LANL Engineering Standards Manual ISD 341-2 Chapter 13, Welding & Joining Volume 1, General Welding Standards GWS 1-11– Inspector Qualification – Visual and NDE Rev. 0, 06/06/08 MANDATORY DOCUMENT

ATTACHMENT 3 –

NDE PERSONNEL QUALIFICATION AND CERTIFICATION

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RECORD OF REVISIONS

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Contact the Welding Standards POC for upkeep, interpretation, and variance issues.

| GWS 1-11 | Welding POC/Committee |
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| | http://engstandards.lanl.gov/engrman/HTML/poc_techcom1.htm#weld |

GWS 1-11– Visual Welding Inspection and NDE Qualification Attachment 3, NDE Personnel Certification and Qualification

1.0 SCOPE

This written practice establishes the minimum requirements for education, training, experience, examination and certification of personnel responsible for conducting nondestructive tests and inspection related to welding at Los Alamos National Laboratory (LANL). It applies to all persons conducting nondestructive tests that are required to be certified to the provisions of *Recommended Practice No. SNT-TC-1A*. The methods of nondestructive testing covered by this written practice are Magnetic Particle, dye Penetrant, Radiography, Ultrasonic, Eddy Current, and Leak Testing as used in accordance with the applicable codes, standards, specifications and regulations referenced below.

2.0 **REFERENCES**

A. General

- 1. *Recommended Practice No. SNT-TC-1A*, Personnel Qualification and Certification in Nondestructive Testing, 2006 edition.*
- 2. ASNT-CP-105-2006 Topical Outlines for Qualification of Nondestructive Testing Personnel
- 3. LANL ISD 330-8.0, Inspection, Tests and Acceptance
- 4 Applicable codes and standards as specified in the LANL Engineering Standards Manual (ESM) and Master Specifications

| Acronym / Term | Description | | | | | |
|----------------------------|---|--|--|--|--|--|
| Certification | written testimony of qualification | | | | | |
| Certifying Authority | the person or persons properly designated in the written practice to sign certifications on behalf of LANL - specifically, the LANL Engineering Services – Design Engineering (ES-DE) Welding Program Administrator (WPA) or other Level III designated by the WPA | | | | | |
| Certifying agency | LANL ES-DE is the organization certifying NDE personnel for this written practice, as specifically authorized by the LANL WPA or other Level III designated by the WPA. | | | | | |
| Closed book examination | an examination administered without access to reference material except for materials supplied with or in the examination. | | | | | |
| Comparable | being at an equivalent or similar level of NDE responsibility and difficulty as determined by the employer | | | | | |
| 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; for this written practice this may be LANL or any of its subcontractors. | | | | | |
| ЕТ | Eddy Current Testing | | | | | |

3.0 ACRONYMS & DEFINITIONS

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| Acronym / Term | Description | | | | | | |
|----------------------|--|--|--|--|--|--|--|
| ES-DE | Engineering Services Division Design Engineering Group | | | | | | |
| Experience | work activities accomplished in a specific NDE method under the direction of qualified supervision, including the performance of the NDE method and related activities, but not including time spent in organized training programs. | | | | | | |
| GWS | General Welding Standards | | | | | | |
| LT | Leak Testing | | | | | | |
| МТ | Magnetic Particle Testing | | | | | | |
| NDE | Non-destructive examinations/tests/inspections: An examination process conducted to detect internal or surface defects in materials using techniques that do not damage or destroy the item being tested. The most common types of NDE are ET, LT, MT, PT, RT, and UT methods. Depending on the applicable code, VT may also require control as an NDE process in accordance with this procedure. Throughout this document the term NDE applies equally to the NDE inspection methods used for material inspection, flaw detection or predictive maintenance (PdM) applications. | | | | | | |
| Outside agency | a company or individual who provides Level III services and whose qualifications to provide these services have been reviewed and approved by the LANL WPA or other Level III designated by the WPA engaging the company or individual. | | | | | | |
| РТ | Liquid Penetrant Testing | | | | | | |
| Qualification | Demonstrated skill and knowledge, along with documented training and experience required for personnel to properly perform the duties of a specific job. | | | | | | |
| Recommended practice | A set of guidelines to assist the employer in developing uniform procedures for the qualification and certification of NDE personnel to satisfy the employer's specific requirements. | | | | | | |
| RT | Radiographic Testing | | | | | | |
| SSS | Support Services Subcontractor | | | | | | |
| Training | An organized program developed to impart the knowledge and skills necessary for qualification. | | | | | | |
| UT | Ultrasonic Testing | | | | | | |
| VT | Visual Examination | | | | | | |
| WPA | Welding Program Administrator (LANL) | | | | | | |
| Written practice | This written procedure which details the requirements for qualification and certification of NDE personnel by LANL specifically GWS 1-11 Attachment 3. | | | | | | |

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4.0 LEVELS OF QUALIFICATION

There are three basic levels of qualification applied to NDE personnel working at LANL: Level I, Level II and Level III.

An individual in the process of becoming qualified and/or certified to Level I is considered a trainee. A trainee shall not independently conduct tests or interpret, evaluate, or report test results of any NDE. A trainee shall work under the direct guidance of certified individuals.

These levels may be further subdivided for specific situations where additional or limited levels of skill and responsibility are deemed necessary.

Guidance Note: For example, an individual may receive specific training to perform a specific task and be certified as a Level I or Level II (limited) or as a Level I or Level II (restricted). When such subdivisions are used, the limits or restrictions imposed for each specific certification shall be defined. If individuals are certified to a limited or restricted level, their certification records must reflect the specific conditions.

A. Qualification Requirements for Level I:

Level I personnel shall be qualified and/or required to:

- 1. Perform specific calibrations, specific nondestructive tests and specific evaluations for determining the acceptance or rejection of tested items in accordance with specific written instructions.
- 2. Record test results. Normally the Level I does not have the authority to sign-off on the acceptance and completion of the nondestructive test unless specifically trained to do so per clearly written instructions.
- 3. Perform NDE job activities in accordance with written instructions or direct supervision from a Level II or Level III individual.

B. Qualification Requirements for Level II:

Level II personnel shall be qualified and/or required to:

- 1. Be thoroughly familiar with the scope and limitations of each method for which the individual is certified.
- 2. Set up and calibrate equipment.
- 3. Interpret and evaluate results with respect to applicable codes, standards and specifications.
- 4. Organize and report the results of nondestructive tests.
- 5. Exercise assigned responsibility for on-the-job training and guidance of Level I and trainee personnel.

C. Qualification Requirements for Level III:

Level III personnel shall be qualified and/or required to:

- 1. Be responsible for NDE operations to which assigned and for which certified.
- 2. Develop, qualify and approve procedures; establish and approve NDE methods and test techniques to be used by Level I and II personnel.
- 3. Interpret and evaluate test results in terms of applicable codes, standards, specifications and procedures.
- 4. Assist in establishing acceptance criteria where none are available, based on a practical background in applicable materials, fabrication and product technology.
- 5. Be generally familiar with appropriate NDE methods other than those for which they are specifically certified, as demonstrated by passing an ASNT Level III Basic examination.

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6. In the methods for which certified, be responsible for, and capable of, training and examination of Level I and Level II personnel for certification in those methods.

5.0 EDUCATION, TRAINING AND EXPERIENCE REQUIREMENTS

- 1. Level I and II personnel initially certified to conduct NDE covered by this written practice shall have received at least the minimum classroom training hours shown in Table I, depending upon each candidate's formal educational background. The training program shall include sufficient examinations to ensure that the course material has been understood. Educational attainment, completed training and experience shall be documented on the "Application for Nondestructive Examination Certification" Form 1.
- 2. Documented prior certification may be considered by LANL in determining evidence of qualification for comparable levels of certification.
- 3. Documented training and/or experience in positions and activities comparable to those of Levels I, II or III prior to the establishment of this written practice is considered to satisfy the requirements of training and/or experience.
- 4. Organized NDE training shall be conducted either by employer-certified Level III individual(s) or by an outside agency or other certified individual designated and approved by a responsible Level III or other authorized official of LANL.
- 5. Procedures and test techniques that individuals will encounter in their specific assignments, and the applicable instructions, specifications and codes used shall be part of each candidate's informal on-the-job training under the coordination of the Level III individual(s).
- 6. The training program shall follow the "ASNT-CP-105 Topical Outlines for Qualification of Nondestructive Testing Personnel" for each test method as shown in *SNT-TC-1A*, 2006 edition or later, unless otherwise modified to meet specific needs.

Guidance Note: for a stated purpose, a training course outline may be modified by deleting or adding topics to meet specific applications or for limited or restricted certifications. For example, in ultrasonic testing a person may use only thickness measurement techniques. The WPA or another Level III designed by the WPA may deem it appropriate to revise the outline and minimum hours stated for that specific application. These revisions will become a part of, or appended to, the LANL Topical Outline for qualification. Where a particular NDE method is used, but not listed in SNT-TC-1A, another method having a similar degree of technical difficulty should be used as a guide for developing the training outline.

Additionally, it may be allowed for qualification of individuals without a high school or equivalent diploma, the number of training hours shown in Table I may be modified to accommodate this provision. Some governing codes or other mandated requirements may or may not specifically address educational background if less than high school or equivalent. If this is not specifically addressed, the intent behind most requirements is usually satisfied if the number of training hours is increased. The increase should have a rational basis depending upon the actual educational background of the individual(s) involved.

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6.0 EXAMINATIONS

A. Vision Examinations

All Level I, II and III personnel shall be given an annual vision examination to assure natural or corrected near distance visual acuity such that the individual can read J-2 letters on a standard Jaeger chart at a distance of not less than 12 in., or equivalent, in at least one eye. The ability to perceive an Ortho-Rater minimum of 10 or equivalent shall be considered an acceptable Jaeger equivalent.

Where differentiation of colors is critical to job performance, the capability to distinguish and differentiate contrast among colors or shades of gray used in the method shall be demonstrated. This examination shall be administered upon initial certification and every three years thereafter.

Vision examinations are to be administered by LANL Occupational Medicine personnel or as authorized by the LANL WPA or other Level III designated by the WPA.

B. Written Examination Requirements

All Level I, II and III written examinations shall be closed book except that necessary data such as graphs, tables, specifications, procedures, codes, etc., may be provided with or in the examination. Questions utilizing such reference materials shall require an understanding of the information rather than merely locating the appropriate answer. All questions used for Level I and Level II examinations shall be approved by the responsible Level III.

C. General Examination for Level I and Level II

Each Level I and II candidate shall be given a general, objective type (for example, multiple choice) written examination addressed to the basic principles of each method and appropriate to the level for which certification is sought.

This examination shall be administered as follows:

- 1. as part of an organized training program when feasible;
- 2. given separately when experienced personnel are being examined for recertification, or;
- 3. given separately for initial certification of personnel coming from a former employer and otherwise complying with this written practice.

The general examination questions shall be approved by the Level III. The qualification level, content and format of the examination questions shall be similar to the example questions in the applicable *SNT-TC-IA* supplement. The supplement questions are intended only as examples. They shall not be used verbatim for qualification examinations. Candidates shall have access to questions only at the time of the examination.

A valid endorsement on an ACCPTM Level I or Level II certificate fulfills the criteria for Level I or Level II general examinations for each applicable NDE method.

D. Specific Examination for Level I and Level II

Each Level I and II candidate shall be given a specific, objective type (for example, multiple choice) written examination addressing the equipment, operating procedures, test techniques and product forms that the personnel may encounter in their specific job assignments.

This examination shall be administered as follows:

1. as part of an organized training program when feasible;

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- 2. given separately when experienced personnel are being examined for recertification, or;
- 3. given separately for initial certification of personnel coming from a former employer and otherwise complying with this written practice.

The examination shall be approved by the Level III and shall address the specifications, codes and acceptance criteria as listed in the references, to the extent they are in routine use and apply to the particular method(s) for which the candidate is being examined. The content of the specific examination shall be constructed to evaluate the ability of the candidate to effectively use the applicable specifications, codes, etc., to perform the required tests and/or evaluate the results to the degree necessitated by the anticipated qualification level.

A valid endorsement on an ACCPTM Level I or Level II certificate fulfills the criteria for Level I or Level II specific examinations for each applicable NDE method, provided documented experience exists to fulfill the LANL specific examination criteria.

E. Practical Examination for Level I and Level II

Level I – Each Level I candidate shall be given a practical "hands-on" examination that demonstrates the candidate's proficiency to perform specific calibrations, specific tests using the equipment normally available on the job, and specific evaluations for acceptance or rejection determinations in accordance with detailed instructions and procedures as listed in the references. At least one flawed specimen shall be tested and the results analyzed by the person being considered for certification. Selection of the specimen(s) shall be made by the Level III and performance shall be measured based on at least 10 performance checkpoints selected to demonstrate understanding of test variables and procedural requirements.

Level II – Each Level II candidate shall be given a practical "hands-on" examination that demonstrates the candidate's ability to select and perform the applicable NDE technique, set up and perform calibrations using equipment normally available on the job, interpret and evaluate results in accordance with applicable specifications, codes, standards, etc., as listed in the references, and organize and report the results of the test. At least one flawed specimen shall be tested, and the results analyzed by the person being considered for certification. Selection of the specimens shall be made by the Level III, and performance shall be measured based on at least 10 performance checkpoints selected to demonstrate understanding of test variables and procedural requirements.

A valid endorsement on an ACCPTM Level I or Level II certificate fulfills the criteria for Level I or Level II practical examinations for each applicable NDE method.

F. Number of Questions for Level I and II Examinations

Table III summarizes the minimum number of examination questions to be included in each Level I and II written examination.

G. Administration and Grading of Written and Practical Examinations for Levels I and II

The security, grading and administration of the examinations shall be the responsibility of the designated Level III, certified in the method(s) for which the examinations are to be administered. The Level III shall approve the use of all Level I and II questions, the selection of the practical test sample(s), and the performance checkpoints. However, administration, monitoring, and scoring of examinations may be delegated to a suitably qualified representative of the Level III.

Guidance Note: If delegated, the representative of the Level III must be recorded. This may take

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the form of an e-mail or formal letter from the Level III designating the individual or simply recorded on the cover page of the Examination. It is recommended that qualifications of the designee be recorded or referenced

The results of each Level I and Level II candidate's three examinations (general, specific and practical) are to be combined into a composite score for which a score of 80 percent is the minimum required for qualification. The composite score is obtained by simple averaging of the scores achieved in each of the three examinations. In addition, the score for each of the individual examinations shall be 70 percent or higher.

H. Reexamination for Level I and Level II

Level I or Level II candidates failing to attain a composite score of 80 percent or higher, or a score of 70 percent or higher in any individual examination, shall be prohibited from being reexamined for 30 calendar days from the time of the failed examination, unless evidence of having received suitable additional training is presented, as determined by the Level III

I. Requirements for Level III Qualification and Examination

J. Level III Qualification Requirements

Provided the Level III examination requirements are fulfilled, as set forth in the following section, an individual can qualify as a Level III by satisfying one of the following criteria:

- 1. Have obtained a degree in engineering or science from a college or university (four-year curriculum, minimum), plus one additional year of experience beyond the Level II requirements in an assignment comparable to that of a Level II in the method(s) for which being certified, or;
- 2. Have satisfactorily completed at least two years of technical training (engineering or science at a university, college or technical school), plus two additional years of experience beyond the Level II requirements in an assignment at least comparable to that of a Level II in the method(s) for which being certified, or;
- 3. Have four years of NDE experience beyond the Level II requirements in assignments at least comparable to that of a Level II in the method(s) for which certification is sought.
- 4. For Level III qualification, required experience shall consist of the sum of the times required for Level I and Level II, and the required formal training shall also consist of the training required for Level I and Level II plus any additional formal training as defined in this written practice.

Guidance Note: The above Level III requirements may be partially replaced by experience as a certified NDE Level II or by assignments at least comparable to NDE Level II when evaluated and authorized by the LANL WPA or other Level III designated by the WPA.

K. Level III Examination Requirements

There shall be three separate examinations administered to Level III candidates:

- 1. Basic Examination (required only once when more than one method examination is taken). The minimum number of questions shall be as follows:
 - a. 15 questions related to understanding *SNT-TC-1A*, 2001 edition;
 - b. 20 questions relating to applicable materials, fabrication, and product technology, and;
 - c. 20 questions similar to those used for Level II examinations relating to applicable NDE methods.
- 2. Method Examination (required for each different method). The minimum number of questions

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shall be as follows:

- a. 30 questions relating to fundamentals and principles that are similar to published ASNT NDE Level III questions for each method;
- b. 15 questions relating to application and establishment of techniques that are similar to published ASNT NDE Level III questions for each method, and;
- c. 20 questions relating to capability for interpreting codes, standards and specifications relating to the method.
- 3. Specific Examination (required for each different method). The minimum number of questions shall be as follows:
 - a. 20 questions relating to specifications, equipment, techniques and procedures applicable to LANL applications and NDE methods used, and to the administration of this written practice.
- 4. Except as provided in 6 and 7 of this section, a Level III candidate must pass a Basic, Method and Specific Level III examination, to be administered and scored by the LANL WPA or other Level III designated by the WPA.
- 5. The results of each Level III candidate's three examinations (Basic, Method and Specific) are to be combined into a composite score for which a score of 80 percent is the minimum required for qualification. The composite score is obtained by simple averaging of the scores achieved in each of the three examinations. In addition, the score for each of the individual examinations shall be 70 percent or higher.
- 6. The Level III Basic and Method Examinations are not required if the candidate has a current, valid ASNT NDE Level III certificate and endorsements in the method(s) for which certification is sought. A valid endorsement on an ACCPTM Professional Level III certificate fulfills the criteria for Level III Basic and Methods Examinations.
- 7. The Level III Specific Examination is not required if the candidate has a current valid ASNT NDE Level III certificate or a valid endorsement on an ACCPTM Professional Level III certificate in the method(s) for which certification is sought. However, the candidate must also produce documented evidence of experience, including the preparation of NDE procedures related to codes, standards, and/or specifications, and evidence of evaluation of test results in accordance with codes, standards and/or specifications.

L. Reexamination for Level III

Level III candidates failing to attain a composite score of 80 percent or higher, or a score of 70 percent or higher in any individual examination, shall be prohibited from being reexamined for 30 calendar days from the time of the failed examination, unless evidence of having received suitable additional training is presented, as determined by the LANL WPA or other Level III designated by the WPA.

7.0 CERTIFICATION

- 1. Level III individuals employed at LANL are certified by the LANL Engineering Services Design Engineering (ES-DE) Welding Program Administrator (WPA) upon satisfactory presentation of documentation showing evidence of qualification in accordance with this written practice, in the method(s) for which certification is being sought.
- 2. When outside agencies supply Level III services, the responsibility for ensuring that these organizations or individuals satisfy the requirements of this written practice on a continuing basis remains with the designated staff employee official of LANL.
- 3. If outside agencies are used, the responsibility for certification shall be retained by LANL WPA.
- 4. The LANL WPA or other Level III designated by the WPA shall certify Level I and Level II

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individuals, upon their satisfactory completion of the training, experience and examinations required by this written practice.

- 5. Personnel certification records shall be maintained in active files by LANL WPA during the employment of certified individuals. These records may be issued and tracked in an electronic database file. Following separation of employment, the affected personnel certification records shall be removed from active records, but maintained for at least 12 months following separation. Active records shall include:
 - a. this written practice;
 - b. names and certification records of NDE personnel, including;
 - (1) applicable NDE experience, status of current and past level(s) of certification and methods in which certified, results of examinations (including vision), and training received, during employment at LANL;
 - (2) documentary evidence of training and experience in NDE during prior employment, as applicable;
 - (3) documentary evidence of educational attainment, as applicable;
 - (4) documentary evidence of satisfactory qualifications when such qualifications are used in lieu of any specific examination(s);
 - (5) copies of current examinations;
 - (6) authorizations for designating and certifying Level III individual(s);
 - (7) authorizations for certifying Level I and II individual(s);
 - (8) authorizations designating outside agencies providing Level III services.
- 6. For the case where a new employee who held an equivalent certification with a previous employer is a candidate for certification in any NDE method by LANL, such certification shall be granted:
 - a. upon presentation to, and acceptance by, the Level III of documentation verifying the scope of the prior certification;
 - b. upon presentation of evidence that the candidate was working in the capacity to which certified, prior to separation, within six months of separation; and,
 - c. provided the candidate is being recertified within six months of separation.

If a new employee does not meet the above requirements, additional training, experience and examination(s) shall be required as deemed appropriate by the Level III.

A. Technical Performance Evaluation

- 1. At the discretion of the LANL WPA or other Level III designated by the WPA, any NDE personnel may be reexamined at any time during the stated period of certification in any or all of the examination parts and have their certifications extended or revoked. Supplemental training may also be required.
- 2. At least once every three years, the technical performance of Level I and II personnel shall be evaluated and documented by the appropriate Level III. This evaluation shall be conducted using the procedures for the practical examinations for Level I and Level II or production NDE of similar examinations.

B. Recertification

- 1. Level I and Level II NDE personnel shall be recertified every five years based upon one of the following:
 - a. evidence of continuing satisfactory technical performance as judged and documented by the Level III;

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- b. or by reexamination in any or all parts of the examinations for the applicable method(s) as deemed necessary by the applicable Level III.
- Level III personnel shall be recertified every five years based upon one of the following:
 - a. evidence of continuing satisfactory technical performance as judged by LANL ES-DE; or,
 - b. by reexamination in any or all parts of the examinations for the applicable method(s) as deemed necessary by LANL ES-DE.
- 3. Unless otherwise required by contract or governing provisions of applicable codes, standards, specifications, or regulations, reexamination and recertification of certified NDE personnel shall be required if a certified individual has not performed job duties in the method(s) for which certified:
 - a. during a contiguous period of six months or more, or;
 - b. for a total of 3 or more months during any period of 2 years or more.

8.0 TERMINATION OF CERTIFICATION

2.

- 1. All NDE certifications of personnel leaving employment at LANL are revoked at the time of the employee's separation.
- 2. Certification(s) shall be revoked if a certified individual fails to qualify for recertification.

A. Reinstatement of Certification

A previously certified individual whose certification has been terminated may be reinstated to the former Level without further examinations provided:

- 1. The certification records have been maintained in accordance with this written practice; and,
- 2. The employee's certification did not expire during the period of termination; and,
- 3. The employee's certification is reinstated within six months of certification termination.

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| Level I and Level II Initial Training and Experience Levels | | | | | | | | | |
|---|----------------------|--------------|--|-----------------------|------------|--|--|--|--|
| | | | EXPERIENCE LEVEL (Months/Hours) *** | | | | | | |
| NDT METHOD | TECHNIQUE | NDT LEVEL | HIGH SCHOOL GRADUATE* | POST-HIGH SCHOOL** | | | | | |
| Eddy Current | | I II | 40 40 | 32 40 | 210 630 | | | | |
| Leak Testing | Bubble Testing | I II | 2 4 | 2 2 | 3 35 | | | | |
| | Pressure Change | I II | 24 16 | 16 12 | 105 280 | | | | |
| | Halogen Diode | I II | 12 8 | 8 | 105 280 | | | | |
| | Mass Spectrometer | I II | 40 24 | 28 16 | 280 420 | | | | |
| Liquid Penetrant | Spectrometer | I II | 4 8 | 4 4 | 70 140 | | | | |
| Magnetic Particle | | I II | 12 8 | 8 4 | 70 210 | | | | |
| Radiography | | I II | 40 40 | 40 30 | 210 630 | | | | |
| Ultrasonics | | I II | 40 40 | 30 40 | 210 630 | | | | |

Table I:

GED certificate is acceptable.

** Defined as completion of at least two years of engineering or science study in a university, college or technical school, with passing grades.

*** If hours are used, work time experience per level shall be required over the time frame in one-half to three times the months shown and shall include a minimum of the hours shown in the specific method for which certification is sought. [NOTE: SEE TABLE 6.3.1 A IN SNT-TC-1A, 2001 EDITION]

NOTES:

- 1. For Level II certification, the experience shall consist of time at Level I or equivalent. If a person is being qualified directly to Level II with no time at Level I, both the required experience times and the required training hours shall consist of the sum of the times required for Level I and Level II.
- 2. If the Experience Level is shown in months, initial experience may be gained simultaneously in two or more methods if the candidate spends a minimum of 25 percent of work time on each method for which certification is sought, and the remainder of work time claimed as experience is spent in NDT-related activities. NOTE TO USER: USE THE APPROPRIATE ENTRIES FROM SNT-TC-1A, 2001 EDITION, TABLES 6.3.1 A AND 6.3.1 B. IF EXCEPTIONS HAVE BEEN MADE, EITHER FOOTNOTE THEM HERE, OR REFERENCE THE APPROPRIATE PARAGRAPH(S) IN THE WRITTEN PRACTICE UNDER Education, Training and Experience Requirements.]

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Table II: Minimum Number ofLevel I and Level II Written Examination Questions

| NDT METHOD | TECHNIQUE | | IERAL INATION | SPECIFIC EXAMINATION | | |
|---------------|--------------|---------|------------------|-------------------------|----------|--|
| | | LEVEL I | LEVEL II | LEVEL I | LEVEL II | |
| Eddy | | 40 | 40 | 20 | 20 | |
| Current | | | | | | |
| Leak Testing | | 20 | 20 | | | |
| | Bubble | | | 15 | 15 | |
| | Testing | | | | | |
| | Pressure | | | 15 | 15 | |
| | Change | | | | | |
| | Halogen | | | 15 | 15 | |
| | Diode | | | | | |
| | Mass | | | 20 | 20 | |
| | Spectrometer | | | | | |
| Liquid | | 40 | 40 | 20 | 20 | |
| Penetrant | | | | | | |
| Magnetic | | 40 | 40 | 20 | 20 | |
| Particle | | | | | | |
| Radiography | | 40 | 40 | 20 | 20 | |
| Ultrasonic's | | 40 | 40 | 20 | 20 | |

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Rev. 0, 06/06/08

NDE Certification Application

| ADDRESS: PHONE: METHOD AND LEVEL APPLYING FOR Magnetic Particle (MT) Level Liquid Penetrant (PT) Level Radiography (RT) Level Leak Test (LT) Level EDUCATIONAL BACKGROUND Grade School: 1 2 3 4 5 6 7 8 High School: 1 2 3 4 5 6 7 8 College: 1 2 3 4 5 6 7 8 Correspondence School: 1 2 3 4 5 6 7 8 Correspondence School: 1 2 3 4 5 6 7 8 Correspondence School: 1 2 3 4 5 6 7 8 NDE EXPERIENCE To: Employer: Job Description: Addresses Job Description To: Employer: Job Description Employer: Job Description Signature: Date | NAME: SS N | | | | No | .: | | Z No.: | | | | |
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