

NOTE TO: Quality Assurance Section, DHLWM

MAY 16 1988

FROM: James Donnelly, Project Manager
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SUBJECT: PERSONNEL QUALIFICATION AND DOCUMENTATION REQUIREMENTS

The question of what should be specified and documented in terms of education and experience for personnel performing activities affecting quality has come up numerous times during our plan reviews, section meetings, and observation audits. Consequently, I have searched for existing standards and QA plans which address this issue and talked with OGC staff on what documentation will be needed for licensing. For clarity, the remainder of this report will list the subject document or organization contacted and a brief quote and/or synopsis of the qualification and documentation requirements will follow.

1. NQA-1-1986 Edition

Basic Requirement (B.R.) II states "The program shall provide for any special controls.... and skills to attain the required quality and for verification of quality." In short, B.R.II only provides very general guidance.

Supplements 2S-1 and 2S-2 provide guidance for the qualification of test and inspection personnel. The guidance in 2S-1 is very general, but does state that the minimum qualification requirements for test and inspection personnel shall be established. Supplement 2S-2 provides guidance on the qualifications of NDE personnel. 2S-2 endorses SNT-TC-1A, June 1980 Edition as the applicable supplement for NDE personnel qualifications. Although SNT-TC-1A is specific in terms of education and experience requirements, I believe that NDE personnel will have a very limited role in the repository program.

Supplement 2S-3 provides qualification guidance for QA audit personnel. Once again, this document is more specific, but only affects a small number of personnel.

Appendices 2A-1 and 2A-3 contain nonmandatory guidance for the qualification of test and inspection personnel and lead auditors respectively. Similarly, these appendices provide specific guidance but only affect a small number of personnel.

In terms of required qualification records, the supplements identified above require that records of personnel qualification shall be established and maintained by the employer. The specifics of whether or not resumes are part of those records is not addressed.

2. NQA-3 (Feb. 88 Draft)

Section 2.2., provides the guidance on personnel qualifications. I believe NQA-3 expands on NQA-1 by requiring that a position description (PD) be

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established, which specifies the minimum education, training, and experience requirements, for personnel performing or verifying activities that affect quality. To me, this includes personnel such as engineers, designers, geologists, technicians etc. - which is much broader than NQA-1's guidance for test, inspection and audit personnel. The qualification documentation requirements are the same as NQA-1.

3. NNWSI/88-9 (Formerly NVO-196-17)

Section II, subsection 5.0 states that for personnel performing activities affecting quality, PDs must be established and documented. The PDs shall set forth the minimum education and experience requirements. Personnel shall be evaluated against these criteria. The specifics of how much education and experience is required is not addressed.

Subsection 5.1.6.1 on personnel qualification records implies that only the verification record and the PD need to be maintained as records. Based on my experience, this verification record merely attests that an individual meets the qualifications defined in the PD. I am under the impression that resumes are not part of the qualification records.

4. NRC Standard Review Plan (NUREG-0800) Section 13.1.1

Subsection I., A., 2. states the following:

The PSAR should also identify general qualification requirements in terms of numbers, educational backgrounds, and experience for identified positions or classes of positions; and specific educational and experience background for assigned management and supervisory positions ...

The CP-stage review (PSAR) of the NSSS and A/E organizations includes...a review of their technical staff to perform the activity related to the application... The submitted information should include the number of persons assigned to the project, and qualification requirements for principal management positions related to the project.

Subsection I.,B. also states the following:

The FSAR should (1) identify in terms of numbers, educational background and experience requirements for each identified position or class of positions providing technical support for plant operations, and (2) include specific educational and experience background for individuals holding the management and supervisory positions providing support in the areas identified below.

The special capabilities that should be included in the support for the operation of the plant are:

1. Nuclear, mechanical, structural, electrical, thermal-hydraulic, metallurgical and materials, and instrumentation and controls engineering
2. Plant chemistry

3. Health physics
4. Fueling and refueling operations support
5. Maintenance support
6. Operations support
7. Quality assurance
8. Training
9. Safety review
10. Fire protection
11. Outside contractual assistance

Section 13.1.2

Subsection I., E., states:

The education, training, and experience requirements (qualification requirements) established by the applicant for filling each management, operating, technical, and maintenance position category in the operating organization above should be described. This includes those persons who will conduct preoperational and startup tests. At the PSAR stage, it is recognized that many details of the plant organization (see A, above) and staffing have not been finalized.

Consequently, the information to be reviewed should demonstrate an understanding of and commitment to the acceptance criteria below. At the FSAR stage, this section should in addition provide evidence, in the form of personnel resumes, that the initial selections made for management and principal supervisory positions down through the shift supervisory level conform to those requirements.

Subsection II., G., states:

Regulatory Guide 1.8, "Personnel Selection and Training," sets forth the staff position on plant personnel qualifications and indicated that the criteria for selection (qualifications) contained in ANSI N18.1 are generally acceptable, except as noted in the regulatory position section of Regulatory Guide 1.8.

As shown above, resumes of key personnel are required in the FSAR. Likewise, I was informed that professional staff at Palo Verde Nuclear Station had detailed qualification information (resumes, training certificates, copies of degrees) on file and this information was available to the NRC.

5. Regulatory Guide 1.8 (which, in essence, endorses ANSI N18.1)

Here is an example of the qualification requirements for some Professional-Technical staff. ANSI N18.1 states the following:

4.4.1 Reactor Engineering and Physics

At the time of initial core loading or appointment to the active position, the responsible person shall have a minimum of a Bachelor's Degree in Engineering or the Physical Sciences and two years experience in such areas as reactor physics, core measurements, core heat transfer, and core physics testing programs.

4.4.2 Instrumentation and Control

At the time of initial core loading or appointment to the active position, the responsible person shall have a minimum of five years experience in instrumentation and control, of which a minimum of six months shall be in nuclear instrumentation and control. A minimum of two years of this five years experience should be related technical training. A maximum of four years of this five years experience may be fulfilled by related technical or academic training.

The above example is quite specific in terms of defining education and experience requirements. However, it is my interpretation that according to this standard not everyone must meet this requirement - only one individual must meet this requirement in the respective discipline.

6. ANSI/ANS 3.1 (1981)

This standard provides the greatest detail in terms of education and experience requirements. For example:

4.4 Professional-Technical

The onsite professional-technical group leaders shall possess the following qualifications in the indicated disciplines. A single individual may be qualified and perform in more than one discipline.

4.4.1 Reactor Engineering

- a. Education: Bachelor Degree in Engineering or related Sciences.
- b. Experience: At the time of initial core loading or appointment to the position, whichever is later, the responsible person shall have four years professional level experience of which two years shall be nuclear power plant experience. The experience shall be in such areas as reactor physics, core measurements, core heat transfer, and core physics testing programs. During the two years, the individual shall participate in the reactor engineering section activities at an operating nuclear power plant during the following periods.

- (1) Initial fueling or refueling outage fuel handling period.

- (2) Initial startup test program or post refueling outage startup test program.
 - (3) Power increase from 10 percent to 100 percent power including stabilization of xenon.
 - (4) Rod sequence exchange (BWR only).
 - (5) Two weeks operation above 20 percent power. Successful completion of a reactor engineering training program (such as a reactor engineering certification program offered by NSSS Vendors) may be considered equivalent to one year's nuclear power plant experience. Six months experience shall be onsite.
- c. Training: As required by 5.3.2 and 5.4.
- d. The individual who temporarily replaces the reactor engineer shall have a Bachelor Degree in Engineering or related sciences and two years professional level experience, of which one year shall be nuclear power plant experience. Six months experience shall be onsite.

7. NRC QA Review Plan for Site Characterization (June 1984)

The following is a quotation from two positions:

- 2.8.e. Qualified personnel are certified in accordance with applicable codes and standards.
- 10.3 A qualification program for inspectors is established and documented, and the qualifications and certifications of inspectors are kept current.

It is quite evident that the guidance provided here is, once again, quite general.

Also, position 17.1 clearly states that the scope of the records program should include qualification records.

8. Technical Position on Quality Assurance for the Site Characterization Phase of the High-Level Nuclear Waste Repository (April 1988)

To summarize, this document endorses Supplements 2S-1, 2S-2, 2S-3, and 2S-4 of NQA-1. Other supplementary NRC positions include II.7.2, II.7.3, and II.7.4. These state that PDs are required and should state the minimum qualifications (i.e., education, experience, and training) needed for the activity being performed.

In addition, Supplementary NRC Staff Position XVII.2.1 clearly states that qualification records should be maintained.

9. OGC Personnel

I also contacted OGC personnel to discuss what qualification documentation was needed for licensing. I spoke with Bernie Bordenick and was told that the more detailed the documentation for personnel qualifications the better. To the best of Bernie's knowledge, the qualifications of staff have never been challenged by an intervenor during the licensing process. However, according to Bernie, the qualification documentation always existed and was readily available.

I informed Bernie about DOE's present position that resumes are private information and are not accessible to outside parties. He stated that, at this time, NRC cannot force DOE to make this information accessible; however, he advised that this issue be escalated to Hugh Thompson to initiate a change. Bernie stated that DOE is at great risk during licensing if the qualifications are challenged and all that exists are PDs and a managers statement which attests that an individual meets the PD.

In summary, the majority of the existing documents on personnel qualifications and the documentation requirements are non-specific. Except for test, inspection, and audit personnel, the education and experience requirements for other professionals are very general. To my knowledge, the most detailed guidance document is ANSI/ANS-3.1-1981. As shown previously, this document does specify the type of degree required and the necessary experience (i.e., in terms of years and relevancy). Nonetheless, this document has not been formally endorsed by NRC and is for key positions only. This document however, could be used as a model for any future guidance the NRC might provide to DOE.

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