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# PUBLIC SUBMISSION

**Docket:** NRC-2020-0227

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

**Comment On:** NRC-2020-0227-0001

Operator Licensing Examination Standards for Power Reactors

**Document:** NRC-2020-0227-DRAFT-0008

Comment on FR Doc # 2020-26460

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## Submitter Information

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**Organization:** Entergy

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## General Comment

Entergy appreciates the opportunity to provide comments on draft NUREG-1021, Revision 12. Entergy fully endorses the comments provided by NEI and, in addition, provides the attached comments for consideration.

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## Attachments

Nureg 1021 Rev. 12 Entergy comments

February 15, 2021

Docket No. NRC-2020-0227

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
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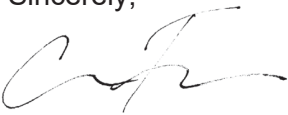
**SUBJECT:** NuScale Power, LLC Submittal of Comments on Draft Revision 12 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors"

The attached comments are submitted in response to Federal Register Notice 2020-26460 (85 Fed. Reg. 77,280) requesting comments on the U.S. Nuclear Regulatory Commission (NRC) Draft Revision 12 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors" (Docket ID NRC-2020-0227).

This letter makes no regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions, please contact me at 541-452-7126 or at [cfosaaen@nuscalepower.com](mailto:cfosaaen@nuscalepower.com).

Sincerely,



Carrie Fosaaen  
Director, Regulatory Affairs  
NuScale Power, LLC

Attachment: "NuScale Power Comments on Draft Revision 12 of NUREG-121, Operator Licensing Examination Standards for Power Reactors"

### NuScale Power Comments on Draft Revision 12 of NUREG-1021, Operator Licensing Examination Standards for Power Reactors

Affected Section	Comment/Basis	Recommendation
1. ES-2.1, 4.a.(4) Page 12 of 20 Lines 10 thru 15	<p>This item requires the facility to submit their entire JPM bank as part of the reference material to provide for each operator licensing initial examination. Significant resources can be expended in order to maintain an entire JPM bank ready for use at any time. Additionally, the wording of this requirement infers that the JPM bank will reach a finite size, however exam development rules require new or modified JPMs to be developed with each exam. In practice, a new or modified JPM could be developed to test much of the facility's job task analysis.</p> <p>For cold licensing plants, the number of available JPMs may be small, and the in-plant JPMs will be constructed to use the alternative means described in ES-3.7.</p>	Reword this requirement for the facility to submit a list of available JPMs, along with a status of each one to indicate if it is, or was, recently validated and considered ready to use.
2. ES-2.1, 4.o.(2) and 4.o.(4) Page 13 of 20 Lines 2 thru 5, and 8 thru 10	<p>This item requires the facility to submit a list of all malfunctions that the simulator can perform, with cause-and-effect information and concise descriptions of each. Many simulators available for use at newer plants, and at existing fleet plant, have vast capabilities to make variable malfunctions. As this capability has expanded, the severity of malfunctions is more and more dependent on the starting conditions when they occur.</p>	Recommend rewording this requirement to provide a list of the available malfunctions
3. ES-2.1, Figure 1 Page 15 of 20 Line 1	<p>Figure 1 identifies operator licensing milestones for 10 CFR Part 52 plants under construction. Consider making the following changes, based on experiences gained during current new plant deployment activities:</p> <ul style="list-style-type: none"> <li>The initial accreditation of operator licensing training programs did not occur until close to, or following the start of the first training programs</li> <li>The K/A catalogs for new plants were used as drafts, rather than as approved catalogs</li> </ul>	<ul style="list-style-type: none"> <li>Recommend moving the milestone for start of monitoring initial accreditation activities closer to the start of the first class, and add an additional milestone for the completion of full accreditation before 103(g) finding</li> <li>Consider changing K/A catalog bullet to identify a draft catalog will be used</li> <li>Add a new bullet early in the process to consider exam methodology changes</li> </ul>

### NuScale Power Comments on Draft Revision 12 of NUREG-1021, Operator Licensing Examination Standards for Power Reactors

Affected Section	Comment/Basis	Recommendation
	<ul style="list-style-type: none"> <li>Additional effort may be required very early in the process to identify potential changes needed for licensing exams on plants using new technology</li> </ul>	
4. ES-2.2, A, 7th paragraph Page 2 of 22 Lines 11 thru 20	<p>This section discusses cold licensing of operators, and endorses Nuclear Energy Institute (NEI) 06-13A, "Template for an Industry Training Program Description" as an acceptable method to acquire the knowledge and experience required. Specifically it endorses Revision 2, and the attached safety evaluation. NEI 06-13A Revision 2, in turn, references Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants", revision 3 and ANSI/ANS-3.1-1993, "Selection, Qualification and Training of Personnel for Nuclear Power Plants". Regulatory Guide 1.8 has been revised to revision 4 since the SER for NEI 06-13A was issued. The ANSI standard has also be revised to the 3.1-2014 revision, and is no longer endorsed by Regulatory Guide 1.8, revision 4. Additionally, NEI 06-13A does not specifically address newer advanced designed, passively cooled reactors that have alternative staffing requirements.</p>	Consider revising this section to state that facilities may seek other alternative methods to meet these requirements.
5. ES-2.2, B, 3rd paragraph Page 3 of 22 Lines 12 and 13	<p>The NANT guideline ACAD 10-001, revision 1, is identified as an acceptable method for meeting the eligibility requirements for education and experience. This document is currently being revised to the next revision.</p>	Update this reference to the newest revision if it is published prior to the approval of this NUREG.
6. ES-2.2, C, 3, 3rd paragraph Page 5 of 22 Lines 20 thru 22	<p>This section states that for control manipulations performed on a simulator to count towards the five required control manipulation, they are required here to be performed on a plant-referenced simulator that meets the requirements of 10 CFR 55.46(c). This would be a plant-referenced simulator (PRS), not a commission-approved simulator (CAS). Also, section G.2.a, on page 15 of this section, lines 24 thru 26, states that cold plant applicants may defer these manipulations until they can be completed on a plant-referenced simulator.</p>	<p>Recommend revising section C, 2, 3 to state clearly how, during cold licensing of operators, control manipulations can only be performed on a plant-referenced simulator, not on a commission-approved simulator. Also consider removing the allowance for "cold plants" to defer the control manipulations until a PRS is available, in section G.2.a. Also revise the definition of plant-referenced simulator (in the glossary) to include how significant</p>

### NuScale Power Comments on Draft Revision 12 of NUREG-1021, Operator Licensing Examination Standards for Power Reactors

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	The current definition of a PRS in 10 CFR 55.46, (c)(2)(i) states that the simulator models relating to nuclear and thermal-hydraulic characteristics that replicate the most recent core load in the referenced plant. It is not clear how the first operators at a cold plant will be able to do this if plant performance data is required before a simulator can meet this PRS requirement.	control manipulations can be performed during the cold license phase.
7. ES-3.3, A,3, 2nd paragraph Page 2 of 17 Line 17 thru 19	This sentence appears to be missing a word: As such, the operating test 17 should <i>not</i> include such events ____ they are necessary to set the stage for subsequent events or to 18 test the SRO applicant's knowledge of TS actions	Recommend inserting the word "unless" between "..events" and "they...":  ".. should not include such events <u>unless</u> they are necessary..."
8. ES-3.5, A, 2 Page 1 of 13 Line 29 thru 31	This sentence appears to be missing a phrase: Concurrence from the 29 NRR operator licensing program office _____ more than 30 days will elapse between the 30 completion of one and the start of the other.	Recommend inserting "is required if" between "..office" and "more..."  "..program office <u>is required if</u> more than 30 days will elapse.."
9. ES-3.5, C, 7 Page 4 of 13 Line 24	This sentence appears to have an additional word in it: An applicant may request <u>that</u> the administration of his or her operating test without 24 extraneous observers.	Recommend deleting the word "that"
10. ES-3.7 Page 1 of 1	The current exemptions for the AP1000 provides a condition when the alternative compliance measures end - when the site 10 CFR 52.103(g) finding is issued. It also allows for using actual plant equipment for in-plant JPMs as it becomes available during the construction phase.	Recommend adding both of these items to this section
11. ES-4.4, C, 3, g Page 5 of 6 Line 31	There appears to be a missing section header between item f. and item g. In revision 11 the header is "Grade the Examinations".	Recommend adding "Grade the Examination" as item 4, and renumber subsequent steps.
12. ES-5.1, Page 1 of 20 Line 16 and 17	The proposed changes to ES-3.6 now defines critical performance deficiencies and significant performance deficiencies, so the previous examples of deviations from nominal grading practices may no longer be accurate.	Recommend deleting "a simulator failure based on a single error with serious safety consequences or" from this parenthetical.

### NuScale Power Comments on Draft Revision 12 of NUREG-1021, Operator Licensing Examination Standards for Power Reactors

Affected Section	Comment/Basis	Recommendation
13. ES-5.1, D, 3 page 5 of 20 Line 2	Missing close of quotation at the end of "Sample Pass Letter.	Recommend adding closing quotation mark following the word "Letter."
14. ES-5.1, D, 3 Page 5 of 20 Line 11	During the cold license phase the time between receiving a Pass Letter and completing all the elements of 10 CFR 55.31 was prolonged, so candidates were enrolled in a SAT based continuing training program while completing the items.	Recommend adding a discussion about how a Pass Letter could be used during cold license phase. Additionally, add a requirement for those candidates to enter a SAT based continuing training program if that is appropriate.
15. ES-5.3, A, 1, b Page 2 of 12 Line 14	If cold license phase candidates with Pass Letters are enrolled in a SAT based continuing training program that is based on a typical license operator requalification training program, the first class are likely to be in this program for two years. Clearly state when the requirement to begin requalification exams begins, from the entry of the first class into this program or from the issuance of the first licenses.	Recommend clearly stating that the requirement to begin requalification exams begins from the issuance of the first licenses.
16. ES-6.1, Form ES-6.1-4 Page 21 of 33	The required minimum number of open-reference written exam items is 700 questions, 350 per section. During cold licensing and initial operating cycle for new construction plants a 700 question exam bank requires a significant amount of time and resources to accumulate. This is more difficult considering the higher likelihood of design changes during construction completion.	Recommend adding an allowance for new plants to submit the available questions in their bank.
17. ES-6.1, Form ES-6.1-4 Page 21 of 33	The required minimum number of job performance measures is 95, plus 10 per year following the initial requalification exam until the job task analysis is fully covered. The written exam bank and scenario exam bank have upper size limits. ES-6.3, B.1.d (on page 3 of 7 of ES-6.3) only requires a representative sample of JPM, and states that the NRC anticipates that bank will be approximately 125 to 150 JPMs. During cold licensing and initial operating cycle for new construction plants a 95 JPM bank requires a significant amount of time and resources to accumulate. This is more difficult considering the higher	Recommend changing the required JPM bank size to match ES-6.3, of approximately 125 to 150 JPMs. Also recommend adding an allowance for new plants to submit their available JPM bank at submittal time.

**NuScale Power Comments on Draft Revision 12 of NUREG-1021, Operator Licensing Examination Standards for Power Reactors**

Affected Section	Comment/Basis	Recommendation
	likelihood of design changes during construction completion, and further complicated by the use of alternative means described in Section 3.7 for cold license JPMs.	
18. ES-6.2, A Page 1 of 24 Lines 13 thru 21	<p>Section 6.2, Requalification Written Examinations, discusses that the “Plant and Control Systems” section of the exam (section A) is administered using a static simulator. There is an entry about this in the NRC Operator Licensing Program Feedback page. It acknowledges that this exam style was developed by a working group in 1987, but that some licensees stopped using that format since the NRC shifted to an inspection-based oversight program in 1994. The entry allows that the NRC will consider using the facility licensee’s requalification examination structure or methodology if it is different, provided it complies with 10 CFR 55.59 and is free of significant flaws.</p> <p>Section 6.1, B, 2<sup>nd</sup> paragraph says that “[T]he NRC will consider preferentially using the facility licensee’s requalification examination structure of methodology if it differs from what is described here if it complies with 10 CFR 55.59 and is free of significant flaws”, but does not specifically discuss the use of static exam questions. It also requires the regional office to consult with NRR operator licensing program office prior to making this decision.</p>	<p>Recommend incorporating the clarification provided in the Operator Licensing Program Feedback page directly into ES-6.2 to improve the clarity and intent of this section:</p> <p>“As discussed in Section C of [ES-6.1], if a facility licensee’s requalification program uses an examination structure or methodology different from that described in the [ES-6] series and the NRC decides to conduct an examination, the NRC will consider preferentially using the facility licensee’s requalification examination structure of methodology if it is different from that described in the ES, provided it complies with 10 CFR 55.59 and is free of significant flaws”.</p> <p>Additionally, consider specifically stating that the plant and control system section of the written exam is allowed to be tested in the same manner as the Administrative Controls/ Procedural Limits without prior approval.</p>
19. ES-6.2, D, 1, d. Page 15 of 24 Line 39 thru 47	There is no clear direction for how digital/embedded electronic formatted procedures are addressed. During normal operation crew members routinely check Alarm Response Procedures or Critical Safety Function Status Tree indication, in addition to the other reference material available.	Recommend clearly stating that the normal access to the digital/embedded electronic format procedures should be provided.
20. ES-6.2, D, 1, e. Page 16 of 24 Line 6	The list of plant procedures available as open reference material includes emergency operating procedures, abnormal operating procedures, and normal operating procedures, but does not include alarm response procedures	Recommend adding alarm response procedures to this list

**NuScale Power Comments on Draft Revision 12 of NUREG-1021, Operator Licensing Examination Standards for Power Reactors**

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21. ES-8, Glossary Page 6 of 7 Lines 20 thru 27	There is a definition for simulation facility, which includes bullets for a plant-referenced simulator and a commission-approved simulator. There is also a separate definition for a plant-referenced simulator, which includes how it is used in operator licensing.	Recommend adding a separate definition for a commission-approved simulator, which includes how it is used in operator licensing.