

From: ANDERSON, Ellen
To: [Hsueh, Kevin](#)
Cc: [Garmon-Candelaria, David](#)
Subject: [External_Sender] Alternate Method for Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians
Date: Wednesday, September 05, 2018 8:12:31 AM
Attachments: [White Paper - ANSI Experience Requirements Final.pdf](#)
[09-05-18_NRC_NEI ANSI Experience Requirements.pdf](#)

September 5, 2018

Dr. Kevin Hsueh, Chief
Radiation Protection and Consequence Branch
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Alternate Method for Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

Project Number: 689

Dear Dr. Hsueh:

The Nuclear Energy Institute (NEI) ^[1] and its members appreciate recent engagement with you and your staff regarding an alternate rationale to account for hours worked by supplemental radiation protection technicians (RPTs) when determining if individuals are ANSI-qualified RPTs.

Current and proposed ANSI standards contain requirements for experience to meet qualification standards for radiation protection technicians. These requirements are expressed in years of work experience. Supplemental Radiation Protection Technicians (SRPTs) primarily work during outages; therefore, they are rarely employed for a period of one continuous year. As a result, rationale was developed in the 1980s to credit hours worked by SRPTs toward the experience requirements specified by ANSI standards. Currently, the commercial nuclear power industry limits credit to a total of 50 hours per week. However, due to recent industry-wide implementation of a common training program for SRPTs, an alternate method as described in the attached white paper proposes an improved manner to meet ANSI experience qualification. This proposal includes crediting all hours worked in a year up to 2000 hours towards experience requirements rather than limiting to a value of 50 hours per week.

Should you agree with the rationale described in this proposal, we respectfully request that NRC include this change in the current proposed revision to Regulatory Guide 1.8 "Qualification and Training of Personnel for Nuclear Power Plants" (DG-1329), and revise Health Physics Position 19 (HPPOS-19) to incorporate the details contained in the attached industry white paper for meeting ANSI experience requirements for supplemental radiation protection technicians.

We appreciate your consideration of this matter and are prepared to meet with NRC staff to discuss this proposal and its implementation.

I will be happy to address any questions concerning this letter and attached industry white paper.

Sincerely,

Ellen Anderson
Director,
Radiological Protection & Materials Licensing

Nuclear Energy Institute
1201 F Street N.W., Suite 1100
Washington, DC 20004
www.nei.org

P: 202.739.8043
M: 202.378.8140
E: exa@nei.org

[1] The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.



This electronic message transmission contains information from the Nuclear Energy Institute, Inc. The information is intended solely for the use of the addressee and its use by any other person is not authorized. If you are not the intended recipient, you have received this communication in error, and any review, use, disclosure, copying or distribution of the contents of this communication is strictly prohibited. If you have received this electronic transmission in error, please notify the sender immediately by telephone or by electronic mail and permanently delete the original message. IRS Circular 230 disclosure: To ensure compliance with requirements imposed by the IRS and other taxing authorities, we inform you that any tax advice contained in this communication (including any attachments) is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties that may be imposed on any taxpayer or (ii) promoting, marketing or recommending to another party any transaction or matter addressed herein.

Sent through www.intermedia.com

ELLEN P. ANDERSON
*Director, Radiation Safety &
International Liaison*

1201 F Street, NW, Suite 1100
Washington, DC 20004
P: 202.739.8043
exa@nei.org
nei.org



September 5, 2018

Dr. Kevin Hsueh, Chief
Radiation Protection and Consequence Branch
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Alternate Method for Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

Project Number: 689

Dear Dr. Hsueh:

The Nuclear Energy Institute (NEI)¹ and its members appreciate recent engagement with you and your staff regarding an alternate rationale to account for hours worked by supplemental radiation protection technicians (RPTs) when determining if individuals are ANSI-qualified RPTs.

Current and proposed ANSI standards contain requirements for experience to meet qualification standards for radiation protection technicians. These requirements are expressed in years of work experience. Supplemental Radiation Protection Technicians (SRPTs) primarily work during outages; therefore, they are rarely employed for a period of one continuous year. As a result, rationale was developed in the 1980s to credit hours worked by SRPTs toward the experience requirements specified by ANSI standards. Currently, the commercial nuclear power industry limits credit to a total of 50 hours per week. However, due to recent industry-wide implementation of a common training program for SRPTs, an alternate method as described in the attached white paper proposes an improved manner to meet ANSI experience qualification. This proposal includes crediting all hours worked in a year up to 2000 hours towards experience requirements rather than limiting to a value of 50 hours per week.

Should you agree with the rationale described in this proposal, we respectfully request that NRC include this change in the current proposed revision to Regulatory Guide 1.8 "Qualification and Training of Personnel for

¹ The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

Dr. Kevin Hsueh
September 5, 2018
Page 2

Nuclear Power Plants" (DG-1329), and revise Health Physics Position 19 (HPPOS-19) to incorporate the details contained in the attached industry white paper for meeting ANSI experience requirements for supplemental radiation protection technicians.

We appreciate your consideration of this matter and are prepared to meet with NRC staff to discuss this proposal and its implementation.

I will be happy to address any questions concerning this letter and attached industry white paper.

Sincerely,

A handwritten signature in cursive script that reads "Ellen P. Anderson".

Ellen P. Anderson

Attachment

c: David Garmon, NRC/NRR

Industry White Paper

MEETING ANSI EXPERIENCE REQUIREMENTS FOR SUPPLEMENTAL RADIATION PROTECTION TECHNICIANS

Willie Harris, CHP

Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

ABSTRACT

Current and proposed ANSI standards have requirements for experience to meet qualification standards for radiation protection technicians. These requirements are expressed in years of work experience. Supplemental Radiation Protection Technicians (SRPTs) primarily work during outages; therefore, they are rarely employed for a period of one continuous year. As a result, rationale was developed to credit hours worked by SRPTs toward the experience requirements specified by ANSI standards. Currently, the commercial nuclear power industry limits credit to a total of 50 hours per week. Because of industry wide implementation of a common training program for SRPTs, this white paper proposes an improved method for meeting ANSI experience qualification that includes crediting all hours worked in a year up to 2000 hours towards experience requirements instead of limiting to a value of 50 hours per week.

INTRODUCTION

In commercial nuclear power stations, radiation protection (RP) technicians evaluate radiological conditions and support radiation workers in controlling their exposure to radiation. Many of the radiation protection technicians work in a responsible position requiring two or three years of related experience dependent on the specific ANSI standard referenced by the plant technical specifications. An RP technician in a responsible position is one who free releases radioactive materials from a restricted area, approves effluent release permits, approves radiation work permits, and receives/ships radioactive material (NRC HPPOS-238). A radiation protection technician in a responsible position is also required for evaluating and controlling radiation exposures during high radiation exposure tasks (NRC HPPOS-022).

Historically, the largest demand for RP technicians occurs during plant refueling outages or major projects. During these outages and projects, RP technicians gain valuable experience, as it is during these timeframes that a significant amount of high radiological risk work occurs. Due to the amount of RP technician resources required, utilities will employ supplemental radiation protection technicians to complement RP plant staff. This requires the plant staff to evaluate experience levels of the supplemental radiation protection technicians relative to the plant specific ANSI standard.

Current and proposed ANSI standards do not have a methodology to equate hours worked to year's experience. In 1980, the NRC was asked to consider hours of work for comparison to the ANSI standards. An interpretation was requested of the NRC for a method of accounting for hours to account for a years' worth of experience. The NRC issued Health Physics Position 019 (HPPOS-019) to provide guidance.

This white paper proposes an alternate rationale to account for the hours worked by a supplemental RP technician when determining if a technician has the experience to take appropriate actions and make safe decisions during normal and abnormal radiological conditions.

Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

CURRENT METHODOLOGY

NRC HPPOS-019 recognizes that supplemental RP technicians are utilized at many of the power reactor facilities and that considerable overtime is frequently associated with this work. In consideration of this situation, the NRC developed guidance for the application of man-hours to years of experience for use only in determining the qualification of supplemental radiation protection technicians. This guidance recommends that 2,000 or more working hours accumulated during a total period of not less than 40 weeks is acceptable as representing one year of experience.

In the 1970s/1980s, outages at nuclear power plants were significantly longer in duration than current outage durations. As a result, a supplemental RP technician could work 84 hours a week for an extended period. It was possible that a supplemental RP technician could actually accrue enough hours in a year to be granted over two years' experience. Based on review of the background information available when this HPPOS was developed in 1980, it was inferred that the limitation for the minimum number of weeks worked was put in the position paper to address this issue. Based on current industry performance it would be rare that an SRPT would be able to achieve this number of hours to obtain more than a years' experience in any one given year.

Based on this HPPOS, utility programs were developed to only give ANSI credit for up to 50 hours of work regardless of the amount of time a technician may have worked during the week. This was based on a recommendation from a Barley and Hiatt article published in 1988 (Ref 8). Barley and Hiatt recommended a maximum of 50 hours per week to be accepted as experience. This was derived by dividing 2,000 hours by 40 weeks.

ANSI EXPERIENCE REQUIREMENTS

The experience requirement for technicians is described by the ANSI standards is "applicable work in design, construction, preoperational and startup testing activities, operation, maintenance or technical services" (Ref 1 and 2). Furthermore, these documents describe that responsible individuals will have education, experience, health and skills commensurate with the level of responsibility to which they are assigned.

In References 1 and 2, the primary requirements are either 2 or 3 years of experience, for which participation in a related technical training program may be used for partial credit to meet the experience requirements. Historically for SRPTs, this has primarily been a combination of work experience and some allowance has been accepted for related experience from duties other than RP technician duties at a nuclear power plant as provided for in these ANSI standards. The guidelines for evaluating this experience were described by Barley and Hiatt.

The proposed ANSI N 3.1-2014 has some slightly different requirements to meet the proposed experience requirements. For RP technicians, these requirements are a high school diploma, 2 years of related experience, and 1 year of nuclear power plant experience. In

Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

addition, the proposed ANSI standard states that an acceptable alternative to the experience requirements specified is the successful completion of a training program based on the systematic approach to training (SAT) and a minimum of one year nuclear power plant experience.

The basic conclusion drawn from the ANSI standards is that there is not a specific method to account for years worked, but that there are multiple ways to obtain the experience. In addition, while no current utility has adopted ANSI 3.1-2014, there is current wording for acceptance of a SAT-based training program for related experience.

TRAINING AND QUALIFICATION OF SUPPLEMENTAL RP TECHNICIANS

Historically, there was not a common SAT-based training program for SRPTs. At the time HPPOS-019 was published, each plant or utility developed their own program. Beginning in 2018, supplemental RP technicians must meet the qualification requirements specified in NISP-RP-012, *Training and Qualification of Supplemental RP Technicians* (Ref 7). NISP-RP-012 defines nine Junior/Non-ANSI level task qualifications and six Senior level task qualifications as shown in Table 1. Each task qualification requires both knowledge and performance evaluations to achieve qualification. The program uses the EPRI Standardized Task Evaluation (STE) process to implement the systematic approach to training. EPRI task analyses provide a basis for granting task qualifications based on previous training and qualification.

The Junior/Non-ANSI level task qualifications enable a Junior/Non-ANSI RP technician to independently perform basic RP tasks without performing in a responsible position. Repetitive performance of these tasks enables the technician to build the experience needed to perform these same tasks with a high degree of competence and skill. Once these tasks can be performed with a high degree of competence and skill, the technician is prepared to complete senior level task qualifications. NISP-RP-012 requires experience per the ANSI standards to qualify for senior level tasks. The STE process requires knowledge exams and performance evaluations to confirm that the necessary level of performance has been achieved.

Table 1
RP Technician Portable Qualifications

Junior/Non-ANSI Task Qualifications

- Operate Portable Radiological Survey Instruments
- Perform Radiation and Contamination Surveys
- Collect and Evaluate Radiological Air Samples
- Post Low Level Radiological Hazards
- Control Access to High Radiation Areas
- Monitor Personnel Contamination
- Control Radioactive Material in an RCA
- Control HEPA Vacuums and Ventilation Equipment
- Perform Low Risk Radiological Job Coverage

Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

Senior Task Qualifications

- Post a High Radiation Area or Locked High Radiation Area
- Control Access to Locked High Radiation Areas
- Unconditionally Release Personnel Following Valid Contamination Monitor Alarms
- Unconditionally Release Materials from an RCA
- Provide Job Coverage for Radiography
- Provide Medium and High Risk Radiological Job Coverage

This training program for supplemental RPTs as described in NISP-RP-012 is a significant improvement over the previous methods used to train and qualify SRPTs. Some specific program elements in the program that were not previously in existence are:

- (1) A common method to grant experience for SRPTs. Prior to 2018, while most utilities referenced the Hyatt and Barley paper; however, there were differences in how each utility utilized this paper. NISP-RP-012 has removed these differences.
- (2) A common procedure program that standardizes the methods/tasks that an SRPT is qualified to perform within the industry. Prior to the common procedures, the technicians would be required to review and learn multiple site-specific procedures and perform and potentially take multiple variations of OJT/TPE to qualify on a task.
- (3) A common continuing training program for the SRPTs. Prior to 2018, there was no continuing training requirement unless an SRPT was on site for a continuous period of time greater than 6 months.
- (4) An industry training oversight committee (ITOC) was implemented to review the performance of the SRPTs and determine any required continuing training. Prior to 2018, there was not a committee that reviewed overall industry SRPT performance and oversight. SRPT training and oversight were all specific utility-based reviews.
- (5) A process to remove the standard qualification and remediate the SRPT for unacceptable or sub-standard performance. Prior to 2018, this did not exist.

BUILDING BLOCKS FOR PERFORMANCE

The ANSI standards attempted to define the experience necessary for acceptable qualification to provide reasonable assurance for acceptable performance. The basic building blocks for acceptable performance are: 1) education, 2) skills training, 3) repetition with feedback, 4) experience in a variety of situations and 5) timeliness or currency of performance. The common SRPT training program includes the following:

- Knowledge and skills are evaluated using a systematic approach to training as described in NISP-RP-012.
- Repetition with feedback is achieved through peer feedback and management observations while performing surveys and supporting maintenance activities.
- Experience is gained in a variety of situations since a supplemental technician primarily works during plant outages or major projects when the greatest amount of radiological work is performed at a nuclear power plant. The variety of situations is increased for

Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

most technicians because they usually work at several different power plants in sequence during an outage season.

- Knowledge and skills are maintained current through continuing training as defined in NISP-RP-012. The Industry Training Oversight Committee (ITOC) evaluates the performance of the supplemental RP technician workforce and directs the development and implementation of annual continuing training to address performance weaknesses, changes in requirements, lessons learned from operating experience, and refresher training on fundamentals.

CONCLUSION

From the standards review, it can be concluded that the primary goal is to ensure that the individuals who perform work have the necessary experience to perform their work independently in a safe and efficient manner. The experience is based on years in position but there was not a specific method to account for hours worked as it related to a years' worth of experience. NRC defined the hours necessary to meet one year as 2000 hours worked in a period of not less than 40 weeks. This was interpreted by the industry to not credit more than 50 hours per week.

In 2018, the industry established a significant milestone in establishing a common training program based on the SAT process for the SRPTs. The program is defined in NISP-RP-012. This is a significant accomplishment and provides the necessary skills and knowledge based on the tasks that an SRPT will perform during the outage. As discussed, the program has developed the appropriate experience for improved performance. This program also establishes increased responsibilities such that experience is gained continuously and does not limit to 50 hours in one week.

PROPOSAL

The final proposal for granting the required experience for an ANSI qualified RPT is as follows:

- Experience in years as
 - ANSI 18.1 qualified RPT is 2 years
 - ANSI 3.1 qualified RPT is 3 years (once the industry adopts ANSI 3.1-2014 this statement will be reviewed)
- A year of experience will be equivalent to 2000 hours
- No limit applied for hours worked in a week, meaning all hours of applicable work can be counted
- No more than 2000 hours of experience can be granted in any one calendar year
- An SRPT must be qualified in accordance with NISP-RP-012

Meeting ANSI Experience Requirements for Supplemental Radiation Protection Technicians

REFERENCES

1. ANSI/ANS. N18.1-1971. Selection and Training of Nuclear Power Plant Personnel. American Nuclear Society; 1971.
2. ANSI/ANS. 3.1-1978. American National Standard for Selection and Training of Nuclear Power Plant Personnel. American Nuclear Society; 1978.
3. ANSI/ANS 3.1-2014. Selection, Qualification, and Training of Personnel for Nuclear Power Plants
4. U.S. Nuclear Regulatory Commission. Qualification (Experience) of Contractor Health Physics Technicians. Washington, DC: HPPOS-019 PDR-9111210125; Reviewed/Updated 2017.
5. U.S. Nuclear Regulatory Commission, Qualification of Reactor HP Technician. Washington DC: HPPOS-022 PDR-9111210126; Reviewed/Updated 2017.
6. U.S. Nuclear Regulatory Commission. Health Physics Position on Task Qualification of HP Technicians. Washington, DC: HPPOS-238 PDR-9111210362; Reviewed/Updated 2017.
7. Nuclear Industry Standard Process. Training and Qualification of Supplemental RP Technicians. NISP-RP-012, Rev 1, 2017.
8. Barley WH, Hiatt JW. Acceptable Experience and Training for HP Technicians at Nuclear Power Plants. Radiation Protection Management, Vol 5 No 5: pp 70-74; 1988.
9. U.S. Nuclear Regulatory Commission, Memorandum from Morrison WM to Leonard BE. Qualification (Experience) of Contractor Health Physicist. Record #19; 1980
10. Electric Power Research Institute. Plant Support Engineering: Administration Protocol for Portable Practicals (AP3) in Standardized Task Evaluations. EPRI Technical Report 1021072; 2010.
11. Institute for Nuclear Power Operations. The Proficiency Initiative. INPO; Atlanta, GA; 2015.