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CP08 APPROVAL OF NDT TRAINING ORGANISATIONS

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Foreword

This document details the process and requirements for the validation of courses and BINDT approval of training organisations providing training in the field of Non-Destructive testing (NDT) & Inspection. This document was formerly known as the “NDT Approval Document”, but is now designated CP08 (Approval of Training Organisations). This document is prepared to meet the requirements of PD/CEN/ISO/TS/25108:2018 as a minimum.

This issue includes clause numbering to facilitate easy referral to clauses or requirements. The numbering of clauses is not presently tracked for change, and only where technical content or an amendment to requirements has taken place are the changes tracked and identified. This is to facilitate the identification of changes that need consideration by current and prospective Approved Training Organisations (ATOs).

Any enquiries should be forwarded to the ATO administration

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GENERAL DATA PROTECTION REGULATION 2016/679

The General Data Protection Regulation 2016/679 is a regulation in EU law on data protection and privacy in the European Union and the European Economic Area. It also addresses the transfer of personal data outside the EU and EEA areas. The BINDT has a comprehensive GDPR policy to protect all personnel data relating to its training and examination schemes. The use of this data is limited to the process requirements associated with those schemes. The full GDPR policy is available on the BINDT website at www.bindt.org

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Definitions

Approved Training Organisation (ATO)

A commercial provider of Non-destructive Testing (NDT) & Non-destructive Inspection (NDI) training for personnel, whether they be seeking PCN certification or not, that has submitted its courses to BINDT for validation and has successfully undergone assessment to confirm conformance with the requirements detailed within this document.

Counselling

Extra tuition or advice delivered to a student with the aim of improving knowledge, skills or understanding

Curriculum

A documented overview or plan that gives details of how the ATO intends to meet the requirements of the determined syllabus. It should include statements of desired pupil outcomes, descriptions of materials, and the planned sequence that will be used to help pupils attain the outcomes.

Formal Qualification Examination

An examination administered, following the successful completion of training, in accordance with the requirements of a Certification Body (e.g. PCN or other EN ISO 9712 schemes) or for and on behalf of a commercial client (e.g. SNT-TC-1A, EN 4179, NAS 410)

Peer Review

Conduct of tutor competence evaluation by a person suitably qualified/certified or otherwise experienced (time-served) in NDT and teaching methods.

Requirement

Expression conveying criteria to be fulfilled if compliance with the document is to be claimed and from which no deviation is permitted.

The use of the modal verb 'shall' denotes a requirement that is mandatory whenever the criterion for conformance with the specification requires that there be no deviation.

Recommendation

Expression conveying that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

The use of the modal verb 'should' denotes a guideline or recommendation whenever noncompliance with the specification is permissible.

Statement

Expression conveying information

Remote Training Centre (RTC)

A location where an ATO conducts BINDT validated training courses. Up to five (5) courses may be conducted at a particular RTC in any twelve (12) month period. However, if it is intended that six (6) or more courses are to be conducted in any twelve month period, then the RTC shall be considered by BINDT to be an ATO and shall apply for and gain ATO status in its own right.

Abbreviations

ATO: Approved Training Organisation

BINDT: British Institute of Non-destructive Testing

NDT: Non-destructive Testing

QMS: Quality Management System

RTC: Remote Training Centre

1. Introduction

- 1.1. With the intent of improving and maintaining the general standard of NDT&I training leading to the qualification and certification of personnel, BINDT has defined the minimum requirements for the structured training of NDT practitioners, to be implemented through a scheme outlined herein under which such training may be assessed and approved by BINDT. Gaining BINDT ATO status and offering BINDT accredited courses of training to external clients should be seen as a testimony to the quality of service provided by commercial training organisations.
- 1.2. The mandatory requirements for Approved Training Organisations are stated in this document and are indicated by the use of the modal verb 'shall'. Current and prospective BINDT ATOs shall comply with the minimum requirements within six months of the date of publication or revision of CP08.
- 1.3. All information and documentation accumulated by BINDT, its Certification Panel and any auditor(s) shall be treated as commercial in confidence and not disclosed to any other parties.
- 1.4. A system diagram outlining the approval process is shown in Figure 1.
- 1.5. This document, which is intended to be used by organisations wishing to provide Industry with an assured quality of training in NDT, has been developed from a perceived need for a method by which approval can be given to those offering excellence in training.
- 1.6. It is recommended that NDT personnel certification schemes recognise BINDT validated training provided by an ATO when stipulating their requirements for qualification examination eligibility.

**Certification Panel refers to a panel made up of members of Certification Management Committee that have not been directly involved in the assessment of the applicant organisation. Reference: terms of references PCN/1 & PCN/5.*

2. Minimum Requirements for the Structured Training of Non-Destructive Testing Practitioners

2.1 Scope

- 2.1.1. This document is based upon CEN Technical Report 25108, which is implemented within the British Institute of Non-Destructive Testing (BINDT) Approval Scheme for Training Organisations wishing to provide industry with an assured quality of tuition in the main NDT methods.
- 2.1.2. This document establishes the minimum requirements for the structured training of NDT practitioners, primarily to provide eligibility in PCN NDT personnel qualification examinations, but BINDT ATO status can be regarded as recognition of a standard of excellence in the delivery of training, whether by commercial or not-for-profit organisations.

2.2 Quality Management System

NOTE: Although the 2015 version of ISO9001 has removed the requirement for some mandatory documents (including a quality manual) BINDT still expects Training Organisations to have suitable documented systems, processes and records to enable the BINDT assessment program to be able to confirm compliance with the requirements of this document.

- 2.2.1 The Training Organisation shall implement and maintain a fully documented Quality Management System which is certified and fully conforms to ISO 9001 and/or AS 9100, this certification must be issued by a body holding ISO 17021 approval granted by a National accreditation body affiliated with International Accreditation Forum (IAF).
- 2.2.2 The QMS shall comprise of a Quality Manual and Quality Procedures (and Work Instructions where necessary) that is compliant with the current edition of ISO 9001. Documented procedures shall cover quality management and product realisation processes. The management system shall be controlled and periodically reviewed according to the stipulations in the Training Organisation's quality manual.

NOTE: An exclusion may be declared for design and development - since the training syllabus and methodology is externally imposed.

- 2.2.3 All staff within the applicant Training Organisation shall be made aware of their specific responsibilities and method of working, which shall be defined by a documented job description for each position within the organisation. Job Descriptions shall also determine the competence requirements for the appointment. The quality manual shall include an organisational chart detailing the structure of roles within the Organisation. Staff shall be allocated job titles in their terms of reference or letters of appointment, which in turn refer them to the Quality Manual and Job Descriptions. The Organisation shall retain documented evidence of personnel acceptance of assigned roles and responsibilities.
- 2.2.4 The Training Organisation shall have a documented process whereby all staff sign a record to confirm that they have read, understood and are conversant with the Quality Manual and applicable quality documents (however defined). This shall apply to existing, newly drafted or revised quality documents relevant to their position within the organisation.
- 2.2.5 The ATO quality management system shall include a documented schedule for internal audit which will cover the whole of the quality management system and training processes (including RTCs where applicable) at least once in each calendar year. The internal audit program may consist of a series of audits addressing individual aspects of the QMS and training process, or may consist of a single audit that encompasses all aspects of the QMS and training process.
- 2.2.6 The ATO shall provide BINDT with a documented Quality Management System (QMS). The English version of the QMS shall be submitted to BINDT electronically and controlled by the ATO. When the QMS undergoes any revision, or when new quality documents are issued, these shall also be promptly submitted to BINDT in soft copy form.
- 2.2.7 BINDT implements a process to deal with complaints from students and/or employers of students, and ATO status may be suspended or withdrawn at any time if, upon investigation, non-conformances are judged by the Certification Panel to warrant it.
- 2.2.8 A system to record any complaints received shall be operated by the Training Organisation and complaint records shall be available for review during BINDT audit(s).
- 2.2.9 Should major changes occur in Approved Training Organisation policy, personnel, documentation, facilities or operating procedure, which may affect the validity of approval, the British Institute of Non-Destructive Testing shall be informed, immediately. Failure to do so may result in suspension or withdrawal of approval, or a refusal to renew approval.

2.3 Management Responsibility

- 2.3.1 The ATO shall appoint a Training Co-ordinator who is responsible for the overall management of the training operations. The ATO shall also designate responsible persons (however named) for the setting up and maintaining a Documented Quality Management System satisfying the criteria contained within ISO 9001 and this document. For Organisations with multiple ATOs a Group Training Coordinator may be appointed. In such cases the Group Training Coordinator shall appoint a local representative and assign that person with day-to-day responsibility for that ATO.
- 2.3.2 In respect of training processes the ultimate responsibility for ensuring the existence of a documented system that meets the requirements of this document shall remain with the Training Co-ordinator

2.4 Resource Management

- 2.4.1 ATO management shall:
 - 2.4.1.1 Determine the necessary competence for personnel performing work affecting the quality of NDT training.
 - 2.4.1.2 Provide training or take other actions to satisfy the competence needs of Training staff.
 - 2.4.1.3 Annually (minimum) evaluate the competence of all authorised tutors listed on the ATO scope. This annual competence assessment is designed to evaluate the tutors' teaching ability and need not be method specific.
 - 2.4.1.4 Ensure the adequacy of equipment and facilities needed by the business to carry out NDT Training in the inspection methods for which it is approved, or seeking approval. (See 2.12.2)

- 2.4.1.5 Ensure that the working and training environment meets Statutory, Regulatory, BINDT and Customer requirements.
- 2.4.1.6 Take all adequate safety precautions to protect staff and trainees/students. If in the opinion of the appointed lead assessor the organisation has failed to take adequate precautions, BINDT reserves the right to withhold or suspend ATO status until it is satisfied that the unsafe situation has been redressed

2.5 Service Realisation

- 2.5.1 ATO management shall plan service realisation from the point where the customer applies for training through to delivery (award) of a certificate of successful completion of training. In so doing, management shall identify key processes and how these processes interact with one another.

2.6 Measurement, Analysis and Improvement

- 2.6.1 In addition to the requirements of ISO 9001, ATO management shall:
 - 2.6.1.1 Evaluate processes associated with the delivery of training, ensuring that it is delivered in an effective manner which meets the customer's requirements.
 - 2.6.1.2 Monitor and measure customer and/or student satisfaction
 - 2.6.1.3 Commission internal audits on an annual basis covering all aspects of the QMS and business process streams.
 - 2.6.1.4 Ensure that any identified Non-Conformances are controlled, investigated and resolved in an appropriate manner.
- 2.6.2 The above activities will provide data which shall be collated and analysed in order to identify trends and/or improvements to management systems and processes.
- 2.6.3 ATO management shall implement and monitor improvements, reporting the status of improvement strategies at Management Review

2.7 Student Advance Information

- 2.7.1 A system for the provision of advance information shall be in place such that, upon acceptance of an application for enrolment, the ATO shall issue to the enrolled student, or his sponsor, clear and unambiguous instructions in accordance with the following:
 - 2.7.1.1 Course fees and method of payment which shall show all that is included in the fees. There shall be no *hidden extras* and a schedule of course fees shall be made freely available *upon request*.
 - 2.7.1.2 Dates and times of attendance for the course, which shall include clear instructions concerning the location of the training venue (ATO or RTC).
 - 2.7.1.3 Transport, accommodation and catering arrangements, where applicable.
 - 2.7.1.4 The relevant safety requirements pertaining to the ATO as a whole or the particular course for which the student is enrolled.

Note. Where necessary students attending courses involving practical radiography are to be registered as classified radiation workers prior to the commencement of training and are to wear radiation monitoring devices at all times during the course.
 - 2.7.1.5 Personal Protective Equipment (PPE) required for students attending the training course, and whether this is provided by the ATO, or whether the student must provide his/her own PPE.
 - 2.7.1.6 NDT equipment provided by the ATO for use by students during the training course, and whether the student may optionally provide/use their own NDT equipment.

2.7.1.7 Textbooks essential to the training course, and whether these are provided by the ATO or the student.

2.7.1.8 The name and telephone number of a contact at the ATO from whom additional information may be obtained if required.

2.8 Student Assessment

2.8.1 In all cases a system of controlled, documented student assessment shall monitor and record the progress and learning of individual students on a daily basis, measuring the assimilation of knowledge and skills through written and practical assessments, delivering mandatory counselling to students who fail to meet established performance indicators (see section 2.9 below). To facilitate the above, the ATO shall establish and document performance indicator(s) or benchmark(s) to be met by the student as evidence of his or her successful completion of an individual training module or acceptable progress towards successful completion of the full training course.

2.8.2 Successful completion of a training course may be determined by the comprehensive records of daily progress assessments, as required in 2.8.1 above, or the ATO may administer an end of course test comprising General, Specific and Practical modules. Such tests shall be prepared by the ATO and shall not include materials reserved and approved for formal qualification examinations. These end of course tests may be invigilated and marked by the tutor. These end of course tests shall not be confused with the formal qualification examinations following completion of the training course – see 2.8.4 below. End of course practical test specimens shall be segregated from training specimens and formal qualification examination specimens. The use of end of course tests (assessments) does not negate the ATO's obligation to conduct and record the daily progress of students as detailed in 2.8.1 above.

2.8.3 For practical training it is accepted that during the training process students will attempt a number of specimens under supervision. However with regard to the continual assessment process the ATO shall retain full formal documented practical assessments covering a minimum of one sample for each product type and test technique for which successful training certification is to be issued. Where the training is in a single sector and process a minimum of two practical assessments shall be fully documented and retained within the training record.

For example in the Penetrant General Sector it would be acceptable to retain practical assessment records related to the following (as a minimum) or a mixture thereof:

1. *Weld inspection using the colour contrast/solvent removable method*
2. *Casting inspection using the fluorescent/water-wash method*
3. *Forging inspection using the fluorescent/post emulsified method*

2.8.4 For practical training in the aerospace sector it is accepted that during the training process students will attempt a number of specimens under supervision. However, with regard to the continual assessment process, the ATO shall retain full formal documented practical assessments covering a minimum of one sample for each product type and test technique for which successful training certification is to be issued.

2.8.5 Where the training course is intended to provide the employer of NDT personnel with essential information required for qualification and certification under 2nd party certification schemes, for example, SNT-TC-1A, students shall additionally undertake written and practical final examinations in accordance with the requirements in 2.8.5 below. In such instances students/candidates shall be issued with a uniquely numbered certificate, traceable to the student's records, of successful completion of NDT training. (Guidance on certificate format and content is given in Annex A).

2.8.6 Whenever, following the successful completion of training, end-of-course formal qualification examinations are administered the following shall apply:

2.8.6.1 For 3rd party examinations, conducted under EN ISO 9712 (PCN examinations), the examinations shall not be set, invigilated or marked by the tutor responsible for the course in which the student was enrolled

- 2.8.6.2 For 2nd party examinations, conducted under EN4179 or SNT-TC-1A, the examinations may be set, invigilated and marked by the tutor responsible for the course in which the student was enrolled
- 2.8.6.3 For all examinations, steps shall be taken to prevent collaboration or collusion during the examinations. A documented system shall be in place to ensure that specimens used during formal qualification examinations have not been accessible (or have been used as practical assessment specimens) to the student during the course.

2.9 Counselling

- 2.9.1 A system of counselling shall be provided for the benefit of students who fail to reach the required minimum standard during daily progress assessments or in the end of course assessment.
- 2.9.2 Where counselling or extra tuition is deemed necessary, the ATO shall retain records of the delivery of counselling and a determination as to whether the underperforming student has been elevated to an acceptable level. See 2.8.1 above regarding mandatory counselling for students failing to meet established benchmark criteria in daily progress assessments

2.10 Curriculum

- 2.10.1 The Training Organisation shall publish and make freely available upon request the curriculum upon which each course is based. If the course concerned is aligned with a recognised certification examination, e.g. PCN, the course curriculum shall refer to the published syllabus pertaining to that examination.
- 2.10.2 The curriculum shall be reviewed and revised, if necessary, in the light of scientific, industrial and technological developments in the NDT method concerned, or where a change occurs in the syllabus of the certification body's qualification with which the course is aligned. The ATO shall have a documented process that records the conduct and outcomes of periodic reviews

2.11 Course Notes

- 2.11.1 The Training Organisation shall maintain a master set of course notes and shall review these and revise them, if necessary, in the light of changes to the Certification Body's published training and examinations syllabus. The ATO shall have a documented process that records the conduct and outcomes of periodic reviews.
- 2.11.2 Revised course notes shall bear a revision date, to ensure a consistency between courses in the event of staff changes. The ATO shall have a documented process that records the conduct and outcomes of reviews.
- 2.11.3 The Training Organisation shall provide each enrolled student with a comprehensive set of appropriate course notes, these being hard copies of the master, the cost of which shall be included in the course fees. *NOTE: Externally published and controlled classroom training handbooks may supplement, but not be a substitute for, the Training Organisation's own course notes.*

2.12 Facilities

2.12.1 The Training Environment (infrastructure)

- 2.12.1.1 Approved Training Organisations represent the image and reputation of BINDT. Consequently training premises and facilities are expected to present a professional image at all times. Housekeeping and presentation shall remain at the highest level. BINDT retains the right to remove approvals if in the opinion of its agents the premises/facilities reflect badly on the professional image and reputation of BINDT.
- 2.12.1.2 The premises used for training shall comply with the latest issue of all relevant national statutory legislation, e.g. in the UK the Health and Safety at Work Act, COSHH Regulations and where applicable, Ionising Radiation Regulations. Where local regulations are non-existent or lax BINDT still expects ATOs to maintain a high ethos and culture in respect of Health and Safety.

- 2.12.1.3 With regard to Radiographic facilities, and irrespective of local legislation, the ATO shall ensure the following minimum safety requirements exist.
- Sufficient Radiation warning signage and lights.
 - Exposure rooms capable of containing the level and type of radiation used.
 - A physical barrier at the entry to exposure rooms when radiation equipment is activated
 - Calibrated Radiation monitoring equipment
 - Thermo-luminescent Dosimeter (TLD)/Film badges or calibrated personnel radiation beepers for all students
- 2.12.1.4 Suitable safety notices shall be displayed in appropriate locations accessible to students. Relevant safety data sheets shall be on hand at the point of use of potentially hazardous equipment or processes.
- 2.12.1.5 Classrooms and practical facilities shall be well lit and ventilated and there shall be adequate provision of teaching aids such as blackboards/whiteboards or flip charts, overhead and/or slide projectors, computer generated presentations and video equipment appropriate to the course.

2.12.2 NDT Equipment

- 2.12.2.1 Sufficient NDT equipment, such as instruments, accessories and calibration blocks, shall be available to cover the full range of NDT techniques within each of the NDT methods being taught and to occupy all of the students on the course concerned (Appendix 5 refers).
- 2.12.2.2 ATOs must possess sufficient practical equipment to satisfy the requirements for the methods and sectors in which they offer training and/or examinations. The ATO must be able to demonstrate all processes/techniques within the approved PCN/BINDT syllabus for any given NDT method. This applies to all ATOs irrespective of whether the ATO offers single sector examinations only.

For example: training primarily aimed towards an examination covering welds only, using portable methods: MPI benches and penetrant flowlines are still a mandatory requirement to demonstrate all processes/techniques within the approved PCN/BINDT syllabus.

- 2.12.2.3 Appropriate Personal Protective Equipment (PPE) shall be available to students.

2.12.3 Specimens

- 2.12.3.1 Training specimens shall be available in sufficient quantity and complexity to cover the full range of applications encompassed by the course curriculum (Appendix 6 refers). Specimens should also be available containing real defects representative of those found in industry. Separate specimens shall be used for training and assessment and there shall be provision for secure storage of assessment specimens.

2.12.4 Technical Library

- 2.12.4.1 The ATO shall maintain an up to date library of NDT Standards relevant to the method being taught. Students shall be made aware of the existence of these Standards and educated in their use.

2.13 Training Staff - General

- 2.13.1 The ATO's management structure shall include a Training Coordinator (however named) with overall responsibility for the technical operation of the training facilities and for ensuring that the British Institute of Non-Destructive Testing requirements are met.
- 2.13.2 The training facility shall have sufficient tutors to ensure that as a minimum, one tutor is present throughout each course in line with the specific approved documentation requirements.

- 2.13.3 The ATO shall evaluate the competence of all tutors as detailed in clause 2.4.1.3. Competency evaluations shall be by peer review. Records of tutor competency evaluations shall be retained by the ATO.
- 2.13.4 The ATO shall permit only those personnel named in the quality management system and on the BINDT ATO Scope of authorisation as tutors to supervise the conduct of training. Tutors shall hold relevant PCN certification (or equivalent certification recognised by BINDT), otherwise, the ATO shall demonstrate to the satisfaction of BINDT that the tutor has received appropriate training in instructional techniques.
- 2.13.5 The ATO shall notify BINDT of any changes or additions to tutors (supervising the conduct of training) listed on their authorisation.

2.14 Training Staff – Approval of Tutors

- 2.14.1 In order for personnel to be considered for BINDT Approval as a tutor they must satisfy the following pre requisites:
 1. Have in excess of 5 years of industrial experience in the NDT sector.
OR
Have completed a 2 year (minimum) apprenticeship or training program with an established ATO. The apprenticeship program shall include practical experience gained in the field (by placement within an established working NDT facility)
OR
Have been previously approved as a tutor at another BINDT ATO
 2. Hold a minimum of PCN Level 2 (or equivalent) in the method for which approval is sought
 3. Have evidence of training in instructional techniques – gained externally or via documented internal training conducted at the ATO.

NOTE: Tutors approved in advance of the issue of CP8 issue 3 shall retain their current approval status

- 2.14.2 Evidence relating to 2.14.1 above must be provided by the ATO when applying for a tutor approval together with a passport sized photograph and a sample signature of the proposed tutor. The application shall be made using form PSL/33a.

NOTE: This innovation is only in effect following the issue of CP8 (issue 3). BINDT will be undertaking a program to obtain photographic/signature evidence from currently approved tutors as the program is introduced.

- 2.14.3 Upon approval tutors will be added to the relevant ATO scope and issued with a photographic Approved tutor Identification card which must be made available upon request by BINDT agents or students.
- 2.14.4 Tutors must be certified in the method for which they teach (as per 2.14.1 above) but may only teach practical techniques in those methods/techniques/categories in which they have proven practical experience in that method/technique/category. Evidence of proven practical experience shall be available for review during BINDT assessments.

Note: Proven practical experience may include appropriate current or prior level 2 certification or a documented competency assessment in the required methods & sectors conducted at a BINDT ATO independent of the tutor's employer. Current or prior level 3 certification is also acceptable providing it is supplemented by proof of practical competence.

- 2.14.5 In an effort to retain core NDT experience, knowledge and capability where previously approved tutors, do not renew their certification, they may be eligible to continue teaching on a consultancy/part-time basis at the discretion of BINDT. This shall be subject to application by the ATO to BINDT for review and consideration. Such approval shall only be considered for methods/techniques/categories in which the applicant has previously held third party certification. Such approvals shall be at the total discretion of BINDT who retain the right to remove such approval, also at their discretion. This approval applies to tutors only and not examiners who must retain the appropriate Level 3 certification.

2.15 Training Staff - Certification

- 2.15.1 A member of staff of the training organisation shall be assigned with overall responsibility for each validated course of training for which the ATO is approved, and is required to hold equal to or higher level certification recognised by BINDT. For Organisations with multiple ATOs the key personnel may be appointed at Group level. In such cases the Group Training Coordinator shall appoint a local representative and assign that person with day-to-day responsibility for that ATO.
- 2.15.2 Tutors shall be appropriately certified for the NDT method and sector that the course covers. Tutors shall hold certification(s) acceptable to BINDT at a minimum of level 2. Where the course provides training for level 3 candidates, the tutor shall hold acceptable certification at level 3.

2.16 Training Staff – Teaching Qualifications

- 2.16.1 All tutors must be trained in instructional techniques. Training Organisations shall employ a minimum of one staff member formally trained (externally) in instructional techniques. A tutor with external training in instructional techniques may disseminate internal training in instructional techniques to other tutors who have no formal external training. Records of internal dissemination of instructional training shall be compiled and retained by the ATO. These records shall include full evidence of the training delivered (course notes, presentations etc. as applicable).

2.17 Training Staff – Experience

- 2.17.1 Training Tutors shall have knowledge of materials science and product technology, and have documented experience of current industrial applications of the NDT methods that they are authorised to teach.

2.18 Training Staff – Maintenance of Method Awareness

- 2.18.1 ATOs shall ensure that all training staff are kept up to date with current industrial procedures, practices and new innovations that may have an effect on training delivery within the NDT methods for which they are approved. The ATO shall document how this is achieved.

2.19 Records

- 2.19.1 There shall be a system for maintaining and reviewing the current state of all records held within the Training Organisation. Such records are to be kept in a secure location and treated with confidentiality.

2.19.2 Student Records

- 2.19.2.1 Student records shall be raised and maintained for each enrolled student. They shall be retained for a period of not less than ten years and shall include the following, as a minimum:
 - 2.19.2.2 Date(s) of enrolment and completion of training.
 - 2.19.2.3 Course on which enrolled including training location/venue.
 - 2.19.2.4 Tutors and auditors involved.
 - 2.19.2.5 Records of daily progress assessments; this should include any tests/assessment question papers attempted and records of specimens tested during the course, including the tutor's comments. In addition, and where applicable to the training syllabus, evidence of training and assessment in the formulation of a written instruction shall also be retained.
 - 2.19.2.6 Final examination result(s) attained (where appropriate), including a copy of the completed examination paper(s) and details of specimens (including identification numbers) and equipment used by the student in any final examination.

- 2.19.2.7 A certificate of **successful** completion of the relevant training course, including, where necessary, a data sheet for employers implementing a second party qualification system such as SNT-TC-1A (Guidance on certificate format and content is given in Annex A).

Guidance note: A certificate of attendance is not regarded as a certificate of successful completion of training. Certificates issued by BINDT Approved ATOs may be used to prove eligibility for examination at an Authorised Qualifying Body (AQB) and as such must state that the holder has successfully completed an approved training course. Certificates of successful training should only be awarded to those students who attain the required standard in the daily/continual course assessments and/or end of course examination. The ATO may award certificates of attendance to any or all students, at its discretion, but these are not to be construed as certificates of successful completion of training and should carry a caveat stating such.

- 2.19.2.8 Where the further training route is being used as an exemption to the 30 day re-test of failed examination mandate, evidence of the further training delivered and received is required. Where an ATO delivers such training a certificate of “Supplementary” training shall be issued by the ATO.

2.19.3 Staff Records

- 2.19.3.1 Records shall be raised, updated and maintained for all training staff. They shall be retained for a period of not less than ten years and shall include (as a minimum) records of:

- Experience.
- Qualifications.
- Certification
- Formal training and updating
- Competency assessments

2.20 NDT Equipment

- 2.20.1 The Training Organisation shall maintain a fully documented system for the maintenance and calibration of NDT Equipment. Internal verification of equipment against reference standards, or internal process checking using documented procedures/work instructions, is acceptable in determining the performance and suitability for training equipment. Internal verifications and process checks shall be conducted at planned intervals by ATO staff. Internal verifications and process checks shall be recorded and the records retained for audit purposes.

Note: With regard to equipment used solely for training purposes, the ATO is expected to meet the requirements above. However, the calibrations conducted do not necessarily need to be traceable to National Standards except where personal safety is affected, i.e., in the case of equipment generating, emitting or monitoring ionizing radiations. Calibrations and/or verifications conducted as part of the training delivered may be acceptable providing they prove the reliability and suitability of the equipment in use and are recorded.

2.21 Specimens

- 2.21.1 The Training Organisation shall maintain a fully documented system for the unique identification of each training and examination specimen. This shall include a master record of the position and extent of all defects relevant to the NDT technique for which it is to be used.

2.22 Remote Training Centres

2.22.1 Generic Requirements (All Remote training)

- 2.22.1.1 Approved BINDT training may be conducted at facilities or locations remote from the Approved Training Organisation’s Base facility.
- 2.22.1.2 Remote Training may only be conducted by fully Approved ATOs – i.e. ATOs who have successfully completed the Initial Stage 2 Assessment and been issued with a full 3 year approval.
- 2.22.1.3 Remote training may be conducted at the following location types for which the requirements of this standard vary slightly.

- Further permanent facilities/locations operated directly by the same body as the controlling ATO
 - At Client or customer premises
 - At venues rented/leased by the controlling ATO (hotels, conference facilities etc.)
- 2.22.1.4 In respect of all three location types given above the ATO shall apply to BINDT in advance of any training conducted in order that the location can be approved and entered on the RTC database. Failure to notify BINDT in advance may lead to training being declared invalid.
- 2.22.1.5 All remote training shall be conducted in accordance with the quality system and operational procedures of the controlling ATO.
- 2.22.1.6 Training shall be delivered by Authorised tutors listed on the ATO scope of approval who shall travel to the RTC to administer the training.
- 2.22.1.7 The responsibility for ensuring that the remote facilities meet BINDT requirements in terms of the training environment, classroom aids, equipment and training specimens remains with the controlling ATO. With regard to equipment the ATO shall ensure that the full range of equipment, as mandated by BINDT, is available. BINDT may give concessions, at their discretion, on a case by case basis and applications for any concession shall be made in advance to BINDT for approval or otherwise. This contingency is for exceptional circumstances only and should not be regarded as standard policy.
- 2.22.1.8 The control of the RTC in terms of training delivery, competence, security, impartiality and integrity also remains with the controlling ATO.
- 2.22.1.9 The controlling ATO shall conduct premises/facility/equipment audits on each remote location prior to conducting any training. The ATO shall assess the suitability of any permanent or fixed infrastructure, equipment (inventory, control maintenance calibration) and overall facilities
- 2.22.1.10 Where the controlling ATO has provided training materials for use in remote training, these shall where practical, be returned to the controlling ATO upon completion of the training. Where this is not practical and training materials, especially specimens, are stored at a RTC then the ATO shall be responsible for security arrangements to ensure unauthorised access is prevented.
- 2.22.1.11 BINDT reserves the right to visit and or assess RTC's at their discretion and without warning.
- 2.22.2 ***Remote training delivered at further permanent facilities/locations operated directly by the same body as the controlling ATO (additional specific requirements)***
- 2.22.2.1 BINDT monitors ATO control of its own RTCs through fully documented and planned oversight of the RTC compliance audits carried out by the responsible ATO, which is required to provide BINDT with dates and details of RTC audits planned for each calendar year. BINDT may select, without prior notification, planned RTC audits which may then be subjected to BINDT witness in order to determine the competence of the audits carried out. The cost of the BINDT oversight will be borne by the responsible ATO. Should the planned RTC audit not be carried out as notified in the ATO audit plan, BINDT will still charge the expenses incurred regarding the planned oversight.
- 2.22.2.2 The ATO shall conduct an internal audit of its own RTCs at intervals not exceeding 12 months. The initial audit shall be conducted within 6 months of the date of initial RTC approval. Records of such audits shall be retained for BINDT review during assessments of the controlling ATO.
- 2.22.2.3 If six or more training events are carried out at an ATO operated remote training location in any twelve month period the training coordinator shall notify BINDT and the remote training centre shall be expected to apply to be an ATO in its own right under the criteria laid down in this document.

2.22.3 Ad-hoc training conducted at rented or hired venues

- 2.22.3.1 When the ATO conducts training at rented premises (e.g. an hotel or empty unit) where all equipment, specimens, tutors etc. are moved to/from the main facility, these facilities are not subject to the maximum 6 courses per annum limitation and do not need to be approved as an ATO.
- 2.22.3.2 The ATO shall retain detailed documented records of transits and movements to and from the main facility and the rented venue. These records shall include lists of equipment and specimens shipped or transported. The records must be made available for review at scheduled BINDT assessments.
- 2.22.3.3 The ATO shall inform BINDT in advance of each subsequent training session or course using the form APP/1 below.
- 2.22.3.4 The ATO shall also conduct a facilities audit each time training is conducted. This audit must verify that the rented facilities provide conditions and an environment conducive to the delivery of the training and that teaching aids such as blackboards/whiteboards or flip charts, overhead and/or slide projectors, computer generated presentations and video equipment appropriate to the course are available.

2.22.4 Remote training conducted at Client premises

- 2.22.4.1 When the ATO conducts training at client premises and where all equipment, specimens, tutors etc. are moved to/from the main facility, these facilities are not subject to the maximum 6 courses per annum limitation and do not need to be approved as an ATO. Where the client provides any of the resources detailed above, then, the 6 course rule may apply and prior confirmation from BINDT shall be sought to clarify each individual occurrence.
- 2.22.4.2 The ATO shall retain detailed documented records of any transits and movements to and from the main facility and the rented venue. These records shall include lists of equipment and specimens shipped or transported. The records must be made available for review at scheduled BINDT assessments.
- 2.22.4.3 The ATO shall inform BINDT in advance of each subsequent training session or course using the form APP/1 below.
- 2.22.4.4 The ATO shall also conduct a facilities audit each time training is conducted. This audit must verify that the client facilities provide conditions and an environment conducive to the delivery of the training and that teaching aids such as blackboards/whiteboards or flip charts, overhead and/or slide projectors, computer generated presentations and video equipment appropriate to the course are available.
- 2.22.4.5 Where the Remote training is conducted in association with a NANDTB Outside Agency Approval and the training conducted utilises the client's own equipment, The ATO shall ensure that the minimum equipment requirements of CP8 are met. In such cases the ATO facilities audit shall verify an acceptable equipment availability. Where the client facility is UKAS 17025 Accredited and/or Nadcap Approved (in the methods in which training is to be delivered) it is acceptable to assume that the equipment requirements are met. The ATO shall note the approvals on the facilities audit.
- 2.22.4.6 Where the Remote training is conducted in association with a UK NANDTB Outside Agency Approval. The ATO shall conduct facilities audits as required under UK NANDTB requirements, the records of which shall be made available for review during Outside Agency assessments. During ATO assessments evidence of a current Nadcap certification, in the relevant methods, may be accepted as evidence of acceptable practical facilities

2.23 E-Learning/Blended Learning

2.23.1 Definition: Remote training conducted by electronic means may be referred to as:

- E-Learning
- Online Training
- Blended Learning

- 2.23.2 The possibility for delivery of E-Learning is open to all current ATOs. However during the initial 12 month development/trial period approval will be restricted to UK based ATOs only. During the initial stage roll-out, applications for E-Learning approval are restricted to Level 1 and Level 2 training only as these levels follow a pre-determined and approved PCN/BINDT syllabus.
- 2.23.3 BINDT does not formally approve individual Level 3 training due to the lack of defined syllabi and the fact that Level 3 training is bespoke and designed to meet the specific individual's needs. If the ATO is already approved to deliver bespoke L3 training on their scope of approval, the ATO may prepare and deliver that training in whatever manner it wishes providing the individual's training needs are established, a training plan is devised and the individual is trained to a level appropriate to the preparation required to meet any examination needs (i.e. the established training needs are met). As with current classroom based training the ATO needs to retain evidence of the pre-training review, the resultant training plan and records of the training delivered. These records would need to be available during BINDT assessments.
- 2.23.4 ATO's are permitted to conduct E-Learning for the **theory** parts (only) of BINDT approved training under the conditions detailed in this Section. Where not specifically addressed, modified or deviated from in this Section the core requirements of the main body of CP08 shall still apply.
- 2.23.5 Approval to conduct E-Learning is subject to BINDT audit and formal approval. BINDT Approval shall be awarded on a method, sector and certification level basis as for classroom training. E Learning method and level approvals shall appear as a separate entries on the ATO Scope of Approval. The holding of a current BINDT ATO approval for classroom training **does not** give the ATO approval to conduct online training.
- 2.23.6 E-Learning content shall fulfil the requirements of the existing syllabus for the course being undertaken, and shall be of an equal and appropriate technical level as that of the approved classroom based course material.
- 2.23.7 The content shall be validated in the same way as classroom based course material, i.e. the certification body shall be provided access to the online resources to enable the validation process to be conducted by, an appropriately knowledgeable individual appointed by that certification body. All online training material is subject to formal BINDT approval.
- 2.23.8 The online element of the course shall not detract from the importance and essential aspect of the practical skills required to conduct that method and shall therefore be limited to theory, concepts, and simulation/animation of the practical aspects as a way of enhancing the theoretical understanding of the method and or technology involved.
- 2.23.9 The online training shall take the form of a series of modules such that each learning aspect of the syllabus is covered in a logical manner, as it would be taught in a classroom environment.
- 2.23.10 Online training material shall consist of a suitable mixture of; auditory, visual, and kinaesthetic, varying the material with animations, video clips and interactive exercises in order to accommodate for the different learning abilities and needs of students.
- 2.23.11 The student shall be issued with a full set of course notes similar to those issued to classroom trainees. These may be in the form of hard copy or via electronic download. These shall become the property of the student to provide reference material for revision purposes.
- 2.23.12 An essential aspect of the online element of the course is that it is recognised and compliant for the award of certification. Therefore, there shall be a mechanism to ensure that the appropriate training hours are met and recorded. This may be achieved with timers set in the software which don't permit progress to next page until an appropriate amount of time has been spent on that learning point or by other appropriate means.
- 2.23.13 Continual assessment tests shall be embedded into the E-Learning package to allow the ATO to monitor the candidate's understanding of the material learnt. The system may give automatic results to the candidate or be marked by the tutor. Irrespective of the marking method, tutors shall have access to the results to determine whether the student requires further support (counselling), in the same manner as a classroom based tutor would mark and debrief on continual assessments.

- 2.23.14 The E-Learning system must have a means to record tutor/student contact especially in relation to counselling of underperforming students. Benchmarks for mandatory counselling established for classroom training shall equally apply to online training.
- 2.23.15 The ATO shall ensure that there is a process in place to ensure that students have access to a tutor when required. This may be achieved by electronic, verbal or other means but shall be established to ensure students get responses in good time so as not to delay the learning process. The guaranteed response timeframe shall be at the discretion of the ATO but BINDT considers 24 hours to be a reasonable response timeframe.
- 2.23.16 Once the candidate has completed all modules, the ATO shall administer an end of theory training assessment. The tutor will decide from the result whether the student can proceed to the in-class element, or needs further theory study before attending the ATO for practical training.
- 2.23.17 Once the online part of the training course is completed the student is required to attend the ATO to complete the practical training element of the course (see note below). The practical training shall take place at the same ATO that delivered the online theory element. This is to ensure continuity of the training and to ensure that the course in its entirety is documented in accordance with BINDT requirements. Attendance at the ATO for practical training shall be within 60 days of completion of the online training element.
- Note: Attendance at another ATO within the same Group as the providers of the on-line training is permitted for the practical aspect of the training. These ATOs must be under the same name and QMS control as the on-line provider.
- 2.23.18 The practical training aspect of the overall course shall equate to a minimum of 50% of the minimum training hours mandated by ISO 9712 (by method).
- 2.23.19 Upon arrival for the practical training element the ATO shall have a process in place to ensure that the individual who has arrived for the practical aspect of the course, is indeed the individual who completed the on-line element of the training.
- 2.23.20 Upon arrival for the practical training, students who have completed the online theory training shall be subject to a closed book theory assessment consisting of a minimum of 30 questions. This assessment shall not be a pass/fail test and is merely designed to enable the ATO to assess the student's level of knowledge and understanding of the theoretical element of the training subject and thus allow the ATO to identify areas of weakness requiring further tuition or counselling. This test and any ensuing further tuition or counselling shall be documented and retained in the student records.
- 2.23.21 Security of the on-line material needs to be at an appropriate level and cover the following as a minimum:
- Personal Data protection
 - Virus/Cyber Attack
 - Unauthorised amendment of the content
 - Loss of information (candidate is part completed and all data is lost or system suffers a crash)
- 2.23.22 Access to online training materials shall be controlled and restricted by the ATO. Students shall have unique access details and shall only have access to the online material for the duration of the training. The duration of training may be to the point of taking resultant PCN examinations but under no circumstances shall exceed 3 months. The ATO shall have a process in place to control and restrict access including the removal of access permissions.
- 2.23.23 The ATO shall ensure that student access is limited and unique to one student only. The ATO shall ensure that said access codes are controlled and issued accordingly.
- 2.23.24 The ATO shall ensure the following in relation to the online training materials
- All training material should be available to the student for the duration of the whole course.
 - The online training material shall be fully supported from an IT perspective.

- Material shall be capable of running on low bit rate internet connections to ensure candidates with the lowest internet speeds are not disadvantaged
- The ATO shall have subject matter specialists available to offer support as required above, and ensure all online material remains current

2.24 Fast Track Experience

- 2.24.1 ATOs are permitted to participate in the BINDT Fast-Track Experience process. An extension to the ATOs BINDT scope of Approval is required prior to the ATO implementing a fast-track process. Participation shall be in accordance with BINDT/PCN document CP28. The ATO shall have a fully documented procedure detailed the process it utilises and applies to control the Fast Track Work Experience Programme.
- 2.24.2 Specimens used for testing during the fast-track experience process shall not be the same specimens that the controlling ATO or AQB uses for programmed PCN examinations. Specimens identified as training specimens may be used in the fast-track process, however the candidate shall not have had previous access to the specimens used for fast-tracking (i.e during his/her training).
- 2.24.3 ATO's are expected to retain fully documented records of all candidate fast-track experience gathering. These records shall be available during scheduled BINDT ATO Audits. These records shall be traceable to individual students/candidates and shall include as a minimum.
- a) Student/candidate details
 - b) Applicable NDT Method and Sector
 - c) Start and end dates for the experience gathering process
 - d) Copies of all Appendix 2 type reports for all specimens attempted during the fast-track experience gathering
 - e) Completed PSL/30 forms as detailed CP28

2.25 Control of Substances Hazardous to Health (COSHH)

- 2.25.1 Disposal of chemicals used in the operation of training courses shall be carried out in accordance with applicable national regulations. A disposal register shall be maintained.

3. Audit & Approval Process

- 3.1. Upon receipt of a correctly completed application (Appendices 1-3 inclusive), BINDT shall appoint competent auditor(s) to carry out a documentation review which shall include:
- 3.1.1. A review of the application and supporting material supplied.
 - 3.1.2. Assessment of modules for training course validation.
 - 3.1.3. Assessment of the applicant's quality management system for compliance with this document.
- 3.2. If the results of the review are satisfactory, the appointed auditor shall carry out a stage 1 on-site initial assessment of the applicant organisation to confirm that the infrastructure and resources comply with the requirements for BINDT approval. Where possible this will take place within 6 months of receipt of the application.
- 3.3. After any agreed corrective actions relating to findings identified during the stage 1 audit have been implemented, and the organisation is finally confirmed to be complying with all applicable requirements, a report and recommendation for BINDT Approval shall be made by the appointed lead auditor to the Certification Department.
- 3.4. The authority to grant approval rests entirely with the Certification Management Committee. Should the Certification Management Committee, or their authorised agent, consider that the applicant Training Organisation and associated course modules comply with the minimum requirements, approval by BINDT will follow. If not, BINDT shall not be obliged to give reasons for withholding approval though, wherever practicable, the maximum assistance shall be given to Training Organisations prior to any subsequent audit.

- 3.5. After approximately six months of operating as an ATO, the organisation shall be subjected to a stage 2 initial assessment. This audit shall seek to confirm continuing compliance with the requirements by sampling records raised during the delivery of validated training. If successful in the initial stage 2 assessment, including the submission of any agreed corrective action evidence, the Training Organization will be issued a Certificate of Approval which includes a detailed schedule listing the locations and availability of BINDT validated training courses. This information will also be uploaded to www.BINDT.org
- 3.6. Wherever remote training centres are proposed, a Remote Training Centre (RTC) associated with an ATO shall apply for approval to RTC status on the relevant application form given in Appendix 1. The RTC is managed by the controlling ATO.
- 3.7. ATO are entitled to display the British Institute of Non-Destructive Testing Approval Logo (as shown on the title page of this document) and will receive a frameable certificate to promote their business as a BINDT ATO. A copy of the BINDT logo can be obtained at request directly from BINDT's publishing department info@bindt.org.
- 3.8. Ongoing compliance with the requirements shall be confirmed during each three year approval cycle by annual surveillance and full reassessment.
- 3.9. Surveillance shall be carried out on an annual basis by the appointed lead assessor who will examine the way in which training is conducted on site, including review of student records and files, and the site itself. At the discretion of BINDT, random and un-notified site visits may be carried out.
- 3.10. Reassessment involves confirmation by a BINDT appointed audit team that the Requirements continue to be complied with. Reassessment is undertaken not less than three months prior to ATO certificate expiry.
- 3.11. Based upon the recommendation of the assessor and with the approval of the Certification Department, for particular ATO BINDT may at its own discretion amend the approval cycle to biennial (two yearly) reassessment* with no intervening annual surveillance. This waiver is purely at the discretion of BINDT and will only be considered for those organisations that have achieved a full three year cycle with relatively few or only minor findings.

*NOTE: ATO that have gained BINDT Quality Management System certification of compliance with ISO 9001 shall remain on the three yearly Approval cycle, maintained in phase with their ISO 9001 certification.
- 3.12. Guidance on the audit/assessment process is given in BINDT document CP10.

4. Validation of Training Courses

4.1. Validation of Levels 1 and 2 training courses

- 4.1.1. The purpose of course validation is to ensure that the specified objectives of the course are met and that the course satisfies the requirements of the certification scheme document PCN GEN and its associated requirements or other specified requirements with which it is aligned (if any).
- 4.1.2. Most courses that are validated will be for training prior to PCN examinations but that need not always be the case. For instance if an ATO has a requirement to train candidates to perform a range of well-defined tasks, then a training course could be designed, and subsequently validated by BINDT as meeting those requirements and would be listed under part 2 of the approval list.
- 4.1.3. The Certification Department routinely validates training courses at Level 1 and Level 2 following technical review. Courses are validated as meeting specific requirements, (generally defined in terms of an examination syllabus) and the object of the exercise is to ensure that all aspects of the syllabus are addressed within the training course at a suitable level and depth.
- 4.1.4. Training Course material shall be submitted electronically for validation by providing a completed application form (APP/2 - Appendix 2) for each course, together with a complete set of course notes (with supporting literature if necessary) and the relevant fee. Training Courses need not necessarily be aligned with a certification scheme but in all cases the purpose and objectives of the course must be clearly stated. Courses validated to be compliant with PCN GEN specifications can be considered as pre-requisite to sit a PCN GEN qualification examination, after the candidate has successfully passed the training.

- 4.1.5. Courses are in general accredited for Training Organisations that have gained Approval under the Institute's Approval Scheme. Such courses are usually conducted on a commercial basis and are readily available to the public. Where courses are run as in-house training on a non-commercial basis or as client specific, the Certification Department may be willing to accredit the course modules as separate entities, without the need for full Approval.

4.2. Validation of Level 3 training courses

- 4.2.1. For Levels 1 and 2 the training syllabus is well defined, therefore a training course can be designed to cover those areas of learning. This works well for Level 1 and Level 2 training but it does not work at Level 3.
- 4.2.2. Level 3 candidates need to be well versed in a very broad range of knowledge and should be familiar with Product Technology, the general principles of four other NDT methods, and NDT Procedure Writing.
- 4.2.3. The way that BINDT addresses this dilemma is to define three main requirements that training centres must meet if they are to be recognised as providers of Level 3 training:
- i. The tutors must be Level 3 certified.
 - ii. The training school must have available the defined essential reading material.
 - iii. There must be a system in place whereby candidates are assessed on arrival, (or beforehand), in order to identify the gaps in their knowledge. The training course must then be specifically designed to address those areas of weakness.
- 4.2.4. The course content must be designed as a bespoke product, suited to a particular individual. Any training establishment that meets the three requirements set out above may request that BINDT recognises that they are capable of offering Level 3 training courses and once proven at audit can be listed under part 3 of the approval list but **will not** be included on their certificate of approval.

5. ATO Certificate Validity

- 5.1. Approval given under the scheme shall have a validity of three years (or two years where a full cycle of surveillance and reassessment has resulted in few or only minor nonconformities) subject to the maintenance of proper standards.
- 5.2. The ATO Certificate, which remains valid subject to satisfactory annual surveillance and periodic reassessment, remains the property of BINDT and can be withdrawn at any time where justified. All ATOs will be added to the BINDT approval list, thus providing proof of validity and verification of an ATO certificate.
- 5.3. Should major changes occur in BINDT policy, the ATO will be informed and a period of adjustment, usually three months, will be allowed for the ATO to conform to the changed policy.
- 5.4. Where changes occur in ATO personnel, documentation, facilities or operating procedure, which may affect the validity of approval, BINDT shall be informed without delay. Failure to do so may result in a refusal to renew ATO status.
- 5.5. Due to business fluctuations there may be periods during which training courses are not run, particularly at smaller ATOs. If no courses are held during a 12 month period then BINDT shall be advised of the situation. Every effort will be made to ensure that ATO status is maintained, but checks may be necessary prior to the next course being conducted to ensure that the training facility has in fact become fully operational.

6. Extensions

- 6.1. Validation of additional course modules, subsequent to the initial visit, may require a further audit which may fall outside the sequence of an established audit cycle. The additional modules shall be submitted to BINDT electronically for review and validation. A copy of the curriculum and course notes, a list of equipment, specimens, tutor qualifications and a correctly completed application for extension form (See form APP/3 – Appendix 3), together with the current published fee, shall be provided to BINDT before the validation process is initiated.

- 6.2. Where the Organisation delivers validated training at locations remote from its base (RTC), the Organisation shall notify the BINDT of these locations by completing relevant sections of form APP/1 (see Appendix 1). The ATO Training Coordinator shall be responsible for ensuring that the requirements of this document are met in their entirety at all remote locations. If 6 or more advertised training events are carried out at a remote training location in any twelve month period the training coordinator shall notify BINDT and the Remote Training Centre shall apply to be an ATO under the criteria laid down in this document (see clause 2.6).
- 6.3. If an extension application is received for Level 2 approval and/or Level 3 recognition, then the ATO must already be approved for the lower level of this scope or they shall apply for the lower level also.

7. Audit Findings - Closure Process

- 7.1. Following completion of BINDT audits, the Lead auditor will present and agree the findings & observations raised with the Auditee (ATO). As part of the closure process timescales for presentation of root cause analysis and proposed corrective actions together with the final presentation of objective evidence for the actions taken will be agreed. Failure to complete the agreed process or actions within the agreed timescales may affect the Organisation's approval status potentially leading to Approval suspension or withdrawal (at the discretion of BINDT). The closure corrective action process is detailed in the process flow given in figure 2.

Figure 1.

Approval of Training - System Diagram

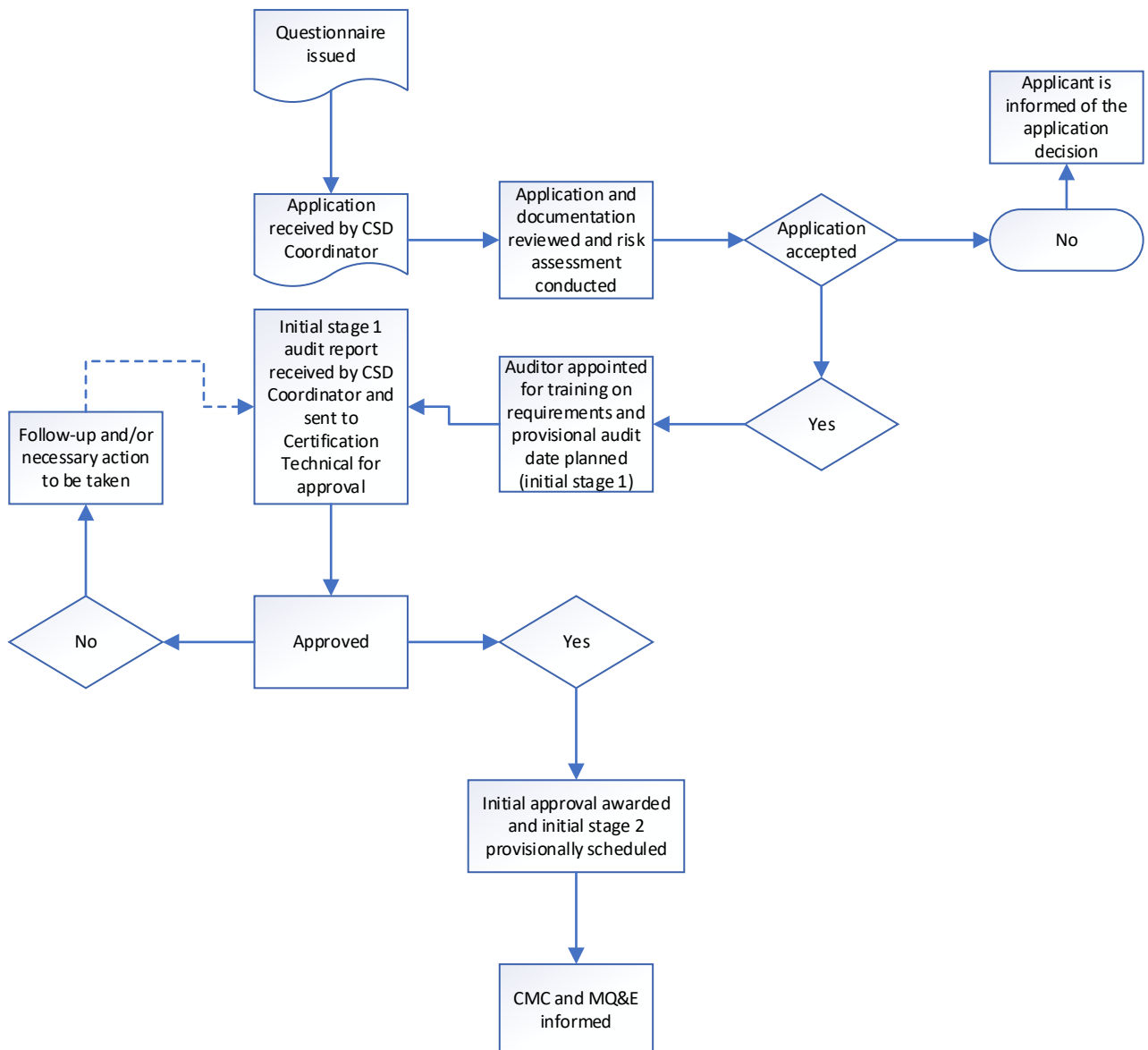
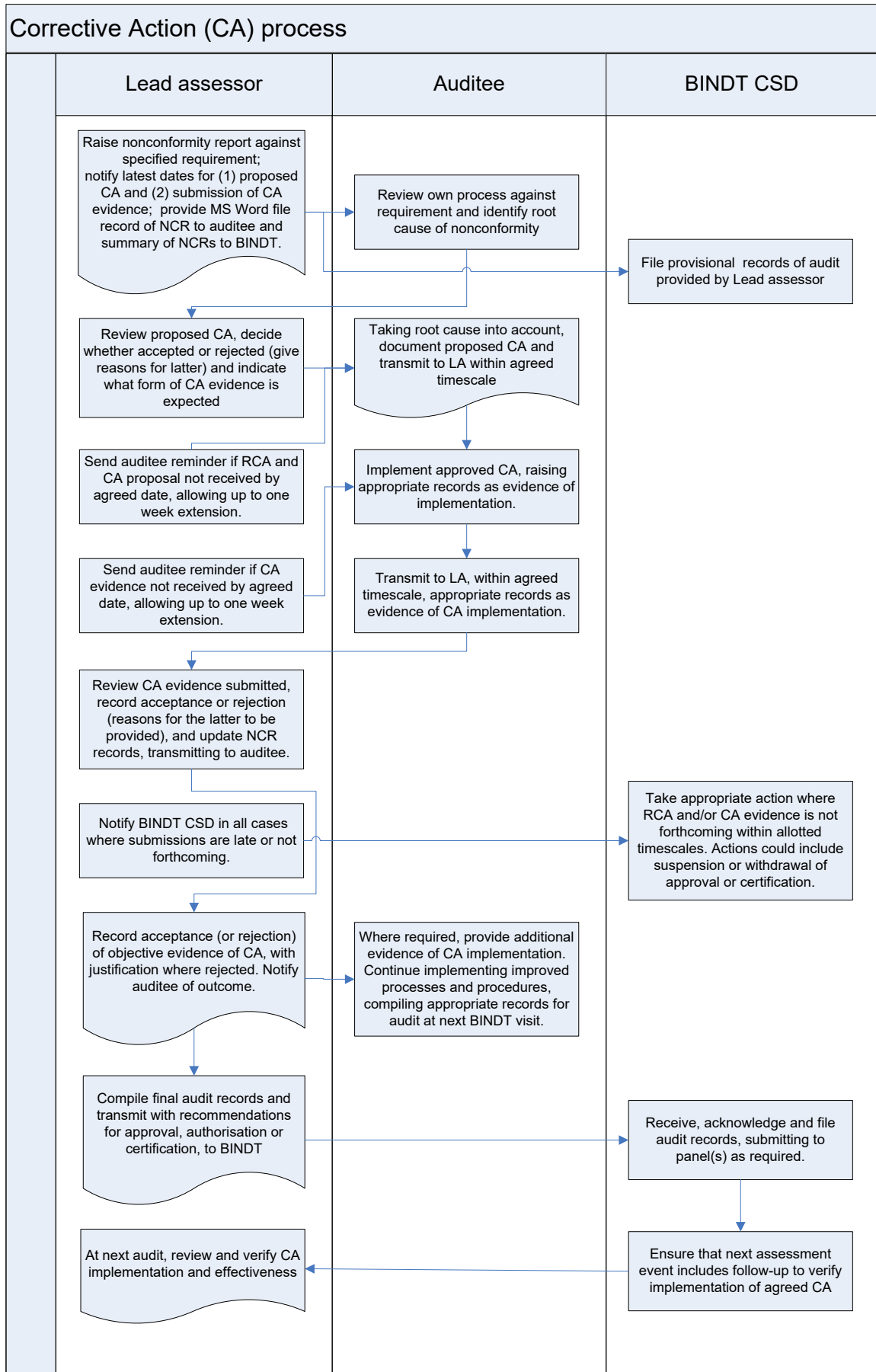


Figure 2.
Audit Findings – Corrective Action Process



ANNEX A - Training Certificates and Data Sheets

This annex details the required minimum content and recommended formats for training certificates to be provided by the Training Organisation following successful completion of training

A1. Training certificates aimed to providing evidence of eligibility for ISO9712 examinations

Minimum content

- Name and Address of the ATO & Training Location
- ATO status in respect of BINDT approval
- Student name
- NDT method & level
- NDT techniques & methods
- Statement of successful completion
- Certificate format document control reference
- Reference to syllabus
- Certificate Number
- Course dates
- Duration in training hours
- Name of tutor
- Date of issue
- Name of ATO Authorised signatory
- Position of Authorised signatory
- Signature of ATO Authorised signatory

The certificate should also contain a statement that “successful completion of this BINDT Accredited course conducted at an Approved Training Organisation may be used as evidence of eligibility for PCN examination”

An example of a recommended training certificate is given on page 19. This is for guidance only and the ATO may prepare its own certificate format providing the minimum content requirements, given above, are met.

A2. Examination/Training certificates for 2nd party formal qualification examinations following successful completion of training.

The certification/documentation issued may be as follows

1. A training certificate supplemented by an examination data (results) sheet, the combination of which include all the required content detailed below

Or

2. A combined training & examination certificate containing all the required content as detailed below

Minimum Examination certificate & data

- Name and Address of the ATO & Training location
- ATO status in respect of BINDT approval
- Candidate name
- Candidate’s employer
- NDT method & level
- NDT techniques & methods
- Examination results (by module)
- Composite examination result (grading)
- Examination result (Pass/Fail)
- Date of examination
- Reference to specifications related to specific module
- Certificate Number
- Name & Signature of examiner
- Name of ATO Authorised signatory (optional)
- Position of Authorised signatory
- Signature of ATO Authorised signatory (optional)
- Date of issue
- Cross reference between certificate & data sheet if dual documents used
- Statement of limitations (if applicable)
- Certificate format document control reference

An example of a recommended Examination certificate for 2nd party examinations following successful completion of training is given on page 20. This is for guidance only and the ATO may prepare its own certificate format (supplemented by an examination data (results) sheet, if preferred, providing the minimum content requirements, given above, are met in either the certificate and/or the certificate and data sheet combination



COMPANY NAME
COMPANY ADDRESS



APPROVED TRAINING ORGANISATION

CERTIFICATE OF TRAINING

This certificate of training is awarded to

CANDIDATE NAME

Who has successfully completed a BINDT accredited training course in the following test method and to the level stated

MAGNETIC PARTICLE TESTING

LEVEL 2

SECTOR: PRE & IN-SERVICE INSPECTION

COURSE DATES: DD to DD/MM/YYYY

EQUIPMENT: PORTABLE & FIXED INSTALLATIONS

COURSE DURATION (hours):

TECHNIQUE(S): COLOUR CONTRAST & FLUORESCENT

COURSE TRAINER:

SYLLABUS: CERTIFICATE NUMBER:

TRAINING LOCATION:

DATE OF ISSUE: DD/MM/YYYY

For and on behalf of **COMPANY NAME**

NAME:

SIGNATURE:

POSITION:

Successful completion of the BINDT Accredited course conducted at an Approved Training Organisation may be used as evidence of eligibility for PCN examination.

Annex A2. Example of a recommended Examination/Training certificate for 2nd party formal qualification examinations following successful completion of training. This is for guidance only and the ATO may prepare its own certificate format (supplemented by an examination data (results) sheet, if preferred, providing the minimum content requirements, given above, are met in either the certificate and/or the certificate and data sheet combination



COMPANY NAME
COMPANY ADDRESS



APPROVED TRAINING ORGANISATION

CERTIFICATE OF TRAINING & EXAMINATION

This certificate of training is awarded to

CANDIDATE NAME

Who has successfully completed a BINDT accredited training course and an examination conducted in accordance with SNT-TC-1A and [EMPLOYER NAME] Written Practice XXXXXXXXX in the following test method and to the level stated

MAGNETIC PARTICLE TESTING

LEVEL 2

SECTOR: **PRE & IN-SERVICE INSPECTION**

EQUIPMENT: **PORTABLE & FIXED INSTALLATIONS**

TECHNIQUE(S): **COLOUR CONTRAST & FLUORESCENT**

TRAINING LOCATION:

COURSE DURATION (hours):

COURSE TRAINER:

EXAMINATION (GENERAL): XX%

EXAMINATION (SPECIFIC): XX%

EXAMINATION (PRACTICAL): XX%

EXAMINATION (COMPOSITE): XX%

EXAMINATION RESULT: PASS/FAIL

EXAMINATION DATE: DD/MM/YYYY

For and on behalf of **COMPANY NAME**

COURSE DATES: DD to DD/MM/YYYY

EXAMINER NAME:

NAME:

CERTIFICATE NUMBER:

SIGNATURE:

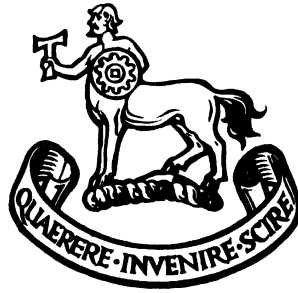
POSITION:

DATE OF ISSUE: DD/MM/YYYY

SIGNATURE:

Successful completion of the BINDT Accredited course conducted at an Approved Training Organisation may be used as evidence of eligibility for PCN examination.

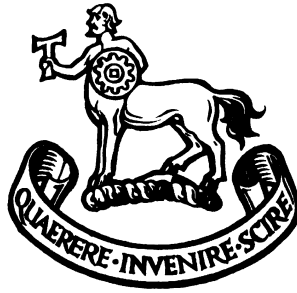
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The following appendices, which were included in previous versions of CP08, are now available as separate documents under their own control arrangements:

- CP08 Appendix 1: Application Form for new (proposed) Approved Training Organisations (ATO) Or Remote Training Centres (RTC)
- CP08 Appendix 2: Method Specific Checklist for new (proposed) Approved Training Organisations or Remote Training Centres
- CP08 Appendix 3: ATO/RTC Application form for Training in additional NDT Methods (Extension to scope)

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Appendix 4: BINDT NDT Audit Checklist – CP08A

Minimum Requirements for the Structured Training of Non-Destructive Testing Practitioners

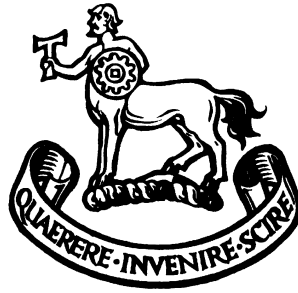
1. Foreword

The checklist designed for use during the assessment of ATOs is now available as a separate document, CP08A. The CP08A checklist is based upon CEN Technical Report 25108, which is implemented within the British Institute of Non-Destructive Testing Approval Scheme for Training Organisations wishing to provide industry with an assured quality of tuition in the main NDT methods.

2. Scope

This CP08A checklist replicates BINDT's Minimum Requirements for the Structured Training of NDT Practitioners as detailed in this document (CP08), and provides auditors of Training Establishments with a mechanism for recording observations during audits. It also provides a useful checklist for Training Establishments preparing for audit by BINDT, as well as for internal auditing purposes.

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Appendix 5 – Minimum equipment holdings for BINDT Approved Training Organisations (ATO)

SCOPE

This document prescribes the minimum equipment holdings essential for the operation of a training organisation preparing candidates for third party certification. It is based upon the minimum guidelines detailed in PD/CEN/ISO/TS/25108/2018. It details the minimum equipment for the following NDT inspection methods.

1. Ultrasonic Testing including Time of flight Diffraction (TOFD) and Phased Array
2. Radiography (Conventional & Computed)
3. Eddy Current Testing
4. Magnetic Particle Inspection (Multi-sector)
5. Liquid Penetrant Inspection (Multi-sector)
6. Visual Testing
7. Alternating Current Field Measurement (ACFM)
8. Rail Testing
9. Railway Axles and Wheel-sets
10. Weld Inspection

GENERAL

The ATO shall hold sufficient relevant test equipment, probes, reference blocks, calibration blocks, etc., to provide for a stated number of students on any one training course.

Details of designated training equipment must be submitted to BINDT upon request.

The ATO shall, as far as practicable, maintain all such equipment in a serviceable condition and provide for its maintenance and overhaul as necessary.

Existing ATOs are to record any changes in equipment holdings to BINDT. If a significant reduction in equipment holdings is planned, this may result in a change in the scope of approval and must be notified beforehand.

A5.1 Ultrasonic Testing

- A5.1.1. Sufficient ultrasonic flaw detectors (based on perceived maximum class size) and
- A5.1.2. A full range of probes appropriate to the techniques to be trained, including any special purpose probes where required.
- A5.1.3. Calibration blocks and reference blocks appropriate to the techniques to be trained.

Time of Flight Diffraction

- A5.1.4. TOFD data collection instrument, including specific connecting cables for data to be displayed on a computer.
- A5.1.5. Computer with compatible software to interact where necessary with the TOFD instrument and read the TOFD data.
- A5.1.6. TOFD scanner to include probe jig and line encoder.
- A5.1.7. A pair of 5 MHz transducers with matching wedges producing centre beam refracted angles of 45°, 60° and 70°.
- A5.1.8. BS 2704 type A2 or BS EN 12223 calibration block no. 1.
- A5.1.9. Connecting cables for all parts of the equipment.
- A5.1.10. Water-based couplant.

Guidance Note: Where necessary the equipment may be loaned/hired by the equipment manufacturer or employer of students for use during training.

Phased Array

- A5.1.11. Sufficient UT Phased Array (PA) data collection instruments, enabling data to be displayed on a computer, for the maximum number of students that the ATO will register for any one course.
- A5.1.12. Computer(s) with compatible software to interact where necessary with the PA instrument(s) and read the acquired PA data.
- A5.1.13. PA scanner(s) to include probe jigs and line encoders
- A5.1.14. BS 2704 type A2 or BS EN 12223 calibration block no. 1
- A5.1.15. Connecting cables for all parts of the equipment
- A5.1.16. Water based couplant
- A5.1.17. Transducer sets (62 and 32 element – 2.5 and/or 5 MHz) for each PA instrument:
- A5.1.18. Appropriate wedges and adaptors

A5.2 Radiography

- A5.2.1. At least one X-ray tube with a KV range appropriate to the materials to be tested.
- A5.2.2. For gamma radiography (where appropriate) an appropriate source, with suitable container and projection mechanism.
- A5.2.3. Suitably controlled exposure rooms or areas.
- A5.2.4. Supply of appropriate radiographic film and processing chemicals
- A5.2.5. A range of Image Quality Indicators (IQI).
- A5.2.6. Lead letters and numbers.
- A5.2.7. Blocking off compounds and liquids where appropriate.
- A5.2.8. Aluminium (Al) and/or Copper (Cu) and/or Lead (Pb) filters where appropriate.
- A5.2.9. Densitometer.
- A5.2.10. Film viewers, including at least one high intensity viewer.

- A5.2.11. Radiation monitor(s) (with traceable calibration).
- A5.2.12. Stepped blocks for making exposure curves.
- A5.2.13. Caliper or other device for measuring material thickness.
- A5.2.14. Darkrooms for film processing and film preparation
- A5.2.15. Darkened room with dimmed lights for film or monitor viewing
- A5.2.16. Viewing aids, such as magnifiers.
- A5.2.17. A manual and/or automatic processing unit incorporating thermostatically controlled developing tank, stop bath, rinsing, fixing and washing tanks.
- A5.2.18. Film drying cabinet.
- A5.2.19. Channel and clip type film hangers in the common sizes. (For manual processing only)
- A5.2.20. Intensification screens in the common sizes/materials.
- A5.2.21. Flexible and rigid type cassettes.
- A5.2.22. Darkroom timer. (For manual processing only)
- A5.2.23. Safelights.

A5.3 RT-D Digital Radiography

- A5.3.1. Suitable Radiation generating equipment appropriate to the materials to be tested
- A5.3.2. Suitably controlled exposure rooms or areas.
- A5.3.3. DR/CR/DDA system or systems (appropriate to training delivered)
- A5.3.4. X-ray image intensifier or DDA;
- A5.3.5. High Definition monitors for image viewing
- A5.3.6. Suitable computer systems for student use – with compatible image processing software
- A5.3.7. Tool(s) for quality control checking of linearity, grey scale, pixel values etc.
- A5.3.8. Simulation files – for data manipulation and interpretation training

A5.1 Eddy Current Testing

Wrought Products and Welds

- A5.1.1. At least one standard single frequency impedance plane instrument and one analogue meter display instrument.
- A5.1.2. Where training incorporates bolt hole testing, one dynamic rotating probe assembly and compatible instrument.
- A5.1.3. Where training is offered for multi frequency boiler tube inspection, one dual frequency impedance plane instrument suitable for testing of the examination samples held.
- A5.1.4. Absolute and differentially wound standard and shielded pencil and spade probes, suitable for testing ferritic and austenitic steels and aluminium alloys.
- A5.1.5. A selection of encircling, internal, bolthole and comparative coil types.
- A5.1.6. Calibration blocks, appropriate to all probe and material types.
- A5.1.7. Where examination of specific components, i.e. Automated/semi-automated testing of steel tubes/condenser tubes, coils/probes and test equipment together with reference test pieces containing relevant holes/notches.

Tube Testing

- A5.1.8. One impedance plane, dual frequency two-channel flaw detector with the ability to mix channels manually. The flaw detector to carry a valid annual certificate of calibration.
- A5.1.9. One two-channel chart recorder having a minimum chart width of 50 mm, with a speed of between 25-50 mm/sec and a nominal 500 Hz frequency response.
- A5.1.10. Calibration tubes type A, B and D from draft inspection ESI 98-15 and produced in test sample material. Tubes to be 25 mm external diameter and 18 g thickness.
- A5.1.11. Eddy current probes of the air cored bobbin type. A minimum of one of each of:
 - Diameter 20 mm minimum 24 kHz nominal frequency and differential mode.
 - Diameter – appropriate to be a sliding fit through a plastic inlet insert and having a flexible (brush type) centring device. 24 kHz nominal and absolute.
- A5.1.12. Appropriate cabling.

A5.2 Magnetic Particle Testing (multi-sector)

- A5.2.1. A bench or freestanding transformer with AC or DC output (and half wave rectified AC) with the capability to magnetise test specimens in the appropriate manner (MF/CF/TB/Coil etc.). The maximum output shall be capable of testing the range of components to be tested.
- A5.2.2. An ink reservoir with feed and/or suitable aerosol based inks
- A5.2.3. AC/DC Electromagnetic Yokes with articulated legs and pole pieces.
- A5.2.4. Permanent magnets with pole piece adaptors suitable for all applications.
- A5.2.5. Various rigid and flexible coils, threading bars etc.
- A5.2.6. Inspection areas or booths equipped with suitable background lighting for visible and UV (A) viewing of samples.
- A5.2.7. Independent or combined photometer & radiometer for measuring the intensity of visible and black light.
- A5.2.8. Demagnetising equipment.
- A5.2.9. Flux measuring and comparison gauges to BS recommendations.
- A5.2.10. Sutherland Flask or Crowe Receiver for measuring solid content of magnetic ink.
- A5.2.11. Dry Powder dispensers
- A5.2.12. Supplies of detection media including non-fluorescent, fluorescent and dry powder.
- A5.2.13. Artificially or naturally cracked blocks/specimens for performance checking.

A5.3 Liquid Penetrant Testing (multi-sector)

- A5.3.1. An effective component cleaning/degreasing facility for thorough cleaning of specimens.
- A5.3.2. A penetrant line comprising:
 - A5.3.2.1. Water washable penetrant tank
 - A5.3.2.2. Post-emulsifiable penetrant tank
 - A5.3.2.3. Emulsifier tank
 - A5.3.2.4. Water rinsing station with spray nozzle
 - A5.3.2.5. Drying station
 - A5.3.2.6. Dust storm cabinet
- A5.3.3. Aerosol liquid penetrant inspection kits comprising:
 - A5.3.3.1. Penetrant remover/degreaser

- A5.3.3.2. Fluorescent penetrant
- A5.3.3.3. Colour contrast penetrant
- A5.3.3.4. Developer
- A5.3.4. Inspection areas or booths equipped with suitable background lighting for visible and UV (A) viewing of samples.
- A5.3.5. Independent or combined photometer & radiometer for measuring the intensity of visible and black light.
- A5.3.6. Artificial flaws (TAM panel) or other means of process control of penetrant line.

A5.4 Visual Testing

- A5.4.1. V blocks.
- A5.4.2. In addition the following shall be provided in adequate quantities (dependent on the number of trainees)
 - A5.4.2.1. Squares, rules, protractors.
 - A5.4.2.2. Micrometers.
 - A5.4.2.3. Vernier calipers.
 - A5.4.2.4. External calipers.
 - A5.4.2.5. Dial reading bore gauge.
 - A5.4.2.6. Hand magnifiers (X2, X5)
 - A5.4.2.7. Lupes with metric scales no greater than X7.
 - A5.4.2.8. Mirrors – various sizes up to 50 mm diameter with fixed and articulating heads.
 - A5.4.2.9. Light sources – penlights, flashlights, bespoke sources to power intrascope and fibrescope.
- A5.4.3. Indirect viewer – either fibrescope or endoscope with forward and side viewing lenses.
- A5.4.4. Photometer.
- A5.4.5. Weld gauges, weld profiles, surface comparator.

A5.5 Alternating Current Field Measurement (ACFM)

- A5.5.1. At least one calibrated ACFM Crack Micro-gauge.
- A5.5.2. QFM Version 2.0 Real Time Data Acquisition and Analysis Software Program.
- A5.5.3. Laptop Computer, Colour Display, Windows 95 and TSC software installed.
- A5.5.4. A full range of ACFM probes appropriate to the tests to be conducted, including any special purpose probes where required.
- A5.5.5. Weld Check Block.

A5.6 Rail Testing

- A5.6.1. Portable ultrasonic flaw detector suitable for manual use and in conjunction with a 070 test rig.
- A5.6.2. Calibration blocks: CB91M, CB87M, Test Rail Section master block (STD2).
- A5.6.3. Rail test rig incorporating a combined laterally adjustable 070 probe array and automatic couplant.
- A5.6.4. Tandem probe rig (for testing alumino-thermic welds) incorporating 2 matched 2.5 MHz 45° single crystal probes.
- A5.6.5. A range of Rail-track approved single crystal probes:

- A5.6.5.1. 2.5 MHz 0° (40/058640)
- A5.6.5.2. 2.5 MHz 40° (40/058641)
- A5.6.5.3. 2.5 MHz 70° (40/058643)
- A5.6.5.4. 2.5 MHz 45° (40/058642)
- A5.6.5.5. 2 matched 2.5 MHz 45° (40/058642)
- A5.6.5.6. 4 MHz 70° miniature (82/998192)
- A5.6.6. A range of Rail-track approved double crystal probes:
 - A5.6.6.1. 5 MHz 0° (40/058644)
- A5.6.7. Ancillary equipment: steel rules, couplant, wire brushes, scrapers etc.
- A5.6.8. Hand held permanent and electromagnetic yokes.

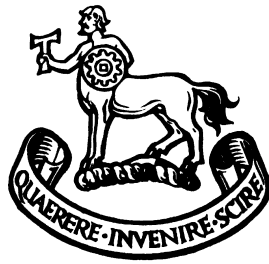
A5.7 Railway Axles and Wheel-sets

- A5.7.1. Approved mains or portable ultrasonic flaw detector (BR2000, BR77 or acceptable commercial alternative)
- A5.7.2. CB88M and CB88I calibration blocks
- A5.7.3. Reference block APT B1 (Drg No. GB/8312)
- A5.7.4. A range of compatible 2.5 MHz rail vehicle axle testing probes:
 - A5.7.4.1. Double crystal: 0°, 5°, 7.5°, 10°, 12.5°, 15°, 17.5°, 37° (hollow ground), 52° (hollow ground)
 - A5.7.4.2. Double crystal horizontal ellipse: 5°, 7.5°, 10°, 12.5°, 15°, 17.5°
 - A5.7.4.3. Single crystal: 37° and 52°, (hollow ground).

A5.8 Weld Inspection

- A5.8.1. The following shall be provided in adequate quantities (dependent on the number of trainees or candidates)
 - A5.8.1.1. Rules.
 - A5.8.1.2. Hand magnifiers (X2, X5)
 - A5.8.1.3. Lupes with metric scales no greater than X7.
 - A5.8.1.4. Mirrors – various sizes up to 50 mm diameter with fixed and articulating heads.
 - A5.8.1.5. Light sources – penlights, flashlights.
 - A5.8.1.6. Weld gauges, weld profiles, surface comparator.

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Appendix 6 – Training Specimen Requirements

(The defect types shown in *italics* would be desirable additions to the basic requirements)

A6.1 Weldments

Courses leading to certification examinations in NDT of welds shall include, as a minimum, samples exhibiting the following discontinuities in varying degrees of severity:

- A6.1.1. Excessive root penetration
- A6.1.2. Incomplete root penetration
- A6.1.3. Heat affected zone cracking
- A6.1.4. Sidewall slag inclusion
- A6.1.5. Lack of sidewall fusion
- A6.1.6. Central crack in weld
- A6.1.7. Transverse crack in weld
- A6.1.8. Porosity (localised and uniform)
- A6.1.9. Lack of root fusion
- A6.1.10. Solidification cracking
- A6.1.11. Lamellar tearing
- A6.1.12. Worm holes
- A6.1.13. Tungsten/Copper inclusions

A6.2 Castings

Courses leading to certification examinations in casting inspection are required to have, as a minimum, samples showing the following features in varying degrees of severity:

- A6.2.1. Gas porosity
- A6.2.2. Dross inclusion/porosity
- A6.2.3. Core blows
- A6.2.4. Misruns
- A6.2.5. Cold shuts
- A6.2.6. Shrink porosity
- A6.2.7. Hot tears

- A6.2.8. Core shifts
- A6.2.9. Segregation
- A6.2.10. Inclusions
- A6.2.11. Cracking
- A6.2.12. Sponginess
- A6.2.13. Air Locks
- A6.2.14. Shrinkage defects (Cavities/Filamentary/Dendritic etc.)
- A6.2.15. Diffraction mottling

A6.3 Wrought Products

Courses leading to certification examinations in inspecting wrought products are required to have, as a minimum, samples showing the following features in varying degrees of severity:

- A6.3.1. Rolled products:
 - A6.3.1.1. Rolling laps
 - A6.3.1.2. Broken or burst corners
 - A6.3.1.3. Inclusions
 - A6.3.1.4. Piping
- A6.3.2. Forgings:
 - A6.3.2.1. Forging burst
 - A6.3.2.2. Forging laps
 - A6.3.2.3. Forging flash
 - A6.3.2.4. Hydrogen cracking
 - A6.3.2.5. Voids
- A6.3.3. Incorrect heat treatment:
 - A6.3.3.1. Reheating cracks
 - A6.3.3.2. Cooling cracks
 - A6.3.3.3. Machining defects
 - A6.3.3.4. Grinding cracks
 - A6.3.3.5. Surface tearing

A6.4 Aerospace

The aerospace industry utilizes all of the aforementioned product technologies and in addition, some others of a more specialised nature such as advanced composite structures, powdered metal components and super plastic formed metals.

NDT trainees from the aerospace industry, who are to be candidates for certification examinations, would be expected to have a general familiarity with the manufacturing defects outlined in paragraphs 1 to 3 above, though not to the same depth as specific product sector candidates.

In addition to those defects, Training Organisations should have a range of defects in components and structures upon which students will be trained and which should include the following:

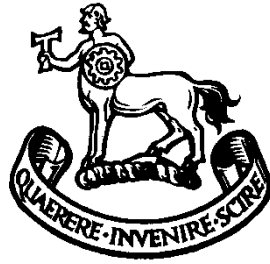
- A6.4.1. Corrosion
- A6.4.2. Stress corrosion cracking
- A6.4.3. Fatigue cracking

A6.4.4. Disbonds in bonded joints

A6.4.5. De-laminations in laminated structures

A6.4.6. Entrapped water freezing damage and other defects in honeycomb structure.

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Appendix 7: NDT APPROVED TRAINING ORGANISATION FEE STRUCTURE

The fees for the assessment and approval of Approved Training Organisations is reviewed annually and a list of fees can be found within PCN document [PSL-35](#).

Appendix 8 -Summary of changes

Issue	Issue date	Summary of changes
3	1 st October 2017	Amendments to the following clauses; <ul style="list-style-type: none"> • Measurement, Analysis & Improvement: 2.6.1.3 • Facilities: 2.12.1.1, 2.12.1.2 and 2.12.1.3 • Remote Training: 2.22 (complete re-write) New requirements; 2.14 Training Staff – Approval of Tutors 2.23 E-learning
4	5 th March 2019	<ul style="list-style-type: none"> • Definitions: Peer Review added • Clause 2.8.3 added (subsequent clauses re-numbered) • Clause 2.12.2.2 added • Clauses 2.14.4 & 2.14.5 added • Clause 2.16.1 amended • Clauses 2.23.2 amended • Clause 2.233.3 added (subsequent clauses re-numbered) Further full review following issue of PD/CEN/ISO/TS/25108:2018
5	1 st June 2020	<ul style="list-style-type: none"> • Full review & update • Changes highlighted in text