

## JOB AND TASK DESCRIPTION

### Functions

1. NDT is a quality control phase in the manufacturing, fabrication and construction of steel structures that, by means of examination or measurement to determines the condition of the structures to predetermined quality requirements.
2. The NDT personnel are responsible to the owner/user to assure the quality manufacturing, fabrication and construction of steel structures meet the specifications and codes requirement during one or more of the following processes;
  - a. welding,
  - b. machining,
  - c. casting,
  - d. rolling,
  - e. forging, and
  - f. heat treatment.
3. All NDT activities shall be performed by personnel certified as qualified to perform NDT as Level 1, Level 2, or Level 3 as described in Section 6.0 below.

### Job Tasks

The NDT personnel shall be competent in performing the following tasks;

- a. Select NDT methods, techniques and procedure by the given type and configuration of steel structures.
- b. Select equipment, accessories and consumables required by the procedure.
- c. Check the equipment performance and calibration.
- d. Set-up equipment for NDT works.
- e. Make the proper surface preparation of the test surface for NDT works.
- f. Perform the required NDT works.
- g. Identify, evaluate and measure the test indications produced by NDT works.
- h. Accept or reject the measured indication against the relevant acceptance criteria.
- i. Write a precise NDT report for used by production and/or client's disposal.
- j. Explain the detail finding to the supervisor and/or engineer in-charge, when required.

## CERTIFICATION

### NDT Methods

This IPCS is applicable to each of the following methods:

- a. Eddy Current Testing (ET).
- b. Infrared Thermographic Testing (TT).
- c. Leak Testing (LT).
- d. Magnetic Testing (MT).
- e. Penetrant Testing (PT).
- f. Radiographic Testing (RT).
- g. Ultrasonic Testing (UT).

## h. Visual Testing (VT).

### Level of Certification

#### 1. Level 1

- a. An individual certified to Level 1 shall demonstrate competency to carry out NDT according to written instructions and under the supervision of Level 2 or Level 3 personnel.
- b. Within the scope of the competence defined on the certificate, Level 1 personnel may be authorized by the employer to perform the following in accordance with NDT instructions:
  - a. set up NDT equipment,
  - b. perform the tests,
  - c. record and classify the results of the tests according to written criteria, and
  - d. report the results.
- c. Level 1 certified personnel shall neither be responsible for the choice of test method or technique to be used, nor for the interpretation of test results.

#### 2. Level 2

- a. An individual certified to Level 2 shall demonstrate competency to perform NDT according to NDT procedures.
- b. Within the scope of the competence defined on the certificate, Level 2 personnel may be authorized by the employer to:
  - i. select the NDT technique for the testing method to be used,
  - ii. define the limitations of application of the testing method,
  - iii. translate NDT codes, standards, specifications, and procedures into NDT instructions adapted to the actual working conditions,
  - iv. set up and verify equipment settings,
  - v. perform and supervise tests,
  - vi. interpret and evaluate results according to applicable standards, codes, specifications or procedures,
  - vii. carry out and supervise all tasks at or below Level 2,
  - viii. provide guidance for personnel at or below Level 2, and
  - ix. report the results of NDT.

#### 3. Level 3

- a. An individual certified to Level 3 shall demonstrate competency to perform and direct NDT operations for which he is certified.
- b. Level 3 personnel shall demonstrate:
  - i. the competence to evaluate and interpret results in terms of existing standards, codes, and specifications,
  - ii. sufficient practical knowledge of applicable materials, fabrication, process, and product technology to select NDT methods, establish

NDT techniques, and assist in establishing acceptance criteria where none are otherwise available, and

iii. a general familiarity with other NDT methods.

- c. Within the scope of the competence defined on the certificate, Level 3 personnel may be authorized by the employer to:
- i. assume full responsibility for a test facility or examination centre and staff,
  - ii. establish, review for editorial and technical correctness, and validate NDT instructions and procedures,
  - iii. interpret standards, codes, specifications, and procedures,
  - iv. designate the particular test methods, procedures, and NDT instructions to be used,
  - v. carry out and supervise all tasks at all levels, and
  - vi. provide guidance for NDT personnel at all levels.

## PRE-REQUISITE

### Requirements

1. Applicants seeking ISO 9712 NDT certifications shall meet the applicable education and experience requirements as described in Table 1 and Table 2.
2. Documentation of prior certification may be used as evidence of qualification for comparable levels of certification.

**Table 1: Level 1 and level 2 Pre-requisite**

NDT method	Technique/Limited Certification	Experience (Months)	
		Level 1	Level 2
ET, LT, TT		3	9
UT		3	9
	UTTM	2	n/a
	PAUT, TOFD	n/a	5
RT		3	9
	RI	n/a	5
MT, PT, VT		1	3

NOTE: For TOFD and PAUT, the applicant shall hold a valid UT Level 2 certification.

3. The applicant documents required include a listing of all educations, relevant work and employment. The documents shall include:
  - a. an education background with relevant supporting documents,

- b. a listing of all relevant employers and their contact information when available,
- c. the nature of the work performed, the dates of employment, and
- d. a letter of verification from the employer or client.

**Table 2: Level 3 Pre-requisite**

Education Background	Experience (Months)		
	ET, LT, RT, UT, TT	MT, PT, VT	PAUT, TOFD
Successfully completed a technical school or at least two years of engineering or science study at an accredited college or university	18	12	12
None	36	24	24

- 4. The educations, relevant work and employment documentation is subject to verification by Certification Department and false information is caused to reject the application and can disqualify the applicant from testing to become NDT Level 1, Level 2 or Level 3 personnel.
- 5. If the applicant is being qualified directly to Level 2, with no time at Level 1, the experience shall consist of the sum of the times required for Level 1 and Level 2.
- 6. If the applicant is being qualified directly from Level 1 to Level 3, with no time at Level 2, the experience shall consist of the sum of the times required for Level 2 and Level 3.
- 7. When gaining experience simultaneously in two or more surface NDT methods, i.e. MT, PT and VT, the experience gained in the application of one NDT method may be complementary to the experience gained in one or more other surface methods.

**QUALIFICATION ASSESSMENT**

- 1. The applicant shall fulfil the minimum requirements of education, training, experience, examinations and vision prior to certification.
- 2. The applicant shall provide documentary evidence, acceptable to RSA, the following:
  - a. education,
  - b. experience,
  - c. satisfactorily completed training, and
  - d. recent vision test.
- 3. Certification Department shall verify the examination grades given by the Examination Department.
- 4. For RT, the applicant shall hold a valid radiation safety certification from the relevant local authority.

## **CERTIFICATION VALIDITY**

Certification becomes effective from the date of completion of the initial examination and shall be valid for five (5) years unless revoked for reasons defined in Sections 18.0 and 20.0.

### **1.0 CONDITION OF CERTIFICATION**

The period of validity shall commence (date of issue of the certification) when all of the requirements for certification (education, training, experience, satisfactory vision test, success in examination) are fulfilled. Certification becomes invalid:

- a. at the discretion of RSA, e.g. after reviewing evidence of behaviour incompatible with the certification procedures or failure to abide by a code of ethics,
- b. if the NDT personnel becomes physically incapable of performing his duties based upon failure of the visual acuity examination taken annually under the responsibility of his employer,
- c. if the NDT personnel has not been actively engaged in the performance of the certified NDT method for a period of one (1) year or more during the certification period,
- d. if the NDT personnel fails recertification, until such time he/she meets the requirements for recertification or initial certification, and
- e. if examination or certification fees are not paid when due.

**RSA**