

WP 13-QA.06  
Revision 8

# Quality Assurance Department Qualification and Certification of Nondestructive Examination Personnel

Cognizant Department: Quality Assurance

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## 1.0 INTRODUCTION<sup>1, 2, 3, 4, 5, 6, 7</sup>

This document establishes the Nondestructive Examination (NDE) program, or written practice, for the control and administration of qualification and certification of Washington TRU Solutions LLC (WTS) Site NDE personnel in accordance with the documents referenced below:

- WP 13-1, Washington TRU Solutions LLC Quality Assurance Program Description, Section 2.1.5, Special Processes; and Section 2.4.1.2, Qualification of Nondestructive Examination Personnel
- American Society for Nondestructive Testing (ASNT) Recommended Practice SNT-TC-1A (1980), and applicable supplements

The scope of this program covers contracted and WTS site personnel performing NDE activities on or off site. The training, qualification, and certification process outlined in this document includes the following methods:

- Magnetic Particle Testing (MT) -Yoke method
- Liquid Penetrant Testing (PT) Type II, method C (visual, solvent removable)
- Visual Testing (VT)
- Leak Testing (LT) Mass Spectrometer Leak Testing (MSLT) - with Helium Tracer Gas

## RECORDS

All records associated with WTS NDE training, examinations, appointments, qualifications, and certifications shall be contained in the individual's WTS Technical Training files.

## 2.0 REFERENCES

- ASNT Recommended Practice SNT-TC-1A (June 1980 Edition), and applicable supplements
- ASTM E 1316, *Standard Terminology for Nondestructive Examinations*
- WP 13-1, Washington TRU Solutions LLC Quality Assurance Program Description
- WP 14-TR.01, WIPP Training Program

- EA13QA06-1-0, Physical (Vision Examination)

### 3.0 DEFINITIONS

Certification: written testimony of qualification.

Certifying authority: the person, persons or office designated to sign certifications on behalf of the employer.

Certifying agency: the employer of the personnel being certified.

Closed book examination: an examination administered without access to reference material except for materials supplied with or in the examination.

Documented: the condition of being in written form.

Employer: the corporate, private or public entity which employs personnel for wages, salary, fees or other considerations.

Experience: work activities accomplished in a specific Nondestructive Testing (NDT) method under the direction of qualified supervision including the performance of the NDT method and related activities, but not including time spent in organized training programs.

Nondestructive Examination (NDE), Nondestructive Inspection (NDI), Nondestructive Testing (NDT): related terms with identical meaning having to do with various methods of material inspection which do not damage the materials during the inspection process.

Outside Agency: a company or individual who provides NDT Level III services and whose qualifications to provide these services have been reviewed by the employer engaging the company or individual.

Qualification: demonstrated skill, demonstrated knowledge, documented training, and documented experience required for personnel to properly perform the duties of a specific job.

Training: the organized process developed to impart the knowledge and skills necessary for qualification.

#### **4.0 RESPONSIBILITIES**

Quality Assurance (QA) management shall:

- Ensure that designated NDE personnel are certified in accordance with this program and maintain current certifications.
- Appoint a qualified individual or outside agency as the WTS designated Site NDE Level III to administer this program.
- Approve certifications of additional Level I, Level II, and Level IIIs as required.
- Serve as the certifying authority in the absence of a designated Site Level III.
- If WTS has elected the use of an NDE subcontractor to provide NDE services for WTS and this NDE subcontractor will be representing WTS, ensure that the NDE contractor's written practice, procedures, and inspector's qualifications meet contract requirements.

The WTS Site NDE Level III shall:

- With management concurrence, certify qualified individuals to the appropriate Level in accordance with this procedure.
- Instruct and prepare examinations in those subject areas for which qualified.
- In those subject areas in which not qualified, use qualified Level IIIs for instruction and examination preparation.
- Evaluate qualifications, as required, in accordance with SNT-TC-1A.
- Maintain the NDE Technical Training files of all site Certified NDE Individuals to comply with this procedure.
- Administer examinations for the qualification of NDE Level I, II, and III individuals.
- Ensure that the NDE contractor's written practice, procedures, and inspector's qualifications meet contract requirements if WTS elected to use an NDE subcontractor to represent WTS and/or provide NDE services.
- Represent the company when NDE expertise is necessary, as required.
- Perform the activities according to Section 5.2.3.

## **5.0 REQUIREMENTS**

### **5.1 Qualification Process**

There are three basic levels of qualification: these are Level I, Level II, and Level III. The duties and responsibilities of each Level are discussed in Section. The qualification process involves documented hours of formal training, documented hours of supervised practical experience with a Level II or Level III, a vision examination, a general theory examination, a specific examination on WTS procedures and equipment, and a practical examination in which the candidate demonstrates acceptable proficiency. Upon completion of the qualification process and passing the eye exam, the Site Level III reviews the documentation and if it is satisfactory, testifies to such by certifying the inspector to the appropriate level. Management concurrence is indicated by endorsement of the certifying document.

### **5.2 Levels of Qualification**

An individual in the process of qualifying to NDE Level I is considered a trainee. A trainee will work with a certified individual and will not independently conduct any examinations, interpret or evaluate the results of an examination, or report examination results. Individuals may advance directly to NDE Level II providing the requirements are met for both Level I and Level II.

#### **5.2.1 Level I**

NDE Level I technicians will be qualified to perform specific calibrations, examinations, and evaluations for acceptance or rejection determinations according to written instructions, and to record the results. The Level I shall not approve the acceptance reports. The NDE Level I will receive the necessary instruction or supervision from a qualified NDE Level II or Level III individual.

#### **5.2.2 Level II**

NDE Level II technicians will be qualified to set up and calibrate equipment and to interpret and evaluate results with respect to applicable codes, standards, and specifications, to accept product and to approve inspection reports. The NDE Level II will be thoroughly familiar with the scope and limitations of the methods for which the individual is qualified and will exercise assigned responsibility for on-the-job training and guidance of trainees and NDE Level I personnel. The NDE Level II will be able to prepare written instructions and to organize and report examination results.

### **5.2.3 Level III**

NDE Level III individuals will be capable of establishing techniques and procedures; interpreting codes, standards, specifications, and procedures; and designating the particular NDE methods, techniques, and procedures to be used. The NDE Level III will be capable of interpreting and evaluating results in terms of existing codes, standards, and specifications. The NDE Level III will have sufficient practical background in applicable materials, fabrication, and product technology to establish techniques and to assist in establishing acceptance criteria when none are otherwise available. The NDE Level III will have general familiarity with other appropriate NDE methods, and will be qualified to train and examine NDE Level I and Level II personnel for qualification. A Level III may designate a Level II to give training and examinations provided the Level III has approved the course and the examinations.

### **5.3 Education, Training, and Experience Requirements for Initial Qualification**

Personnel considered for certification in NDE must have sufficient education, training, and experience to ensure understanding of the principles and procedures of those areas of NDE in which they are being considered for certification.

To be considered for certification, a candidate must satisfy one of the following criteria for the applicable NDE level:

- Levels I and II - Training and experience hours for initial qualification of NDE Level I and II individuals for the NDE methods currently used at WIPP as listed in Table 1, as well as completion with passing grade of the required examinations. Documented experience hours by method may be accepted based on previous work scope or job positions.
- ASNT Certified ACCP (ASNT Central Certification Program) Level IIs may be credited the combined number of hours of formal method training and experience equal to the combined requirements for Level I and Level II in Table 1 for a given method.
- American Welding Society (AWS) Certified Weld Inspectors may be credited the combined number of formal VT training hours and experience equal to the combined requirements for VT Level I and Level II in Table 1.

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Table 1 – Training and Experience Requirements

Method	Qualification	PT		MT		VT		LT	
		Train Hours	Exper. Hours						
LEVEL I		4	70	4	70	N/A	N/A	24	50
LEVEL II		8	140	8	140	24	80	16	160
LEVEL I & II		12	210	12	210	24	80	40	210

- Level III - Candidates shall have had the training and experience hours required for a Level II in the method. They shall pass the examination requirements of Section 5.5.5, or possess a current certification from ASNT as a Level III for the Basic and Method examinations. The Level III examinations may be waived if demonstrated ability, achievement, experience, and education is documented and approved by QA management.

Level III applicants must satisfy one of the following eligibility criteria:

- Graduated from a minimum four-year college or university curriculum with a degree in engineering or a physical science, plus one year (12 months) of experience in nondestructive testing in an assignment comparable to that of a Level II in the applicable test method(s), as defined in this document; or
- Completed with passing grades at least two full academic school years of engineering or a physical science study at a university, college, or technical school, plus two years (24 months) of experience in nondestructive testing in an assignment comparable to that of a Level II in the applicable test method(s), as defined in this document; or
- Four years (48 months) of experience in an assignment at least comparable to that of a Level II in the applicable test method(s), as defined in this document.

#### 5.4 Training Programs

Personnel being considered for certification will complete sufficient organized training to become thoroughly familiar with the principles and practices of the specified NDE method related to the level of certification desired and applicable to the practices to be used and the products to be examined. Organized training shall consist of formal training by the WTS Site NDE Level III, an approved individual capable of meeting this criteria, or an approved outside NDE training agency. The training program will include sufficient examinations for the purpose of demonstrating proficiency and comprehension.

The applicable training program which has received the concurrence of the WTS Site NDE Level III may be used as guides to organize training material and content.

Technical source material may be those listed in ASNT SNT-TC-1A or others selected by the WTS Site NDE Level III. A lesson plan (e.g., course outline) for site sponsored training will be maintained on file for applicable NDE method(s).

An NDE training program recognized by the industry may be utilized with the concurrence of the WTS Site NDE Level III. Examinations and training programs developed by the WTS Site NDE Level III, or designated representative, will be based on applicable guidelines contained in WP 14-TR.01. WTS may elect to have an outside agency provide NDE training. Training administered by an outside agency will require the concurrence of the WTS Site NDE Level III.

## **5.5 Examinations**

The WTS Site NDE Level III or designated representative will administer and grade examinations. Site-sponsored Level I and II NDE examinations shall be approved by the WTS Site NDE Level III. Applicable NDE examinations shall be maintained in the WTS Technical Training Section's records.

### **5.5.1 Physical Examination**

All applicants will pass a vision acuity examination to assure natural or corrected near-distance acuity in at least one eye of Jaeger Number 1 or equivalent type and size letters at a distance of not less than twelve (12) inches. Applicants for VT will also be required to demonstrate corrected far-distance acuity in at least one eye of 20/30 Snellen at a distance of 20 feet.

The eye examination will demonstrate the capability of distinguishing and differentiating contrast between colors used in the method(s) that certification is being applied for. A color vision test, under actual or simulated field conditions in addition to or in lieu of a standard color test, may be administered.

The eye examination will be administered on an annual basis by the WTS Site NDE Level III, WTS Medical Department Personnel, or other qualified person(s) designated by the WTS Site NDE Level III, and the results maintained in the individual's WTS Technical Training Section's records for the period of certification.

Results of eye examinations will be documented on EA13QA06-1-0, Physical (Vision Examination).

### **5.5.2 General Written Examinations for Levels I and II**

The general examinations will cover the basic principles, techniques, scope, and limitations of the applicable method. The General Examination will be closed book. The General Examination questions may be taken from the various ASNT SNT-TC-1A Supplements for the method. The minimum number of questions for the General Examination shall be as follows:

- Magnetic Particle (MT) – 30 questions
- Liquid Penetrant Testing (PT) – 30 questions
- Leak Testing (LT) – 20 questions
- Visual Testing (VT) – 40 questions

### **5.5.3 Specific Written Examinations for Levels I and II**

The specific examinations will be written, open book, examinations covering the equipment, operating procedures, and techniques that will be encountered in the applicant's specific assignment. . The specific exam may be modified to accommodate equipment or procedure changes.

Necessary data, such as graphs, tables, specifications, procedures, and codes, may be referenced by the candidate when taking this examination.

The minimum number of questions for the specific exam shall be as follows:

- Magnetic Particle (MT) – 15 questions
- Liquid penetrant Testing (PT) – 15 questions
- Leak Testing (LT) – 40 questions
- Visual Testing (VT) – 20 questions

### **5.5.4 Practical Examinations for Levels I and II**

The candidate will demonstrate familiarity with, and the ability to operate, the necessary examination equipment and record and analyze the resultant information to the degree required.

At least one specimen will be examined and results of the examination analyzed to the applicable specification. At least ten different checkpoints requiring an understanding of examination variables and the procedure requirements will be included in the examination. The description of the specimen; the examination procedure, including checkpoints; and the results of the examination will be documented.

### **5.5.5 NDE Level III Examinations**

Applicants for NDE Level III certification will be examined and graded by an examination proctor designated by QA management and/or manager of WTS Technical Training or their designee. The examination shall be prepared by an ASNT Certified Level III in the method. The examination will consist of the following:

Basic examination - The Basic examination is required only once when more than one method of examination is taken. The Basic examination will consist of at least:

- Twenty questions relating to understanding the SNT-TC-1A document
- Twenty questions relative to applicable materials, fabrication, and product technology
- Twenty questions selected from or similar to Level II questions for other appropriate NDE methods

Method examination - The Method examination is required for each NDE method for which certification is sought and will consist of at least:

- Thirty questions relating to fundamentals and principles selected from or similar to the published ASNT Level III questions for each method
- Fifteen questions relating to application and establishment of techniques and procedures selected from or similar to the published ASNT Level III questions for each method
- Twenty questions relating to capability for interpreting codes, standards, and specifications relating to the method

Specific examination - The Specific examination is required for each NDE method for which certification is sought. The specific examination shall be the same or similar to Level II specific examinations.

On the basis of demonstrated ability, achievement, experience, and education, WTS QA management may waive NDE Level III examinations.

### **5.5.6 Grading**

Qualification for all levels requires a composite grade, based upon the average score of General, Specific, and Practical examinations, or upon the Basic, Method, and Specific examinations, of 80 percent or greater. In addition, the individual grades for the above examinations will be 70 percent or greater. When certification as an ASNT Level III is used to satisfy the requirement for Basic and Method examinations, the Specific examination requires a grade of 80 percent or better.

The Level III examinations can be waived by WTS QA management on the basis of demonstrated ability, achievement, experience, and education as defined in Section 5.2.3.

### **5.5.7 Re-examination**

Personnel failing to obtain minimum scores shall meet the following requirements before being eligible for re-examination:

- Wait a minimum of thirty days before re-examination; or
- Show evidence of having received suitable additional training as determined by the WTS Site NDE Level III prior to re-examination.

### **5.6 Certification**

After all qualification criteria have been met, the WTS Site NDE Level III shall prepare a formal letter to file attesting that all qualification requirements have been met. Management's endorsement of the letter constitutes certification. The original will be placed in the technical training file and a copy presented to the individual.

### **5.7 Recertification**

Level I, Level II and Level III NDE individuals will be subject to recertification at least once every two years in accordance with one of the following criteria, as determined by the WTS Site NDE Level III:

- Evidence of continuing satisfactory performance, or
- Recertification examination consisting of a combination of general and specific questions. Recertification examination will be a minimum of 15 questions. In lieu of the 15 question minimum recertification examination, the WTS Site NDE Level III may elect to administer the general, specific, and practical examinations in accordance with Sections 5.5.2, 5.5.3, and 5.5.4.

Certified NDE technicians may be re-examined and have their certification extended or revoked at any time at the discretion of the WTS Site NDE Level III, with documented cause. In the case of interrupted service from specific job duties, Section 5.8 will apply. The specifics in each action will be submitted to the appropriate WTS QA management.

The WTS Site NDE Level III will attest to continued satisfactory performance in one or all methods by preparing a formal letter to file documenting such. Management's endorsement of the letter constitutes recertification.

The WTS Site NDE Level III will be recertified at least once every two years in accordance with one of the following criteria:

- Formal recertification letter endorsed by QA management documenting continuing satisfactory performance or
- Re-examination in accordance with this written practice

NDE Level III applicant(s) previously qualified prior to being employed by WTS, or in a different Washington Group assignment, may be recertified to their former level of qualification provided the following conditions are met:

- Proof of prior certification and qualification.
- Employee was working in the capacity to which certified within six months of termination.
- Recertification is within six months of termination.

## **5.8 Termination**

All WTS certifications will be automatically revoked upon termination from WTS.

## **5.9 NDT File Contents Requirements**

The WTS Technical Training files are the official files for all NDT training, qualification and certification data.

The WTS designated Site NDE Level III shall verify that the summary sheet documentation is accurate and complete and retained in the WTS Technical Training files. The original signed summary sheet shall be retained in the WTS Technical Training files.

The summary sheet shall contain the following information, as applicable.

- Name of Certified Individual
- Level of Certification(s) and test method(s)
- Educational background
- NDT experience
- Statement indicating satisfactory completion of training in accordance with written practice (only required for initial certification)

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- Results of Physical Examination (eye examination)
- Current examination (copies) or evidence of successful completion of the examinations
- Other suitable evidence of satisfactory qualifications when such qualifications are used in lieu of examination
- Composite grades or suitable evidence of grades
- Dates of certification and recertification and dates of assignment to NDT
- Signature of WTS designated representative