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Further information concerning the content of PCN documents is available from the PCN Scheme Manager at the above address.

## CERTIFICATION OF PERSONNEL FOR VISUAL TESTING IN THE PRE & IN-SERVICE INSPECTION SECTOR

### ASSOCIATED DOCUMENTS:

Appendix Z1 to PCN/GEN (examination syllabus compendium)

Appendix Z2 to PCN/GEN (specimen examination questions compendium)

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The British Institute of Non-Destructive Testing is an accredited certification body offering personnel and quality management systems assessment and certification against criteria set out in international and European standards through the PCN Certification Scheme.

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## 1. SCOPE

This document prescribes the specific requirements and procedures by which personnel may be examined and, if successful, certificated for Visual Testing of General Engineering Materials and Components. Requirements contained in this document are supplementary to those contained in PCN General Requirements for Qualification and PCN Certification of NDT Personnel.

## 2. EXAMINATION CONTENT

The examination format is described in PCN General Requirements. This Appendix amplifies the provisions of that document only where necessary.

### 2.1 Level 1

Except where exemptions apply (refer to PCN General Requirements), all candidates will be required to attempt an examination comprised of the following parts:

2.1.1 General Theory of Visual Testing.

2.1.2 Sector Specific Theory of the application of Visual Testing to general engineering products including basic production processes and associated defects.

2.1.3 Sector Specific Practical Examination comprising:

- i) pre-use checks of appropriate test equipment and carrying out a simple measurement on one sample.
- ii) testing three samples (selected by the examiner) in accordance with NDT instructions provided.
- iii) reporting test results in a prescribed manner in accordance with NDT instructions provided.

The total time allowed for the practical examination is two hours. The minimum pass mark for the practical part is 70% in each sample tested.

### 2.2 Level 2

Except where exemptions apply (refer to PCN General Requirements), all candidates will be required to attempt an examination comprised of the following parts:

2.2.1 General Theory of Visual Testing.

2.2.2 Sector Specific Theory covering the application of the Visual Testing method to the testing of general engineering products, including questions (on the basic casting, forging and welding processes and associated defects)

2.2.3 Sector Specific Practical examination comprising:

- i) preparation of testing equipment for use (this may involve system sensitivity and control checks).
- ii) testing three samples (selected by the examiner from a range of general engineering products incorporating castings, welds and wrought products, according to the certification sought - see Clause 3.2), in accordance with NDT procedures or instructions (two to be provided by the test centre and one to be generated by the candidate – see (iv) below) which will give, where appropriate, sensitivity levels and reporting thresholds.
- iii) reporting test results in a prescribed manner on proforma report sheets..
- iv) preparation of a detailed NDT instruction (suitable for level 1 personnel to follow) for the testing of one of the above samples to a provided procedure, code, standard or specification, and prove the instruction by application.

The total time allowed for the sector specific practical examination is four hours. The minimum pass mark is 70% in each sample tested,

### **2.3 Level 3**

Except where exemptions apply (refer to PCN General Requirements), all candidates will be required to attempt an examination comprising a Basic examination and a Main Method examination. Information on the content and grading of PCN level 3 examinations is provided in PCN General Requirements for Certification of Personnel engaged in Non-Destructive Testing.

Level 3 candidates who do not hold PCN level 2 certification for the visual testing of general engineering materials will be required to successfully complete the examination described in Clause 2.2.3 (excepting clause (iv))

### **3. CERTIFICATION AVAILABLE**

3.1 **Level 1** Visual Testing of general engineering materials, components and fabrications in the pre and in-service inspection multi-sector.

3.2 **Level 2** Visual Testing of general engineering materials, components and fabrications in the pre and in-service inspection multi-sector.

Alternatively, Level 1 and Level 2 candidates may apply for single sector certification covering one **(only)** of the following groups:

3.2.1 Castings

3.2.2 Welds

3.2.3 Wrought Products

3.3 **Level 3** Visual Testing of general engineering materials, components and fabrications in the pre and in-service inspection multi-sector.

Candidates who achieve an overall score of 80% or more for Level 1, 2 and 3 examinations shall be awarded with the distinction level 'D' (refer to PCN GEN – Grading of Examinations).

### **4. RENEWAL AND RECERTIFICATION**

4.1 The general rules for level 1 and level 2 renewal and recertification are fully described in PCN document CP16, and the rules for level 3 recertification are detailed in PCN document CP17.

4.2 Level 1 and Level 2 certificate holders seeking recertification will be required to undertake the practical examination described above for their level.

### **5. SUPPLEMENTARY EXAMINATIONS**

5.1 Candidates holding certification in one product sector who wish to add another single sector will be required to pass a further practical examination comprising the testing of 3 samples selected by the examiner as representative of the single sector sought.

Candidates should note that this will result in 2 separate certificates being held and will need to be maintained separately.

5.2 Candidates holding certification in one product sector who apply for certification in the multi-sector (all product sectors) will be required to pass a further practical examination comprising the testing of three samples selected by the examiner as representative of the additional sectors sought (see Clause 3.2 above). Level two candidates attempting supplementary examination will not be required to produce a written instruction (Clause 2.2.3 (iv)).

5.3 Candidates who wish to add another category to their existing certification/scope will be required to pass a further practical exam testing samples within the existing sector selected from the new category/scope sought.

### **6. GRADING**

General information on the grading of examinations will be as specified in the current edition of PCN General Requirements, and information on the grading of practical examinations is provided in PCN document CP22.

## 7. REFERENCE LITERATURE

### Essential reading material:

- ❑ BS EN 1330-2 Non-destructive testing – Terminology – Part 2: Terms common to the non-destructive testing methods
- ❑ BS ISO 3057 Metallographical replica techniques of surface examination
- ❑ BS ISO 3058 Aids to visual inspection: Selection of low power magnifiers
- ❑ BS EN 1330-10: NDT visual examination : Terminology .
- ❑ BS EN 13018: NDT visual examination : General principles.
- ❑ BS EN ISO 17637: Non-destructive testing of welds. Visual testing of fusion-welded joints
- ❑ PCN Classroom Training Handbook on the Visual Non-Destructive Testing of Metallic Materials in General Engineering use. Obtainable from Certification Services Division, The British Institute of Non-Destructive Testing, Midsummer House, Riverside Way Bedford Road, Northampton, NN1 5NX.
- ❑ Product Technology Classroom Training Handbook. Obtainable from Certification Services Division, The British Institute of Non-Destructive Testing, Midsummer House, Riverside Way Bedford Road, Northampton, NN1 5NX.
- ❑ Training Course Notes. PCN requires candidates to have attended an approved course of training. Accredited Training Establishments are required to provide trainees with an up-to-date set of training course notes. These are considered essential reading