

67

RECORD #67

TITLE: Chemistry and Radiation Protection Technician Training and Qualification

FICHE: 67260-129



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAR 28 1984

MEMORANDUM FOR: Frank A. Wenslawski, Chief
Radiological Safety Branch
Division of Radiological Safety and
Safeguards Programs, Region V

FROM: Dennis P. Allison, Chief, Section B
Engineering and Generic
Communications Branch
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

SUBJECT: CHEMISTRY AND RADIATION PROTECTION TECHNICIAN TRAINING
AND QUALIFICATIONS

I am writing in response to your request for guidance (Enclosure 1). Your two specific questions are addressed below.

- a. Technicians filling responsible positions in a specialty are required to have two years experience in that specialty. Thus, if a technician is fulfilling a dual role (as a responsible HP/Chem Technician), then a total of four years experience (two in each area) is required by ANSI N18.1-1971. IE will support appropriate regional recommendations for enforcement actions where a licensee has unqualified technicians with less than two years work experience in each specialty filling responsible positions. As mentioned in the enclosed Collins-Cunningham memorandum dated January 21, 1982, common areas of chemistry and radiation protection may exist so that some experience period less than four years could be acceptable for full, dual-specialty qualification. The overall goal of the Technical Specification requirement is to ensure that technicians filling responsible positions have the necessary experience, education, and skill to perform their assigned functions during normal and abnormal conditions. Licensees must determine, on a case by case basis, whether technicians are qualified to perform their assigned job functions.
- b. Nuclear power plant preoperational experience, as well as design, construction, startup, and operations, can count (on a one-for-one basis) toward the two-year experience requirement, as defined in Section 4.1

CONTACT: J. E. Wigginton, IE
49-24967

MAR 28 1984

(Qualifications) of the subject ANSI standard. However, the licensee must make definitive applicability assessments of any type of experience as it relates to the technicians current (or projected) job responsibilities. A well documented training program structured to specific job functions should form the basis for the licensee qualification assessments.

Some licensees have taken exception to the technical specification endorsed ANSI standard and submitted alternate proposals for qualification programs. Enclosed is RAB's safety evaluation for the TMI-1 Radiation Technician Training program. You should note that a TMI-1 technician can attain equivalent ANSI-N18.1 qualification status with less than the normally required two year experience period.

The above guidance is consistent with that provided in a closely related memorandum of March 1, 1984 from me to Blaine Murray on the subject of chemistry technician training and qualifications.

We have discussed this question with NRR's RAB and the IE Enforcement staff who can support the guidance provided above. OELD has no legal objections. NRR's CHEB does not believe there are significant problems in this area and, therefore, little regulatory attention is warranted. However, we believe the requirements are valid and, as indicated above, would support enforcement action regarding unqualified technicians that do not meet the requirements.



Dennis P. Allison, Chief, Section B
Engineering and Generic
Communications Branch
Division of Emergency Preparedness
and Engineering Response, IE

Enclosures:

1. Wenslawski-Fisher memo, dated 12/2/83
2. Collins-Cunningham memo, dated 1/21/82
3. SE TMI-1, dated 11/17/82

cc: R. Bellamy, RI
M. Shanbecky, RI
A. Gibson, RII
K. Barr, RII
D. Collins, RII
C. Paperiello, RIII
R. Greger, RIII
J. Nicholas, RIV
B. Murray, RIV

O. Lynch, NRR
C. McCracken, NRR
R. Baer, IE
L. Cunningham, IE
✓ J. Buchanan, IE
E. Flack, IE
E. Blackwood, EDO
K. Cyr, ELD



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V

1451 MARIA LANE, SUITE 210
WALNUT CREEK, CALIFORNIA 94596

DEC 02 1983

MEMORANDUM FOR: William Fisher, Chief, Section B,
Engineering and Technical Support Branch, IE

FROM: F. A. Wenslawski, Chief
Radiological Safety Branch, Region V

SUBJECT: REQUEST FOR GUIDANCE ON REQUIRED EXPERIENCE FOR
CHEMISTRY AND RADIATION PROTECTION TECHNICIANS

A number of facilities have a Technical Specification 6.3.1 which states in part "Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions...." ANSI N18.1-1971 Section 4.5.2 states "Technicians in responsible positions shall have a minimum of two years of working experience in their specialty." Some facilities, such as Diablo Canyon, have a unit staff position of Chemistry and Radiation Protection Technician. Chemistry and Radiation Protection are usually considered to be separate specialties, as is the case in section 4.4 of ANSI N18.1-1971 or section 3.2.4 of the revisions to this standard (ANS-3.1-1978 and 1981). Doug Collins in 1981 suggested that if a facility has a combine position then four years of experience, two in each specialty, would be required to meet the standard (see enclosure 1). It is our understanding, however, that NRR has not established a firm position on this issue. We believe this issue has generic implications and want to be sure that we are not backfitting a new interpretation of the existing requirement. We therefore specifically request guidance on:

- A. Can we enforce a position that for technicians in responsible positions two years experience in each specialty, Chemistry and Radiation Protection, are required to meet the Technical Specification?
- B. For Radiation Protection technicians in responsible positions does preoperational experience count on a one for one basis to fulfill the ANSI N18.1-1971 experience requirement?

F. A. Wenslawski
F. A. Wenslawski, Chief
Radiological Safety Branch, RV

Enclosure: As stated

cc: M. Shanbaky, RI
D. Collins, RII
R. Greger, RIII
B. Murray, RIV
F. Congel, NRR



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 04 1981

RECEIVED
DEC 30 1980

DEC 30 1980

RECEIVED

MEMORANDUM FOR: Radiation Protection Section
FROM: Doug Collins, Leader RPS
SUBJECT: RADIATION PROTECTION ORGANIZATION, STAFFING
AND QUALIFICATION

RPS has made several reviews of OLs using NUREG-0731 as criteria and this memo is to provide you information on our experience with NUREG-0731 implementation.

NUREG-0731 was issued as a draft in September 1980 for interim use in evaluating near-term OLs per NUREG-0694. The salient radiation protection aspects of this NUREG and their application are listed below.

1. Radiation Protection Manager (RPM) Reporting

a. Criteria

Section II. A.1 of NUREG-0731 states that "The functional areas of radiation protection, quality assurance, and training should assure independence from operating pressures" and that there be "clear lines of authority to the Plant Manager." Figure 1 of NUREG-0731 shows a "representative" plant organization with the RPM reporting directly to the Plant Mgr/Asst. Plant Mgr and at the same level as the Operations Manager. In addition, Regulatory Guide 8.8, Section C.1.b.(3), states:

The Radiation Protection Manager (RPM) (onsite) has a safety function and responsibility to both employees and management that can be best fulfilled if the individual is independent of station divisions, such as operations, maintenance, or technical support, whose prime responsibility is continuity or improvement of station operability. The RPM should have direct recourse to responsible management personnel in order to resolve questions related to the conduct of the radiation protection program.

This section will be revised shortly to state that the Regulatory Guide 1.8 qualified RPM should have direct access to the Plant Manager in all radiation protection matters.

Revision 3 of Regulatory Guide 1.33 (for Comment dated November 1980) states, with regard to "independence from operating pressures" and QA groups, that the NRC is evaluating the effectiveness of an organizational structure in which the onsite QA group reports functionally to offsite QA management rather than to the Plant Manager. This is not the same meaning of "independence from operating pressures" as applied to the RPM. Acceptable implementation for the RPM is discussed below.

b. Implementation

The two main goals with regard to the organizational structure are to give assurance that the radiation protection (RP) group is independent from operations and operational pressures and that the RPM has direct access to the Plant Manager in all RP matters. It is clearly unsatisfactory for the RPM to report to the Operations or Maintenance Superintendent since this makes him directly dependent on operational pressures. Although NUREG-0731 and Regulatory Guide 8.8 imply that the RPM should report directly to the Plant Manager, the Figure 1 is for a "representative" organization and Regulatory Guide 8.8 states that the RPM's responsibilities can be best fulfilled if he is independent of Technical Support division. This does not say that reporting to the Technical Support Manager is unacceptable; only that it is not the best organization. We have found acceptable a system in which the RPM reports to the Technical Services Manager with a commitment in the FSAR that the RPM has direct access to the Plant Manager for RP matters or that the RPM is a member of PORC. Each review should determine if the proposed organizational structure does and will work (including access of the RPM to the Plant Manager) and if the functional organization that works is depicted by the FSAR and tech specs. In instances where the organizational structure is questionable, you should contact the Resident Inspector or assigned regional HP Inspector to get input. In addition, if necessary, you should visit the site as part of your evaluation in order to interview the RPM.

2. Radiation Protection Separate from Chemistry

a. Criteria

Section II.A.1 of NUREG-0731 states that one characteristic that forms the basis for a plant organization is that "distinct functional areas are separately supervised and/or managed." Figure 1 of NUREG-0731 shows RP separate from Chemistry.

Additionally, Standard Technical Specifications specify that radiation protection technicians meet ANSI 18.1 which requires in paragraph 4.5.2 that technicians in responsible positions shall have a minimum of two years of working experience in their speciality. Radiochemistry and Radiation Protection are listed as separate specialities in Section 4.4 of that ANSI standard. ✓

NUREG-0654, in Table B-1 lists separately HP technicians and radiochemistry technicians.

b. Implementation

The bases for the separation of RP from Chemistry are (1) assurance that the RPM devotes sufficient attention to RP (and is not distracted from his responsibility to RP by Chemistry), and (2) assurance that technicians are not required to perform so many functions that they cannot maintain specialized competence in dedicated functions. There are acceptable methods for achieving these goals other than total separation of RP from chemistry. We found acceptable organizations in which a Supervisor of Radiation Protection and Chemistry has two discrete functions (RP and Chem) reporting to him. In order to overcome the potential problem of dilution of Chem and RP Supervisor's management of and technical input into the RP program, a Regulatory Guide 1.8 qualified individual is put in charge of the RP group. Thus, the RP function has the benefit of the full-time direction of a Regulatory Guide 1.8 qualified individual. In these cases, the Chem and RP techs have been separate groups with separate duties and qualification standards. HP Appraisals have found plants where the combination of RP and Chemistry duties have resulted in problems because of the inability of technicians to maintain competence in all areas; they have also found programs where the combination technician has worked. In plants where the groups are separate, a few very good technicians have been able to maintain qualification in both areas. It, therefore, is theoretically possible to qualify a staff of techs in both specialities, but it would require 4 years experience total per ANSI 18.1 and would require a great expenditure of effort in training and qualifying the staff in both areas. One plant has a contractor evaluating the organization for potential solutions to the dual-technician qualification problem. 4

3. Shift Staffing

a. Criteria

NUREG-0654, Table B-1, specifies that there be an HP technician on

each shift as a minimum. This on shift person must be a technician qualified per ANSI 18.1, not "an individual qualified in RP procedures" as specified in Tech Specs of operating reactors in the past. A footnote to the table shows that two such "individuals qualified in RP procedures" are required in addition to the technician.

Section II. A.d.(2) of NUREG-0731 states that a RP technician should be onsite at all times.

b. Implementation

Beyond this minimum, there must be sufficient staff to perform the assigned RP functions. Those functions assigned RP vary from plant to plant. Many functions, such as TLD processing, bioassay, instrument calibration, environmental monitoring, etc. can be contracted out and therefore the in-house staff to perform RP functions is variable. HP Appraisals have found that some of the better programs at one-unit stations have only 10-11 people on the entire RP staff. Other plants with substantially more personnel have had more significant findings.

4. Back-up to RPM

a. Criteria

Section II.A.2 of NUREG-0731 states that there should be in-depth experience at the Radiation Protection Manager level. Section 4.4.4 of the December 1980 draft ANSI 3.1, which will be adopted by Regulatory Guide 1.8 specifies that an individual who temporarily replaces the RPM should have a B.S. degree in science or engineering and 2 years experience, six months of which should be onsite.

b. Implementation

It is our intent that the backup to the RPM be assigned to the site, but in certain circumstances he may be assigned at corporate with close ties to the site. For example, the corporation HP of a one unit utility located near (app. 30 miles) to the site might be acceptable as a back-up to the RPM if, during the RPM's absence he is assigned to the site.

5. RPM Qualifications

a. Criteria

Standard Technical Specifications specify that the RPM should be qualified in accordance with Regulatory Guide 1.8, which

APR 04 1978

currently states:

The Radiation Protection Manager (RPM) should be an experienced professional in applied radiation protection at nuclear facilities dealing with radiation protection problems and programs similar to those at nuclear power stations. The RPM should be familiar with the design features and operations of nuclear power stations that affect the potential for exposures of persons to radiation. The RPM should have the technical competence to establish radiation protection programs and the supervisory capability to direct the work of professionals, technicians, and journeymen required to implement the radiation protection programs.

The RPM should have a bachelor's degree or the equivalent in a science or engineering subject, including some formal training in radiation protection. The RPM should have at least five years of professional experience in applied radiation protection. (A master's degree may be considered equivalent to one year of professional experience, and a doctor's degree may be considered equivalent to two years of professional experience where course work related to radiation protection is involved.) At least three years of this professional experience should be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered in nuclear power stations, preferably in an actual power station.

Equivalent, as used above for the B.S. degree, may be met by (a) 4 years of formal schooling in science or engineering, (b) 4 years of applied radiation protection experience at a nuclear facility, (c) 4 years of operational or technical experience/training in nuclear power, or (d) any combination of the above totaling 4 years. With regard to other clarifications of the R.G. 1.8 wording, see the attached EEB Branch Position dated March 2, 1978. Note that with regard to the number of refueling outages in the EEB position, the

NRC is adopting a new ANSI 3.1 which will require 6 months onsite and one refueling outage.

b. Implementation

There should be a Regulatory Guide 1.8 qualified RPM assigned at the site. In some instances the individual assigned RPM has strong management capability but does not have the radiation protection technical experience of Regulatory Guide 1.8. However, we have found it acceptable for this individual to function as RPM when he is supported by an individual in the line organization (e.g. HP Supervisor) who has the Regulatory Guide 1.8 education and technical experience. We have not found it acceptable to have a Regulatory Guide 1.8 person not in line (e.g. as a staff member of a rad engineering group).

6. Radiation Protection Technicians

a. Criteria

ANSI 18.1, Section 4.1, states that individuals must have the training and experience to do the job. Section 4.5.2 states that technicians in responsible positions shall have a minimum of two years experience in their specialty and should have one year of related technical training. In practice, the shall 2 years applies, with training as part of the 2 years.

ANSI 18.1, Section 5.1 and 5.3, specify training in general terms. Section 5.5.1 specifies retraining in more specific terms.

Proposed Regulatory Guide 1.8 (RP 807-5, Sept. 1980) on page 18 specifies a performance oriented training and qualification for technicians.

b. Implementaton

A "responsible" radiation protection technician is one who:

1. Reviews surveys performed by others;
2. Signs RWPs;
3. Issues RWPs;
4. Independently performs surveys or evaluations used to permit compliance with regulatory requirements.

APR 8 / 1991

-7-

We have accepted an alternative to two years experience (the quality of which is not specified by ANSI). This alternative would consist of an NRC reviewed and approved training program with a 1 year experience requirement (the quality of which would be specified). Some licensees have commented that the retraining listed in Section 5.5.1 of ANSI 18.1 does not apply to radiation protection technicians. This retraining does apply.

Douglas M. Collins

Douglas M. Collins, Leader
Radiation Protection Section
Radiological Assessment Branch
Division of Systems Integration

cc: W. Kreger
D. Collins



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ENCLOSURE 2

JAN 21 1982

MEMORANDUM FOR: Lemoine J. Cunningham,
Engineering & Technical Support Branch
Division of Engineering & Quality Assurance, IE

FROM: Douglas M. Collins, Leader
Radiation Protection Section
Radiological Assessment Branch, DSI

SUBJECT: QUALIFICATION OF RADIATION PROTECTION TECHNICIANS

In response to your request, enclosed are SERs and questions to applicants regarding the qualification of radiation protection technicians and the separation of radiation protection and chemistry functions. It has been our position that if radiation protection and chemistry are not separate functions organizationally, the licensee or applicant must implement a program to provide adequate technical supervision of the radiation protection function and full qualification of radiation protection technicians in their speciality - radiation protection.

Most plants' staffs are required to meet the qualification standards of ANSI 18.1, which requires 2 years of experience in a technician's speciality. The standard lists radiation protection and radiochemistry as separate specialties. It has been our position that this requires radiation protection technicians to have 2 years experience in radiation protection to be fully qualified. There may be areas that are common to both radiation protection and chemistry, (e.g., sampling and sample analysis), and we expect inspectors will exercise judgment when evaluating technician experience.

We have approved applications for technical specifications that require technicians to complete an NRC-approved technician qualification program. These programs have been equivalent to the program outlined in NUREG-0761 and have included a requirement for 1 years experience.

Douglas M. Collins

Douglas M. Collins, Leader
Radiation Protection Section
Radiological Assessment Branch
Division of Systems Integration



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

THREE MILE ISLAND UNIT NO. 1

RADIOLOGICAL FIELD OPERATIONS TRAINING PROGRAM

Introduction

Section 6.3.2 of the Technical Specifications for TMI-1 specify that "Each Radiological Controls Technician/Foreman shall meet or exceed the qualifications of ANSI-N 18.1-1971...or be formally qualified through an NRC approved TMI-1 Radiation Controls Training Program". In accordance with this specification, GPU Nuclear, the licensee, on February 25, 1982 provided a description and summary of their radiation field operations training program which we have evaluated as set forth below.

Evaluation

The subject program is a proposed alternative to qualification in accordance with ANSI-N 18.1-1971, "Standard for Selection and Training of Personnel for Nuclear Power Plants". ANSI 18.1 specifies that the technicians have two years experience in their specialty and that they must have the combination of education, experience and skills necessary to perform assigned functions during normal and abnormal conditions. This standard also recommends that technicians have 1 year training, but does not specify the content of the training.

As an alternative to the general experience criteria of ANSI 18.1, the licensee has proposed, in a letter dated February 25, 1982, a comprehensive training and qualification program. This program includes theoretical and practical training in all necessary concepts and duties to be performed, written and oral examinations, and records of training and qualification. The qualification program will be applicable to licensee staff; contractor personnel will be trained in the procedures applicable to their specific duties. The Technical Specifications require that contractor technicians in responsible positions be qualified in accordance with ANSI 18.1 if they do not complete the licensee's qualification program.

We have reviewed the licensee's program and find it to be equivalent to that proposed by the NRC staff in draft NUREG-0671, "Radiation Protection Plans for Nuclear Power Reactor Licensees". We note that, the training program specifies no requirement for experience for the radiological controls staff. We requested and the licensee committed to incorporate a specification for experience for radiological control technicians and foremen, within the proposed qualification program. The experience requirements are that radiological controls technicians are to have at least one year experience and foremen to have at least four years experience in radiological controls. We note that time spent in a radiological controls training program may count towards completion of minimum experience requirements.

Conclusion

We, conclude that the proposed radiological control technician and foremen qualification program, when modified to include a specification for experience, as noted above, will provide the radiological controls staff with the qualifications necessary to perform assigned functions during normal and abnormal conditions and to provide adequate radiological control support to the plant. The modified program will provide training and qualification equivalent to that in ANSI 18.1 and, therefore, is acceptable.

Dated: NOV 17 1982