



Introduction

To date the previous four articles in the series have covered the current status of the documents relevant to NDT Operator Certification (Article 1); the Written Practice (Article 2); the Responsibility of the Employer and the Level 3 (Article 3) and in April the Levels of Qualification. The April issue also contained a letter from Mr John Thompson reviewing and reflecting on aspects of these articles for which I am most grateful. At this point I should confirm that PCN GEN has now moved to Issue 3 rev. C dated 8/1/2002.

One aspect of his discussion was the concept of training and this leads me into this article's topic – Training Issues.

Training and Education

First of all I would like to clarify my interpretation of these two words – training and education – which should not be confused.

SNT-TC-1A⁽¹⁾, for example, states that 'candidates.....should have sufficient education, training and experience to ensure qualification...' The accompanying Table in SNT-TC-1A provides for differing levels of TRAINING depending upon the level of the candidate's EDUCATION. For example, a High School Graduate or equivalent is expected to have 40 hours training prior to Level 1 Eddy Current Testing; however, completion with a passing grade of at least two years of engineering or science study at a University College or Technical School then recommends a course of training of only 24 hours to Eddy Current Testing Level 1. It is interesting to note that there is no part of this Table, which recommends NDT training to candidates who do not have a minimum education of High School graduate or equivalent. Many a Written practice includes this Table word for word whilst some NDT operators clearly do not have equivalent education in the UK as a 'High School Graduate'. Where does this leave the Employer who is responsible for the work of his NDT personnel?

The PCN⁽²⁾ (EN473⁽³⁾) programme neatly sidesteps this issue by having NO educational requirement at all. Candidates of every level of education achievement - from A Level, even degree level, at one end down to those barely able to read - need the same amount of NDT training.

So Education here is the body of general knowledge acquired by the candidate at school or college prior to receiving specific NDT training.

NDT training being an organised programme developed to impart the knowledge or skills necessary for NDT qualification.

The discussion above leads to widely differing training proposals between EN473 and SNT-TC-1A. For example, every candidate attempting PCN (EN473) Level 2 Liquid Penetrant must attend a training programme of 40 hours, whilst your highly educated candidates for SNT Level 2 in this same method are recommended to attend an 8 hour training programme!!

Training Programmes

'For PCN/EN473 every candidate MUST have successfully completed, prior to making application for examination a BINDT validated course of training at an accredited training establishment...' The document against which these centres are accredited is BINDT Accreditation of NDT Training Establishments, BINDT Issue 4 May 1995.

For Employer based programmes there is nothing like the control on training requirements as prescribed in the BINDT document. In fact this is one area where the Employer based programme lets itself down by failing to clearly define what is acceptable within the Written

Practice. In the letter by John Thompson (April 02), he takes issue with the concept that a Level 3 should be capable of training. I agree with his concern – there is nothing whatsoever in any NDT Level 3 exam which demonstrates a Level 3 is capable of training yet company after company put on their candidate's training record certificates from Level 3s and, in some cases, not even Level 3s who have provided Training Courses in one method or another. ASNT itself, some years ago, proposed an accreditation of trainers programme yet this is currently not available; but with only PCN/EN473 demonstrating this level and quality in NDT training, why should other systems bother?

It is, however, important to note a common theme which will run through this series – the syllabus/training requirement for Central Certification Programmes (EN473/ISO9712⁽⁴⁾) is set and must be followed by the trainer; whereas the Employer based systems allow the Employer to define the training parameters on the specific needs applicable to the NDT work carried out. This is clearly one reason why the SNT training recommendation for PT to Level 2 is just 12 hours (at the High School Graduate or equivalent education level) and the PCN (EN473) requirement is 40 hours – the Employer programme being specific to the NDT operator's needs only. Personally, I believe some of the SNT training hour recommendations, such as this example, cause trainers great difficulty. We recommend the PCN/EN473 hours to Employers as many SNT operators do not have the basic educational level to understand the principles of the method in a short time.

The BINDT Accreditation of Trainers

The special Education and Training issue Insight Dec 2001 has a full article on this topic by the training accreditation scheme manager, Phil Kolbe, and I refer you to it for the complete picture, but briefly this is the philosophy behind the programme:

Administration

The BINDT Accreditation Scheme is administered by the Accreditation Panel of the Membership, Qualification and Education (M, Q and E) Committee. The Accreditation Panel is made up of a mix of personnel, some from training organisations, some from Service Companies with one or two that are in neither camp. In this way it is generally possible to get a balanced opinion even on difficult issues.

Philosophy

The yardstick that is used is that a trainee who is paying for the course with his own money must go away thinking that he has had good value.

Requirements

What does a training school need, in order to become BINDT accredited?

- A quality system - This is to ensure reliability and repeatability.
- Training staff - The training school needs to have staff that are suitably qualified, to a level equal to or higher than that to which they are training. Trainers must also have been trained in instructional techniques, in short they must be able to disseminate information to others.
- Course notes - Course notes must be approved as meeting the appropriate as meeting the appropriate syllabus requirements. A complete set must be provided to each trainee.

Equipment

A minimum equipment requirement is defined for each method. This will be linked to a specified maximum number of trainees.

Calibration

Equipment must be maintained in a useable condition with control checks carried out and recorded.

Specimens

Suitable practical specimens must be available, complete with master plots of defects. A range of defect types is defined.

Standards and Requirements Documents

Trainers must be assessed, both theoretically and practically, to ensure that they are at a suitable level at the end of the training course.

Safety

Safety issues must be addressed. This covers such things as COSHH data sheets, disposal of used chemicals and, where radiography is part of the scope, radiation dose monitoring and recording.

Customer Satisfaction

The number of participating trainers has risen from around half a dozen at the start of the nineties, to 22 at present. Eighteen of these are in the UK, two in Greece, two in Malaysia.

The BINDT scheme is also recognised by such prestigious organisations as Rolls-Royce and BAe. So, when you have need to train NDT personnel you can have confidence in one that holds BINDT accreditation, having understood what is behind the accreditation mark.

It is my submission that everyone working with a National Certification programme should have, alongside that programme, an accreditation of trainers programme based on this as provided by BINDT.

It would follow that candidates for the National NDT exam must attend a course at an accredited centre and this, in one single action, would raise the quality of NDT personnel around the world.

Level 3

Most of this article has been related to training for the Level 1 and 2 personnel, however the BINDT scheme has been extended to provide for recognition of Level 3 trainers. The big hurdle here is that whilst clearly defined hours and syllabus requirements are available for Levels 1 and 2, until recently this was not the case for the Level 3, and even today there is no requirement in any system for a minimum number of training hours prior to Level 3 exams. Obviously there are excellent training books and there are now a number of BINDT Accredited Trainers for Level 3. This Level 3 evaluation is based on having a minimum level of resource including Level 3 training staff in the appropriate method and a selection of essential and recommended reading.

Conclusions

1. Education and Training are different. The PCN (EN473) programme defines the need for NDT Training; whereas the employer based programmes also consider the operator's level of education prior to the NDT training.
2. PCN (EN473) demands attendance at a BINDT accredited trainer; the accreditation programme of trainers is well documented and available for review.
3. Employer based programmes tend to have an unspecified level of demand on the quality of trainer or training despite the Employer being responsible for ensuring the training is appropriate to the Company Written Practice.
4. Employer based systems can clearly define the specified hiring requirements in the Written Practice. Central certification training programmes must follow the syllabus requirements of the standard.
5. An accreditation of Trainers programme greatly increases the quality of NDT Training within a country.
6. Whilst there are clearly defined training requirements for Levels 1 and 2 there are no such clear requirements for the Level 3.

References

- (1) SNT-TC-1A – current issue 2001. Publisher: ASNT
Official title: Recommended Practice No SNT-TC-1A Personnel Qualification and Certification in Non-Destructive Testing
- (2) Official Title: General Requirements for Qualification and PCN Certification of NDT Personnel. Published by BINDT
Current issue: Issue 3 Revision C dated 8 Jan 2002
- (3) EN 473 (UK National Scheme PCN) current issue BS EN 473 2000. Publisher: BSI
Official Title: Non-Destructive Testing – Qualification and Certification of NDT Personnel – General Principles
- (4) Official Title: Non-Destructive Testing – Qualification and Certification of Personnel. Second Edition dated 1999-05-01 – this document has a reference number ISO 9712:1999 (E). Published by ISO