



# **Non-destructive Testing ISO/IEC 17025 Application Document**

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# Non-destructive Testing ISO/IEC 17025 Application Document

This document provides interpretative criteria and recommendations for the application of ISO/IEC 17025 in the field of Non-Destructive Testing (NDT) for both applicant and accredited facilities.

Applicant and accredited facilities must also comply with the ISO/IEC 17025 standard application document and any field annexes, policies and/or technical circulars (refer to *NATA procedures for accreditation*).

The clause numbers in this document follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

## 4 Management requirements

### 4.1 Organisation

**4.1.3** The facility's management system must detail the process for ensuring that the requirements of NDT Appendix H: NDT Work Sites are met and who is responsible for this.

**4.1.5** The facility shall identify within the management system or company job descriptions the individual(s) with responsibility for provision of technical control over testing activities. Further detail regarding provision of technical control in a Non-destructive Testing facility is covered under clause 5.2.

### 4.13 Control of records

#### 4.13.2 Technical records

##### 4.13.2.1

The records system must include the following testing information, where applicable:

- i) test item identification;
- ii) test document identification;
- iii) date and place of test;
- iv) identity of the test method;
- v) any departures from test method requirements (i.e. due to unavoidable circumstances associated with the specific job);
- vi) identity of the test equipment;
- vi) application code/specification;
- vii) original test observations and calculations, including description, size and location of discontinuities;
- viii) any areas not able to be inspected;
- ix) any repairs undertaken and areas retested;
- x) identity of the person performing the test;
- xi) any other information specified in the test method, other contractual documents or relevant statutory regulations.

**Note:** In NDT, items vii), viii) and ix) are commonly recorded in photographic format, which can also be a customer requirement.

Additional record requirements applicable to individual test methods are included in Appendices A-F.

## 5 Technical requirements

### 5.2 Personnel

#### 5.2.1

##### Provision of technical control

The organisation shall identify within the documented management system or company job descriptions the individual(s) with responsibility for provision of technical control (refer to subclause 4.1.5). Although different individuals may be assigned responsibility for technical control over different types of testing, for any particular type of testing there must be a single person identified as having responsibility for provision of technical control (notwithstanding that there may also be defined delegates in case of absence).

**Note:** Any division, group or individual within the organisation having the capacity to carry out NDT, but operating outside of the technical control processes and formal reporting lines that apply within the accredited facility, is not regarded as forming part of the scope of this accreditation.

For each type of testing, the organisation must be able to demonstrate that the individual responsible for technical control over that testing has direct and ongoing involvement in the activities listed below:

- i) authorisation of technicians as competent to perform specific tests and/or to release test results;
- ii) writing or approving or reviewing test procedures as well as validating these as necessary;
- iii) monitoring the need for additional test procedures (in conjunction with the process for review of incoming work requests);
- iv) management of the in-house NDT competency program;
- v) monitoring of the quality of reporting of test data across the organisation;
- vi) ensuring field technical control (where applicable);
- vii) dealing with technical queries from testing personnel;
- viii) ensuring the integrity of processes for equipment commissioning and equipment performance checks.

**Note:** For organisations with multiple sites, these activities may be delegated to local personnel, provided that such delegations have been defined in job descriptions or similar.

The international standard for NDT qualification, AS ISO 9712, provides a framework describing involvement of Level 3 certified personnel in the technical control of NDT facilities. Accordingly, among the technical control activities outlined above, direct input from the designated Level 3 individual(s) is considered necessary in relation to items i) – iv), as a minimum.

If the person responsible for technical control does not hold Level 3 certification in a method used by the facility, the facility should ensure Level 3 coverage from another source (refer below to *Acceptable qualification for Level 3 activities*). This applies, as a minimum, in relation to the common NDT methods i.e. radiographic testing, ultrasonic testing, eddy current testing (other than coating thickness measurement), magnetic particle testing and penetrant testing. In addition, where the testing activities include the extended ultrasonic techniques of phased array and/or time of flight diffraction, it is expected personnel responsible for the oversight of such tests hold an independent endorsement for these techniques that is equivalent to AS ISO 9712 Level 2 or higher.

Each facility is required to define the *nature and frequency* of the technical involvement of the Level 3 personnel. Where the Level 3 resource is not based at the facility, the circumstances requiring onsite involvement must be defined, including a minimum visit frequency in the absence of other triggers. The timeliness of input in such situations will need to be taken into account by the facility, especially where the engaged Level 3 resources are external to the company.

The required degree of direct involvement by the Level 3 resource will depend on many factors. In particular, the experience of the person responsible for day-to-day technical control in terms of both breadth and duration of their technical control experience will be critical in making an assessment of the adequacy of the Level 3 involvement. Other inputs to be considered when establishing the nature and frequency of Level 3 involvement will normally include the following:

- i) experience level of local fulltime staff;
- ii) diversity and quantity of work undertaken;
- iii) whether procedures are written generically or as item-specific instructions;
- iv) the vulnerability of the local technical control arrangements in the absence of key staff;
- v) the extent to which technicians perform work at locations away from the base site;
- vi) the nature and frequency of the competency assessment undertaken for technicians;

The facility must maintain records of the evaluation process leading to the defined requirements for Level 3 technical involvement and be able to demonstrate the involvement of the engaged Level 3 resource in this evaluation process.

The facility must also make provision for delegating the Level 3 responsibilities to cover periods of leave or other absences.

For NATA assessments, personnel representing the senior level of technical control for the site being assessed (which may be a delegated level of overall company technical control) must be present for the initial assessment or reassessments. Defined Level 3(s) within the organisation are required to be present at assessment/reassessment for the accredited site where they are normally based. Defined Level 3 personnel that are not normally based at an accredited site (for example, external consultants) are required to be present for

each assessment/reassessment at the accredited site that has primary responsibility for technical control.

### **Field technical control**

For providers of commercial NDT services, the majority of NDT is carried out in the field, typically without direct supervision by personnel responsible for technical control. It is a requirement that NATA be notified of the establishment of certain types of work sites (see Section 5). More generally, for testing conducted away from the accredited base facility, field technical control is necessary to monitor the implementation of the company's procedures and policies in field testing situations. This will include technical supervisory visits for selected jobs and include witnessing of tests performed under typical test conditions in the field. The selection of jobs for field technical control evaluation must ensure that at least one job performed by each person approved to conduct unsupervised testing is subject to evaluation every year.

**Note:** While field technical control is not required for facilities where all testing is performed at the accredited base site, such facilities must still ensure that processes are in place for monitoring compliance with test procedure requirements.

**Note:** It is recommended that field technical control programs make allowance for the full range of testing techniques to be covered annually across the organisation, however, it is acknowledged this may be impractical if there are a large number of techniques undertaken and only a small number of technicians.

Personnel conducting field technical control evaluations shall be qualified in the particular test method being evaluated and be designated by the Level 3 resource as competent to carry out such evaluations.

Aspects of testing activity that would typically be addressed during field technical control evaluations include:

- i) review of job instructions issued to the testing personnel;
- ii) availability at the job site of test standards and/or facility/client test procedures and relevant specifications;
- iii) suitability and condition of test equipment;
- iv) review of on-site instrument set-up and/or equipment performance checking;
- v) observation of the performance of the test(s), including the time taken;
- vi) review of records of the test, including any test results provided on-site (at the time of the test).

Records of the evaluation must be maintained. The facility shall also ensure that any deficiencies identified from technical control evaluations are managed in accordance with the relevant clauses of ISO/IEC 17025.

**Note:** An example of a suitable record for field technical control evaluations is available on the NATA website.

### **Acceptable qualification for Level 3 activities**

Level 3 coverage is required for the common NDT methods, as described above under *Provision of technical control*. While certification for a given NDT method does not need to be specific to the particular industry sector(s) in which



the facility operates, the facility must ensure that technical control personnel have expertise that is appropriate to the type of work undertaken by the facility. Where personnel certified to AS ISO 9712, or an equivalent certification standard such as BS EN 473, are not available for provision of Level 3 coverage then, in the absence of other requirements, the following qualifications where acceptable to the facility may be considered as an acceptable basis on which to appoint personnel to fulfil the role of the Level 3 resource.

- i) Level 3 certification issued by the employer under a recognised certification framework such as SNT-TC-1A where the scheme is directly administered by the NDT facility and has been subject to on-site assessment and subsequent approval by an independent body within the past five years. In such cases, the report from the independent body approving the SNT-TC-1A scheme must be authorised by a person, or persons, holding AS ISO 9712 (or equivalent) Level 3 qualifications in all relevant methods. To be considered independent, the assessing body would need to have no commercial or other interest in the company to be assessed outside of the assessment arrangements.
- ii) Personnel whose qualifications (typically AS 3669 certification issued by an employer) in the relevant methods have been reviewed and recognised by the National Aerospace NDT Board of Australia (NANDTB) as meeting the requirements at Level 3 of EN 4179.
- iii) Personnel whose qualifications in the relevant methods were recognised by NATA as meeting the qualification prerequisites for unrestricted delegation of signatory approval at the time the NATA signatory scheme was withdrawn.

### **Qualifications for testing personnel**

Personnel performing non-destructive tests shall hold qualifications as specified by the customer plus any additional qualifications specified in the contract, application standard or test method. In addition, a current qualification in the applicable method is required when performing the common NDT methods of radiographic testing, ultrasonic testing, eddy current testing (other than coating thickness measurement), magnetic particle testing and penetrant testing.

**Note:** The facility is responsible for determining the need for any certification covering methods other than the common NDT methods listed above (for example, electromagnetic testing of wire rope), or specialized forms of certification within these methods (for example, certification in phased array ultrasonics or ultrasonic examination of a specific weld geometry) if such requirements are not made clear within the testing contract, application standard or test method.

AS ISO 9712 NDT qualifications are commonly specified in Australia, however, where acceptable to the facility and permitted within the contract, application standard or test method, the following forms of certification may be considered as acceptable alternatives to AS ISO 9712 for performing non-destructive tests.

- i) Certification to ISO 20807/AS 4635, where the certification scope matches the scope of the testing to be undertaken.
- ii) AINDT qualifications (such as Technician or Technologist) which pre-date the AS ISO 9712 framework.

**Note:** While it is acknowledged that such qualifications do not involve periodic re-certification by practical examination, any testing personnel working in an accredited NDT facility are subject to ongoing competency assessment using test specimens with defined defects (refer to clause 5.9).

- iii) Qualifications issued by an employer under a recognised certification framework (including ASNT SNT-TC-1A) are acceptable, provided that the scheme is directly administered by the NDT facility and has been subject to on-site assessment and subsequent approval by an independent body within the past five years. The report from the independent body approving the SNT-TC-1A scheme must be authorised by a person, or persons, holding AS ISO 9712 (or equivalent) Level 3 qualifications in all relevant methods. To be considered independent, the assessing body would need to have no commercial or other interest in the company to be assessed outside of the assessment arrangements.
- iv) Other qualifications acceptable to the NDT facility's customer. This would apply in case of a contract which included the right of the NDT facility's customer to determine acceptability of testing personnel qualifications. This would not apply, for example, to organisations testing their own products for internal assurance, or where the direct customer is not the owner or purchaser of the items under test.

Under the AS ISO 9712 framework, NDT certification is provided at 3 qualification levels. For certification schemes following this structure, Level 2 certification is considered to be the minimum acceptable level for conducting testing where test procedures do not explicitly detail the test parameters to be used. This includes testing where personnel are working to the general requirements of a standard method (e.g. AS 2207) and are responsible for choosing test parameters (e.g. probe frequency, beam angle, etc). Unless otherwise specified, Level 1 certification may be acceptable for tests of a repetitive routine nature if the test procedures specify all testing parameters and define the circumstances in which the testing personnel shall seek assistance or advice. In such case, the procedures shall be documented and readily available to testing personnel. Level 1 certification is not appropriate where testing personnel are working to the general requirements of a method and are responsible for choosing test parameters. Level 1 certification is also not appropriate for ultrasonic thickness testing if it involves characterisation of material loss using angle probes, however, certification to AS 4635 (which does not have defined certification levels) in Corrosion Mapping may be acceptable for such testing.

While certification for a given NDT method does not need to be specific to the particular industry sector(s) in which the facility operates, the facility must ensure that testing personnel are trained and competent in the specific work undertaken.

Where personnel are only involved in performing components of a test that are subject to later validation during the testing, and can be repeated if found to be invalid, certification in the method may not be necessary. This might apply to personnel performing radiographic exposure and processing, or ultrasonic scanning of an item, where remote interpretation of the resulting films or traces is undertaken by appropriately qualified personnel.

Testing personnel who are performing testing under the direct supervision of a qualified person at the job site also need not hold qualifications, however, the

list of personnel within the job records must indicate that a qualified person supervised the work. Such supervision must at least be sufficient to ensure that the supervisor was in a position to rectify any errors or omissions in the technique(s) being used and able to evaluate the unqualified person's understanding and compliance of the technical aspects associated with the testing.

## **5.2.2**

### **Training**

AS ISO 9712 details specific training and experience requirements for the various levels of qualification. For testing personnel, there are also a range of human factors such as concentration, attention to detail, persistence in evaluating and interpreting findings, including use of alternative NDT methods which can affect the quality of testing work and which are to a greater or lesser extent controllable through the provision of appropriate training. This can involve training personnel to recognise situations and conditions which could have an adverse effect on the testing and to take appropriate mitigation measures.

## **5.2.5**

### **Testing personnel approvals**

Testing personnel may not work unsupervised and/or authorise the release of test results without first having been approved to do so by the individual responsible for technical control. Any such approvals shall be given only after a review of all records listed below under Personnel Records has been performed by the individual(s) exercising technical control. In addition, a candidate must have satisfactorily completed an NDT competency assessment (or equivalent independent practical examination) for each relevant NDT method (and ultrasonic weld testing if this is to be included in the approval) prior to authorisation to work independently. The person exercising technical control must determine whether the records available are sufficient to substantiate the proposal to work unsupervised for the requested tests or whether additional information and/or training is required.

In the event of approval being granted, records of the approval process must include the following information:

- i) a record of review of the information submitted in support of the request;
- ii) categories of testing for which approval has been granted to work independently and/or to release test results, including any limitations;
- iii) date(s) of approval together with the authorisation of the person responsible for technical control.

The approval process described above also applies in the case of requested extensions to existing approvals. In such cases, the records system must ensure that substantiating documentation for each separate request is retained and that the various approval dates for the separate areas of test coverage are detailed unambiguously.

Personnel holding an ISO 9712/AS 3998 Level 1 certification can be approved to work without supervision and/or to release test results only if the facility's

records of approval for that person unambiguously reflect the limitations for operators working to Level 1 certification and that these limitations are adhered to in practice.

In cases where approval is withdrawn, for example, following the departure of an employee from the company, a record of the date the approval ceased must also be kept.

Where a technical controller responsible for the approval of the competence of testing personnel leaves the accredited facility, the incoming technical controller must review and re-endorse pre-existing approvals in order to enable appropriate accountability for the approvals to be maintained.

Any supervisory staff involved in allocation of work to testing personnel must have ready access to the current list of testing personnel approvals in order to avoid allocation of work to unapproved personnel. A system for checking the authenticity of claimed qualifications and for monitoring the expiry dates of qualifications/certifications must also be evident.

### **Personnel records**

The following records are to be available for testing personnel and must be retained for the duration of employment and for at least three years after cessation of employment:

- i) copies of qualification/certification certificates and identification cards;
- ii) current visual acuity;
- iii) induction training in the facility's management system;
- iv) assessment of knowledge of relevant test method requirements;
- v) assessment of ability to prepare clear and accurate records of testing;
- vi) details of the NDT operator's knowledge of relevant standards and specifications;
- vii) external and in-house training<sup>1</sup>;
- viii) duration (hours) of testing experience in individual methods<sup>1</sup>;
- ix) categories of testing for which approval is granted to carry out unsupervised work<sup>2</sup>;
- x) records of participation in NDT competency audits (refer subclause 5.9).

**Note 1:** May not be required for those methods for which qualifications are held.

**Note 2:** Including sector details (castings, forgings, welds) for volumetric methods and relevant weld configurations in the case of ultrasonic weld testing.

### **Visual acuity**

All testing personnel shall satisfy the requirements for vision as defined in AS ISO 9712. Testing personnel must also take any precautions necessary to ensure satisfactory visual acuity at the time of undertaking any NDT work.

Companies wishing to perform vision tests in-house shall provide a written procedure and hold the appropriate charts.

## 5.4 Test methods and method validation

**5.4.1** The facility must demonstrate that new work activities which fall outside the routine operational scope are technically reviewed in order to determine whether existing test methods are adequate for the work. The availability of a specific facility procedure would be required in the following situations:

- i) where there is no published standard for the test method;
- ii) where a published standard lists alternative approaches (e.g. AS 2207 has alternative criteria for scanning positions, evaluation criteria and sizing methods);

**Note:** In such cases, if the published standard is sufficiently detailed, facility methods referencing such standards may not require detail other than nominating which of the alternative testing approaches is to be used.

- iii) where existing published standards or facility procedures, as applied to the specific item in question, would not provide sufficiently detailed instruction for the test to be duplicated if necessary;
- iv) where the customer or contract requires a specific procedure;
- v) where the use of advanced equipment warrants additional instruction that cannot be considered as assumed knowledge for the testing personnel.

When a method is developed or technically revised (refer to subclauses 5.4.2 and 5.4.5 below), the facility must demonstrate that appropriate input has been provided by the relevant Level 3 resource (refer to subclause 5.2.1).

### 5.4.2 Selection of methods

#### Technique compatibility

Different NDT methods may provide different results for an individual test item and that may give rise to complications in regard to compliance matters. An item may be found to comply with acceptance criteria when tested by one method, but fail to comply when tested by another. It is important to recognise that NDT methods are *complementary*, but are not necessarily *compatible*. For example, the detectability of volumetric defects is better than for planar defects when radiography is used, whereas ultrasonic testing is more likely to find planar defects. NDT facilities are obliged to make customers aware of the possibility of differing results arising from the application of different NDT methods.

#### Qualitative or screening techniques

Where condition assessment activity is undertaken using techniques covered by the scope of accreditation, test procedures used must be capable of defect detection and evaluation at a threshold which is consistent with techniques typically used for compliance testing of similar products. An exception to this requirement is where testing is carried out to an accredited qualitative or screening technique (used to provide an indicative assessment of equipment condition), when reporting in such cases must indicate that the detection threshold reflects only defect-screening capability.

**Note:** A facility may be able to demonstrate that testing equivalent to compliance test requirements can be achieved through the use of multiple NDT methods, even though each technique on its own might normally be regarded as a qualitative technique.

If a client requests an NDT company to perform testing to the client's in-house requirements, these not being of a standard equivalent to the requirements used for compliance testing of similar products, then acceptance of such work requests is not appropriate as it could diminish confidence in the integrity of the accredited testing services (refer ISO/IEC 17025, clause 4.1.5d). Any such testing will not be recognised by NATA. Any organisation performing such work must ensure that the specific procedure(s) proposed is excluded from the scope of accreditation.

#### **5.4.5 Method validation**

Validation of a technique is required where aspects of techniques developed by the facility do not closely reflect a recognised published standard. For example, validation may need to be addressed where a technique has been developed for detecting a nominated discontinuity or discontinuities in a particular product and/or environment, such as for in-service testing carried out in order to detect the development of a specific defect in a particular location.

Validation data must be retained and available for review during NATA visits.

#### **5.4.6 Estimation of uncertainty of measurement**

There are qualitative and quantitative components of uncertainty in NDT. The qualitative components relate to uncertainty of detection and the uncertainty of classification. The influence of these is typically of far greater significance than with the uncertainty of measurement. Such is the nature of the application of non-destructive testing methods that they are recognised as tests which have a degree of subjectivity such as to preclude application of uncertainty by a formal modeling and mathematical approach. There are many factors which vary from test to test and which contribute to the uncertainty of detection, uncertainty of classification and uncertainty of measurement. As a result, non-destructive tests are generally considered to be qualitative or semi-quantitative, notwithstanding that numerical values are frequently reported.

Facility staff should consider uncertainty of detection, classification and measurement in any review or new validation/verification carried out in relation to the NDT techniques. Consideration must be given to the key components that will contribute to the estimation of the uncertainty of test results. Facilities should place particular emphasis on awareness by operators of issues relating to the probability of discontinuity detection in conjunction with the avoidance of false calls.

Formal estimation and reporting of measurement uncertainty is not required for qualitative or semi-quantitative tests, or for tests in which qualitative components are the major components of uncertainty. However, where situations arise that require compliance assessment in accordance with numerical test result criteria, measurement uncertainty must be considered (refer subclause 5.10.3.1). Facilities will need to estimate the uncertainty of measurement for any tests that are considered to be quantitative and which do not comply with ISO/IEC 17025, subclause 5.4.6.2, Note 2.

Further detail that is specific to uncertainty of measurement is available within NATA Technical Note 35 *Measurement Uncertainty in Non-destructive Testing*.

For qualitative or semi-quantitative tests it is expected that facilities identify those factors which contribute to uncertainty, to rank these based on importance and then take action to control them as far as is possible.

The influence of factors contributing to uncertainty in NDT may be minimised by actions and processes such as:

- i) Use of correctly standardised equipment and performing periodic equipment performance checks;
- ii) Testing being performed by certified or qualified NDT operators;
- iii) Testing to well established standards;
- iv) Using complementary techniques in cases of difficult or unusual applications;
- v) Use of a specialised technique specifically applicable to the application for which it is being used;
- vi) Process controls such as periodic processing of objects containing known discontinuities;
- vii) Testing in environmental conditions which are conducive to the testing operation (this is recognised as being frequently unobtainable);
- viii) Comprehensive training of staff;
- ix) A rigorous NDT competency audit program;
- x) An in-depth understanding of the object under test (composition, modes of deterioration etc.).

## **5.6 Measurement traceability**

**Note:** Requirements relating to instrument setting and equipment performance checks for NDT are detailed in Appendices A - F for each specific test method.

As detailed under subclause 5.4.6 above, NDT techniques are typically qualitative or semi-quantitative and therefore formal calibration in order to establish traceability to the national measurement system is not generally applicable.

### **5.6.2 Specific requirements**

#### **5.6.2.2 Testing facilities**

Unless otherwise noted, the equipment performance checks detailed in Appendices A - F relevant to the NDT method shall be recorded. Some application codes require equipment checks to be undertaken more frequently than detailed in the relevant Appendix. The more stringent requirement shall apply.

## **5.9 Assuring the quality of test results**

### **Periodic assessment of NDT competency**

An accredited non-destructive testing facility must have quality control activities to periodically assess testing competency. Specific requirements are outlined below.

### **Facility Assessment (External)**

**Note:** A listing of potential providers of this service is available from the NATA website.

External competency assessment is complementary to the in-house competency assessment of personnel (refer In-house Competency Assessment below). While external and in house competency assessment both involve an assessment of the performance of the testing personnel, external assessments also cover the effectiveness of organizational aspects that have a direct impact on competency. These aspects include job planning, equipment assurance, test record systems and the company reporting processes. Therefore, a comprehensive competency assessment program will normally include at least some provision for competency assessment by external providers, however, it is acknowledged that there are areas, such as wire rope testing, for which suitable external programs may not exist. In such circumstances, other forms of independent validation of a testing activity may be considered. The relevant Level 3 certified personnel are required to be involved in the development of the overall program to ensure that it meets the technical requirements of the facility. Deficiencies identified as a result of participation in any external program must be managed in accordance with the relevant clauses of ISO/IEC 17025.

### **In-house Competency Assessment**

An NDT competency program, based on the use of test specimens with known defects, must be established with input from the relevant Level 3 resource to provide the following outcomes.

- i) An initial competency assessment is required for all personnel prior to approval to carry out unsupervised testing in the method. In addition, for ultrasonic weld testing, ultrasonic weld competency assessment involving representative weld geometries is required for personnel prior to authorisation to perform ultrasonic examination of welds.

**Note:** An ultrasonic weld competency assessment based on the most complex geometry that is expected to be tested by the individual may mean that assessment involving simpler geometries is not required.

- ii) Ongoing competency assessment is required for all personnel in each method that they perform, using product type(s) relevant to the testing performed by them, at least once every five years. The more diverse the work, even if done infrequently, the more comprehensive should be the assessment program to cover all the work.

**Note:** Satisfactory participation in a practical examination for a qualification program, whether external or in-house, is considered to represent valid competency assessment for the personnel and methods involved.

Facilities must ensure that any test specimens used are adequately validated and that measures are in place to prevent unauthorised access to test specimens and associated records. Where it is impractical to provide a suitable range of test specimens, for example due to the nature of testing undertaken, alternative arrangements may be considered. In such cases, items available for testing in the normal course of the facility's operations may be tested by the candidate to be assessed, under supervision, and then subsequently re-tested by a person authorised by the facility for this purpose.

Instructions provided to personnel conducting an NDT competency assessment must include:

- i) NDT procedure to be used;



- ii) the method(s) used to determine and verify the size and location of any discontinuity present in the test specimen;
- iii) recording requirements;
- iv) reporting requirements;
- v) acceptance criteria;
- vi) time limitations.

Assessment of test results must be performed according to defined criteria and the facility shall ensure that any deficiencies identified from NDT competency assessments are managed in accordance with the relevant clauses of ISO/IEC 17025.

## **5.10 Reporting the results**

### **Simplified reporting**

A simplified format for communicating test results may be used where a specific, written arrangement with the customer exists, however, the following items, at least, must be conveyed to the customer:

- i) identification of the test item;
- ii) area(s) tested;
- iii) test method identification, and any deviations from the method;
- iv) test result(s);
- v) test restrictions (if applicable).

A simplified report must also make unambiguous reference to an identifiable document, such as the worksheet for the test, which must contain all additional information specified in the test method and NATA's Accreditation Requirements.

Similarly, where an NDT facility is contracted to provide test data in a prescribed format (i.e. directly entered into the customer's asset integrity system) all additional information specified in either the test method and NATA's Accreditation Requirements must be accessible within the facility's record system.

### **Preliminary/on-site release of test results**

Some customers require immediate notification of test results. Irrevocable decisions may be made on the basis of such on-site reporting and, therefore, if test results are conveyed to a customer at any stage during or after testing, the information must only be provided by a person authorised to do so by the person exercising technical control for that testing. For cases where test data is being uploaded to the client in real time, any personnel carrying out such testing must be similarly authorised.

Any preliminary/on-site release of test results must ensure that the information specified in the section "simplified reporting" above is conveyed to the customer. Also, any further report which is subsequently issued must make reference to any previous on-site report or data transfer.

## **Asset inspection results**

For equipment maintenance testing, it is common for NDT results to be included as one part of an overall asset inspection report. In such cases, the overall report may only be endorsed if it contains an explicit identification of those parts of the report which are outside the facility's scope of accreditation.

### **5.10.3 Test reports**

#### **5.10.3.1**

##### **Reporting in circumstances of non-compliance with accreditation criteria**

Where mandatory testing requirements, such as the requirement for operators to hold appropriate qualifications, have not been met for a particular test within a facility's scope of accreditation, the report must include a statement which makes clear that NATA's requirements have not been met or that certain aspects of the test method have not been followed. This applies regardless of whether or not the report is NATA-endorsed. Deviations from NATA's requirements should only apply due to unavoidable circumstances.

The above type of non-compliance is different from the routine test restrictions/limitations (e.g. access limitations) which might apply to an individual job and which can be reported as test restrictions rather than as test non-compliances.

##### **Statements of compliance**

In NDT, compliance is most often based on a determination as to whether certain defect types are present or absent, rather than numerical test result criteria. However, if compliance is to be determined in accordance with numerical test result criteria then the uncertainty of measurement shall be taken into account. A compliance statement cannot be made if the criteria detailed in Section 5.10.3.1 Statements of compliance of the 17025 Standard Application Document (SAD) are not met. In such cases, the report may indicate the need for referral to the client engineer or the project principal.

### **5.10.5 Opinions and interpretations**

Discontinuity identification, reporting to product application code criteria, third party checking of NDT results and interpreting results to documented customer criteria are allowed to be reported within the scope of accreditation for non-destructive testing. Commentary on other aspects relating to testing outcomes, such as defect severity assessment or recommendations regarding re-inspection intervals, would be acceptable provided that objective criteria for such judgments are defined, the personnel are explicitly authorized for making such judgments and the qualifications/training required to make such judgments are defined and implemented. However, opinions regarding fitness for purpose of tested items or predictive opinions such as crack propagation rates, residual life estimates etc., shall not be included in test reports unless specifically identified within the report as being outside the scope of accreditation.

# **Non-destructive Testing Appendix A: Radiographic testing technical requirements**

This appendix provides additional interpretation of the application of ISO/IEC 17025 for radiographic testing under the field of Non-destructive Testing (NDT).

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

## **Scope of accreditation**

Where facilities only require accreditation for certain aspects of radiographic testing they may seek restricted accreditation. Such restricted accreditation could be sought for the exposure and processing of radiographs only, or for interpretation only (where radiographs are supplied to the facility).

It is only acceptable for a facility to carry out interpretation of radiographs that have been taken and processed by another facility if the following conditions are met:

- i) the interpreter shall be provided with a copy of the job record and the exposure and processing details;
- ii) the radiographic technique and the quality of the radiographs shall comply with the requirements of the relevant standard;
- iii) adequate radiographic viewing equipment capable of viewing the maximum density allowed by the relevant specification/industry standard and test method standards shall be available;
- iv) the report covering the interpretation shall identify the facility which produced the radiographs;
- v) radiographs shall remain the property of the facility responsible for taking and processing.

## **4.13 Control of records**

### **4.13.2 Technical records**

#### **4.13.2.1**

In addition to the items listed in Section 3 under subclause 4.13.2.1 records for each job shall provide information on at least the following parameters to ensure that the test can be replicated, if necessary:

- i) source details;
- ii) source-to-film distance;
- iii) screen details;
- iv) IQI details and sensitivity achieved;
- v) film type;
- vi) film density achieved;
- vii) exposure details;
- viii) processing details.

Radiographs (film or digital) shall be retained for a minimum of four years. The method of storage should facilitate easy retrieval of radiographs. Adequate storage facilities shall be provided for unexposed and exposed film to prevent degradation.

Radiographic films remain the property of the facility as they are a primary test record. The testing service may lend the original radiographs to the customer, provided that:

- i) the testing service has rights of access to, and recall of, the radiographs;
- ii) the customer agrees, in writing, to provide suitable storage facilities;
- iii) the loan is recorded on the test report issued to the customer or other suitable record;
- iv) acknowledgment of receipt of the radiographs and agreement to provide suitable storage facilities is forwarded to the facility by the customer (e.g. document transmittal form).

Where there are contractual arrangements that are not in accordance with the above requirements for retention of radiographs, it is the responsibility of the facility to advise NATA and to seek approval of any alternative arrangements.

## 5.5 Equipment

X-ray equipment and radioactive sources shall be suitable for the materials to be examined. They should cover the expected thickness range and the shape, nature and location of items likely to be submitted for examination.

Pulsed or low intensity sources may be suitable for qualitative thickness assessment but are not considered suitable for examination of materials for other purposes, such as weld compliance testing.

Procedures shall be followed which ensure satisfactory processing. As such, darkroom procedures are to be documented and include specific details of processing variables (e.g. strength and temperature of developer, time of development and amount of chemicals to be added). The bath temperature also needs to be monitored.

Appropriate facilities shall be available for viewing radiographs under optimum conditions of illumination.

### 5.5.2 Common Equipment performance checks

Item of equipment	Intervals	Procedures and comments
Film processing equipment	Dependent on use	Test check strip normally used..
Certified reference density strip	As per manufacturers recommendation (typically 5 years from last calibration date)	Ensure storage away from light and not used for routine density checks.

Densitometer	Intervals to be sufficient to demonstrate stability of the unit.	Can be checked using a certified reference density strip (acceptance criteria of $\pm 0.2$ H & D units is typical).
Viewer	Intervals to be sufficient to demonstrate stability of the viewer brightness.	Can be checked by measurement of light through a certified reference density strip (density of 3 or above), AS 2177 indicates that the luminance measurement shall be not less than $30 \text{ cd/m}^2$ .
X-ray control panel	Initial and after repair	Statement of conformance of kV and mA readings from manufacturer is adequate. Where damage has occurred or inaccuracy is evident, rechecking is necessary.

**Note:** When measuring the brightness of film viewers, facilities should be careful to ensure that the correct parameter - Luminance - is being measured. Not all facilities possess a luminance meter. Most NDT facilities possess an illuminance meter, which measures lux. It is possible to use an illuminance meter to measure viewer brightness, provided that certain conditions are met ( $\text{lux} \cdot \pi = \text{cd/m}^2$  under ideal conditions with the sensor in direct contact with the viewer face). Some facilities possess an illuminance meter which has a luminance measurement adaptor as an accessory and this may be used to measure radiographic viewer brightness.

## 5.9 Checking of film interpretation

The extent of check viewing of radiographs required is dependent on the type of work being undertaken, but must be sufficient to provide on-going evidence of a satisfactory radiographic viewing process.

**Note:** As a guide, assurance over the viewing process is unlikely to be achieved if the extent of check viewing is less than 2% for well controlled, repetitive work whilst for non-routine testing the extent may require to be greater than 20%, the percentage check viewed being dependent on the nature of the work.

# Non-destructive Testing Appendix B: Ultrasonic testing technical requirements

This appendix provides additional interpretation of the application of ISO/IEC 17025 for ultrasonic testing under the field of Non-destructive Testing (NDT).

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

## 4.13 Control of records

### 4.13.2 Technical records

#### 4.13.2.1

In addition to the items listed in Section 3 under subclause 4.13.2.1 records for each job shall provide information on at least the following parameters to ensure that the test can be replicated, if necessary:

- i) scanning sensitivity;
- ii) evaluation sensitivity;
- iii) surface preparation;
- iv) scanning positions;
- v) sizing method;
- vi) couplant type.

## 5.5 Equipment

Ultrasonic equipment appropriate to each application shall be available.

The facility shall ensure that the range of probes, reference blocks (e.g. carbon steel, austenitic steel, aluminium), standards, etc. held by the facility covers the scope of accreditation.

### 5.5.2 Common equipment performance checks

Item of equipment	Intervals	Procedures and comments
Standardisation & reference blocks	Prior to initial use	For standardization blocks, a statement of compliance to AS 2083 or other applicable specification, supplied by the manufacturer is adequate. For standardization blocks manufactured in-house, documented compliance with the relevant specification is required. For all blocks, dimensions shall be verified using appropriate measuring equipment. The measuring equipment to be used will be dependent on the accuracy specified.
	Periodic	Visual check on conditions.

Item of equipment	Intervals	Procedures and comments
Digital thickness meters	Part of job set-up (Before use/daily)	Job set-up requires checking at a range of thicknesses (e.g. AS 2083 block No. 7) and daily work records must identify the standardisation block used during set-up. Actual thickness readings for the set-up checks must be recorded periodically.
Ultrasonic units	Must meet the requirements of test standards/methods used (see Note 1)	
- horizontal linearity	As above (AS 2083 indicates 12 monthly checks), also see Note 2	Recorded as per AS 2083 or documented procedure.
- vertical linearity	As above (AS 2083 indicates 12 monthly checks), also see Note 2	Recorded as per AS 2083 or documented procedure.
- overall system gain	Prior to initial use, and after equipment repair	Recorded as per AS 2083 or documented procedure.
Probes	Must meet the requirements of test standards/methods used (See Note 1)	
- beam profile (where beam profile sizing methods are specified)	As above (AS 2083 indicates monthly checks if applicable)	Recorded as per AS 2083 or documented procedure.
- resolution	As above (typically 3 monthly)	As required by relevant code (2.5 wavelengths is suitable where criteria are not specified).
- probe index, beam angle and beam alignment	Part of job set-up (before use/daily)	Records not necessary unless specified in the procedure.
- dead zone	Not applicable	Area of interest shall be outside dead zone.

**Note 1:** Where performance checking requirements are not specified in published standards/methods then manufacturer recommendations are to be taken into account by the facility when establishing their requirements for equipment checks.

**Note 2 :** For digital flaw detectors, the period between successive linearity checks may be extended beyond these intervals if there is demonstrated history of stable linearity performance for these units.

# Non-destructive Testing Appendix C: Magnetic particle testing technical requirements

This appendix provides additional interpretation of the application of ISO/IEC 17025 for magnetic particle testing under the field of Non-destructive Testing (NDT).

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

## 4.13 Control of records

### 4.13.2 Technical records

#### 4.13.2.1

In addition to the items listed in Section 3 under subclause 4.13.2.1 records for each job shall provide information on at least the following parameters to ensure that the test can be replicated, if necessary:

- i) surface condition of test specimen;
- ii) test media type;
- iii) current source;
- iv) method of magnetisation
- vi) method of surface preparation.

## 5.5 Equipment

### 5.5.2 Common equipment performance checks

Item of equipment	Intervals	Procedures and comments
Magnetisation equipment	To meet requirements of test methods used	
- AC electromagnet (yoke)	As above (AS1171 indicates a 6 monthly check)	The test mass shall be initially verified as meeting the requirements of the test procedure (AS 1171, indicates lifting power of at least 4.5 kg at pole spacing between 75mm and 300mm).
- DC electromagnet*	As above (AS1171 indicates a 6 monthly check)	The test mass shall be initially verified as meeting the requirements of the test procedure (BS 6072 indicates lifting power of at least 18 kg at maximum pole spacing and where pole spacing is less than or equal to 75 mm, the magnet shall be capable of lifting not less than 0.24 kg per millimetre of pole spacing).



Item of equipment	Intervals	Procedures and comments
- permanent magnet*	As above (AS1171 indicates a monthly check)	As for DC electromagnets.
- bench equipment	As above (AS1171 indicates a 12 monthly check)	To meet test procedure requirements (for example, AS 1171).
White light meter	Intervals to be sufficient to demonstrate stability of the light meter	May be checked in-house using a reference meter retained for this purpose**.
Black light	Typically weekly for equipment in full time use, otherwise intervals to be sufficient to ensure achievement of light output requirements	To meet test requirements (AS 1171 indicates 10 W/m <sup>2</sup> at a distance of 380 mm)
Black light meter	Intervals to be sufficient to demonstrate stability of the light meter	May be checked in-house using a reference meter retained for this purpose*.

**\*Note 1:** For further information as to the applicability of DC magnetization (including the use of permanent magnets) refer to NATA Information Paper 7.

**\*\*Note 2:** Requirements for illumination conditions are indicative in the sense that a minimum threshold only is set, however, the influence of additional errors introduced by the use of transfer standards needs to be considered.

## 5.10 Reporting the results

### Sensitivity

Surface coatings reduce the sensitivity of magnetic particle testing. In extreme cases, the reduction of sensitivity may completely negate the effectiveness of the test. For this reason, accreditation is not offered for magnetic particle testing over a surface coating (other than correctly applied white contrast coating). Any report for such testing must make clear that the work falls outside the scope of accreditation.

# Non-destructive Testing Appendix D: Penetrant testing technical requirements

This appendix provides additional interpretation of the application of ISO/IEC 17025 for penetrant testing under the field of Non-destructive Testing (NDT).

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

## 4.13 Control of records

### 4.13.2 Technical records

#### 4.13.2.1

In addition to the items listed in Section 3 under sub-clause 4.13.2.1 records for each job shall provide information on at least the following parameters to ensure that the test can be replicated, if necessary:

- i) test media type;
- ii) method of surface preparation;
- iii) contact time of penetrant;
- iv) development time;
- v) emulsification time (where applicable).

## 5.5 Equipment

### 5.5.2 Common equipment performance checks

Item of equipment	Intervals	Procedures and comments
White light meter	Intervals to be sufficient to demonstrate stability of the light meter.	May be checked in-house using a reference meter retained for this purpose only*.
Black light	Typically weekly for equipment in full time use, otherwise intervals to be sufficient to ensure achievement of light output requirements.	To meet test requirements (AS 1171 indicates 10 W/m <sup>2</sup> at a distance of 380 mm)
Black light meter	Intervals to be sufficient to demonstrate stability of the light meter.	May be checked in-house using a reference meter retained for this purpose only*.

**\*Note:** Requirements for illumination conditions are indicative in the sense that a minimum threshold only is set, however, the influence of additional errors introduced by the use of transfer standards needs to be considered.

# Non-destructive Testing Appendix E: Visual inspection technical requirements

This appendix provides additional interpretation of the application of ISO/IEC 17025 for visual inspection under the field of Non-Destructive Testing (NDT).

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

## Scope of accreditation

Limited accreditation coverage for visual inspection is offered as an adjunct to an overall NDT testing service, primarily to provide for the visual assessment of material characteristics of a test item while other non-destructive tests are being carried out on the item. Accordingly, the facility must hold accreditation for other NDT methods to be eligible for accreditation of visual inspection within classes 6.91 and 6.92.

**Note:** In-service visual inspection of items as a stand-alone accreditation is offered only under NATA's Inspection Accreditation Program. Further information can be obtained from the Sector Manager, Inspection.

Visual inspection is offered under NDT classes 6.91 and 6.92 where all aspects of the inspection:

- i) relate to characteristics or features of the material from which the inspected item has been fabricated and;
- ii) are described within a written procedure that includes objective criteria for any acceptance/rejection decisions and does not involve any judgment requiring detailed knowledge relating to the type of item under test that is additional to what is defined in the relevant inspection procedure.
- iii) meet any inspection code requirement for specific qualifications to be held by inspection personnel, for example, welding inspection qualifications.

**Note 1:** Assessment of compliance with safety codes, regulatory labelling or the completeness of fittings, for example, cannot be included under the scope of non-destructive test classes 6.91 or 6.92 as such inspections go beyond an assessment of the characteristics or features of the fabrication material.

**Note 2:** Assessments relating to fitness-for-purpose or standards of workmanship typically require specific knowledge of the type of item being inspected, in which case they would not be permitted under 6.91 and 6.92. However, this may be acceptable where all aspects of the inspection are defined within the relevant inspection procedure, and where limited to consideration of characteristics or features of the fabrication material. Visual inspection of weld characteristics, for example, which may include dimensional checking of weld size, may be covered under 6.91 or 6.92 to the extent that the inspection procedure adequately defines all aspects of the inspection.

**Note 3:** Class 6.92, which relates to in-service visual inspection, provides coverage only for the specific service applications listed for the inspected items. This is because an in-service inspection procedure for an item in a particular environment may not be suitable for inspecting similar items in different in-service

environments (different modes of material deterioration may need to be reflected in the inspection procedure, for example).

#### **4.13 Control of records**

##### **4.13.2 Technical records**

###### **4.13.2.1**

In addition to the items listed in Section 3 under subclause 4.13.2.1 records for each job shall provide information on at least the following:

- i) nature of the inspection;
- ii) conditions at time of inspection including lighting, access limitations (e.g. component location, component geometry) and surface condition.

#### **5.2 Personnel**

**5.2.1** As specific qualifications are not required for visual inspection, evidence of specific training in each applicable inspection procedure must be available for any personnel authorized to conduct visual inspection.

#### **5.5 Equipment**

Visual inspection equipment (which may include rulers, tape measures, straight edges, welding gauges, pit gauges, templates and other items) shall be checked for serviceability before being placed in service. Periodic checks for damage and wear shall also be undertaken. Records of these checks shall be maintained.

Lighting conditions during visual inspection must be in accordance with the requirements of the applicable standard (e.g., AS 3978). An appropriate light source providing an adequate intensity and direction of illumination shall be available for poorly lit areas.

#### **5.10 Reporting**

Many items requiring visual inspection are constructed from various components (for example a tank is typically constructed from several rolled sections joined by welds). In order to avoid any inference that an assessment has been made of the integrity of the combination of these components, an NDT report may report the material condition for each individual component (for example, specific welds and/or rolled sections) but not an assessment statement pertaining to the overall item. This would similarly apply to an item of plant machinery made up of various cast/rolled/forged components joined by fasteners and/or welds.

# Non-destructive Testing Appendix F: Electromagnetic testing technical requirements

This appendix provides additional interpretation of the application of ISO/IEC 17025 for electromagnetic testing under the field of Non-destructive Testing (NDT).

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

## 4.13 Control of records

### 4.13.2 Technical records

#### 4.13.2.1

Electromagnetic testing includes inspections based on eddy current, ACFM, flux leakage and other techniques. Where relevant to the particular technique employed, the records for each job shall provide information on the following parameters, in addition to the items listed in Section 3 subclause 4.13.2.1, to ensure that the test can be replicated, if necessary:

- i) equipment settings (e.g. frequency, dB, filters, mixing);
- ii) sensitivity setting (e.g. reference defect type/size)
- iii) scanning pattern and scanning speed;
- v) surface condition of the test item.

## 5.2 Personnel

Competency records for technicians carrying out coating thickness measurement are expected to include evidence of competency in the relevant test methods, equipment operation, recording and reporting requirements.

## 5.5 Equipment

The range of instruments, probes and reference blocks/items held by the facility shall cover the scope of accreditation. Reference blocks/items shall have similar characteristics to the material under test. A list of all reference blocks/items, including verification of notches or defects, metal composition, heat treatment etc. shall be maintained. Conductivity standards shall have by a certificate verifying their conductivity value.

### 5.5.2 Common equipment performance checks

Item of equipment	Intervals	Procedures and comments
Standardisation/ reference items	Prior to initial use	For items manufactured in-house, compliance with the relevant specification must be established and documented. For all items, dimensions including slots, notches or other features shall be verified using appropriate measuring equipment. Material type (using a recognised classification system) is to be recorded.

Item of equipment	Intervals	Procedures and comments
	Periodic	Visual check of condition for wear and damage.
Conductivity Standards	Prior to initial use	Conductivity to be verified where required for compliance with Standards for conductivity testing.
	During service	Where there is a possibility that conductivity may have changed due to environmental condition (e.g. elevated temperature) conductivity will need to be re-verified.
Test equipment	Initial and periodic (typically annual)	<p>Check equipment startup routine (if applicable).</p> <p>Check that limits of all controls are as per manufacturers' instructions.</p> <p>Check and record response using the standardization/reference item, which can be used as a datum for subsequent performance checks.</p> <p>Check gain linearity (eddy current phase analysis instruments only).</p>
	Before and during use	Standardize the equipment prior to use and check at periodic intervals throughout the test. Perform battery condition checks and sensitivity checks at suitable intervals and at the completion of the test.
Eddy current probes	Before use	<p>Visual inspection of condition of the contact area of the sensing coil, leads and connectors.</p> <p>Check that the probe response using the inspection reference item satisfies the inspection procedure requirements.</p>

# **Non-Destructive Testing Appendix G: Comparative Indication of Material Grade or Alloy Type**

## **Scope of accreditation**

The conditions below must be met for accreditation for NDT class of test 6.94 (comparative indication of material grade and alloy type) using either X-ray fluorescence or spark emission equipment. Accreditation is not available within NDT for elemental analysis.

Certified reference pieces are required for each of the material grades or alloy types for which comparative indications are undertaken

There must be no reported claim for the positive identification of a material grade or alloy type i.e., results are indicative only.

Technical control must be provided by a qualified metallurgist, materials scientist, chemist, or person otherwise knowledgeable of the chemical principles underlying the applicable technique (X-ray fluorescence or spark emission). This is to ensure appropriate evaluation of metallurgical or compositional factors which may influence the results obtained.

All equipment operators and technical supervisors must be able to demonstrate satisfactory completion of training in the applicable technique.

### **5.6.3 Reference standards and reference materials**

When using positive material identification methods for the identification of a metal grade or alloy, only results for materials for which the individual carrying out the testing has certified examples for comparison may be reported under the scope of accreditation.

# Non-Destructive Testing Appendix H: NDT work sites

## Defined work site types

In addition to maintaining all required controls over field work, accredited facilities are required to explicitly advise NATA of the establishment of certain types of work sites in order to ensure that project-based assessment can be deployed by NATA in a fair and transparent way. This also ensures that NATA is in a position to respond to queries from industry stakeholders in relation to the accreditation status of work performed for significant projects.

There are two defined work site types for NDT, as listed below, for which notification must be provided to NATA.

**a) Major construction work site:** applies only to site testing provided for a major construction project where:

- metal fabrication is a mainstream activity for the construction project, and;
- the value of the construction performed by the NDT company's direct customer is greater than \$50M; and
- the NDT company is engaged as the primary NDT contractor for their customer's construction activity on the particular project, and;
- the NDT personnel involved are not travelling from the accredited base facility to the worksite on a daily or substantially daily basis.

**b) Routine work site:** applies to site testing (for example, short-term plant shutdown projects, long-term maintenance contracts etc.) which is not provided for either as a major construction project or an exempted activity described in the section below.

## Other site testing activities (not treated as defined work sites)

Ad-hoc work (often referred to as 'jobbing work'), which is defined as a series of individual jobs (which may or may not be subject to a contract) where the work is performed by personnel normally located at the accredited facility's base site *on a call-out basis following separate work requests* does not require specific consideration in terms of a defined work site. The accreditation requirements applying at the accredited base facility are considered to adequately address such situations.

The following situations do not require specific consideration in terms of a defined worksite as they fall outside the scope of accreditation:

i) Work sites operating in a way which cannot be inferred as forming part of the accreditation. To qualify under this category all of the following must apply:

- work at the site is not subject to a contract requiring accreditation to be held;
- no NATA endorsed reports are issued for site testing activity performed by personnel based at the site (any testing at the site which requires endorsement and is being undertaken on a call-out basis from the accredited facility's base site must involve personnel normally based at the accredited base facility);



- the facility's quotation documentation, promotional material and other relevant communication has not contributed to a perception that an accredited testing service is being provided at the site.

ii) Situations where an overall testing service is not being provided. This may occur, for example, if testing personnel and/or test equipment are hired to a separate entity at a work site and are under the direct technical and managerial control of this entity.

### **Work site eligibility**

Classification as a work site is not applicable if there is either extensive local control over key testing activities, or where local arrangements result in a *reduced ability for NATA to evaluate the effectiveness of technical control from assessments of the base facility alone*.

Specifically, each of the following three situations indicates the need for either branch site accreditation (as defined in Policy Circular 42) or independent accreditation, if NATA accreditation coverage is required for work conducted under the control of the site:

- i) the work site locally provides a co-ordination function for more than one project or location (such as processing of incoming work requests for multiple customers and/or work locations);
- ii) there are one or more NDT operators working full time at the site and the staffing arrangements are such that there is no provision for routine face-to-face interaction between the site staff and staff normally based at the accredited base facility (this would apply, for example, if staff from the accredited base provide relief only for work intervals when the regular work site staff are absent);
- iii) the work site is characterised by a *majority* of the following local arrangements applying to any significant extent:
  - locally available next-level-up technical support for the least senior of the qualified personnel ;
  - local storage of test records (i.e. for which copies are not also available at the base accreditation);
  - local review and acceptance of incoming work requests;
  - local testing facilities (i.e. suitable for performing testing other than field testing, e.g. radiography bay);
  - local review and release of test data to customers, even if not a regular occurrence;
  - locally based testing personnel who, on an on-going basis, spend the majority of their working hours at the work site.

**Note:** If any of the above arrangements relating to the worksite are provided from any location other than the accredited base facility then these will be deemed as 'local arrangements' for the purposes of establishing the need for accreditation that is independent from the accredited base facility.

### **Non-compliance**

NATA reserves the right to require a facility to withdraw any reports which are issued within the base facility scope of accreditation by a site deemed to be ineligible as a work site based on the foregoing eligibility criteria and to require

that the customer be advised that the testing is not covered by the scope of accreditation.

It is possible for an established work site operating under a base facility accreditation to evolve into an independent work site over time. During such a transition to independence it may be necessary for the initially established systems of control to overlap for a time with the systems designed to enable the site to operate independently. The site cannot operate independently of the base facility until the process of local accreditation for the site (i.e. branch site or independent accreditation) is completed.

### **Overseas projects**

The requirements for defined work sites also apply in the case of work sites established overseas and directly administered by an Australian-based NATA accredited facility except that the following *additional* requirements apply:

- i) the overseas work site must be for a project of limited duration, normally no longer than nine months;
- ii) if test reports are to be issued directly from the overseas site then, due to issues relating to traceability of reports originating from an overseas location, a Work Site Advice form must be lodged prior to issuing such reports;
- iii) all costs associated with any overseas visit will be chargeable to the facility regardless of work site type.

For longer term or permanent overseas facilities which are operating in a country in which one of NATA's mutual recognition arrangement (MRA) partners operates an NDT program, accreditation with that partner is recommended in the first instance.

In countries where an MRA partner does not exist, NATA is prepared to offer site-specific accreditation (all accreditation costs will be borne by the applicant in accordance with NATA's Fee Schedule current at the time).

### **Notification by testing facility**

#### **1. Work Site Advice Form**

Notification for a defined work site is achieved using the NATA *Work Site Advice* form (available to download from the Accreditation Information > Accreditation of branch or project sites section of NATA's website homepage).

As well as indicating that worksite operational control is not provided locally, the NATA *Work Site Advice* form is designed to allow the facility to demonstrate that the following management and technical controls are in place between the base facility and the work site:

- i) Management system which incorporates requirements applicable to work site activity;
- ii) Consistency between any site-specific documents and the corporate system requirements;
- iii) Clear authorities and responsibilities for the work site staff including reporting structure (and defined organisational relationships where multiple entities are involved);
- iv) Appropriate processes for review and acceptance of incoming work;

- v) Provision for suitable on-site and off-site technical support as required;
- vi) Effective supervision by the accredited base facility of site testing activities - if an on-site supervisor is appointed then the appointment should be a person normally located at the accredited base facility when not deployed to work sites;
- vii) Inclusion of the work site within the company's program for field technical control evaluations;
- viii) Effective application of the NDT competency audit program for on-site personnel;
- ix) Effective implementation of the equipment management system at the work site – performance checking, servicing, storage, control etc.;
- x) Effective monitoring of site personnel requirements including training, visual acuity, qualifications
- xi) Appropriate storage of testing records;
- xii) Inclusion of the work site within the company's management system audit program and/or management review process to the extent appropriate for the scale of the site operation.

## **2. Major construction work sites**

### **a) Notification**

An NDT company which has been awarded a contract for testing on major construction is required to advise NATA, using the NATA *Work Site Advice* form, within five working days of being notified of acceptance of tender. Notification of testing on a major construction project to NATA is a requirement which is additional to the accreditation criteria of the base facility (testing on a major construction work site is not automatically covered by the base facility's scope of accreditation).

### **b) Non-compliance**

Endorsed reports for testing associated with such sites are not permitted to be issued without first notifying NATA in the manner prescribed above. Failure to comply with these notification requirements will mean that timely assessment of the project by NATA may not be achieved and therefore the testing conducted at such work sites will not be recognised by NATA. NATA reserves the right to require that any reports prior to notification covering work within the scope of accreditation be withdrawn and to require that the customer be advised that such testing is not covered by the facility's scope of accreditation.

## **3. Routine work sites**

### **a) Notification**

A completed NATA *Work Site Advice* form is to be submitted upon commencement of any routine work site which is expected to extend beyond 6 months. If a routine work site is established for a shorter duration but then the duration unexpectedly extends, a completed NATA *Work Site Advice* form is required as soon as it becomes apparent that a work site will extend beyond 6 months. While no specific notification to NATA is required for routine work sites

that are to operate for less than 6 months, all requirements relating to work site control still apply, regardless of the project duration.

**b) Non-compliance**

If notification requirements are not met, NATA reserves the right to require that any reports issued be withdrawn, and to require that the customer be advised that the testing is not covered by the facility's scope of accreditation.

**NATA assessment**

**NATA assessment of major construction sites**

Following receipt of the *Work Site Advice* form for a major construction work site, NATA will evaluate the extent to which similar projects involving the NDT facility have recently been assessed, together with the results of these assessments. Based on this information, NATA will determine if an on-site visit is warranted for the project. An off-site assessment of aspects such as staff qualifications and test procedures is another approach which may be considered in some circumstances. Before committing to any on-site assessment activity, NATA may also seek the advice of the site operator and/or asset owner in regard to matters such as the third party technical control measures already in place for the project.

After consideration of all information available, NATA will advise the NDT facility of any assessment activity that is to be conducted. If this involves an on-site visit, it is intended that this be undertaken as early as practicable in the course of each project. On-site project visits will be arranged through the NDT facility unless difficulties are cited in obtaining permission to access the site in a timely manner, in which case NATA may seek assistance from the site operator and/or asset owner.

Facilities should be aware that an assessment may not be possible where the testing will be of a duration less than four weeks. This does not affect the obligation of the facility to advise NATA upon notification of acceptance of tender.

**NATA assessment of routine work sites**

In order to develop a representative assessment program, NATA needs to maintain awareness of work sites relating to any part of the scope of an accredited facility's operations. Therefore, based on information included in any submitted NATA *Work Site Advice* forms covering routine work sites, a site assessment program may be established, depending on the complexity and scale of the work site activities. The site assessment program for routine work sites will normally be implemented in conjunction with NATA's scheduled assessment activity.

NATA reserves the right to assess any routine work site relating to an accredited facility, regardless of the project duration and regardless of whether a NATA *Work Site Advice* form was received for the project.

## **NATA fees**

### **Major construction work sites**

Where a decision is made by NATA to carry out assessment activity for a major construction work site then this will be charges will be levied in accordance with the current NATA Fee Schedule (available from the NATA website). If, during any on-site visit, it becomes evident that there is a lack of control between the facility and the project site such that NATA deems additional site assessment is required, the facility will be liable for all costs associated with the additional assessment activity

Costs associated with NATA assessment visits at major construction projects may have contractual implications and consideration should be given to identifying this matter during the tendering process for construction work. Stating the NATA assessment obligations up-front to the customer of an NDT facility ensures that the customer is made aware of the possibility of additional costs pertaining to assessments.

### **Routine work sites**

Site assessment activity associated with routine work sites will normally be carried out as part of NATA's scheduled assessment activity. The annual fee component represented by the commercial testing technical unit is intended to include the cost for assessment activity involving routine work sites, except in the following circumstances:

- i) if the assessment program includes one or more visits to an offshore installation in Australian waters then transport costs for such visits are to be borne by the facility (it is recommended that contractual provision be made by the facility with offshore customers for such expenses);
- ii) if, at assessment, it becomes evident that there is a lack of control over a work site which warrants additional assessment activity or if, for any other reason, NATA deems additional site assessment outside the normal scheduled assessment process is required, the facility will be liable for all costs associated with the additional assessment in accordance with the current NATA Fee Schedule;
- iii) if the work involves an overseas work site then the specific provisions apply (refer above to 'Overseas projects').

For facilities not incurring the annual fee component represented by the commercial testing technical unit, the facility will be liable for all costs associated with any work site assessment activity in accordance with the current NATA Fee Schedule.

## References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

### Standards

AS 1171 *Non-destructive testing - Magnetic particle testing of ferromagnetic products, components and structures*

AS 2083 *Calibration blocks and their methods of use in ultrasonic testing*

AS 2207 *Non-destructive testing - Ultrasonic testing of fusion welded joints in carbon and low alloy steel*

AS 2452 *Non-destructive testing - Determination of thickness - Part 3 Use of ultrasonic testing*

AS 3669 *Non-destructive testing - Qualification and approval of personnel - Aerospace*

AS 3978 *Non-destructive testing - Visual inspection of metal products and components*

AS 4635 *Non-destructive testing – Qualification of personnel for limited applications of non-destructive testing*

AS ISO 9712 *Non-destructive testing - Qualification and certification of personnel*

BS EN 473 *Non-destructive testing Qualification and certification of NDT personnel. General principles*

ISO 9000 *Quality management systems – Fundamentals and vocabulary*

ISO 9001 *Quality management systems - Requirements*

ISO 20807 *Non-destructive testing – Qualification of personnel for limited applications of non-destructive testing*

ISO/IEC 17020 *General criteria for the operation of various types of bodies performing inspection*

ISO/IEC 17025 *General requirements for the competence of testing and calibration laboratories*

### NATA publications

*Policy Circular 12 NATA Requirements for the Performance of Calibrations In-house*

*Technical Note 35 Measurement uncertainty in Non-destructive Testing*

*NATA Information Paper 7 Non-destructive Testing Methods - Technical Issues*

*NATA Rules*

### **Other references**

ASNT Recommended Practice, No. SNT-TC-1A

Guidance documents covering the implementation of specific accreditation requirements are also available from the ILAC ([www.ilac.org](http://www.ilac.org)) and APLAC ([www.ianz.govt.nz/aplac](http://www.ianz.govt.nz/aplac)) websites.

## Amendment table

The following amendments were made to this issue.

Section	Title	Clause or Class of test amended	Amendment
Various			Replaced all references to AS 3998 with AS ISO 9712
5.2	Personnel	5.2.1, 5.2.5	Note added, designation of personnel conducting field technical control addressed, authenticity of personnel qualifications addressed.
Appendix A	Radiographic testing technical requirements	4.13.2	Record retention period updated to align with ISO/IEC 17025 Standard Application Document.