



POWER REACTOR OPERATOR LICENSING PROCESS

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August 2, 2017



OVERVIEW

- Candidate Selection
- Generic Fundamentals Exam
- Training Process
- Application Process
- Candidate Pre-exam Screening
- Initial Exam Process
- Exam Results
- Licensing Process



APPLICANT SELECTION PROCESS

- Governed by the following documents:
 - ACAD 10-001, “Guidelines for Initial Training and Qualification of Licensed Operators.” (**INPO document**)
 - ANSI/ANS-3.1, 2014, “Selection, Qualification, and Training of Personnel for Nuclear Power Plants.” (**Industry document**)
 - Reg Guide 1.8, Rev. 3, “Qualification and Training of Personnel for Nuclear Power Plants” (**NRC document**)



GENERIC FUNDAMENTALS EXAMINATION

- Part of the Written examination for RO and SRO applicants
- Covers topics required by regulation
 - 10 CFR 55.41 and 55.43
- Given nationally 2 times per year
 - Industry may comment on exam prior to administration



TRAINING PROCESS

- Systems Approach to Training (SAT) required by regulation, 10 CFR 50.120(b)(2) and defined in 10 CFR 55.4
- INPO accreditation of training programs is accepted as meeting regulations
- NRC monitors/observes/participates in INPO training and accreditation activities
 - Accreditation Team Visits
 - Observation of Accreditation Boards



APPLICATION PROCESS

- Applicants submit NRC Forms 396 and 398 as examination date approaches
- Used to evaluate medical suitability and professional qualifications for an operator license
- NRC Form 396 – requires physical examination and certification
- NRC Form 398 – evaluates against training, education, and experience standards



FACILITY CANDIDATE PRE-EXAM SCREENING

- NRC Form 398 – Personal Qualification Statement - Licensee
 - Facility certifies candidate has successfully completed an accredited training program and there is a need for the license
- Candidates are typically given an ‘audit’ exam by the utility to determine readiness for NRC exam
 - Format comparable to NRC exam



INITIAL LICENSE EXAMINATION PROCESS

- Applicants must pass both a written examination and an operating test developed IAW NUREG-1021
- Since FY1996, the NRC has allowed facility licensees to develop site-specific written examinations and operating tests for review and approval by the NRC with final rule implementation in 1999.
- Each NRC Region develops one examination per year



INITIAL LICENSE EXAMINATION

PROCESS (cont'd)

- Develop the Sample Plan (random)
 - Knowledge and Abilities (K/A) Catalogs – NUREGs 1122/1123/2103/2104 and provide the basis for Content Valid Examinations
 - **Systematically** and **randomly** (with an equal chance for all to be drawn) select specific K/A statements
 - Exam authors can eliminate inapplicable or inappropriate K/As
 - NRC develops sample plans and submits them to each facility at the start of the examination development process



INITIAL LICENSE EXAMINATION PROCESS (cont'd)

- Select and Develop the Questions
 - Use combination of existing, modified, and new questions that match sample plan
 - 75-question RO examination with an additional 25 questions for SRO applicants
 - Facility-developed examinations are independently reviewed by a facility supervisor or manager before submittal to NRC
 - Facility Peer Review/Validation
 - NRC Chief Examiner/Branch Chief Review



INITIAL LICENSE EXAMINATION PROCESS (cont'd)

- Written Examination Administration
 - Typically administered by facility proctor with NRC Examiner available to address any questions or issues
 - Each applicant briefed on Written Examination Guidelines
- Written Examination Grading – Facility licensee will:
 - Review and resolve examination questions, comments, and issues
 - Submit post-examination comments w/recommended grading changes



INITIAL LICENSE EXAMINATION

PROCESS (cont'd)

- Operating Test – Simulator Scenarios
 - Designed to evaluate individuals as a member of a crew
 - Plant simulator used to evaluate applicants during normal, abnormal, and emergency conditions
 - Applicants evaluated in multiple control room positions across a set of competencies for each license level
 - Critical tasks with safety significance are identified
 - Technical specifications are exercised for SROs
 - Scenarios designed to have varied initial conditions and to meet a targeted number of attributes
 - Each applicant must be evaluated on a minimum number of each event type over a set of scenarios



INITIAL LICENSE EXAMINATION PROCESS (cont'd)

- Operating Test – Job Performance Measures (JPM) Walk-Through
 - Combination of control room JPMs, in-plant JPMs, and administrative JPMs
 - Presents a task for the applicant to perform as an individual
 - Identified “Critical steps” are required to be performed correctly
 - Simulator/In-plant JPMs designed to evaluate different safety functions
 - Certain JPMs are designated as “Alternate Path”
 - Admin JPMs designed to evaluate four subject areas



INITIAL LICENSE EXAMINATION PROCESS (cont'd)

- If desired, candidate can appeal various questions/segments of exam
 - Candidate provides justification for appeal
 - NRC's determination made by program office at headquarters
 - Candidate can request a hearing for final issue resolution



EXAMINATION RESULTS

- Overall pass rates generally > 90%
- 70-80% of exams have no failures
- Regional pass rates can be significantly affected by one exam with poor results
- No significant difference between NRC and facility-prepared exams
- NRR monitors grades and pass rates, including if facility or NRC prepared
- Performance results posted on NRC public website

Note: "Exam" refers to a common test given to all candidates at a specific facility on a particular date



LICENSING PROCESS

- Operator license issued to applicants who pass all portions of the examination and meet experience and medical requirements
- Conditions added to licenses as necessary
- Physical examination required every two years
- License Renewal required every 6 years
- Operators must maintain license by participating in requalification training and taking an annual NRC operating test and biennial NRC written examination within the two-year requalification cycle



Questions/Comments?