

NATIONAL MATERIALS PROGRAM PILOT PROJECT TWO  
NATIONAL INDUSTRIAL RADIOGRAPHER SAFETY CERTIFICATION PROGRAM

**EXECUTIVE SUMMARY**

This report is to be used by the staff to provide the Commission understanding on the feasibility and viability of the Alliance Option as described in the National Materials Program Working Group report.

The National Materials Program Pilot Project Two is one of five pilot projects undertaken by the Nuclear Regulatory Commission (NRC), Conference of Radiation Control Program Directors, Inc. (CRCPD) and the Organization of Agreement States (OAS). The project is designed to have CRCPD's G-34 Committee on Industrial Radiography serve as the lead organization to oversee a national industrial radiographer safety certification program. Currently, 10 states and the American Society for Nondestructive Testing, Inc. (ASNT) are recognized as certifying entities. Only ASNT has submitted a formal application requesting recognition as a certifying entity; and no formal, follow-up evaluations of any of the existing certification programs have been conducted, underscoring the need for a centralized certification forum.

The objectives of this project are to develop the process and criteria for reviewing requests by states or organizations seeking recognition as certifying entities, and for reviewing program changes that occur once recognition has been given.

All six participants in this project serve on the G-34 Committee of CRCPD. This includes three state representatives, two NRC representatives, and one industry representative. The primary resources were labor and travel expense. The total labor hours were approximately 1,220 hours as of December 27, 2003.

Responses to the eight Success Measures described in SECY-02-0074 are in the report. The primary area of concern involves the inability of the pilot group to evaluate the willingness of NRC to operate within the undefined "NMP framework" and use products developed by others without change.

The final work products consist of two documents specifying radiographer certification program evaluation and review criteria. The report also provides recommendations for future NRC activities, including rulemaking, needed to support a national certification system. The report includes recommended general strategies for follow-up evaluations of certifying programs by the oversight committee.

## **BACKGROUND**

The National Materials Program Pilot Project Two is one of five pilot projects undertaken by the NRC, CRCPD and the OAS. The pilot project is designed to have CRCPD's G-34 Committee on Industrial Radiography serve as the lead organization for overseeing the activities that would be associated with a national industrial radiographer safety certification program. Such an oversight organization would be given the authority to approve requests by states and organizations to become certifying entities, review subsequent program changes, and periodically evaluate the status of the certification program - including the various program maintenance activities and the administration of exams.

A centralized, or national program, approach for accomplishing the recognition of states or associations as certifying entities would use a review group, such as the G-34 Committee, as its "center of expertise." This group is comprised of individuals from state and federal government, as well as industry representatives from ASNT and the Nondestructive Testing Management Association (NDTMA). The committee, by CRCPD's design, is a ready-made group of these representatives - who collectively have spent many years in the industrial radiographer certification arena. The members are knowledgeable of the issues pertaining to certification because they regularly participate in the decision-making activities that surround it.

The use of centers of expertise optimizes the resources of federal, state, professional and industrial organizations and reduces duplicate efforts. The NRC and the individual states would not have to conduct independent reviews in order to determine whether to recognize a new state or organization as a certifying entity. Centralized certification oversight would help to ensure that programs remain comparable nationwide, assuring universal recognition and acceptance of certification cards and what they represent. Reciprocal recognition of certification cards accommodates the mobile nature of the industry, enabling radiographers to travel to job locations around the country.

Radiation safety training is an essential element for safe job performance in the field of industrial radiography. NRC, in 1992, issued a final rule for voluntary participation in ASNT's industrial radiographer certification program. By 1997, seven states had begun administering exams to industrial radiographers and issuing certifications. That same year, NRC adopted rules that required all industrial radiographers to be certified before they could work as radiographers in industrial operations. Generally speaking, certification is designed to provide the public, employers, and government agencies with a dependable mechanism for identifying individuals who have met specific national standards.

The basic components in the industrial radiographer certification program involve classroom training as well as on-the-job training, and passing an examination administered by a recognized certifying entity. Certifying entities review the credentials of the individuals applying for certification, yet no mechanism is in place to review and acknowledge applications from states and organizations seeking recognition as certifying entities.

Currently, 10 states are recognized as certifying entities. These states may offer three types of certification: Radioactive Materials Only certification; X-Ray Machines Only certification; or a Combination certification that includes radioactive materials and x-ray machines. None of these states submitted a formal application for recognition as a certifying entity, yet all states have comparable rules that support the industrial radiographer safety certification program components. They also have contracts with CRCPD to use radiographer examinations for their certification programs. Although there is a need for consistency between programs, state laws

and available resources do necessitate consideration of some flexibility for variances in implementing certification programs in the various states.

In addition to the states being recognized as certifying entities, the ASNT is recognized by NRC and the states as an Independent Certifying Organization (ICO). But in contrast to the states, ASNT received recognition as an ICO for its radioactive materials program in 1998 as a result of a formal program review by an NRC working group. Similarly, ASNT's X-ray Machines Only and Combination certification programs were reviewed by the G-34 Committee and recognized by CRCPD in 2001.

Additionally, no formal, follow-up evaluation of the program activities currently exists for either the recognized states or for ASNT. This also underscores the importance of this project in exploring a centralized certification forum, which would strengthen the credibility of certification programs nationwide.

The objectives of this pilot project, then, were to develop the process and criteria for reviewing requests by states or organizations seeking recognition as certifying entities and for reviewing the program changes that may occur once recognition has been given. The working group then applied the criteria and process to a test case to evaluate the effectiveness of the proposed criteria and process, and to identify potential areas for adjustment. The test case to be reviewed was selected from three possible applications: a review of a potential initial application for recognition; an evaluation of a previous application; or the review of a volunteer existing state certification program. The working group also recommended strategies for the follow-up evaluations of the certifying programs.

## **DISCUSSION and CONCLUSIONS**

The project involved two tasks. In work product one, the working group developed two documents specifying radiographer certification program evaluation and review criteria. One document is intended to apply to a certification program that issues certifications only for the use of radioactive materials (Attachment 1). The other document applies to certification programs issuing certifications for the use of only x-ray machines and for the combination certification that includes x-ray machines and radioactive materials (Attachment 2).

For the radioactive materials only document, the working group used criteria previously established by an NRC working group in 1997 during its review of ASNT's request to have its radioactive material industrial radiographer safety certification program nationally recognized. For the x-ray machines only and combination certification document, the working group revised criteria previously established by the G-34 Committee when it reviewed ASNT's request in 2000 to have its x-ray machines only and combination certification programs recognized. The working group also prepared a short cover letter to accompany the documents explaining how the criteria should be addressed.

As part of the first task, the working group also developed two process flow charts. These charts detail the submission and review process that a state (Attachment 3) or an independent organization (Attachment 4) would go through in having their radiographer certification programs recognized. The G-34 Committee had sketched out a previous version of these process flow charts in 2000 at the CRCPD annual meeting.

Work product two involved applying the approval process for a certifying entity through a documented evaluation of the application of the criteria. Three options were considered: Option

One would evaluate an initial application or a program's proposed change; Option Two would review the process previously used in evaluating the ASNT's application; and Option Three would evaluate the certification program of an existing state certifying entity.

Copies of the text version of the two evaluation criteria documents (Attachments 5 and 6) and cover letters (Attachment 7) were transmitted to each of the 10 existing state certifying entities, the ASNT (Attachment 8), the State of California (Attachment 9), and the Canadian Nuclear Safety Commission (Attachment 10) seeking comments on the criteria and a volunteer for testing the criteria. The complete distribution list for the project mailout is in Attachment 11. A number of beneficial comments and recommendations were received, and seven of the ten states polled volunteered to test the criteria. The State of Louisiana was chosen as the volunteer "applicant" to test the evaluation criteria under Option Three.

Many of the comments received were editorial in nature, while others pointed out the need to clarify several sections of the criteria. It became apparent that the cover letter accompanying the documents should be revised to explain more fully the type, format and detail of the information that is expected from an applicant and the process for submitting the information. Person-to-person contact may be necessary and desirable prior to a state or organization proceeding. One comment noted that it is unlikely that another independent organization would request recognition and, therefore, the review criteria should focus on a state submission.

The test application prompted the working group to take a closer look at its product, identify several areas where the application could be improved, and validate many areas where there appears to be little need for change. The working group was interested in knowing how well the application stood on its own, without explanation or clarification. So by design, the Louisiana staff addressed the application without having the advantage of any "pre-application" conferences or conversations with the working group. Gaps in the expectations between information requested and information received were scrutinized by the working group.

Once the working group had reviewed the Louisiana response, a follow-up telephone conference was held with the staff involved in submitting the application. Staff indicated that time constraints, both internal and those deadlines set by the project, may have adversely affected the detail of their response. Confusing questions were also identified and discussed. The Louisiana staff also indicated that although they had many of the requested procedures in writing, the opportunity to test the criteria identified additional procedures needing written formalization. They further suggested that the working group develop two separate applications - one for states seeking recognition and one for independent organizations.

Based on the feedback received from the Louisiana staff, the working group concluded that:

- making the suggested modifications in the cover letter and the criteria clarifications would help minimize misunderstandings of what is required to be submitted in the application;
- after the oversight committee has been established, early communication between this committee and the future certifying entity is important and should be encouraged.
- the present criteria is adequate for reviewing a state certification program and an ICO. However, the working group recognizes that the time and effort to prepare a separate application for a potential ICO applicant may not be cost effective given the G-34 Committee's current understanding that there are no near, or far term ICO applicants.

- the work products are considered dynamic documents, and may need to be adjusted to adequately respond to the ultimate test of a true applicant seeking certification program recognition.

The project has afforded the working group the opportunity to successfully develop sensible criteria that focus on the key elements necessary for a radiographer safety certification program. The documents provide an outline of a process believed necessary for a successful certification program. The documents should provide future certification program reviewers a sound basis for assessing the minimum requirements for an effective certification program. The documents will also provide a basis for reviewing existing certification programs to assure uniformity and continued success of a national radiographer safety certification program.

- **Success Measures**

- 1. Provide insights into whether an informal coalition of State programs and NRC, as envisioned under the Alliance Option, is viable and can produce products meeting needs of both NRC and the Agreement States.*

This project is another in a series of collaborative efforts between NRC, the states, and ASNT to develop common use products, regulations and guidance to be used in implementing and sustaining today's radiography safety certification program. The collaborative effort has an established reputation for leadership in the development and operation of industrial radiographer certification programs as well as for the creation of high quality general use products. NRC actively coordinated with the states to assist in the review of ASNT's certification program in 1997. This pilot project exemplifies the high quality collaboration that can occur between NRC, states, organizations and industry as envisioned by the NMP Working Group.

- 2. Provide insights that the Alliance Option has the potential to be a sustainable program structure for the NMP which will result in fewer NRC resources being needed for the development of products needed by NRC and the Agreement States.*

The working group's opinion is that the Alliance Option is the appropriate structure for the NMP. Historically, the radiography safety certification effort has been conducted under what may be considered an "alliance" of NRC, Agreement States, CRCPD, ASNT and NDTMA. The continuation of this project will result in resource savings for all participants. It would cost the NRC more to independently develop a similar product as it does not have the requisite background and experience in certification programs and the cost would include the additional burden of coordinating the final product with the states and radiography community and reconciling differences.

- 3. Provide demonstration that States can assume and carry out greater responsibility for the development and maintenance of products under a NMP.*

The states, in coordination with NRC and ASNT, are responsible for the development and maintenance of today's radiographer safety certification program many years before NRC adopted the rules to make it a national requirement. It is very likely that this coalition of interested and experienced parties will continue to support, improve and sustain the certification process in the general interest of promoting radiography safety on a national level.

*4. Provide greater assurance that individual State programs are willing and able to commit resources, and to produce products on a schedule that can be utilized by NRC and the Agreement States.*

The concept of a national radiographer safety certification program originated many years ago between the states, NRC, ASNT and public over how to improve industrial radiography safety. Since then, the states, in cooperation with NRC, ASNT and others, have continued to generously contribute resources to implement and improve the nationwide safety certification program. States, ASNT, and NRC remain willing to share resources toward the common goals of shaping policy, maintaining a safety perspective, and developing procedures and products that sustain and maintain consistency in the certification programs nationwide. Historically, products developed by the CRCPD working groups have been timely and have been utilized by NRC, the states and ASNT.

*5. Provide insights into whether the NRC will be able in the future to realize resource savings and efficiency gains through shifting of work to States under an Alliance structure.*

The working group believes that “shifting work” was not envisioned as a solution to the mutual problem of diminishing NRC and state resources. Neither the NRC, nor the states, gain efficiency or save resources by doing someone else’s work. Efficiency and savings accrue only if both entities share resources and mutually develop products to the greatest extent possible. Sharing becomes more important as resources and funding diminish, as neither entity may be able to maintain viable regulatory programs on their own. Also, sharing resources becomes even more important as NRC loses its experience base due to the effect of rapidly diminishing numbers and types of licensees. If resources are shared, NRC can realize resource savings in the future.

*6. Provide demonstration that NRC can operate in a NMP framework and will be able to use products which may have been developed by a single State or group of States without the need for major change.*

The working group also notes that the term “NMP framework” is an undefined concept. The working group defers comment on this point until it is defined.

The working group is familiar, however, with the “alliance” concept and considered the question in this context. Historically, regulators and the radiography community have shown a willingness to use radiography safety certification products developed under the previously mentioned undefined “alliance.” As evidenced by NRC’s past participation in the development of radiography safety certification concepts, policy development and implementation of a compatible certification program, and acceptance of general industrial radiography certification products, this working group believes that NRC could operate under the envisioned NMP “alliance” concept.

*7. Provide demonstration that NRC is willing to share with the States the establishment of priorities for the NMP including rule and guidance work needed to support the materials and waste arenas.*

Taken in broad context, the NRC has demonstrated a longtime willingness to invite state, ASNT, CRCPD and OAS participation when developing rules and guidance supporting **its** regulatory program. Although not a rule or guidance, this project is an

example of NRC's potential capability to participate in the development of a general product not directly related to its immediate regulatory priorities. However, the working group is of the opinion that this project does not necessarily demonstrate NRC's willingness to participate in the joint prioritization of NMP goals and objectives within the envisioned NMP "alliance" concept.

*8. Provide insights to help understand the degree to which Agreement States are aligned with NRC Policy direction to use a risk informed and performance based regulatory approach.*

This product does not provide insight into the alignment of the Agreement States with NRC's risk informed, performance based regulatory concept. This product incorporates prescriptive requirements and performance based criteria to assure that an applicant will adequately meet the requirements for a radiography safety certification program, as defined in 10 CFR Part 34, Appendix A, while permitting that applicant the maximum possible flexibility in developing and implementing a program.

## **RECOMMENDATIONS**

The working group identified various important rulemaking, and administrative and procedural improvements that should be made to the current and envisioned future certification system.

Since the criteria is based, in part, on 10 Code of Federal Regulations Part 34, Appendix A, and corresponding regulations found in CRCPD's Suggested State Regulations for Control of Radiation, Part E, the working group recommends parallel rulemaking activities by NRC and CRCPD to comport with improvements in the evaluation criteria. The working group recommends that:

- the certifying states should also be held to the requirements specified in items I.9 through I. 13 of Appendix A.
- item I.13, Appendix A should be rewritten to delete "...to the Commission...its" and revised to state, "Provide a description of the procedures for choosing..."
- item I.12, Appendix A should be revised to require the current and future certifying entities to share information concerning an individual's radiation safety certification status and history, i.e., prior and current certifications, prior and current sanctions and enforcement actions imposed by a certifying entity or government agency related to the use of radioactive materials, with the other certifying entities and to notify them of any final enforcement actions against an individual.
- ASNT, the Agreement States and NRC should share information about radiographer performance and safety. In support of this interest, NRC, the states and ASNT should develop a uniform approach for issuing enforcement and inspection reports involving safety violations committed by certified radiographers.
- radiography rules should be modified to include provisions that make individuals responsible for their actions on the job. The working group believes it is vitally important that in order for certification entities to operate as intended in carrying out the activities associated with issuing certifications to radiographers, the issuing body must also have the authority to identify

those individuals who have been involved in escalated enforcement actions, and have the provisions available to the program to suspend or revoke those individuals' certification cards.

In addition to those recommendations requiring rulemaking, the working group identified the following actions that would assure the continued success of the national radiographer safety certification program.

- It is essential that an oversight committee, with specific responsibilities and authorities to administer a national program, be formally designated and supported under the NMP "alliance" concept. The working group believes that the designation of the oversight committee should be made in a cooperative manner similar to the method by which the pilot projects were established. The committee should be comprised of individuals who have been involved in certification activities or issues in their organizations.

- The oversight committee should be tasked with establishing protocols for systematic and uniform sharing of information regarding enforcement actions, final actions and orders, and sanctions issued by regulatory authorities and certifying entities against individuals involved in industrial radiography. This would include providing the name of the certified radiographer, the name of the certifying entity, and other details sufficient to give the opportunity to reciprocally recognize the sanctions.

- The certification programs of ICOs and the states should be formally evaluated by the oversight committee at regular intervals. The periodic review should be designed for the purpose of verifying the programs are being operated according to the criteria and the commitments, and for making program improvements.

Additionally, the working group identified improvements that do not require rulemaking or the establishment of another administrative body. These procedural enhancements to the current system and the envisioned certification program can be implemented by NRC in alliance with CRCPD. Therefore, the working group recommends that NRC request followup action from CRCPD to implement these improvements, in collaboration with NRC, until the oversight committee is established.

CRCPD, through its partnership of states, NRC, ASNT, and representatives from industry, has a long and successful history of shaping regulatory policy and developing successful products to be used in the implementation of a nationally-recognized radiographer safety certification program. The pilot project working group believes that future success can best be achieved by maintaining this partnership, or "alliance," within the CRCPD's committee framework until the oversight committee is established. Implementing the pilot project working group's recommendations through CRCPD will support the NMP process, prioritize the effort, use the best expertise available and result in time and resource saving for the agency.

## **RESOURCES**

All participants in this pilot project serve on the G-34 Committee. This includes state representatives David Turberville - AL; Lauren Palmer - GA; and Chair, Jan Endahl - TX; and Jim Myers and Bruce Carrico, who serve as NRC resource individuals on the committee. Donny Dicharry, who at the start of this project represented both the ASNT and also NDTMA, serves as the industry resource individual on the committee, and accepted the group's invitation to participate in this pilot project. Mr. Dicharry's participation as a representative from the industrial radiography industry was at industry expense.



The pilot project charter outlined the estimated resources needed to complete work product one and work product two with the estimated hours of effort for the project chair to coordinate, compile, format, review and provide updates and reports on project activities and documents.

The original estimate of hours needed to complete work product one was 96 hours per person, excluding travel time. This included a projection of 12 hours for an initial face-to-face meeting and 20 hours for telephone discussions, with the additional time allotted for information gathering, research, document review and write up.

With the completion of work product one in mid-July 2003, the hours recorded by participants averaged approximately 92.3 hours per person, including travel time. This included 12 hours for the initial face-to-face meeting at NRC Headquarters in Rockville, Maryland, on February 25 and 26, 2003, and 29 hours of telephone conference calls during 11 calls from March 6 through July 15, 2003. Conference calls were coordinated through NRC, rather than through CRCPD, as was originally proposed.

The original estimate of hours needed to complete work product two was dependent upon which one of the three options was chosen for the work product. As noted earlier, Option Three was chosen for this work product. For this option, the original estimate of hours needed to complete work product two, excluding travel time was 112 hours. Again this included another 12-hour, face-to-face meeting and 36 hours of telephone discussions, with the remaining time spent on reviewing and analyzing documents and preparing the report.

As of December 27, 2003, the hours recorded by participants since July 15, 2003, averaged approximately 79 hours per person, including travel time. This included 12 hours for the one, face-to-face meeting at the offices of Source Production & Equipment Company, Inc. in St. Rose, Louisiana, on July 29 and 30, 2003, and 29 hours of telephone conference calls during 12 calls from August 12 through December 27, 2003. All conference calls were once again coordinated through NRC.

Also, the additional hours of effort for the project chair to coordinate, compile, format review and provide updates and reports on project activities and documents was estimated to be 100 hours. As of December 27, 2003, the actual hours recorded on these activities by the project chair was 86 hours.

The process used for this project proved to be efficient and effective. In addition to the two, face-to-face meetings and the numerous telephone conference calls, the working group also extensively used electronic mail (e-mail) as a form of communication, with much of the documentation reviewed being attachments to e-mails. The resources used fell below the resource hours estimated for this project.