NRC Staff Comments on NEI 23-01 Revision 2 "Operator Cold License Training Plan for Advanced Nuclear Reactors"

These questions and comments are to support discussion during a public meeting with the Nuclear Energy Institute (NEI) to discuss NEI 23-01, Revision 2, "Operator Cold License Training Plan for Advanced Nuclear Reactors."

NEI 23-01, Revision 2: ML25198A361

Comment Number	Section	NRC Question or Comment
1	General	NEI 23-01 proposes standards for use by *any* advanced reactor licensee; without knowing more about the design and operation of the reactors it is hard to find that all the standards in NEI 23-01 are adequate for use. For example, NEI 23-01 proposes no post-secondary education is needed for senior reactor operator (SRO) applicants without prior nuclear experience. The basis for this reduction in education is that advanced reactor training programs will teach the SRO applicants everything they need to know about engineering for operating the advanced nuclear power plant; the NRC cannot validate this assumption without knowing more about the training program and the role of the operators at the plant.
2	3.1	NEI 23-01 proposes to relax requirements for SROs to have four-year technical degrees when they do not have previous nuclear experience. This is inconsistent with NRC-endorsed industry standards (American National Standards Institute/American Nuclear Society (ANSI/ANS)-3.1-2014, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants" endorsed via Regulatory Guide 1.8 "Qualification and Training of Personnel for Nuclear Power Plants" (ML19101A395)) and August 1989 Commission Policy "Education for Senior Reactor Operators and Shift Supervisors at Nuclear Power Plants" (54 FR 33639). The NRC staff could consider the 2-year technical Associate's degree for SROs without experience if it was supported by a systematic evaluation (e.g., a learner analysis) of the SRO job; however, this was not included in the basis for this change.
3	General	The guidance in NEI 23-01 was not developed using a systems approach to training or other systematic method; in some areas, the basis for the change from existing requirements for large

		light water reactors is unclear. See comments 4, 5, and 6 for specific examples.
4	General	Crew cumulative power plant experience. Existing cold licensing guidance in NEI 06-13A specifies that "Each operating crew's cumulative power plant experience shall be > 13 years." There is no corresponding crew cumulative power plant experience for advanced reactors in NEI 23-01 and no discussion about why it is not needed for cold licensing at advanced reactors.
5	5.2	For SRO applicants with experience as an SRO-certified instructor, both National Academy for Nuclear Training and NEI 06-13A guidelines state that applicants must have 4 years of SRO-certified instructor experience. In contrast, NEI 23-01 specifies that only 18 months of experience as an SRO-certified instructor is needed. There is no explanation in NEI 23-01 for this reduction in instructor experience.
6	5.2	NEI 23-01 treats non-nuclear power plant experience as equivalent to nuclear power plant experience by requiring the same amount of experience – 18 months. Other industry standards increase the minimum length of experience for non-nuclear power plant experience (27-36 months) and/or clearly specify that the experience must be comparable to that of a licensed reactor operator (RO) or SRO if this type of experience will be credited in the same way as licensed nuclear power plant experience or license-equivalent positions (military or SRO instructor). There is no basis in NEI 23-01 for this reduction in non-nuclear power plant experience.
7	3.6	Please explain the applicability and termination criteria and why there is a stipulation about a plant with a common control room. The applicability appears the same (before initial fuel load). What specific guidance changes after initial fuel load? What if there is a common control room but units are different and an operator can only license on one unit in the common control room?
8	3.6	Section 3.6 states that the Cold Licensing process will terminate after completion of the first refueling outage, or after two years of commercial operation, whichever occurs first. This differs from a statement above this that it terminates after initial fuel load of the first unit with common control room.

9	5.3, Figure 3	Figure 3 is titled “Advanced Nuclear Reactor SRO Eligibility and Training Requirements for Previous Operator License, Military Reactor Operator, or SRO Certified instructor During Construction Phase” the title should be revised to include the provision for non-nuclear experience if it is retained.
10	3.1	Section 3.1 appears to mix technical aptitude test and leadership screening. Does the term “screening criteria” encompass both? This is not clear in section 3.1. What is required in the Combined Operating License / Operating License application?
11	Appendix A	On page A-1, it states, “NEI 23-01 proposes an alternative educational option combined with additional screening assessments. A high school diploma in combination with both a technical aptitude test and leadership assessment provides an additional eligibility option for SRO candidates, who have may have previous non-nuclear process plant experience but did not elect to further their academic study beyond high school.” If the SRO applicant has non-nuclear plant experience, they are eligible under the pathway for SROs with experience in Figure 3. Is this statement still applicable? It sounds like the screening and assessment applies to SRO applicants of this type but this contradicts Figure 3.
12	4.2	This section states that RO applicants do not require any prior power plant experience before they start initial license training however, if they do not have at least 6 months hot plant experience at a power reactor, as defined in section 2.0, they must attend a 6-week plant operational excellence course, participate in at least six weeks of preoperational test experience in the control room or perform at least 6 weeks of structured hot plant observations of operating crews at and operating nuclear power plant *of like design*. What does *plant of like design* mean?
13	5.2	Section 5.2, bullet 3 should be revised as follows, “individuals with at least 18 months of **Power Plant Experience** at a fossil-fueled [delete the word “experience”] or nuclear-fueled electric power production plant’s during preoperational, startup testing or operational activities.”

14	2	Why is the actual requirement embedded in the definition of crew cumulative nuclear power plant experience in section 2 and missing from section 3 which is titled Cold License Training and Experience Requirements? This also occurs in the definition of Alternate Cold License Methods for On-the-Job Training and Task Performance Evaluation.
15	Figures 1, 2, 3	Figures 1, 2, and 3 do not include the revision to crew cumulative nuclear power plant experience from 24 months to 1.2 years times number of crew members.
16	3.8	The cold licensing guidance does not address a complication that occurred from prior cold licensing operating experience. How does a RO or SRO maintain license active if the control room is still under construction and/or Technical Specifications not in effect yet? This happened at a previous plant under construction; the licensed operators needed to "stand watch" to maintain their license active and they could not because the plant was still under construction and the control room was not energized yet. See ML19261A070: NRC regulations include minimum requirements for the number of shifts and general types of functions that ROs and SROs must complete to maintain active status. Section 55.53(e) states, in part: "to maintain active status, the licensee shall actively perform the functions of an operator or senior operator on a minimum of seven 8-hour or five 12-hour shifts per calendar quarter. Section CFR 55.4 defines "actively performing the function of an operator or senior operator" as meaning "that an individual has a position on the shift crew that require the individual to be licensed as defined in the facility technical specifications, and that the individual carries out and is responsible for the duties covered by that position." Therefore, to meet 55.53(e), ROs and SROs will be: 1) responsible for actively performing the functions of an operator or senior operator, 2) for the required number of quarterly shifts, 3) while in a position on a shift crew that requires a license under the facility technical specifications.