Certification options for NDT Personnel Globally

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ABSTRACT

This article is an effort to simplify the understanding of the certification options commonly used in NDT. Qualification and certification of NDT personnel is driven by the primary goal to ensure correct and responsible execution of NDT tasks. This is an effort to simplify the understanding of the certification options commonly used in NDT Worldwide. When would-be NDT technicians or Employer ask; “Which certification is best?” they are perhaps not aware of all of the facts. There are several international standards related to the certification of the NDT personnel. Proper training, written examinations, practical examinations and enough experience to properly perform NDT tasks using the applicable test method or technique is stated as a must for certification of NDT personnel in widely used certification standards. Today NDT technicians often find it is convenient to hold more than one option of certification. Training & Certification is the vital part of NDT since no one can be sure about the correctness of the tests and results without required skills and knowledge. This article will discuss different certification options which can be “Employer based” or “Centralised” available globally.

1. Introduction

NDT is ever evolving field. From several decades there are modifications, improvements in training, certification & qualification process of NDT personnel. NDT certification & qualification can be obtained by successful completion of training, exam and demonstrating skills in that particular method or technique; personnel must have documented experience to perform NDT in that particular method or technique. It is driven by the primary goal to ensure correct and responsible execution of NDT tasks.

Nowadays NDT Technician found it more continent to hold more than one option of certification. There is confusion amongst NDT technician about which certification to get or they have no choice as to which certification to get. This article will discuss multiple options available globally in NDT Certification.

2.0 Types of Personnel Certification Schemes

A quick reminder is provided as to the various types of personnel certification schemes that are available. They all co-exist in the market place, and that in and of itself sometimes leads to confusion and mistrust in any type of certification at all. The three main types of certification are:

1st Party (Self renounced)

2nd Party (supplier or employer assessment)

3rd Party (independent certification body (Centralised) assessment)

SNT-TC-1A and CP-189 are one of the examples of second party certification method. These are most convenient method for companies where NDT is limited to specific application. It can also be suitable for companies where specialised Equipment or techniques are used which are not found outside. The certification is only valid as long as the individual is employed by that company.
Centralized certification systems have standardized requirements for certification. The centralized certification systems may require the candidate to have more formal training and broad based experience. Centralized certification allows the individual to carry the certification to a new company when changing employers.

2.1 Employer based Certification

Two ASNT certification systems are employer-based. ASNT Recommended Practice SNT-TC-1A and ASNT Standard for Qualification and Certification of Non-destructive Testing Personnel CP-189. These documents are referenced in various ASME Code sections.

2.1.1 SNT-TC-1A

SNT-TC-1A was first published in 1967 and has been revised over the years to address the changing needs of industry. SNT-TC-1A is a document that provides recommendations for the qualification and certification of NDE personnel. This recommended practice provides a framework for each employer to develop his own procedure or “Written Practice” for the qualification and certification of NDE personnel within his organization. The employer is permitted to modify the recommendations of SNT-TC-1A. The employer’s Written Practice describes in detail how the employer provides for the qualification and certification of their NDE personnel. The Written Practice is the key element to the employer-based certification system.

Each company must have a Written Practice that is unique to its organization. It’s the strength of a company’s commitment to providing adequate training, qualification, and certification for their NDE personnel. SNT-TC-1A describes three categories of qualification for individuals engaged in NDE Level I, II and III.

It should be noted that the “trainee” is described as “an individual who is in the process of being trained, qualified, and certified. Level I, II and III personnel must be recertified periodically depending on the code edition and specification. SNT-TC-1A has served as the foundation for a number of other certification schemes. CP-189, NAS-410, EN 4179, and others use the same descriptors for levels of certifications.

2.1.1.1 Benefits of SNT-TC-1A

SNT-TC-1A offers industry a number of benefits. The significant benefits include:

- It requires employers to analyse their position on certification and the documentation of their program.
- Through the Written Practice, the employer has an implied responsibility to train and formally examine NDE personnel.
- It implies customer responsibility to review and evaluate the Written Practice to ensure its adequacy with respect to the Terms and Conditions
- It provides a basic certification approach that can be referenced in contracts or purchase orders.
- If the qualification concept is followed, it will result in significant training activity and personnel development in preparation for certification.
- It offers the employer the flexibility to modify (i.e., by either increasing or reducing) the certification requirements to meet specific needs.


2.1.1.2 Limitations of SNT-TC-1A

SNT-TC-1A is a recommended practice. As such, an employer can apply the recommendations of SNT-TC-1A in its entirety, or increase/reduce the recommendations to suit the company’s purpose.

The result is that most companies have different Written Practices for the certification of their NDE personnel. This can cause difficulties for organizations that purchase NDE services and requires careful evaluation by the purchaser.

The Written Practice is key in determining the level of competency of the personnel performing NDE. Unfortunately, many companies that require the services of an NDE provider do not adequately review the Written Practice and personnel documentation to determine if the company’s needs will be met.

Since SNT-TC-1A is an employer-based certification system, the individual’s certifications are terminated upon leaving the company. It is the new employer’s responsibility to recertify new personnel. This can be an expensive undertaking for a small company that may employ NDE personnel on a short-term contract basis.

The certification process entails several key steps. An outline of the certification process is as follows:

• The employer must develop a Written Practice for the qualification and certification of NDE personnel.
• The employer must verify that the candidate has met the education, training, and experience for the specific method for which certification is sought.
• The candidate must be tested to verify that the knowledge and skills required for certification exist. This is a multistep process consisting of the following tests:
  - General knowledge of the examination method,
  - Specific knowledge of the method as applied to the specific products,
  - Practical application of the examination method (e.g., hands-on demonstration),
  - Vision test to verify that the candidate meets the physical requirements of the job, this includes an annual near vision test and color vision tests every five years.

2.1.2 ASNT Standard for Qualification and Certification of NDE Personnel (ANSI/ASNT CP-189)

Since SNT-TC-1A is a “recommended practice” or a set of guidelines, the variability in company’s written practices has been a major problem. ANSI/ASNT CP-189 is a national consensus standard that addresses the uniformity missing in employer based certification programs.

CP-189 is based on SNT-TC-1A, however CP-189 stipulates the minimum requirements of a certification Program. It establishes minimum requirements for education, training, experience, and examinations that must be met to be considered for certification.

The employer is required to have a certification procedure that must meet the minimum requirements for training, experience, documentation, tests etc. as prescribed in CP-189. The
employer cannot deviate from the minimum certification requirements as was permitted under SNT-TC-1A.

NDE training must be provided by a qualified instructor. One requirement for the instructor includes a current ASNT Level III certificate in the method being instructed. If the instructor does not have an ASNT Level III certificate, then a four year degree in engineering, science, or technology, and an adequate knowledge of the method being taught is acceptable. If the instructor has a two year degree in engineering, science, or technology and five or more years of experience as a Level II or equivalent is required. An individual with a high school diploma must have at least ten years NDE experience as a Level II or equivalent in the method being taught.

The certification and supporting documentation requirements closely parallels those of SNT-TC-1A. Also, like SNT-TC-1A, an individual’s certification is terminated when employment is terminated and may also be terminated for cause.

Level I, II and III NDE personnel must be recertified every five years.

CP-189 offers the industry an employer-based certification standard that addresses many of the perceived weaknesses of SNT-TC-1A.

CP-189 requires each employer to have a Level III that holds a valid ASNT Level III certificate. The services of an outside agency may be retained to provide Level III Services if the employer does not have an on-staff ASNT Level III certificate holder.

### 2.2 ASNT Central Certification Program (ACCP)

ACCP builds upon the existing ASNT Level III certification program. In addition to passing the ASNT administered written tests; the Level III candidate also must pass a hands-on Level II demonstration of proficiency and a written procedure preparation examination.

The ACCP provides a transportable certification and ultimately will provide central certification for Level I, Level II, and Level III NDE personnel.

Examination centres will be approved and located to support the program geographically.

The certifications will be industry specific and recertification will be required when working in a different industry sector.

### 2.3 ISO 9712:2012 Central Certification

An internationally recognized standard for centralized certification is ISO 9712:2012, Nondestructive Testing—Qualification and Certification of Personnel. This international standard establishes a system for the qualification and certification of personnel that are engaged in “industrial” NDE. This standard provides for the certification of individuals through a central independent body that is referred to as the Certification Body (CB).

The system employs test centers to administer tests for certification. This is in contrast to employer-based certification where each employer administers his own certification tests. The concept of centralized certification standardizes the requirements for the qualification and certification of the NDE personnel. It affords a greater degree of transportability of an individual’s NDE credentials.
The program does not require the employer to have a written practice or procedures describing the system of qualification and certification. The fact that a company endorses the ISO program includes all the requirements stipulated by ISO 9712.

The training requirements included in ISO 9712 are somewhat different than those of SNT-TC-1A and CP-189. Likewise, the experience requirements of ISO 9712 differ from those of either SNT-TC-1A or CP-189.

**Popular certification schemes based on ISO 9712 are as follows:**

- PCN by BINDT
- CSWIP by TWI
- COFREND
- DPZ German Society for NDT
- ISNT etc.

### 2.4 ASME ANDE-1

Training is Performance based Systematic Approach to Training (SAT), Specific Industry Sector (SIS) Job Task Analysis (JTA) identifying skills and knowledge, No time requisite.

Experience is Qualification Card based on Job Task Analysis JTA identifying skills and knowledge, No Time requisite.

The ANDE Program provides a new and unique approach to NDE and QC personnel qualification as compared to currently used national and international schemes. It implements the most effective currently known elements, including:

- Systematic Approach to Training (SAT)
- Detailed Job Task Analysis (JTA)
- Defining Experience Requirements (Qualification Cards)
- Independent, psychometrically validated third-party written and practical qualification examinations

**How Does ANDE Differ?**

- New ANDE-1 Standard includes INPO Guidelines with Systematic Approach to Training (SAT), Performance Based concepts, and Psychometric principles
- ANDE-1 Specific Industry Sector (SIS) includes separate provisions for Nuclear and Non-Nuclear BPVP
- High School Diploma or equivalent required
- Detail training requirements developed through job task analysis (JTA)
- Standard descriptive experience requirements specified in qualification cards based on JTA
- Centralized examination data base developed using JTA and psychometrics
- Standard performance based practical examinations with realistic flawed samples simulating fabrication and in-service field conditions based on JTA
- Written and practical examinations will be administered by an ASME Certification Body as an independent third party establishing a standard process of evaluation while assuring program integrity
• Standard includes a provision to collect feedback from field and examination performance for continuous training and assessment improvement
• Through web based options, deliver written and ship practical (test kits) to manufacturers, utility or vendor locations (when possible) with oversight by authorized inspection agencies

3.0 Conclusions

NDT Certification options are not always an item of choice for the technician. Company requirements, regulatory requirements or project specifications may limit the options that are allowed.

Acknowledgements

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