

# THE EXPANSION OF CERTIFICATION

*Learn more about the expansion of NDE personnel certification schemes beyond SNT-TC-1A.*

**By Robert D. Nichol**



Traditionally in the United States, the basis for the certification and qualification of NDE personnel has been The American Society for Nondestructive Testing (ASNT) Recommended Practice SNT-TC-1A. The specific needs of different industries and a global marketplace has many companies seeking to certify their employees to several different certification schemes. Though there are some similarities, there are also many differences between various certification schemes, such as military standards, aerospace requirements, and European standards. This article will explain differences between the schemes to help companies select a program meeting their unique business needs.

## **The ASNT Guidelines**

The American Society for Nondestructive Testing (ASNT) began in 1941 as The American Radium and X-Ray Society. In the early 1960s, ASNT established a technical committee to set up guidelines for the qualification and certification of NDE testing personnel that employers could follow. At that time, most people who employed nondestructive examination test methods were self-taught or simply followed the equipment or material manufacturer's instructions that accom-

panied their products. The result of the committee efforts was the ASNT Recommended Practice SNT-TC-1A introduced in 1966. (SNT stood for Society for Nondestructive Testing, TC stood for Technical Council, and 1A designated the first published document.)

SNT-TC-1A is not a mandatory standard or code but rather is an employer-based program with recommended guidelines for initial training, experience and testing of NDE personnel for qualification and certification. To this day, ASNT Recommended Practice SNT-TC-1A has remained the primary practice for certification in the United States and internationally. The ASNT Recommended Practice is used in many industries, including oil and gas, transportation, power plants, construction, bridge fabrication, and bridge inspection. Qualification and certification of NDE personnel is a function of training, experience and examination and is based on the technology or test method. For an individual to become certified in multiple test methods, each method must be represented by method-specific training, experience and examinations.

SNT-TC-1A outlines recommended requirements for initial classroom training, on-the-job experience hours, and recommendations for the



The specific needs of different industries has many companies seeking to certify their employees to several different certification schemes. *Source: TÜV Rheinland Industrial Solutions Inc.*

ASNT does not have an audit function to assure that compliance to the intent of the document is met. The auditing of the employer's program is left up to the employer or the employer's customer. People who perform an audit of an NDE certification program are often not specialists in the field or are not thoroughly familiar with the original intent of the employer-based program.

### The ASNT Standard

In an attempt to create a more rigid program for qualification and certification of NDE personnel, in 2006, ASNT produced the document CP-189, titled: ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel. Written with the intent of becoming a national standard, CP-189 offered an alternative to SNT-TC-1A with more rigid requirements, rather than guidelines. Both the SNT-TC-1A and the CP-189 programs are currently in use. Employers may simultaneously put both programs in place within their businesses.

CP-189 and the SNT-TC-1A are similar in that both use training, experience and examination as the basis for certification. However, CP-189 requires a certification procedure rather than a written practice. The requirements in CP-189 cannot be altered or reduced to suit a company's needs, as can be done with the SNT-TC-1A program. Another difference is in the visual acuity exams: CP-189 requires a visual acuity of J-1 (Jaeger #1) rather than a J-2 as recommended in SNT-TC-1A.

The CP-189 outlines five levels of certification rather than three. Both documents have certification level I, level II or level III. CP-189 adds certification levels of trainee and instructor. Training hours are not reduced in CP-189 for a candidate possessing a two-year degree, as is the

case in SNT-TC-1A for some of the test methods. The level III certification for CP-189 requires that the candidate possess an ASNT level III certification in the method for which the certification is sought. This certification meets the requirements for the basic and method-specific examination, leaving only the practical examination to be administered by the employer. SNT-TC-1A permits an internal certification of the level III. CP-189 also requires that the candidate prepare a test procedure as part of the practical examination. Of course, the most fundamental difference to remember is that CP-189 is a standard that details minimum requirements, while SNT-TC-1A is a set of recommendations for an employer-based program.

### The Military Standard

While the ASNT programs have been prevalent in the commercial industry, the military had used its own certification standard. The United States Air Force and Army certified their NDE personnel in accordance with MIL-STD-410 Nondestructive Testing Personnel Qualification and Certification. Companies performing nondestructive testing of government contracts, military hardware, or products also were required to certify their personnel in accordance with MIL-STD-410. It had the same five levels of certification, the level III procedure development requirement, and the same visual acuity requirements as CP-189 did. Unlike the CP-189 program, the MIL-STD-410 standard did not recognize the ASNT-issued level III certificate as fulfillment of the basic and method-specific exam. The last revision was MIL-STD-410 E, which was issued on January 25, 1991. In 1998, MIL-STD-410 was replaced by National Aerospace Standard 410 (NAS-410) Certification

general, specific and practical examinations. The document intends that employers will create their own programs based on their business streams and needs by developing a written practice. The written practice is an internal procedure for the certification of the employer's own NDE personnel. Because the certification program is specific to the employer, the NDE technician's certifications expire should he or she leave the employer.

The intent of the ASNT Recommended Practice SNT-TC-1A was to provide some uniformity of the qualification and certification of NDE personnel throughout the industries that employ nondestructive testing. The downside is that the employer-based program is often abused, resulting in a lower level of achievement than what the program had intended. Employers are sometimes under pressure to put certified NDE technicians to work and keep their personnel billable. The time that the technician is not at work is considered overhead and hurts the company's bottom line. Additionally,



With the global marketplace, many companies are tasked with maintaining more than one qualification and certification. *Source: TÜV Rheinland Industrial Solutions Inc.*

and Qualification of Nondestructive Testing Personnel.

### The Aerospace Standard

The Aerospace Industries Association adopted NAS-410 as the standard for

the aerospace industry, with the document going into effect on December 31, 1997. NAS-410 is also a national standard determining the minimum requirements for the certification of NDE personnel. NAS-410 replaced MIL-STD-410 for all

Department of Defense contracts.

There are several major differences between NAS-410 and the other programs. NAS-410 added two more levels of qualification for a total of seven. The additional levels were “limited level 1” and “auditor.” As in CP-189, a certification procedure is required. The level III practical examination also includes procedure development as part of the practical exam. The NAS-410 does not require possession of an ASNT level III certificate but it does offer a waiver of the general examination for those who possess this certification.

A notable difference between the NAS-410 and the ASNT-based programs is in a number of additional specific

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questions. NAS-410 requires that the specific examination includes 30 questions, as opposed to a maximum of 20 questions in SNT-TC-1A and CP-189. The additional questions are not intended to be look-up type of questions. NAS-410 also requires 32 training hours for magnetic particle and liquid penetrant test methods for a certification as level II. This is an increase from 20 hours for magnetic particle and 16 hours for liquid penetrant. Additional training hours are meant to provide a more extensive, “hands-on” training in addition to the theory as part of the course outline. The length of the NAS-410 certification was increased from three to five years.

## Beyond the Borders

EN-473 is the European Union standard for the qualification and certification of NDE personnel. The EN-473 program is virtually identical to the international standard ISO 9712, Nondestructive Testing – Qualification and Certification. (Despite our love of

acronyms, ISO is not an acronym. The term “iso” is a Greek word that translates as “the same.”)

Some notable differences between EN-473 and the U.S. standards is that the accumulation of experience hours is more stringent. EN-473 requires that a “qualifying” month be focused on a specific test method. If the minimum experience hours are not obtained during a month, then none of the accumulated experience hours can be counted toward the certification. The initial training requirements are also increased to provide more hands-on learning. For example, a level II radiographer is required to have 164 classroom training hours, as opposed to 80 hours required by the ASNT programs.

The certification under EN-473 is also industry-specific. In other words, a level II may be certified for the general industry and that certification may not apply to aerospace or pressure equipment. Unlike the U.S. programs, where the level III is often the trainer, exam-

iner and the certifier, the EN-473 program requires that each element is performed by a different individual. A level III trainer is separate from the level III examiner, and the level III certifier is yet another individual who is responsible for the program. Unlike the other program certifications, the EN-473 certification is transportable, meaning that it belongs to the individual and may be transferred between employers.

The qualification and certification of NDE personnel has evolved greatly from the original SNT-TC-1A program. With the marketplace becoming increasingly global, many companies are tasked with maintaining more than one qualification and certification. Each employer must evaluate his or her needs and employ the program or programs that best meet specific business requirements. **NDT**

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