed-upon minimal measure of knowledge or performance.

Additionally, validity for the test items described in NUREG-1021, Appendix A, Section C will not be impacted, because utilizing cold licensing evaluation methods during the administration of in-plant walkthrough JPMs does not alter the method in which JPMs are selected or sampled.

The following provides additional detail beyond the information contained in UFSAR, Section 13.2A.3, regarding the various methods that NRC Staff may use during the administration of a JPM to allow an applicant to demonstrate whether he or she has knowledge of plant locations and knowledge of how to perform the task.

- Plant layout diagrams and equipment diagrams will be used as necessary and/or as appropriate to allow an applicant to demonstrate knowledge of plant and equipment locations.
- Breaker Lab – VCS is in the process of procuring equipment for a breaker lab that contains 6.9kV and 480V breakers that can be locally operated and racked in and out.
- Maintenance Flow Loop – contains generic plant equipment, such as pumps, valves, and instruments for demonstrating the fundamental knowledge of operation and monitoring of plant equipment.
- Remote Shutdown Room (RSR) – VCS training facilities have installed one remote shutdown room that allow applicants to transfer operational control from the main control room simulator to the RSR simulator and operate the simulator from the RSR.
- RCA mockup – A training environment that includes the required equipment for an operator to sign into a radiation work package, activate their electronic alarming dosimeter, and dress out as required for the task.
- Discuss method – using the procedure and plant layout drawings, the applicant discusses the required actions of a task. Discussion can cover required Personal Protective Equipment (PPE), actions, system response and location. Location information can include specifics such as building, elevation, and room.

Performing and administering JPMs using the cold license methods is substantively the same as the process used for a JPM performed and administered in the plant. In both cases no plant equipment is operated because neither the NRC Examiner nor the license applicant are qualified to operate the equipment. Both processes start with the Examiner presenting the applicant a task to perform using a cue sheet. After the applicant reviews the task and informs the Examiner that he or she understands the task, the Examiner will tell the applicant to begin the task and the Examiner begins to evaluate that applicant. Next the applicant must lead the evaluator to the correct plant location(s) to perform the task while demonstrating all requisite knowledge and abilities to navigate that path. In the cold license process, this is accomplished using plant location drawings or maps in place of physically walking to the location(s). Once the applicant has demonstrated knowledge of how to get to the location in either method, he or she will simulate performing the procedure or operating equipment. Both methods require the applicant to identify the equipment to be operated, provide a verbal description of how they will operate the equipment, and explain how they expect the equipment and related systems to respond. The difference from an in-plant JPM administered at a station already in operation is that 1) the applicant uses a plant layout drawing to describe how they would get to the location of the equipment to be operated instead of walking to the location, and 2) the applicant points to a picture of the equipment in place of pointing to the actual plant component, or may utilize a mockup of actual plant equipment in a lab setting. In the cold license method, plant layout drawings and/or pictures of components not directly related to the task will also be made available to the applicant to maintain discriminatory value (i.e., the applicant has the same opportunity to fail as with an in-plant JPM by going to the wrong location, by choosing the incorrect component, or by incorrectly simulating the operation of the correct component). The materials referenced in the previous sentence may be collocated with the equipment that is the subject of the JPM in order to maintain discriminatory value, as necessary and agreed upon by Examiners in accordance with the process outlined in NUREG-1021, ES-301, Sections C.2, E.2.a, E.2.c, E.2.d, E.2.f, E.2.g, Form ES-301-3, blocks 1.e and 2.a. Both methods require the applicant to demonstrate all required competencies on task performance through discussion and interpretation of the cues provided. When the task is complete the applicant informs the Examiner and the JPM is completed.

There are multiple locations where this manner of JPM can occur. The applicant can be asked to actually operate components if they exist in a laboratory, flow loop, or mockup. The applicant must demonstrate to the evaluator how to locate the plant equipment, and then operate actual components in one of these locations. In the case of the RSR, a full Remote Shutdown Workstation (including transfer switches) is part of the simulation facility; the applicant would be able to actually perform the task just as it would be performed by an operator in the plant. The applicant would not need more (or additional) cues, information or knowledge regarding the location of the task, or how to complete the task due to the use of the alternative methods, than they would when performing the same task in-plant. For example, in an RSR JPM, the only difference would be describing how to travel to the RSR rather than actually walking to the RSR. Since the RSR is a

simulation facility, the task would actually be performed rather than using a description, as would be the case for an in-plant JPM. For a task that would occur in the RCA, the applicant has the ability to use a mockup to show all necessary skills and knowledge abilities equivalent to an RCA entry (including signing onto a Radiation Work Permit (RWP) and using electronic dosimetry). The applicant would then use the discuss method outlined above to demonstrate knowledge of location, and skill to perform, the task. The ability to operate any equipment in a simulation facility enhances the training/examination process because the applicant will be able to physically operate the equipment.

Furthermore, administration of the JPMs using cold license techniques allows all the provisions in NUREG-1021, Appendix C "Job Performance Measures Guidelines," Section D, "Walk-Through Evaluation Techniques," to be met.

In-plant JPMs using cold licensing techniques mirror operating plants in the following ways:

- No equipment is physically operated and the applicant must respond to cues provided by the Examiner (excluding equipment operated in a lab setting);
- Both techniques require the applicant to demonstrate knowledge required to physically locate the component, including Building, Elevation, and Room Number;
- Both techniques provide sufficient discriminatory value by affording the applicant the opportunity to simulate operating incorrect equipment, resulting in JPM failure;
- The applicant must demonstrate, through discussion, the knowledge and skills necessary to perform the task; and,
- In the case of radiological areas, the mock radiation area can be used to physically demonstrate the ability to perform tasks necessary to enter and exit a Radiologically Controlled Area (RCA), navigate radiological controlled areas, including simulated contaminated areas then proceeding as would be done for in-plant JPMs.

The primary change is that the questions Examiners currently ask when on location in the plant will now be asked in a location other than "in-plant." The questions will remain the same, but some additional description of plant layout and equipment location may be required of the applicant.

Any questions or discussions that occur while using cold licensing methods during task evaluation will still allow differentiation between competent and less-than competent applicants.

3.2 RCA Mockup Alternative to RCA Entry

An RCA mockup is available for training and evaluation use. The mockup is used by VCS Unit 1 to train outage workers and licensed operators. The use of the mockup is available to be incorporated into the performance of at least one JPM selected for the walkthrough

portion of the operating test. Standards for entry into the mockup RCA are identical to an actual RCA, and are available to be used to evaluate an applicant's understanding of, and ability to perform, actions related to an RCA entry.

The RCA mockup provides an environment to observe an operator's ability to sign into a radiation work package, activate their electronic alarming dosimeter, and dress out as required. Once the applicant has demonstrated the required competence in regards to RCA entry and their knowledge of administrative subjects related to radiation control, the Examiner can evaluate the task using the cold license training methods described in Section 3.1 above.

Individuals being evaluated by plant walkthrough requirements will be qualified Radiation Workers at VCS Units 1, 2, and 3 prior to granting RCA Entry Exemption as a means of conducting in plant JPMs. As radiation workers, these individuals are being evaluated by plant walkthrough requirements, and were previously trained and evaluated for RCA entry. Training included real equipment, electronic alarming dosimeters, radiation work packages, exit monitors, and dress-out facilities. This training is used as a means of ensuring that all radiation workers at VCS Units 2 and 3 are capable of making entry into the RCA.

The Mockup facility is the same facility that is used to train VCS Unit 1 licensed personnel.

Any questions or discussions that occur while using the RCA mockup during task evaluation will still allow differentiation between competent and less-than competent applicants.

3.3 Termination of Alternative Compliance Methods

The use of alternative compliance methods will terminate after the Commission makes its finding under 10 CFR 52.103(g) or, for those tasks that are to be selected to be part of an operating task in accordance with NUREG-1021, ES-301, Section D.4.a and Section D.4.b, where it is possible to perform on-the-job training in the plant and administer part of an operating test in a plant walk-through.

Additionally, and in accordance with UFSAR, Section 13.2A.6, "As plant systems, components, and structures are completed, and as integrated plant operations begin, the systematic approach to training process will be used to adjust cold license class training methods and settings. These modifications will optimize student learning using actual in-plant training and experience opportunities as they become available."

The exemption will continue to apply in the same manner for any subsequent Revisions (after Revision 10) of NUREG 1021 that may be issued prior to the 10 CFR 52.103(g) finding or, for those tasks that are to be selected to be part of an operating task in accordance with NUREG-1021, ES-301, section D.4.a and section D.4.b, where it is possible to perform on-the-job training in the plant and administer part of an operating test in a plant walk-through.

3.4 Summary

An exemption from the plant walkthrough requirements of 10 CFR 55.45(b), 55.40(a) and 55.40(b) is necessary because it is not possible for Examiners to administer the three in-plant JPMs and RCA entry as described in NUREG-1021 given the current state of VCS Unit 2 construction.

Employing cold licensing evaluation methods in the administration of the operating test is an acceptable alternative for complying with Section 107 of the Atomic Energy Act of 1954 (42 USC 2137) as amended and is in keeping with the Commission's statutory responsibility to prescribe uniform conditions for operator licensing examinations.

The use of alternative compliance methods will terminate after the Commission makes its finding under 10 CFR 52.103(g) or, for those tasks that are to be selected to be part of an operating task in accordance with NUREG-1021, ES-301, section D.4.a and section D.4.b, where it is possible to perform on-the-job training in the plant and administer part of an operating test in a plant walk-through.

Additionally, and in accordance with the VCS 2 and 3 UFSAR, Section 13.2A.6, "As plant systems, components, and structures are completed, and as integrated plant operations begin, the systematic approach to training process will be used to adjust cold license class training methods and settings . . . The purpose is to optimize student learning using actual in-plant training and experience opportunities as they become available."

4.0 Applicable Regulatory Requirements/Criteria

This section provides a summary of regulations applicable to this exemption request.

4.1 Atomic Energy Act of 1954 (42 USC 2137) as Amended

Section 107, "Operators' Licenses," states in part that:

The Commission shall prescribe uniform conditions for licensing individuals as operators.

4.2 10 CFR Part 55, "Operators' Licenses"

Section 55.40, "Implementation," states in part that:

(a) The Commission shall use the criteria in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," to evaluate the operating tests prepared by power reactor facility licensees pursuant to paragraph (b) of this section.

(b) Power reactor facility licensees may prepare, proctor, and grade the written examinations required by 55.41 and 55.43 and may prepare the operating tests required by 55.45, subject to the following conditions:

(1) Power reactor facility licensees shall prepare the required examinations and tests in accordance with the criteria in NUREG-1021 as described in paragraph (a) of this section.

Section 55.45(b), "Implementation--Administration," states in part that:

(b) The operating test will be administered in a plant walkthrough and in either:

(1) A simulation facility that the Commission has approved;

(2) A plant-referenced simulator; or

(3) The plant.

4.3 NUREG-1021, "Operator Licensing Examination Standards for Power Reactors"

ES-201, "Initial Operator Licensing Examination Process"

Section B, "Background," states in part that:

Licensees may propose alternatives to the examination criteria contained here and evaluate how the proposed alternatives provide an acceptable method of complying with the Commission's regulations. The NRC staff will review any proposed alternatives and make a decision regarding their acceptability. The NRC will not approve any alternative that would compromise the agency's statutory responsibility to prescribe uniform conditions for the operator licensing examinations.

ES-202, "Preparing and Reviewing Operator Licensing Applications"

Section D.4, "Cold License Eligibility," states:

"*Cold licensed operator candidates need not satisfy the RG 1.8 or NANT 2010 experience requirements before entering a licensed operator training program. The experience requirements that have not been met at the time the licensed operator examination is administered will be certified by the licensee as being complete prior to the individual's NRC operator license being issued. The cold licensing process will terminate after completion of the first refueling outage at the unit for which the license is applied*."

ES-301, "Preparing Initial Operating Tests"

Section B, "Background," states in part that:

The plant walkthrough consists of two parts ("Administrative Topics" and Control Room/In-Plant Systems").

Section D, "Instructions," paragraph 4.a, differentiates between Control Room JPMs and In-Plant Systems JPMs. It further specifies that the in-plant portion consists of 3 JPMs.

Attachment 2, "Verifiable Action Guidelines," states in part that:

The intent of performing a verifiable action is to actually ***observe*** *the applicant perform an action, or in the case of a JPM in the plant, describe exactly what it takes to perform an action.*

Appendix A, "Overview of Generic Examination Concepts"

Section B, "Background," states in part that:

If the internal and external attributes of examinations are allowed to vary significantly, the uniform conditions that are required by Section 107 of the Atomic Energy Act of 1954, as amended, and the basis upon which the NRC's licensing decision rest are challenged. The NRC must reasonably control and structure the examination processes to ensure the integrity of the licenses it issues.

The discussions herein clarify the intent of the NRC's examination criteria, thereby decreasing the likelihood of inconsistencies among examinations, particularly with regard to the level of knowledge and difficulty.

Sections C and D contain discussions of examination validity and reliability referred to in Section B.

Section C, "Validity," states:

For a test to be considered valid, it must be shown to measure that which it is intended to measure. In the case of the NRC examinations, the intent is to measure the examinee's knowledge and ability, such that those who pass will be able to perform the duties of a reactor operator (RO) or senior reactor operator (SRO) to ensure the safe operation of the plant.

Section D, "Reliability," states:

Examinations should differ only in the specific content covered, not in their developmental processes, manner of sampling, item construction criteria, level of item bank use, or their levels of knowledge and difficulty. The standardization of the process creates consistency of measurement.

Appendix E, "Policies and Guidelines for Taking NRC Examinations"

Section D.1, "Walkthrough Test Guidelines," states in part that:

The walkthrough test covers control room systems, local system operations, and administrative requirements. The examiner will evaluate these areas using job performance measures (JPMs) and specific follow-up questions, as necessary.

4.4 NEI 06-13A, Rev 2, "Template for an Industry Training Program Description"

NEI 06-13A, Rev 2, was incorporated into the VCS 2 and 3 UFSAR, Section 13.2A.

Appendix C - Final Safety Evaluation Report NEI 06-13A, Revision1, Section 4, "Conclusion," states in part that the [NRC] Operator Licensing and Human Performance Branch "*(COLP) staff concludes that NEI 06-13A, 'Template for an Industry Training Program description,' Revision 1 complies with the applicable NRC regulations, guidance, and industry standards and can be utilized by applicants for COLAs."*

4.5 VCS Unit 2 and 3 UFSAR, Rev. 4.0, "Updated Final Safety Analysis Report"

Chapter 13, "Conduct of Operation"

Section 13.2A, "Cold License Training Plan"

Section 13.2A.3, “Conduct of On-the-Job Training (OJT),” states:

“Until plant construction is completed, acceptable methods for the conduct of on-the-job training include discussion, simulation, and use of mockup equipment and virtual reality technology.”

5.0 Technical Evaluation

5.1 Content Validity (NUREG-1021, Appendix A, Section C.1)

JPM development will follow the process described in this section to maintain content validity without deviation. Utilizing cold licensing evaluation methods during the administration of in-plant walkthrough JPMs does not alter the method in which JPMs are selected or sampled. The pool of possible tasks and tasks associated with safety functions available for selection remain unaffected. For this reason, utilizing cold licensing evaluation methods does not impact the validity of examination content.

5.2 Operational Validity (NUREG-1021, Appendix A, Section C.2)

JPM development will follow the process described in this section to maintain operational validity without deviation. Any questions, discussions, or other cold licensing methods used for task evaluation will still allow differentiation between competent and less-than competent applicants and will not impact operational validity.

5.3 Discrimination Validity (NUREG-1021, Appendix A, Section C.3)

JPM development will follow the process described in this section to maintain discrimination validity without deviation. Any questions, discussions, or other cold licensing methods used for task evaluation will still allow discrimination at an agreed-upon minimal measure of knowledge or performance.

For this reason:

- A criterion-referenced test remains unaffected and achievable because both the individual JPMs and the overall examination will discriminate between applicants who have and have not mastered the required knowledge, skills, and abilities.
- Any questions, discussions, or other cold licensing methods used for evaluating JPMs will not impact the ability to set overall *Cut Scores* at 80 percent such that the minimally qualified applicant will be able to obtain a score of at least 80 percent.
- JPM selection and development, and any questions, discussions, or other cold licensing methods used for task evaluation will still discriminate between safe and unsafe operators.
- Any questions, discussions, or other cold licensing methods used for evaluating JPMs will not impact the ability to set cut scores at 80 percent while achieving a level of difficulty range of 70 to 90 percent for individual JPMs. The questions, discussions, and other cold licensing methods used for task evaluation will continue to incorporate the concepts described in NUREG-1021, Appendix A, Section C.3.d, for setting item

difficulty, thereby maintaining a functional level of discrimination with a minimal pass score of 80 percent.
- Any questions, discussions, or other cold licensing methods used for task evaluation will have no impact on how the examination bank is used.

5.4 Reliability

JPM development will follow the process described in NUREG-1021 without deviation. That process has been proven reliable, consistent, and repeatable, yielding a high degree of confidence in the validity of pass/fail decisions. Utilizing cold license training methods when developing JPMs does not impact examination reliability.

5.5 Conclusion

Employing Cold License Training Plan evaluation methods during the development and administration of in-plant JPMs facilitates the consistent and reliable administration of operating tests in a manner that evaluates applicants' knowledge, skills, and abilities with the same effectiveness as plant walkthroughs in an operating plant. These evaluation methods have added value in that the NRC has already endorsed/approved them as an acceptable alternative to performing actual plant walkthroughs during training.

These exemptions do not impact the ability to maintain equitable and consistent testing under uniform conditions because license applicants will be evaluated using the same methods employed during their training. Using the cold license training evaluation methods allows for an equitable and consistent evaluation requiring the same level of knowledge and difficulty because:

- Delaying NRC examination of VCS Units 2 and 3 license applicants until the In-Plant JPMs can be performed in the plant could prevent the organization from meeting fuel load milestones due to not having attained the required number of NRC licenses for the operators. The rationale for this is further described in Section 6.3 of this Enclosure.
- Using the methods won't provide the license applicant any advantages.
- The initiating cue for an in-plant JPM would not be any different between a simulate and/or a discuss JPM.
- VCS has identified adequate alternate methods consistent with the approved Cold License Training Plan. VCS has a sufficient number of tasks to meet the requirements of NUREG-1021, ES-301, D.4.b; therefore, the process for selection of in-plant JPMs will not differ due to the use of the cold licensing evaluation methods.

Accordingly, employing cold licensing evaluation methods in the administration of the operating test is an acceptable alternative for complying with Section 107 of the Atomic Energy Act of 1954 (42 USC 2137) as amended and is in keeping with the Commission's statutory responsibility to prescribe uniform conditions for operator licensing examinations.

6.0 Regulatory Evaluation

6.1 Authorized By Law

The Commission has the authority to grant exemptions and such exemptions are authorized by law in accordance with the regulatory process of 10 CFR 55.11, which states, “The Commission may, upon application by an interested person, or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property and are otherwise in the public interest.”

Section 107 of the Atomic Energy Act of 1954 (42 USC 2137) as Amended, states that the Commission shall prescribe uniform conditions for licensing individuals as operators. 10 CFR 55.40(a) directs the Commission to use the criteria in NUREG-1021, “Operator Licensing Examination Standards for Power Reactors,” to evaluate operating tests. ES-201, Section B of NUREG-1021 states, “Licensees may propose alternatives to the examination criteria contained here and evaluate how the proposed alternatives provide an acceptable method of complying with the Commission’s regulations. NRC staff will review any proposed alternatives and make a decision regarding their acceptability. NRC will not approve any alternative that would compromise the agency’s statutory responsibility to prescribe uniform conditions for operator licensing examinations.”

These exemptions are justified, are fully within the authority of the Commission to grant the relief requested in accordance with 10 CFR 55.11, and will not result in a violation of the Atomic Energy Act of 1954, as amended, or other laws.

Employing cold licensing evaluation methods in the administration of the operating test and allowing the use of an RCA mockup are acceptable alternatives for complying with Section 107 of the Atomic Energy Act of 1954 (42 USC 2137) as amended and are in keeping with the Commission’s statutory responsibility to prescribe uniform conditions for operator licensing examinations. As discussed in Sections 3 and 5, using cold license training evaluation methods allows for an equitable and consistent evaluation requiring the same level of knowledge and difficulty.

6.2 Will Not Endanger Life or Property

During the period these exemptions are in place, VCS will continue to train its operators to operate the plant in accordance with the VCS 2 and 3 UFSAR. Additionally, all operators that are issued a license will be enrolled in a continuing training program while awaiting the 10 CFR 52.103(g) finding.

Each applicant’s performance of in-plant systems JPMs will be evaluated using the alternative methods of discussion, simulation, and use of mockup equipment as authorized in the Cold License Training Plan rather than an actual plant walkthrough. Any questions or discussions that occur while using cold licensing methods during task evaluation will still differentiate between competent and less-than competent applicants.

Accordingly, employing cold licensing evaluation methods in the administration of the operating test is an acceptable alternative for complying with Section 107 of the Atomic Energy Act of 1954 (42 USC 2137) as amended and is in keeping with the Commission's statutory responsibility to prescribe uniform conditions for operator licensing examinations. This exemption will not endanger life or property because as explained in Sections 3.1 and 3.2, the purpose of the in-plant JPMs for evaluating license applicants is met by the use of the cold license training methods in the same manner as in-plant JPMs; therefore, there will be no reduction in the ability of licensed operators.

6.3 Otherwise in the Public Interest

The proposed exemptions are in the public interest because they facilitate more effective plant operator testing by aligning (as described in Section 3.1 above) the administration of plant walkthroughs with cold license training methods the NRC has already determined to be safe and which are reflected in VCS's license. Using the cold license training evaluation methods allows for an equitable and consistent evaluation requiring the same level of knowledge and difficulty.

UFSAR, Section 13.2.1, "Licensed Operator Training," states, "Before initial fuel loading, the number of persons trained in preparation for RO and SRO licensing examinations will be sufficient to meet regulatory requirements, with allowances for examination contingencies and without the need for planned overtime." VCS seeks to begin licensed operator examinations in 2016, rather than waiting to begin examinations at a later date, such as when plant construction is complete, for the following reasons:

VCS is required to have 25 licensed operators prior to VCS Unit 2 fuel load. VCS considered the minimum licensed operator requirement, but concluded that planning to only have the minimum number of licensed operators available would place the ability to load fuel at risk. VCS has determined, in its plan for fuel load, that having 45 licensed operators at the time of planned fuel load reduces this risk to an acceptable level.

The current target license class size is 24 students. A typical licensed operator class is 18 months in duration, assuming no class interruptions. However, additional allowance must be made for class prerequisites which results in a total class duration of 24 months. Industry average student throughput is approximately 70%. Only one class is able to use the simulator resources at a time, so classes can only be overlapped such that the control room operations phase for one class does not run concurrently with the control room operations phase of another class. This means that classes must start early to provide for completion of enough Initial License Operator Training (ILO) classes to satisfy the number of licensed candidates needed to support fuel load while accounting for normal attrition rates.

Another factor to consider is participation in preoperational testing. ILO classes prepare operators to participate in preoperational testing. Students enrolled in an ILO program are training as a full time job and would not normally participate in completing the required 6 months of meaningful work experience. Additionally, meaningful work experience is

required to include participation in the preoperational testing program as referenced in NEI 06-13A, Appendix A, Section1.1, "Licensed Operator Experience Requirements Prior to Commercial Operation." This states, in part that, "*all cold licensed operator candidates will participate in practical work assignments for a minimum of six months that includes preoperational testing...*"

Knowledgeable and qualified operators are needed to support the integrated testing program functions such as component testing, system testing, and preoperational testing. This aligns with the INPO Principles for Excellence in Nuclear Project Construction, Principle No. 9, "The Transition to Plant Operation is Started Early," which states, "Successful turnover of systems, structures, and components and of the completed plant for a safe and reliable operation is the result of a well-planned turnover process, a fully functional and qualified operating plant staff, and effective implementation of operational processes. Plant operations, maintenance, and engineering personnel are engaged during the construction phase in advance of turnover activities, thereby establishing plant familiarity and ownership of acceptance testing results and equipment maintenance, as well as ensuring compliance with design requirements and the COL."

Because the operators that will be needed for fuel load need to also participate in preoperational testing activities, and they cannot simultaneously participate in preoperational testing activities while in ILO classes, VCS's training and exam schedule plans for three more ILO classes to conclude in advance of fuel load for unit 2 and an additional license class in advance of fuel load for unit 3. The duration between the ILO Cold License Class 3 NRC Exam and Fuel Load date will require significant resources from the pool of qualified operators to support both the execution of gap training to the final design and the preoperational testing activities and it is therefore not practical to schedule an exam during that period. Milestones are:

- NRC Exam 2 – September 2016
- NRC Exam 3 – December 2017
- NRC Exam 4 – October 2018
- U2 fuel load - Q4 2018
- NRC Exam 5 – September 2019

At the time of the 10 CFR 52.103(g) finding, there will be adequate assurance that plant construction will be completed such that the On-The-Job (OJT) program and In-Plant JPMs can be performed in the plant in the same manner as at an operational plant. However, the interim ability to perform In-Plant JPMs is dependent on construction status. There will be opportunities to utilize the plant to an increasing degree as the project progresses. The current estimated forecast date of plant construction completion to support all In-Plant JPM activities is expected not earlier than June 2018, 5 months before the expected date of the 10 CFR 103(g) finding. This date is subject to change, due to developments during construction. With the uncertainty associated with these dates and since operators would be used for preoperational and post-operational testing, it is in the

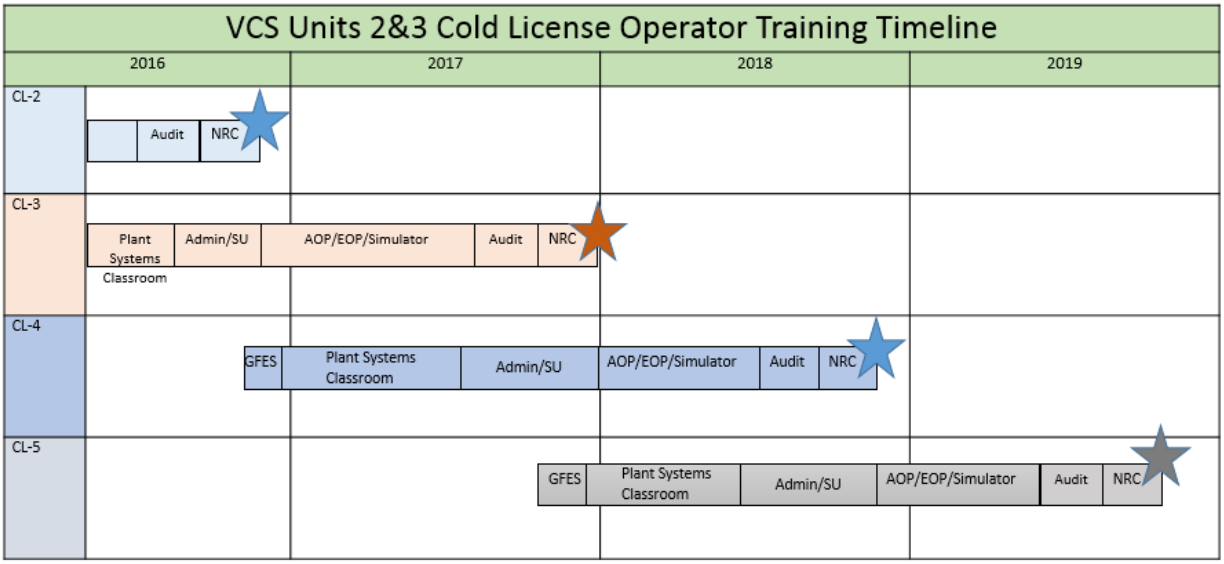
public interest for VCS to have qualified operators before the commencement of these activities.

Delaying license examinations until the plant is complete would create a need to license a large number of personnel in a short period of time. Such a strategy would introduce greater project risk for the following reasons:

- It is not practical to have large numbers of personnel in license classes immediately prior to fuel load, as this is when the preoperational testing resource demands will be the greatest.
- No recovery time would be available if target throughput assumptions were not met, thereby challenging the utility's ability to load fuel.
- The regulator would be challenged to support the required number of exams/examinees in such a compressed period of time.

This early approach to licensing operators is in keeping with the NRC's Efficiency Principle of Good Regulation as VCS considers this approach the most efficient and effective path to timely qualification of licensed operators. This approach also supports the Reliability Principle of Good Regulation because no increased risk to the public is expected based on the requested exemption. Additionally, the requested exemption, when granted, is expected to lend stability to nuclear operational and planning processes for future licensees.

A graphical representation of the license class schedule is attached for clarification.



A consistent interval in the sequence of operator licensing provides for the proper allocation of resources and management focus to ensure that operators are trained and evaluated in a well thought out fashion, which is in the best interest of nuclear safety and therefore serves public interest.

6.4 Significant Hazards Determination and Environmental Considerations

10 CFR 51.22(c)(25)(vi)(E), "51.22 Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review:"

The requested exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(25)(vi)(E).

The requested exemption, which seeks a change to the training and qualification requirements in 10 CFR 55.45, does not make any changes to the facility or operating procedures and does not:

a) involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), in that it does not:
   - alter the design, function or operation of any plant equipment. Therefore, granting this exemption would not increase the probability or consequence of any previously evaluated accident.
   - create any new accident initiators. Therefore, granting this exemption does not create the possibility of a new or different kind of accident from any accident previously evaluated.
   - exceed or alter a design basis or safety limit. Therefore, granting this exemption does not involve a significant reduction in a margin of safety.

   Therefore, a finding of "no significant hazards considerations" is justified.

b) involve any changes that would introduce any change to effluent types, affect any plant radiological or non-radiological effluent release quantities, or affect any effluent release paths, or the functionality of any design or operational features that are credited with controlling the release of effluents during plant operation. Therefore, it is concluded that the proposed exemption does not involve a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

c) affect any plant radiation zones, nor change any controls required under 10 CFR Part 20 that preclude a significant increase in occupational radiation exposure. Therefore, it is concluded that the proposed exemption does not involve a significant increase in individual or cumulative occupational radiation exposure.

d) involve any facility changes or change any construction activities. Therefore, there is no significant construction impact.

e) alter the design, function, or operation of any plant equipment. Therefore, there is no significant increase in the potential for or consequences from radiological accidents.

Therefore, the exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(25).

Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this exemption.

7.0 References

1. Final Safety Evaluation for Topical Report NEI 06-13A, “Template for an Industry Training Program Description,” Revision 1, dated December 5, 2008 [ML082950140]

2. VCS Units 2 and 3 Updated Final Safety Analysis Report (UFSAR), Revision 4.0

3. NEI 06-13A, Revision 2, “Template for an Industry Training Program Description”

4. NUREG-1021, Revision 10, “Operator Licensing Examination Standards for Power Reactors”

South Carolina Electric & Gas Company

Virgil C. Summer Nuclear Station (VCS) Units 2 and 3

NND-16-0266

Enclosure 2

Information Related to the Vogtle Electric Generating Plant (VEGP) Units 3 and 4 NRC Requests for Additional Information (RAIs) on VEGP Plant Walkthrough Exemptions

(This Enclosure consists of 14 pages, including this cover page)

Background:

On May 27, 2016, Southern Nuclear Operating Company submitted Letter ND-16-0747, "Southern Nuclear Operating Company Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Revised Request for Exemption and RAI Response: Operator Licensing," to the NRC.

This enclosure addresses the applicability of the NRC Requests for Additional Information (RAIs) referenced in the May 27, 2016, VEGP submittal, to South Carolina Electric & Gas Company (SCE&G) Virgil C. Summer (VCS) Units 2 and 3.

NRC RAI Regulatory Basis (NRC RAI No. 9):

10 CFR 55.40(a) states, "The Commission shall use the criteria in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," in effect six months before the examination date to prepare the written examinations required by §§ 55.41 and 55.43 and the operating tests required by § 55.45. The Commission shall also use the criteria in NUREG–1021 to evaluate the written examinations and operating tests prepared by power reactor facility licensees pursuant to paragraph (b) of this section." NUREG-1021, Revision 10, Appendix A, "Overview of Generic Examination Concepts," Section C.1.b (last paragraph), describes the concept of content validity as it relates to operator licensing examinations and states in part, "The initial examination, on the other hand, covers all instruction related to safety-significant K/As that either were or should have been taught during the training program. The examination standards ensure that the K/As are sampled in a relatively uniform process that would likely include content and instruction that occurred from the beginning to the end of the program and not be focused upon any particular segment of instruction." Additionally, NUREG-1021, ES-301, "Preparing Initial Operating Tests," Sections D.4.a and D.4.b, provide direction to select systems from the nine safety function groupings in the K/A catalog (i.e., NUREG-2103, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators, Pressurized Water Reactors, Westinghouse AP1000," for the AP1000), and for each system selected, to select a task for which a JPM exists or can be developed.

NUREG-1021, ES-201, "Initial Operator Licensing Examination Process," Page 17/28, states, "The license applicants should not be able to predict or narrow the possible scope or content of the licensing examination based on the facility licensee's examination practices (other than those authorized by NUREG-1021, or in writing by the NRC)."

NUREG-1021, Appendix A, "Overview of Generic Examination Concepts," Section C.1, "Content Validity," outlines the three principal facets of test validity and the techniques that are used to establish the validity of NRC examinations.

NRC Question 1 (NRC RAI No. 9):

Enclosure 2, Section 1.3, "Task List," of the SNC submittal dated April 15, 2016 [ADAMS Accession No. ML16109A013], says, "Tasks with DIF [difficulty, importance, and frequency ratings greater than 2.5 were then screened for their suitability for evaluation using the Cold Licensing alternate methods. Most of these tasks were determined to be suitable for evaluation using the Cold Licensing alternate methods. Some were not. The reason some tasks were

unsuitable was because no procedure had, as yet, been developed to support performing these tasks. This is important because without a procedure, a task can neither be performed nor evaluated. SNC evaluated the set of tasks having procedures and determined that the total number was adequate to meet the validity and reliability criteria set forth in NUREG-1021, Appendix A."

NRC Question 1.a (NRC RAI No. 9):
Please list the safety function(s) from NUREG-2103, Section 1.9.1, "Plant System Organization by Safety Function," associated with each task in Enclosure 2, Table E-2, "In-Plant Task List." If any safety function is not represented on the list, describe any impact on content validity.

SCE&G RESPONSE:

ES-301, section 4, "Specific Instructions for the 'Control Room/In-Plant Systems' Walkthrough," provides the guidance for the development of these JPMs. Step 4.a. specifies that the 11 RO and the 10 SRO-I JPMS which are used for the Control Room/In-Plant portion of the exam must cover the nine safety function groupings identified in the K&A catalog. It further specifies that each of the JPMs selected must cover a different safety function. It does not require that the three In-Plant JPMs cover all nine safety functions, as long as all three cover a different safety function and satisfy any overlap requirements as compared to the rest of the exam. Table E-2 contains a list of current AP1000 tasks for which an In-Plant JPM exists, or can be developed. The Table lists Task ID, System, Task Description, Task DIF, Procedure, and SF (safety function(s)) associated with each task and the system each task covers. It should be noted that each of the nine safety functions is represented in the table.

The list of items contained in the table demonstrates comprehensive coverage of the safety functions and safety systems listed in the AP1000 K&A Catalog. The number of potential JPMs that might be developed, as represented by the items in these tables, is sufficient to preclude predictability. For in plant JPM's, each safety function or system has several tasks with required procedures associated with it and a candidate would not be able to narrow the probability of a specific JPM appearing in a given set selected for the Walkthrough portion of the operating test.

The tasks that appear in Table E-2 were developed using a Systematic Approach to Training, VCS conducted a needs analysis, job analysis, and task analysis to identify on-the-job training activities licensed operators might be expected to perform, either in full or in part, outside the control room (i.e., in-plant). A set of tasks was identified as a result of this process. The job task analysis (JTA) focused on delineation of essential knowledge and abilities (K/As) and included difficulty-importance-frequency (DIF) analysis of each task.

VCS will adhere to the requirements of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," for development and selection of in-plant systems JPMs, without modification or deviation.

Table E-2 contains 91 tasks that were suitable for the creation of In-Plant JPMs. Although there is no specific requirement for the subset of In-Plant JPMs to have coverage of all safety functions, the tasks VCS have identified in Table E-2 DOES have coverage of all of them.

Based on this information, and the understanding that multiple new or modified JPMs can be developed from the tasks on Table E-2, VCS has concluded that it will be able adhere to the requirements of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," for selecting in-plant systems JPMs, without modification or deviation, which specifically precludes the use of a sample pool that allowed an applicant to predict what task would be on this portion of the exam.

To summarize, VCS reviewed the group of tasks that: had DIF ratings greater than 2.5; had been found suitable for evaluation using the cold licensing alternate methods; and, could be performed using a procedure. VCS determined that the number of tasks that was left following this screening process was sufficient to preclude predictability and that no applicant would be able to predict what task would appear on an exam. The set of tasks that met this full set of screening criteria is listed in Table E-2.

It should also be noted that the JTA process described above is an iterative process. As the plant is constructed, VCS expects to develop and approve new procedures and instructions. Commensurate with the JTA process, new tasks will continue to be identified and rated. In some ways, this process mirrors the current development and addition of new K/As that continue to be added to NUREG-2103, the Westinghouse AP1000 K/A Catalog currently open for comment, VCS reserves the right to add these additional tasks, contingent upon their passing the screening criteria, to the list reflected in Table E-2.

NRC Question 1.b (NRC RAI No. 9):
The submittal indicates that some tasks do not yet have procedures available, but it is not clear to the staff whether other tasks have been excluded for other reasons. Please provide additional information as to (1) why procedures are not available for the tasks that have been excluded, (2) why some (if any) tasks were unsuitable for reasons other than the procedure has not been developed, and (3) whether the exclusion of tasks with an importance rating >2.5 from the list in Enclosure 2, Table E-2 will have an impact on content validity (if SNC determines there is no impact, then ensure an explanation is provided to support the conclusion).

SCE&G RESPONSE:

VCS is not seeking an exemption from any additional requirements of ES-301 of NUREG-1021, “Operator Licensing Examination Standards for Power Reactors,” for selecting in-plant systems JPMs beyond the two exemptions previously cited: section ES-301.D.4.a, concerning evaluation of the three in-plant Job Performance Measures (JPMs), and section ES-301.D.4.b, concerning entry into the radiologically controlled area (RCA).

NRC Question 1.c (NRC RAI No. 9):
Please identify the “validity and reliability criteria” that SNC determined were satisfied, and please describe how SNC determined this.

SCE&G RESPONSE:

VCS is not seeking an exemption from any additional requirements of ES-301 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," for selecting in-plant systems JPMs beyond the two exemptions previously cited: section ES-301.D.4.a, concerning evaluation of the three in-plant Job Performance Measures (JPMs), and section ES-301.D.4.b, concerning entry into the radiologically controlled area (RCA).

NRC Question 2 (NRC RAI No. 9):
Enclosure 2, Page 5/14, states, "SNC determined that the number of tasks that was left following this screening process was sufficient to preclude predictability and that no applicant would be able to predict what task would appear on an exam." Please explain the basis for the conclusion.

SCE&G RESPONSE:

VCS is not seeking an exemption from any additional requirements of ES-301 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," for selecting in-plant systems JPMs beyond the two exemptions previously cited: section ES-301.D.4.a, concerning evaluation of the three in-plant Job Performance Measures (JPMs), and section ES-301.D.4.b, concerning entry into the radiologically controlled area (RCA).

NRC Question 3 (NRC RAI No. 9):
Enclosure 2, Page 8/14, states, "Utilizing cold licensing evaluation methods during the administration of in-plant walkthrough JPMs should not, and does not, alter the method in which JPMs are selected or sampled." Please describe how sampling will be performed.

SCE&G RESPONSE:

VCS is not seeking an exemption from any additional requirements of ES-301 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," for selecting in-plant systems JPMs beyond the two exemptions previously cited: section ES-301.D.4.a, concerning evaluation of the three in-plant Job Performance Measures (JPMs), and section ES-301.D.4.b, concerning entry into the radiologically controlled area (RCA).

NRC Question 4 (NRC RAI No. 9):

Enclosure 2, Page 8/14, states, "Additionally, for each of the three tasks selected for the in-plant portion of the examination, the incorporation of alternate paths during development of the three corresponding JPMs (either "faulted" or not "faulted") will elevate cognitive levels." Please clarify if the intent is for all three in-plant systems JPMs to be alternate path JPMs.

SCE&G RESPONSE:

VCS is not seeking an exemption from any additional requirements of ES-301 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," for selecting in-plant systems JPMs beyond the two exemptions previously cited: section ES-301.D.4.a, concerning evaluation

of the three in-plant Job Performance Measures (JPMs), and section ES-301.D.4.b, concerning entry into the radiologically controlled area (RCA).

NRC Question 5 (NRC RAI No. 9):

The cover letter for the submittal, first paragraph, states that "Southern Nuclear Operating Company (SNC) requests NRC approval of an exemption from...and from the requirements in NUREG-1021…" The staff notes that NUREG-1021, ES-301, Section D.4.b states, "In addition, at least one of the tasks conducted in the plant shall require the applicant to enter the RCA." If the plant has not yet been constructed, then the RCA has also not been constructed, and therefore the applicants cannot enter the RCA. Please identify the requirements in NUREG-1021 that are affected by this exemption request in the submittal.

SCE&G RESPONSE:

This question is addressed in Enclosure 1.

NRC RAI Regulatory Basis (NRC RAI No. 10):

Title 10 of the Code of Federal Regulations (10 CFR) 55.45(b) states that "The operating test will be administered in a plant walk-through and in either — (1) a simulation facility that the Commission has approved for use after application has been made by the facility licensee under 10 CFR 55.46(b); (2) A plant-referenced simulator (PRS) that meets the criteria in 10 CFR 55.46(c); or (3) The plant, if approved by the Commission under 10 CFR 55.46(b)."

The regulations in 10 CFR 55.40, "Implementation," require, in part, that operating tests be prepared in accordance with the criteria in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," in effect six months before the examination date. NUREG-1021, ES-301, "Preparing Initial Operating Tests," and ES-603, "Requalification Walk-Through Examinations," prescribe how job performance measures (JPM) are developed and administered to applicants and licensees for the walk-through portion of the operating test.

Questions:

NRC Question 1: (NRC RAI No. 10)

When in-plant systems JPMs are performed in the plant, the applicant or licensee must demonstrate that he or she has knowledge of the equipment locations, and the plant equipment provides a prop that he or she uses to demonstrate, via discussion and simulation (plant equipment is not operated), whether he or she has knowledge of how the task identified in the JPM is performed.

Enclosure 1, Page 4/11, of the letter from Karen Fili, Site Vice President, VEGP 3 & 4, to the NRC dated April 15, 2016 (ADAMS Accession No. ML16109A013) (April 15 letter), quotes Section 13.2A.3, "Conduct of On-the-Job Training (OJT)" of the Vogtle Electric Generating Plant Units 3&4 (VEGP 3&4) UFSAR, which states, "Until plant construction is completed, acceptable methods for the conduct of on-the-job training include discussion, simulation, and use of mockup equipment and virtual reality technology." Enclosure 1 proposes to use these methods in lieu of performing in-plant systems job performance measures (JPMs) in the plant, which is under construction.

Enclosure 2, Page 3/14, states that “SNC [Southern Nuclear Company] has determined that JPMs can be created from the tasks in Table E-2 and that adequate evaluations can be performed using the Cold Licensing alternative methods.”

The April 15 letter does not describe how the tasks listed in Table E-2, “In-Plant Task List,” will allow an applicant to demonstrate whether he or she has knowledge of plant locations or whether a sufficient prop (e.g., a mockup of a panel and/or plant layout diagrams) exists to be used during the JPM to allow the applicant to demonstrate, using discussion and/or simulation, whether he or she has knowledge of how to perform the task.

Please describe whether a JPM can be developed from the tasks listed in Table E-2 that would (1) include mockup equipment and/or virtual reality technology to provide a sufficient prop for the applicant or licensee to use during the JPM, and (2) allow an applicant to demonstrate knowledge of plant locations (if so, please describe how this could be accomplished).

SCE&G RESPONSE:

This question is addressed in Enclosure 1, Section 3.1.

NRC Question 2 (NRC RAI No. 10):

NUREG-1021, ES-301, Section D.4.b states that “In addition, at least one of the tasks conducted in the plant shall evaluate the applicant’s ability to implement actions required during an emergency or abnormal condition, and another shall require the applicant to enter the RCA. This provides an excellent opportunity for the applicant to discuss or demonstrate the radiation control administrative subjects.”

Please (1) describe whether applicants will be able to demonstrate or discuss the radiation control administrative subjects using alternative methods in lieu entering the actual RCA and (2) describe any alternative methods that are proposed.

SCE&G RESPONSE:

This question is addressed in Enclosure 1, Section 3.2

NRC Question 3 (NRC RAI No. 10):

Enclosure 3, page 2/3, of the April 15 letter states that “classes would need to start well before fuel load.” Given the projected date of fuel load stated in the April 15 letter, please describe any resource constraints or additional considerations that SNC has considered in requesting the NRC begin to administer the exams at this point in time.

SCE&G RESPONSE:

This question is addressed in Enclosure 1, Section 6.3.

Table E-2

TASK ID	SYSTEM	Safety Function	Task Description	Procedure	D	I	F
AP-LT-R-CCS.012	CCS	8	Perform Operational Alignment Change	VC0-CCS-SOP-001	2.9	3.4	3.1
AP-NL-ADM.018.3	ECS	6	Rack In a 480v Load Center Breaker	VC0-ECS-SOP-0313	2.7	4.7	3.7
AP-NL-ADM.018.4	ECS	6	Rack Out a 480v Load Center Breaker	VC0-ECS-SOP-0313	2.7	4.7	3.7
AP-NL-AOP.103	SGS	4S, 4P	Perform Local Actions for Leaking SG Isolation with Failed MSIV	VC0-AOP-103	3.3	3.7	1.3
AP-NL-AOP.111.1	PCS/FPS	5	Refill the PCCWST using the Fire Protection System (FPS)	VC0-PCS-SOP-001	2.7	2.7	1.0
AP-NL-AOP.116.1	SFS	8	Perform Gravity Drain of Cask Loading Pit to Spent Fuel Pool (SFS)	VC0-AOP-116	2.7	3.3	1.3
AP-NL-AOP.116.2	SFS	8	Perform Gravity Drain of Cask Washdown Pit to Spent Fuel Pool (SFS)	VC0-AOP-116	2.7	3.3	1.3
AP-NL-AOP.116.4	SFS, PCS	5, 8	Perform Spent Fuel Pool (SFS) Spray from PCCWST	VC0-AOP-116	2.7	3.3	1.3
AP-NL-AOP.116.6	SFS, FPS	8	Perform Spent Fuel Pool (SFS) Spray from FPS	VC0-AOP-116	2.7	4.3	1.3
AP-NL-AOP.401.1	CAS	8	Locally Start Air Compressor	VC0-AOP-401	2.7	3.3	2.0
AP-NL-AOP.702.2	RNS	4P	Isolate a Leaking RNS Heat Exchanger	VC0-AOP-0702	2.3	4.0	1.3
AP-NL-AOP.702.3	RNS	4P	Align Alternate Cooling to RNS	VC0-AOP-702	3.0	4.0	1.3
AP-NL-AOP.902.2	IDS	6	Locally Disconnect 24 and 72 hour Batteries for Fire Response	VC0-AOP-902	2.3	3.7	1.7

Table E-2

TASK ID	SYSTEM	Safety Function	Task Description	Procedure	D	I	F
AP-NL-AOP.902.3	DAS	7	Locally Disable DAS for Fire Response	VC0-AOP-902	3.0	3.7	1.7
AP-NL-AOP-703.1	CAS	8	Cross-Connect Service and Instrument Air Headers	VC0-AOP-703	2.7	3.3	1.0
AP-NL-BDS.010	CNS	5	Align BDS for SGS Valve Stroke Testing	VC0-BDS-SOP-001	2.0	2.7	1.0
AP-NL-CAS.005	CAS	8	Swap Lead and Lag Service Air Compressors	VC0-CAS-SOP-001	2.3	2.7	2.7
AP-NL-CCS.002	CCS	8	Place One CCS Pump and Hx in Service	VC0-CCS-SOP-001	2.7	3.0	1.7
AP-NL-CCS.003	CCS	8	Swap Operating CCS Pumps	VC0-CCS-SOP-001	2.7	3.0	2.7
AP-NL-CCS.004	CCS	8	Swap Operating CCS Hx	VC0-CCS-SOP-001	2.7	3.0	2.7
AP-NL-CCS.006	CCS	8	Place Second CCS Hx in Service	VC0-CCS-SOP-001	2.7	3.0	2.3
AP-NL-CCS.007	CCS	8	Remove One CCS Hx from Service	VC0-CCS-SOP-001	2.7	3.0	2.7
AP-NL-CCS.008	CCS	8	Remove One CCS Pump from Service	VC0-CCS-SOP-001	2.7	3.0	2.3
AP-NL-CCS.011	CCS	8	Swap a CCS Hx without Two Trains of SWS Available	VC0-CCS-SOP-001	2.7	3.0	1.0
AP-NL-CDS.002	CDS	4S	Start an Additional CDS Pump or Place CDS Pump in standby	VC0-CDS-SOP-001	2.7	3.3	1.3
AP-NL-CMS.005	CMS	4S	Break Condenser Vacuum	VC0-CMS-SOP-001	2.7	3.3	1.3
AP-NL-CVS.009	CVS	1, 2	Perform Boric Acid Batching Tank Operations	VC0-CVS-SOP-001	3.0	2.7	2.0
AP-NL-EDS.003	IDS	6	Place Spare Battery Charger in Service	VC0-EDS-SOP-001	2.3	2.7	2.0

Table E-2

TASK ID	SYSTEM	Safety Function	Task Description	Procedure	D	I	F
AP-NL-EDS.007	IDS	6	Place 250 Vdc Battery in Service	VC0-EDS-SOP-001	2.7	3.0	1.7
AP-NL-EDS.008	IDS	6	Place Battery on Equalizing Charge	VC0-EDS-SOP-001	2.7	2.7	2.3
AP-NL-EDS.009	IDS	6	Cross Connect EDS1 and EDS3 Batteries	VC0-EDS-SOP-001	2.7	3.0	1.3
AP-NL-EOP.FRS1.1	RTS	7	Locally Trip the Reactor	VC0-EOP-FR-S.1	3.0	5.0	1.0
AP-NL-EOP.FRS1.2	MTS	4S	Locally Trip the Turbine	VC0-EOP-FR-S.1	3.0	5.0	1.0
AP-NL-EOP.FRS1.3	CVS	1	Verify Dilution Flow Paths Isolated	VC0-EOP-FR-S.1	2.7	4.0	1.7
AP-NL-EOP.FRZ1.1	CNS	5	Locally Close Containment Isolation Valves	VC0-EOP-FR-Z.1	2.7	4.0	1.3
AP-NL-FPS.001	FPS	8	Alignment Inside Containment	VC0-FPS-SOP-001	2.3	3.3	1.3
AP-NL-FPS.004	FPS	8	Locally Fill Primary Fire Water Tank	VC0-FPS-SOP-001	2.3	2.7	1.7
AP-NL-FPS.013	FPS	8	Fill the Fire Pump Diesel Fuel Day Tank	VC0-FPS-SOP-001	2.3	3.0	2.0
AP-NL-FWS.003	FWS	4S	Startup / Operate / Shutdown the Startup Feedwater (SFW) system	VC0-FWS-SOP-002	2.3	3.0	1.3
AP-NL-IDS.002	IDS	6	Place Spare Battery Charger in Service with Associated Battery	VC0-IDS-SOP-001	2.7	3.0	2.0
AP-NL-IDS.004	IDS	6	Equalize Charge on a Divisional Battery Bank	VC0-IDS-SOP-001	2.7	2.7	2.3
AP-NL-IDS.009	IDS	6	Remove Inverters and AC Distribution Panels from Service	VC0-IDS-SOP-002	2.7	2.7	1.3

Table E-2							
TASK ID	**SYSTEM**	**Safety Function**	**Task Description**	**Procedure**	**D**	**I**	**F**
AP-NL-PCS.001	PCS	5	Place PCCWST on Recirculation	VC0-PCS-SOP-001	2.0	2.7	1.7
AP-NL-PCS.003	PCS	5	Fill the PCCWST from PCCAWST	VC0-PCS-SOP-001	2.0	2.7	1.0
AP-NL-PCS.004	PCS	5	Fill the PCCWST from DWS	VC0-PCS-SOP-001	2.0	2.7	1.0
AP-NL-PCS.006	PCS	5	Fill the PCCWST from Alternate Water Supply	VC0-PCS-SOP-001	2.3	2.7	1.0
AP-NL-PCS.012	PCS	5	Align the Fire Protection System (FPS) from PCCWST	VC0-PCS-SOP-001	2.0	2.7	1.3
AP-NL-PCS.013	PCS	5	Align the Fire Protection System (FPS) from PCCAWST	VC0-PCS-SOP-001	2.0	2.7	1.3
AP-NL-PCS.014	PCS	5	Supply water Directly to the PCS Distribution Bucket	VC0-PCS-SOP-001	2.3	2.7	1.0
AP-NL-PXS.007	PXS	2, 4P	Perform Makeup to the [In-Containment] Refueling Water Storage Tank (IRWST)	VC0-PXS-SOP-001	2.3	3.3	1.3
AP-NL-PXS.010	PXS	2, 4P	Place an Accumulator in Service	VC0-PXS-SOP-001	2.7	3.3	1.0
AP-NL-RNS.003	RNS	4P	Cool the IRWST using RNS	VC0-RCS-SOP-001	2.7	4.0	1.0
AP-NL-RNS.004	RNS	4P	Place RNS from service for shutdown cooling	VC0-RNS-SOP-001	2.3	3.7	1.0
AP-NL-RNS.008	RNS, SFS	4P, 8	Cool the Spent Fuel Pool (SFS) using the RNS system	VC0-RNS-SOP-001	2.7	3.7	1.3
AP-NL-SFS.006.1	SFS	8	Fill the Refueling Cavity from the IRWST and establish Refueling Cavity Recirculation	VC0-SFS-SOP-001	2.7	3.3	1.3

Table E-2

TASK ID	SYSTEM	Safety Function	Task Description	Procedure	D	I	F
AP-NL-SFS.006.3	SFS	8	Drain the Refueling Cavity to the Containment Sump	VC0-SFS-SOP-001	2.7	3.7	1.3
AP-NL-SFS.008.1	SFS	8	Transfer water from the Spent Fuel Pool (SFS) to the Refueling Cavity	VC0-SFS-SOP-001	2.7	3.7	1.3
AP-NL-SFS.008.2	SFS	8	Transfer water from the Spent Fuel Pool (SFS) to the IRWST	VC0-SFS-SOP-001	2.7	3.3	1.3
AP-NL-SFS.009	SFS	8	Transfer water from the CLP, FTC, or CWP to the SFS	VC0-SFS-SOP-001	2.7	3.3	1.3
AP-NL-SFS.010	SFS	8	Transfer water from the FTC to the CLP or CWP	VC0-SFS-SOP-001	2.7	3.0	1.3
AP-NL-SFS.012	CVS, SFS	1, 2, 8	Add water to the Spent Fuel Pool (SFS) from CVS	VC0-SFS-SOP-001	2.7	3.0	1.3
AP-NL-SFS.013	SFS	8	Add water to the Spent Fuel Pool (SFS) from DWS	VC0-SFS-SOP-001	2.7	3.3	2.0
AP-NL-SGS.001.1	SGS, WWS	4S	Drain a S/G to the Waste Water System (WWS)	VC0-SGS-SOP-001	2.7	2.7	1.3
AP-NL-SGS.001.2	SGS, WLS	4S, 9	Drain a S/G to Liquid Waste System (WLS)	VC0-SGS-SOP-001	2.7	2.7	1.3
AP-NL-SWS.012.2	SWS, RMS	4S, 7	Respond to Service Water System (SWS) B/D Hi Radiation	VC0-AOP-905	3.3	3.7	1.7
AP-NL-VES.001	VES	8	Recharge VES Air Storage Tanks	VC0-VES-SOP-001	2.3	3.0	2.0
AP-NL-VES.002	VES	8	Fill Individual VES Air Bank	VC0-VES-SOP-001	2.0	3.0	2.0
AP-NL-WLS.005.3	WLS	8	Pump Contents of EHT to the RCS	VC0-CVS-SOP-001	2.3	2.7	2.0

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TASK ID	SYSTEM	Safety Function	Task Description	Procedure	D	I	F
RO-INC-OCS-002-00	VARIOUS	1, 2, 3, 4	Operate Equipment From the Remote Shutdown Workstation	VC0-AOP-601	2.6	4.0	1.2
RO-INC-PMS-001-02	ESAS, RTS	2, 7	Manually block, unblock, and reset reactor trip and ESAS functions using dedicated switches at the Remote Shutdown Workstation (RSW)	VC0-AOP-601	2.9	3.4	1.7
RO-INC-PMS-010-00	PMS	7	Manually initiate system-level actuations using dedicated switches on the RSW (Rx trip, turbine trip, and non-onerous actuations)	VC0-AOP-601	2.2	3.6	1.4
RO-LT-R-SWS.005	SWS	4S	Perform the Service Water cooling tower fan monthly surveillance	VC0-SWS-STP-0101	2.5	3.1	2.6
RO-LT-R-SWS.006	SWS	4S	Perform the SWS pump monthly surveillance	VC0-SWS-STP-0101	2.5	3.0	3.1
RO-LT-R-SWS.020	SWS	4S	Operate the Service Water System in different pump/heat exchanger combinations	VC0-SWS-SOP-001	2.7	3.1	2.7
RO-PRI-CVS-001-00	CVS	1, 2	Perform lineups of the Chemical and Volume Control System (CVS)	VC0-CVS-SOP-001	2.3	3.3	2.4
RO-PRI-CVS-003-02	CVS	1	Align CVS demineralizers	VC0-CVS-SOP-001	2.6	3.0	2.2
RO-PRI-CVS-003-06	CVS	2	Add chemicals to the RCS	VC0-CVS-SOP-001	2.6	2.8	2.4
RO-PRI-CVS-003-11	PXS	2	Adjust Accumulator Level	VC0-PXS-SOP-001	2.6	3.4	1.9
RO-PRI-PXS-001-04	PXS	4P	Fill, vent, and align the PRHR HX	VC0-PXS-SOP-001	3.0	3.6	1.7

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TASK ID	SYSTEM	Safety Function	Task Description	Procedure	D	I	F
RO-PRI-RCS-005-01	RCP	4P	Operate RCP VFDs	VC0-RCS-SOP-001	2.6	3.0	2.0
RO-PRI-RNS-003-08	SFS, RNS	4P, 8	Cool the Spent Fuel Pool Using the RNS System	VC0-RNS-SOP-001	2.8	3.2	1.6
RO-PRO-AOP-013-00	PMS, PLS, DAS	7	Respond to control room evacuation AOP-601	VC0-AOP-601	3.7	3.9	1.2
RO-PRO-AOP-057-00	DDS	7	Respond to remote shutdown AOP-601	VC0-AOP-601	3.8	4.1	1.2
RO-SUP-CAS-003-04	CAS	8	Shift Air Compressor Status Between Standby and Operating	VC0-CAS-SOP-001	2.4	2.9	2.8
RO-SUP-CMS-003-02	CMS	4S	Place the swing vacuum pump package in standby	VC0-CMS-SOP-001	2.3	2.9	2.3
RO-SUP-FPS-001-00	FPS	8	Lineup the FPS	VC0-FPS-SOP-001	2.9	3.3	2.0
RO-SUP-FPS-002-07	VES	8	Implement the smoke removal plan	VC0-AOP-902	3.0	3.3	1.2
RO-SUP-SFS-005-00	SFS, PXS	2, 8	Initiate/Terminate SFS Cooling and Purification of the IRWST	VC0-SFS-SOP-001	2.8	3.1	2.3
RO-SUP-SFS-022-00	SFS	5	Perform Technical Specification surveillance	VC0-SFS-STP-1004	2.9	3.3	3.4
RO-SUP-TOS-008-01	TOS	4S	Place Electro-Hydraulic Fluid Supply Pump in Service.	VC0-TOS-SOP-001	2.8	2.8	2.1
RO-SUP-TOS-008-03	TOS	4S	Swap EHC Fluid Coolers	VC0-TOS-SOP-001	2.8	2.8	2.8

Note 1: D,I,F: Difficulty, Importance, Frequency
SF - 1: Reactivity Control
SF - 2: Reactor Coolant System Inventory Control
SF - 3: Reactor Pressure Control
SF - 4: Heat Removal From Reactor Core
SF - 4P: Heat Removal From Reactor Core (Primary Systems)
SF - 4S: Heat Removal From Reactor Core (Secondary Systems)
SF - 5: Containment Integrity
SF - 6: Electrical
SF - 7: Instrumentation
SF - 8: Plant Service Systems
SF - 9: Radioactivity Release

Table E-2 Acronyms

MFPP Main Fire Protection Panel

MFW Main Feedwater

SFW Startup Feedwater

VFD Variable Frequency Drive

All other system acronyms listed in Table E-2 above can be found in the VCS Units 2 and 3 UFSAR, Revision 4, primarily in the following locations: Table 1.1-1, “AP1000 Acronyms;” Table 1.7-2, “AP1000 System Designator and System Diagrams;” Table 3.9-16, “Valve Inservice Test Requirements;” Table 6.2.2-1, “Passive Containment Cooling System Performance Parameters.”