Main Control Room Minimum Staffing

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Shift Staffing is prescribed

- Regulations established after TMI-2 accident
- Licensed operator specific (# of senior operator or SROs and operators, or ROs)
- Must have a Shift Technical Advisor (STA)

Per Shift Minimums

Number of nuclear power units operating [2]	Position	One unit	Two units		Three units	
		One control room	One control room	Two control rooms	Two control rooms	Three control rooms
None	Senior Operator	1	1	1	1	1
	Operator	1	2	2	3	3
One	Senior Operator	2	2	2	2	2
	Operator	2	3	3	4	4
Two	Senior Operator		2	3	[3] 3	3
	Operator		3	4	[3] 5	5
Three	Senior Operator				3	4
	Operator				5	6

Other requirements:

1. Must have a person with SRO license for all fueled at the site who is responsible for overall plant operation
2. An SRO must always be in the control room*
3. An SRO or RO must always be at the controls. One for each fueled unit*
4. During fuel loading or transferring, must have an SRO directly supervising with no other duties

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Licensed Operator Qualifications

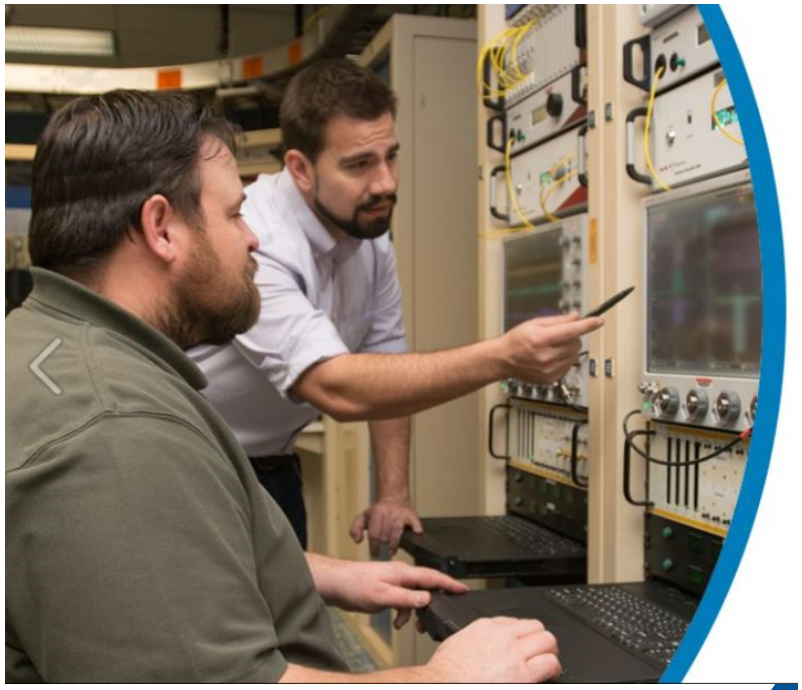
Education, Experience, Training and Other Requirements

- RO must have:
  - High school diploma
  - About 1-2 years nuclear or other power plant experience
- SROs must have:
  - Previous RO at site for 12 months OR
  - 18 months in military as a RO/SRO equivalent OR
  - 4-year engineering/science degree AND 18-27 months nuclear power plant experience
- Spend about 6 months on site
- Complete an NRC-approved training program derived from a systems approach to training and using a simulator
- Medical certification
- Can only operate units that are same or almost the same

Expect changes to education/experience requirements for advance reactors including SMRs

Shift Technical Advisor position

- Post TMI-2 accident, an interim measure
- Advisor to the shift supervisor and provides additional technical support for operations staff on best course of actions to terminate abnormal events or mitigate consequences of accidents.
- Must have a bachelor's degree in science or engineering and specific training on analysis and response of plant during transients and accidents
- Can serve more than one unit
- Does not assume command and control functions



How to take exception from prescribed staffing regulations

- Option to request an exemption for regulations for minimum staffing
- NRC staff review exemption requests using NUREG-1791

1. Concept of operations
2. Operational conditions
3. Operating experience
4. Functional Requirements Analysis and Function Allocation
5. Task Analysis
6. Job Definitions
7. Staffing Plan Validation

Staffing Plan for NuScale SMR

- NRC staff used NUREG-1791 to review and approve:
  - 6 operators for 12 units, including a STA
  - 3 operators for 12 units, no STA
- Focus on results from multiple validation tests
  - Task performance, workload, situational awareness
- STA role is not necessary because of a combination of elements

Proposed Requirements for Staffing at Advance Reactor sites

- Applicant proposes minimum staffing levels by submitting a staffing plan with application
- Consider differences in staffing levels when operators have/do not have a safety role – if safety role, staffing plan needs to be supported by human factors engineering analysis and assessments
- Acknowledge that operators may fill multiple roles (e.g., maintenance, radiation protection, etc.) so must include these details in staffing plan submittal
- Staffing plan must include description of how engineering expertise will be available to the on-shift operating personnel during all plant conditions to assist in the event that they encounter a situation not covered by procedures or training
- NRC will review and approve the staffing plan. Changes will be subject to administrative controls.

Note: these are draft requirements

QUESTIONS

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