NR669 DT R01 JANUARY 2025

REQUIREMENTS FOR NON-DESTRUCTIVE TESTING SUPPLIERS

NR669 - JANUARY 2025

RULE NOTE

BUREAU VERITAS

BUREAU VERITAS
RULES, RULE NOTES AND GUIDANCE NOTES

NR669 DT R01 January 2025 takes precedence over previous revision.

The PDF electronic version of this document available on the Bureau Veritas Marine & Offshore website https://marine-offshore.bureauveritas.com/ is the official version and shall prevail if there are any inconsistencies between the PDF version and any other available version.

These rules are provided within the scope of the Bureau Veritas Marine & Offshore General Conditions, enclosed at the end of Part A of NR467, Rules for the Classification of Steel Ships. The latest version of these General Conditions is available on the Bureau Veritas Marine & Offshore website.

BUREAU VERITAS MARINE & OFFSHORE

Tour Alto
4 place des Saisons
92400 Courbevoie - France
+33 (0)1 55 24 70 00

marine-offshore.bureauveritas.com/rules-guidelines

NR669

REQUIREMENTS FOR NON-DESTRUCTIVE TESTING SUPPLIERS

January 2025

Table of Content

Section 1 General

1 General

1.1 Scope

1.1.1 This Rule Note gives the applicable requirements for companies and internal department of shipyards or manufacturers providing Non-Destructive Testing (NDT) and Advanced Non-Destructive Testing (ANDT) services on the new construction of ships and offshore structures where required by the applicable Rules for Classification.

The independent NDT companies will be referred to as independent NDT Service Supplier.

The internal department of fabricators (e.g. shipyards, hull/block/section fabricators, manufacturers) will be referred to as internal NDT Department.

In this document, the term NDT will include ANDT as per the definition given.

1.2 Objective

1.2.1 The objective of this Rule Note is to ensure that the independent NDT Service Supplier or the Internal NDT Department is using appropriate procedures, has qualified and certified personnel and has implemented written procedures for training, experience, education, examination, certification, performance, application, control, verification and reporting of NDT.

1.3 Verification by the Society

1.3.1 Where required by the applicable Classification Rules, the independent NDT Service Supplier is to be recognized by the Society according to the requirements of this Rule Note.

1.3.2 Where required by the applicable Classification Rules, the shipyard or manufacturer has to submit to the Society the documentation of its internal NDT Department according to the requirements of this Rule Note.

1.4 Definitions

1.4.1 The following terms and definitions apply for this document:

- Independent NDT Service Supplier means independent NDT company or NDT department/section that forms a part of a company providing NDT services on the new construction of ships and offshore structures to be classed by the Society.
- Internal NDT Department means the internal department/section of a shipyard or manufacturer providing NDT services on the new construction of ships and offshore structures to be classed by the Society.
- The Society means Bureau Veritas Marine & Offshore.
- Industrial sector means section of industry or technology where specialised NDT practices are used, requiring specific product-related knowledge, skill, equipment and/or training.
- Product sector means a category of component that may be defined by type of manufacturing, fabrication, and/or shape, which may have unique, and/or general manufacturing/fabrication defect characteristics. Product sector examples include (but not limited to): castings, wrought products (forgings), rolled products, extruded products and welds.
- NDT (Non-Destructive Testing) means the development and application of technical methods to examine materials or components in ways that do not impair their future usefulness and serviceability, in order to measure geometrical characteristics and to detect, locate, measure and evaluate flaws. NDT is also known as Non-Destructive Examination (NDE), Non-Destructive. Inspection (NDI) and Non-Destructive Evaluation (NDE). Comprising, but not limited to the following methods and techniques: MT, PT, RT, VT, UT and ET.
- ANDT means Advanced Non-Destructive Techniques for which the above definition applies, however ANDT includes advanced methods such as RT-D, PAUT, TOFD and AUT
- VT means Visual Testing.
- PT means Penetrant Testing.
- MT means Magnetic Particle Testing.
- ET means Electromagnetic Testing (i.e. Eddy Current Testing and/or Alternating Current Field Measurements [ACFM]).
- UT means Ultrasonic Testing.
- TOFD means Time of Flight Diffraction (Technique within the method UT).

- AUT means Automated Ultrasonic Testing. A technique by which an object is tested by ultrasound using probes operating under mechanical control and where ultrasonic data is collected automatically
- PAUT means Phased Array Ultrasonic Testing (Technique within the method UT).
- RT means Radiographic Testing.
- RT-D means Digital Radiography (Several techniques within the method RT e.g. Computed Radiography or Direct Radiography).

1.5 References

1.5.1 The following referenced documents are to be used by the independent NDT service suppliers, shipyards and manufacturers for the application of this rule note as appropriate. For updated references, the latest edition of the referenced document (including any amendments) applies.

- ISO 9712:2021: Non-destructive testing - Qualification and certification of NDT personnel
- ISO/IEC 17020:2012; Conformity assessment - Requirements for the operation of various types of bodies performing inspection
- ISO/IEC 17024:2021: Conformity assessment - General requirements for bodies operating certification of persons
- ISO 9001:2015: Quality management systems - Requirements
- SNT-TC-1A:2020: Personnel qualification and certification in non-destructive testing
- ANSI/ASNT CP-189:2020: ASNT Standard for qualification and certification of non-destructive testing personnel

Other national adoptions of the standards listed above are accepted as compliant and hence are accepted for use together with this rule note.

Section 2 Recognition Scheme of Independent NDT Service Suppliers

1 Initial recognition

1.1 Application

1.1.1 The initial application for recognition is to be made by the independent NDT service supplier using the appropriate means provided by the Society. The application for recognition is normally made by the independent NDT service supplier to the Bureau Veritas Marine & Offshore Local Office located in his geographical area.

1.2 Documentation

1.2.1 The documents detailed in the subsequent sections are to be submitted by the independent NDT service supplier to the Society. The Society may request additional documentation while the recognition process is under progress.

1.3 Audit

1.3.1 Considering the documentation submitted, an audit of the independent NDT service supplier is carried out by the Society in order to ascertain that the independent NDT service supplier is duly organised and managed in accordance with the submitted documents.

1.4 Certificate

1.4.1 Upon satisfactory completion of the process, a recognition certificate is issued by the Society to the independent NDT service supplier. In general, the recognition certificate contains the types of non-destructive techniques considered during the recognition process. Normally the recognition certificate will be given a term validity of 4 years.

2 Maintenance of recognition

2.1 Periodical audit

2.1.1 The independent NDT service supplier has to apply for periodical audit at the frequency agreed with the Society in order to maintain the validity of the recognition certificate.

2.2 Modification

2.2.1 When necessary, the independent NDT service supplier has to apply for a modification of his existing recognition certificate, using the appropriate means provided by the Society. Details of the requested modification are to be submitted to the Society. Upon satisfactory completion of the process, the modified recognition certificate is issued by the Society to the independent NDT service supplier. Normally the term of validity of the certificate is not changed.

3 Renewal of recognition

3.1

3.1.1 The independent NDT service supplier has to apply for renewal of his existing recognition certificate, using the appropriate means provided by the Society. In case of modification needs together with renewal, details of the requested modification are to be submitted to the Society. Upon satisfactory completion of the process, the renewed recognition certificate is issued by the Society to the independent NDT service supplier. Normally the renewed recognition certificate will be given a term validity of 4 years.

4 Reduction, suspension and cancellation of recognition

4.1

4.1.1 During the period of validity, the recognition certificate may be reduced in its scope, suspended or cancelled as judged necessary by the Society. An example may be an irregular situation brought to the knowledge of the Society which has not been corrected by the independent NDT service supplier to the satisfaction of the Society.

Section 3 Quality Management System

1 General

1.1 Application

1.1.1 This Section gives the applicable requirements for the Quality Management System of the independent NDT Service Supplier or the internal NDT Department of shipyard or manufacturer.

2 Quality management system

2.1 Requirements

2.1.1 The documented quality management system has to cover:

- work procedures for all tasks and operations, including the various NDT methods and NDT techniques involved
- quality management of subsidiaries, if any
- periodic review of work process procedures, feedback and continuous improvement, internal audits, corrective and preventive action
- provision of accessibility to required codes, standards and procedures to assist NDT operators.
- maintenance of records for NDT operators' and the supervisors' training, qualification and certification
- training programs for the NDT operators and the supervisors
- supervision and verification of operation to ensure compliance with the NDT procedures
- job preparation
- order reference system where each engagement is traceable to when, who and where the test was carried out.
- recording and reporting of information, including retention time of records
- preparation, issuance, maintenance and control of documents.

A documented quality system complying with the most current version of ISO/IEC 17020:2012 and documented as described would be considered acceptable

The independent NDT service supplier should satisfy the requirements of Type A inspection body while the internal NDT Department should satisfy the requirements of Type B or Type C inspection body, as described in ISO/IEC 17020:2012.

Other cases like a documented quality system complying with the most current version of ISO/IEC 17025:2017 or ISO 9001:2015 or similar standard may be considered by the Society.

3 Documentation

3.1 General

3.1.1 The independent NDT service supplier or the internal NDT department has to document, as required in this Rule Note, that it has the competence and control to perform the specified NDT services.

3.2 Documentation to be submitted

3.2.1 The following documents are to be submitted to the Society by the independent NDT service supplier or by the shipyard or manufacturer for its internal NDT department, as appropriate:

- an outline of the organisation and management structure, including any subsidiaries in the case of independent NDT service supplier
- description of the experience in the NDT performed in the specific service area
- code of conduct for the independent NDT service supplier's activities; especially the NDT activities
- code of conduct of the internal NDT department for the NDT activities
- quality manual and information on the structure of the independent NDT service supplier's quality management system
- information on the structure of the quality system related to NDT activities in the case of the internal NDT department
- quality system certification to ISO/IEC 17020 or equivalent when available
- quality system certification to ISO/IEC 17025 or equivalent when available
- quality system certification to ISO 9001 or equivalent when available
- for companies which obtain certification from an accredited certification body; a list of documented training and experience for NDT operators and supervisors within the relevant NDT service area, including qualifications and third-party certification per ISO 9712:2021 based certification schemes.
- procedure for certification of NDT operators including re-validation and re-certification.
- in the case of companies with in-house certification of personnel scheme, the written practice developed in accordance with a recognised standard or recommended practice (i.e. ASNT's SNT-TC1A:2020, ANSI/ASNT CP-189:2020 or similar).
- written statement issued by the employer, based upon the scope of certification, authorizing the operator to carry out specific tasks
- procedure for supervisor's authorisation of NDT operators
- procedure for test of operators' visual acuity
- procedures for the NDT techniques being applied
- description of testing equipment used for the services performed
- procedure for maintenance and calibration of equipment
- record format used for reporting results of the NDT carried out.

3.3 Documentation to be made available upon request

3.3.1 The following documents are to be available to the Society upon request:

- in general, all procedures, instructions, programmes and associated records documenting the Quality Management System and its operations
- operational work procedures for each NDT method including selection of the NDT technique
- training and follow-up programmes for NDT operators including practical training on various ship and offshore products
- list of documented training and experience for NDT operators within the relevant service area
- guide for NDT operators to use equipment for the services performed
- information on other activities which may present a conflict of interest if applicable
- records of customer claims and corrective actions where applicable
- any legal proceedings against the company in the past/currently in the courts of law where applicable.

Section 4 Qualification and Certification of NDT Personnel

1 General

1.1

1.1.1 The independent NDT service supplier or the internal NDT Department is responsible for the qualification and preferably 3rd party certification of its supervisors and operators to a recognised certification scheme based on ISO 9712:2021.

1.1.2 Personnel qualification to an employer-based qualification scheme as e.g. SNT-TC-1A, 2020 or ANSI/ASNT CP189, 2020 may be accepted if the written practice is reviewed and found acceptable by the Society. The written practice is to as a minimum, except for the impartiality requirements of a certification body and/or authorised body, generally comply with the requirements of ISO 9712:2021.

1.1.3 For NDT operators holding certificates issued via an employer-based scheme, the employer's certification is to be deemed revoked when employment is terminated by either party.

1.1.4 The supervisors' and operators' certificates and competence are to comprise all industrial and product sectors and techniques being applied. NDT personnel may hold certification in a method which is related to a product sector.

Level 3 personnel is to be certified by one of the following means:

- Obtain certification from an accredited certification body having an accreditation certificate to ISO/IEC 17024:2012 or similar issued by a national accreditation body.
- Obtain certification from an employer-based scheme via the examination method, as detailed in the written practice. It is not permissible to directly appoint a level 3 without examination if the intended certification route is from an employer-based scheme.

2 Supervisor

2.1

2.1.1 The independent NDT service supplier or the internal NDT Department is to have a supervisor or supervisors, responsible for the following:

a) validate NDT instructions and procedures established and reviewed by level 3 personnel

b) review of NDT reporting

c) supervise all tasks and NDT operations at all levels

d) inspection of NDT equipment, tools and calibration

e) re-evaluate the qualification of the operators annually on behalf of his company.

2.1.2 Normally, the independent NDT service supplier or the internal NDT Department is to employ (on a full-time basis) a level 3 supervisor, certified to level 3 in the applicable method(s) as per the requirements of this Rule Note. It is recognized that a Level 3 may not directly be employed in all the methods practiced. In such cases, it is permissible to employ an external level 3 who is certified by an accredited certification body in those methods not held by the full-time level 3(s).

2.1.3 Alternatively, and by agreement with the Society, the independent NDT service supplier or the internal NDT Department may appoint an internal (full-time employed) supervisor of NDT activities, who does not hold level 3 certification. In this case, the supervisor is to be certified to a minimum of level 2. Where this alternative approach is operated, all other requirements are to be complied with and level 3 NDT services are to be employed (either part time or on a contract basis) from outside of the company organization to carry out functions such as procedure development, procedure approval, consultancy, review etc. The appointed external level 3 is to be certified by an accredited certification body in all the applicable methods appropriate to the scope of the NDT operations.

3 Operators

3.1

3.1.1 The operator carrying out the NDT and interpreting indications is to, as a minimum, be qualified and certified to Level 2 in the NDT method(s) concerned and as described in Article [1].

However, operators only undertaking the gathering of data using any NDT method and not performing data interpretation or data analysis may be qualified and certified as appropriate, at level 1.

The operator is to have adequate knowledge of materials, weld, structures or components, NDT equipment and limitations that are sufficient to apply the relevant NDT method for each application appropriately.

Section 5 Organisation and Performance of NDT

1 General

1.1

1.1.1 The independent NDT service supplier or the internal NDT Department is to furnish appropriate equipment and facilities commensurate with providing a professional NDT service.

2 NDT procedures and work instructions

2.1

2.1.1 Written procedures are to be produced for the NDT being applied. These procedures are to be written, verified or approved by the personnel holding level 3 (either internal, or external, as described in Sec 4, [1.1.4].

2.1.2 Procedures are to define all relevant information relating to the inspection including defect evaluation against acceptance criteria in accordance with the applicable requirements of the Society Rules. All NDT procedures and instructions are to be properly documented in such a way that the performed testing can be easily retraced and/or repeated at a later stage. All NDT procedures are to be acceptable to the Society.

2.1.3 Where the internal NDT Department satisfies the requirements of a type C inspection body as per ISO/IEC 17020:2012, the production staff is not allowed to inspect their own work in all cases.

3 Equipment

3.1

3.1.1 Records of the NDT equipment used and detail information related to maintenance, calibration and verification activities are to be maintained. If equipment is hired, such equipment is to have updated calibration records, and the operators are to be familiar with the specific equipment type prior to using it.

3.1.2 Under any circumstance, sufficient equipment to carry out the services being a part of the NDT scope required by the Society is to be possessed. Where the equipment is of unique nature, the NDT operators are to be trained by competent personnel in the operation and use of the equipment before carrying out NDT using this equipment.

4 Sub-contractors

4.1

4.1.1 The independent NDT service supplier or the internal NDT Department is give information of agreements and arrangements if any part(s) of the services provided are subcontracted, including level 3 NDT services (as described in Sec 4, [2]. The independent NDT service supplier or the internal NDT Department, in the following-up of subcontracts is to give emphasis to the quality management system of the subcontractor.

4.1.2 Subcontractors are to meet the same requirements placed on independent NDT service suppliers for any NDT performed.

5 Reporting

5.1

5.1.1 All NDT is to be properly documented in such a way that the performed testing and examination can be easily retraced and/or repeated at a later stage. The reports are to identify the defects present in the tested area, and a conclusive statement as to whether the material, weld, component or structure satisfies the acceptance criteria or not.

5.1.2 The report is to include a reference to the applicable standard, NDT procedure and acceptance criteria applied in the applicable NDT method/technique. In general, the acceptance criteria are to comply with the Society Rules, as applicable.

5.1.3 Reports are to be signed by the personnel with the appropriate level of certification, and the appropriate signatory status as defined in the Quality Management System.

BUREAU VERITAS MARINE & OFFSHORE

Tour Alto
4 place des Saisons
92400 Courbevoie - France
+33 (0)1 55 24 70 00

marine-offshore.bureauveritas.com/rules-guidelines

BUREAU VERITAS
1828
BUREAU
VERITAS

Shaping a World of Trust