## INSTITUTE OF CORROSION

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# SENIOR Cathodic protection ENGINEER level 3

# certification Application in accordance with BS EN 15257

***TYPE or PRINT in black ink. This form is available in e-format from http://www.icorr.org.***

*Note that this form will be photocopied. Please send your completed form, copies of Certificates and supporting documents(see Guidance Notes) to:*

*Institute Of Corrosion, Professional Assessment Committee, CP Sub Committee Chairman.*

*Note that the Institute of Corrosion needs this information, in addition to details of any courses and examinations that you have undertaken to assess your experience and competence in the field.*

## PART 1 - PERSONAL INFORMATION (If not relevant, insert N/A)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Title  |  | Surname |  | Forenames |  | Margin to be used by referees to initial verification |
| Present Grade of Membership (if any) | Ordinary/TICorr/MICorr/FICorr | Membership Number |  |
| Date of Joining The Institute of Corrosion  |  |  |
| Academic Qualifications (e.g. MSc, BSc, etc) |  |
| Chartered Registrations (e.g. CEng/IEng/TEng) |  |
| Memberships of other Professional or Learned Bodies |  |
| Other Training/Certification e.g. NACE, TWI etc |  |
| Gender |  | Date of Birth |  |
| Telephone Home |  |
|  Business  |  |
|  Mobile  |  |
| Fax Home |  |
|  Business  |  |
| eMail Home |  |
|  Business  |  |
| Private Address (Including Postcode) |  |
| Business Address (Including Postcode) |  |
| ***Please indicate Sector/s Certification is to cover (tick as applicable)*** |
| Underground and immersed metallic structures |  | Marine metallic structures; |  |
| Reinforced concrete structures; |  | Inner surfaces of metallic container structures. |  |

#### PART 2 - EDUCATION AND TRAINING RECORD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Institution attended | Dates | Subject studied | Qualifications obtained  | Year awarded | Margin to be used by referees to initial verification |
|  |  |  |  |  |  |

 **Publications.** *Please list any publications that you have written below. Copies of papers, reports in the public domain and patent specifications should be sent where a full library reference is not available.*

|  |  |
| --- | --- |
| **Title and Reference** | **Date Published** |
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# PART 3 –PROFESSIONAL DEVELOPMENT AND EXPERIENCE

**It is essential that you provide full details of your knowledge and experience in each sector for which you are applying to be certificated. This may be by the provision of design reports, consultancy reports etc that demonstrate your competence to become a Senior Cathodic Protection Engineer Level 3. If these are not provided for each sector, then that sector can not be considered for assessment.**

Please give, in reverse chronological order, relevant dates and the titles of all posts you have held, the names of your employer(s), a description of your personal duties and responsibilities, plus details of any structured training undertaken (including apprenticeships).

You need to demonstrate that you have:

1. detailed knowledge of corrosion theory, principles of electricity, cathodic protection design, installation, commissioning, testing and performance evaluation including safety in at least one application sector;
2. competence to undertake without supervision the design of cathodic protection systems in at least one application sector (The sector(s) for which you are applying for Certification);
3. sufficient theoretical knowledge and practical experience of cathodic protection to select cathodic protection testing methods, survey requirements and performance criteria;
4. competence to evaluate and interpret results of cathodic protection performance in accordance with existing standards, codes and specifications;
5. competence to assist in establishing testing and performance criteria where none are otherwise available;
6. a general familiarity with cathodic protection in other application sectors.

Within the scope of the competence defined in Annex B of BS EN 15257, level 3 personnel shall be competent to:

1. design cathodic protection systems;
2. establish and validate cathodic protection measuring and testing procedures;
3. interpret standards, codes, specifications and procedures;
4. designate the particular cathodic protection test methods and procedures to be used;
5. interpret the reported results of cathodic protection measuring and testing and use them in performance verification;
6. determine any remedial actions;
7. carry out, supervise and validate all level 1 and level 2 duties as defined in BS EN 15257
8. have a good understanding and full theoretical knowledge of the Standards listed in BS EN 15257 in the application sector(s) for which you are applying for Certification;
9. utilise field performance experience in developing improvements to cathodic protection designs, operations, performance assessments and maintenance procedures.

***Present Employer***

|  |  |  |
| --- | --- | --- |
| Employer  | Address | Margin to be used by referees to initial verification |
|  |  |
| Tel:  | Date joined |  |
|  |  |
| Post Title | Grade (if applicable) |
|  |  |
| *Please specify your present duties and responsibilities, e.g. by indicating to whom you are responsible, and the number and type of persons for whose work you are responsible.* *A description of your knowledge, experience and competence in Cathodic Protection engineering that demonstrate that you meet the requirements listed as items a) through o) on Page 4 in the Sector(s) for which you are seeking Certification is essential.* |
|  |

|  |  |
| --- | --- |
| ***Please include an organisation chart below or as a separate attachment.*** | Margin to be used by referees to initial verification |
|  |  |
| Note: The organisation tree should show the chain of command in your present post and indicate your position in relation to your immediate supervisor, equivalent, and immediate subordinate staff. Against each post please indicate the name, initials and qualification of the holder and where appropriate the grade of membership of their professional body. Your own position should be marked by an arrow, and the number of persons under your control should be given if this is not clear from the diagram. You may provide, if you wish, not more than two organisation charts covering previous positions you have held which you consider are relevant to this application. |  |

| **Item No** | **From***(Month**& Year)* | **To***(Month**& Year)* | **Name and address of employer, position held and nature of work.** | Responsibilities | ***Margin to be used by referees to initial verification*** |
| --- | --- | --- | --- | --- | --- |
| ***Previous Employer/s****Please specify your duties and responsibilities, e.g. by indicating to whom you were responsible, and the number and type of persons for whose work you were responsible.* *A description of your knowledge, experience and competence in Cathodic Protection engineering in the Sector(s) for which you are seeking Certification is essential.* |  |
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| --- | --- |
| Please use the following space if there is any additional information that you feel is relevant to your application that is not covered elsewhere in this application. | ***Margin to be used by referees to initial verification*** |
|  |  |

***APPLICANT’S UNDERTAKINGS***

I wish to apply for registration as a Certificated Level 3 Senior Cathodic Protection Engineers in the Sector(s) of: (***please tick relevant boxes***):

|  |  |
| --- | --- |
| **Sector** | **Mark Yes or No** |
| **Underground and Immersed Structures** (Steel reinforcement or steel pre-stressing or embedded steel in concrete which is atmospherically exposed, buried or immersed in fresh or sea water. Includes buildings, bridges, piles, pipelines and other types of structures.) |  |
| **Marine Metallic Structures** (Externals of fixed and floating offshore drilling and production facilities, ships, submarine pipelines, harbour installations, lock gates etc) |  |
| **Reinforced Concrete Structures** (Steel reinforcement or steel pre-stressing or embedded steel in concrete which is atmospherically exposed, buried or immersed in fresh or sea water. Includes buildings, bridges, piles, pipelines and other types of structures.) |  |
| Inner Surfaces of Metallic Container Structures (Internals of tanks, filters, pipelines, heat changers etc.) |  |

**Attestation**

In signing and completing this form I confirm that the information given above is truthful and accurate. I acknowledge that my Certification can be withdrawn by the Institute of Corrosion if any element of the above information is shown to be false and that such withdrawal can be published by the Institute.

I also accept that the Institute of Corrosion will maintain records of my Certification and may disclose them at any time to any enquirer seeking personnel Certificated in Cathodic Protection. The Institute of Corrosion is authorised to make contact with me by the details that I have provided above.

I am also accepting and agreeing to work within the Code of Ethics for the Institute of Corrosion Scheme for Certification of Inspection and Cathodic Protection Personnel as detailed below:

**Code of Ethics for ICorr Certification of Inspection and Cathodic Protection Personnel**

This code must be upheld by all personnel Certificated to levels 1, 2 or 3 under the Institute of Corrosion’s *ICorr Certification Scheme* for Inspection and Cathodic Protection personnel engaged in painting and coating inspection, cathodic protection, and in inspection of pipe coating, insulation, fire proofing and metallic coatings.

This Code was approved by the Council of the Institute of Corrosion in December 2013.

Before ICorr Certification or Re-certification can be issued, participants in the scheme shall sign this Code of Ethics and undertake to comply with the following:

1. I undertake to uphold the dignity and good standing of my profession and the Institute of Corrosion and its Certification Scheme; I will observe the highest standards of ethical behaviour and obey local laws.
2. I will exercise due skill, care and diligence in all of my professional activities.
3. I acknowledge that my activities may impact on the health and safety of individuals, of the public at large, on the safety of plant and facilities on which I work and on the environment; I will be rigorous in the execution of my professional activities.
4. I shall not use ICorr Certification to mislead any individual, employer or authority by presenting it as testimony that applies to any task outside the scope of the Certification as declared on the ICorr Certificate. I shall not permit my ICorr Certification to be used by any other party nor shall I knowingly permit my Employer or others to misuse the Certification documents issued to me.
5. I shall always endeavour to become fully familiar with my duties and understand the scope of my authority prior to performing work. I shall not accept duties for which I am not trained and proficient; if I am requested to do so I will request – (in writing) – to receive additional training and mentored experience.
6. I recognise that it is my duty to perform tasks as I have been contracted to do and I shall not allow deviations from specified requirements unless given permission – (in writing) – to do so by a higher authority.
7. I will report – (preferably in writing) – to a higher authority if I am aware of any specified requirements which may lead to adverse work or conditions which were not intended.
8. I will endeavour to perform inspections, tests, measurements and any other work for which I have been contracted to the best of my ability and will inform my superior(s) – (in writing) – if I am unable to do so.
9. I will not accept gratuities of any kind which may affect my judgement in the work that I am performing as an ICorr Certificated individual.
10. I will endeavour to be fair, reasonable and objective towards the requirements for which I perform at all times.
11. I will not allow my work to be influenced by personalities or other individual considerations.

I hereby agree to uphold and abide by this code and I acknowledge that I may be subject to a disciplinary procedure which could result in loss of Certification if it can be proven that I have failed to comply or have provided false information associated with my participation in the scheme.

|  |  |  |
| --- | --- | --- |
| Name (Print) | Signature of Applicant: | Date |

**OPTIONAL**

**As a Level 3 Certificated Cathodic Protection you may be eligible to apply for the Professional Membership Grade in the Institute of Corrosion: TICorr. If you wish to apply for Professional Membership and thus become a full member of ICorr and gain all the associated benefits, please tick the box**

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**Data Protection:** The Institute of Corrosion will register the information submitted on a database. If your application is successful details will be held on the Institute of Corrosion’s Certification Register. This publicly available register will include your name, the Institute of Corrosion, and your Level 2 Certification Number. I Corr may wish to use the information you supply in order to be able to communicate with individuals effectively. Level 2 Certified Senior Technicians have the right of access to the personal data held on them by I Corr and the right to prevent its use for direct marketing services.

|  |  |
| --- | --- |
| **If you wish to receive this information, please tick the box**  |  |

Please send your completed form, copies of Certificates and Professional Report (See Guidance Notes and Example) to the INSTITUTE OF CORROSION

**Payment to be sent under separate cover as follows. Do not send with this application as the site/email may not be secure.**

EXPERIENCE REPORT

It is essential that you provide full details of your knowledge and experience in each sector for which you are applying to be certificated.

This may be by the provision of design reports, consultancy reports etc. that demonstrate your competence to become a Senior Cathodic Protection Engineer Level 3.

 If these are not provided for each sector, then that sector cannot be considered for assessment.

All candidates are to fill in Table 1. Only complete Sector Table(s) 2 to 5 for the Sector/s for which you are applying to indicate your experience in the relevant tasks for Level 3 Certification. (See ICORR REQ DOC (CP)). Please put a line through/delete/remove the other sectors.

**NOTE: To Candidate and Verifier:**

It is expected that during their time of experience, before and after Certification, ALL of the tasks below have been taught to the Candidate, in the field or in the classroom, by his colleagues, his employer and his Level 3 Cathodic Protection supervisors. We rely on the Candidate and the Verifier to be honest and rigorous in the assessment below of whether the Candidate is competent in their understanding and execution of the specific tasks below and whether the Candidate undertakes them regularly (at least once per month) (R). The Institute of Corrosion reserves the right to call Candidates for interview or examination in order to prove the validity of a proportion of applications for Certification.

Please enter N for any task that the Candidate does not understand and/or is not competent to undertake. Any Candidate indicating lack of understanding or competence in any task may be requested to carry out for additional training and assessment prior to awarding Certification by the Institute of Corrosion.

Please sign that you understand the above requirements:

Candidate……………………………………. Referees 1………………………………..

Print Names ………………………………… Referees 2………………………………..

Please complete the “Insert R or C” column with “R” for tasks you are deemed competent to carry out and have regularly carried out in your normal job activities, or “C” for those tasks you are deemed competent to carry out although you present duties may not require them to be used regularly. Insert N for tasks with which you are not familiar and are not deemed competent.

Tasks to be fulfilled in all application sectors

Table 1 details tasks which shall be fulfilled Level 3 whatever the application sector. The field of application of each of these tasks covers only the application sector of the certificated individual.

Table 1: Tasks to be fulfilled by the various competence levels whatever the application sector

| **Task No** | **Description of task** | **Level 3** | **Insert****R, C or N** |
| --- | --- | --- | --- |
| 1 | Organisation of training  | YES |  |
| 2 | Training for the lower level(s)  | YES |  |
| 3 | Preparation of specifications  | YES |  |
| 4 | Preparation of technical instructions  | YES |  |
| 5 | Collection of general information for design purposes based on technical instructions for simple conditions (as defined in B.1.2) | YES |  |
| 6 | Collection of detailed information and data for design purposes  | YES |  |
| 7 | Pre-commissioning testing and energising of power supplies and check polarity | YES |  |
| 8 | Interpretation of commissioning or performance verification data and preparation of commissioning report, performance verification report or system review report for simple cathodic protection systems (as defined in B.1.2) | YES |  |
| 9 | Interpretation of commissioning or performance verification data and preparation of commissioning report, performance verification report or system review report for the other systems  | YES |  |
| 10 | Interpretation of function check data and preparation of function check report  | YES |  |
| 11 | Determination of routine increase/decrease in current output to maintain optimum performance | YES |  |
| 12 | Determination of increase/decrease in current output to maintain optimum performance including remedial actions to correct anomalies and interferences | YES |  |
| 13 | Awareness and compliance with safety requirements related to application of CP in the application sector, task and competence level | YES |  |
| 14 | Risk assessment of safety requirements related to application of cathodic protection in the application sector, task and competence level | YES |  |
| 15 | Expertise to investigate any case of material weight loss corrosion when application of cathodic protection may be involved  | YES |  |
| 16 | Expertise to investigate any case of material cracking when application of cathodic protection may be involved  | YES |  |
| 17 | Utilise field performance experience in developing improvements to cathodic protection designs, operations, performance assessments and maintenance procedures | YES |  |

Referees shall confirm the Applicant is competent in the above indicated tasks and sign here:

REFEREE 1 ...................................................................

**Name** **........................................................................**

REFEREE 2 ...................................................................

**Name** **........................................................................**

Specific tasks for underground and immersed metallic structures application sector

Level 3 certificated personnel shall have a good understanding and full theoretical knowledge of:

|  |  |
| --- | --- |
| BS EN 12594:2001 | Cathodic protection of buried or immersed metallic structures — General principles and application for pipelines |
| [BS EN 13509:2003](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030105263) | Cathodic protection measurement techniques |
| BS EN 14505:2005 | Cathodic protection of complex structures |
| BS EN 15112:2006 | External cathodic protection of well casings |
| BS EN 16299:2013 | Cathodic protection of external surfaces of above ground storage tank bases in contact with soil or foundations |
| BS EN 50162:2004 | Protection against corrosion by stray current from direct current systems |
| BS EN 15280:2013 | Evaluation of a.c. corrosion likelihood of buried pipelines. Application to cathodically protected pipelines |
| ISO 15589-1:2003 | Petroleum, petrochemical and natural gas industries. Cathodic protection of pipeline transportation systems - On-land pipelines |

Table 2: Specific tasks to be fulfilled by Level 3 in the underground and immersed metallic structures application sector

| **Task No** | **Description of task** | **Level 3** | **Insert****R, C or N** |
| --- | --- | --- | --- |
| 1 | Measurement of metal to electrolyte natural (free corrosion) potential | YES |  |
| 2 | Measurement of resistivity: four pins Wenner and soil box methods | YES |  |
| 3 | Design of simple CP systems for simple conditions (as defined in 5.3.ix and B.1.2). Examples are buried tanks or limited length pipelines | YES |  |
| 4 | Design of all other cathodic protection systems  | YES |  |
| 5 | Supervision of the preparation of steel for making cable connection and for repairing coating  | YES |  |
| 6 | Supervision of the installation of cable connections: bolting, compression and conductive adhesive | YES |  |
| 7 | Supervision of the installation of cable connections: soldered, exothermic welded, pin brazed  | YES (T) |  |
| 8 | Supervision of installation of galvanic anodes | YES |  |
| 9 | Supervision of installation of dc power supply (electrical a.c. supply excluded, depending on regulations) | YES |  |
| 10 | Supervision of the installation of deepwell anode groundbeds | YES |  |
| 11 | Supervision of the installation of other impressed current anode groundbeds | YES |  |
| 12 | Supervision of installation of isolation devices | YES |  |
| 13 | Supervision of installation of permanent reference electrodes (including calibration) and coupons (monitoring systems may be complex instrumentation, remote control or telecommunication systems requiring specialist knowledge and training) | YES |  |
| 14 | Supervision of installation of a.c. mitigation earthing electrodes and dc decoupling devices | YES |  |
| 15 | Verification of the electrical continuity of all parts of the structure to be protected | YES |  |
| 16 | Localisation of pipeline, concrete steel reinforcement and foreign metallic structures | YES |  |
| 17 | Checking of dc power supply output polarity | YES |  |
| 18 | Inspection & testing of isolation and surge protection devices | YES |  |
| 19 | Measurement of current and voltage in the CP circuit | YES |  |
| 20 | Inspection & measurement of dc power supply output current and voltage | YES |  |
| 21 | Inspection & verification of dc power supply overall operations | YES |  |
| 22 | Inspection & maintenance of dc power supply output terminations  | YES |  |
| 23 | Inspection & maintenance of dc power supply components (extent depending on regulations) | YES |  |
| 24 | Verification of dc power supply voltage and current outputs with portable calibrated meter | YES |  |
| 25 | Measurement of metal to electrolyte ON potential  | YES |  |
| 26 | Measurement of metal to electrolyte instant OFF potential | YES |  |
| 27 | Close interval potential survey (ON) | YES |  |
| 28 | Close interval polarised potential survey (ON/Instant OFF) | YES |  |
| 29 | Establishment and confirmation of synchronisation of current interruptions for instant OFF measurements | YES |  |
| 30 | Measurement of ON and IR free potential and current both dc and a.c. on coupons | YES |  |
| 31 | Measurement of potential gradients in soil | YES |  |
| 32 | Intensive measurements as defined in EN 13509 | YES |  |
| 33 | a.c. frequency current signal attenuation measurements | YES |  |
| 34 | Direct Current Voltage Gradient (DCVG), non recording, as defined in EN 13509 | YES |  |
| 35 | Direct Current Voltage Gradient (DCVG) with recording of digital measurements | YES |  |
| 36 | Pearson surveys | YES |  |
| 37 | Interference testing | YES |  |
| 38 | Analysis and treatment of dc interferences | YES |  |
| 39 | Analysis and treatment of ac interferences | YES |  |
| 40 | Supervision of cable and connection repair | YES |  |
| 41 | Test casings for isolation from carrier pipe | YES |  |
| 42 | Interpretation of data and analysis of anomalies detected  | YES |  |
| 43 | Visual inspection of pipeline and cathodic protection system components: Physical damage to pipeline and cathodic protection system, coating damage, corrosion damage. | YES |  |

Referees shall confirm the Applicant is competent in the above indicated tasks and sign here:

REFEREE 1 ...................................................................

**Name** **........................................................................**

REFEREE 2 ...................................................................

**Name** **........................................................................**

Specific tasks for marine metallic structures application sector

Level 3 certificated personnel shall have a good understanding and full theoretical knowledge of:

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| --- | --- |
| [BS EN 12473:2000](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030021582) | General principles of cathodic protection in sea water |
| [BS EN 12474:2001](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030050706) | Cathodic protection for submarine pipelines |
| [BS EN 12495:2000](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030021664) | Cathodic protection for fixed steel offshore structures |
| [BS EN 12496:2013](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030234727) | Sacrificial anodes for cathodic protection in seawater and saline mud |
| [BS EN 13173:2001](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030045322) | Cathodic protection for steel offshore floating structures |
| [BS EN ISO 13174:2012](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030234733) | Cathodic protection of harbour installations |
| [BS EN 13509:2003](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030105263) | Cathodic protection measurement techniques |
| [BS EN 16222:2012](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030234730) | Cathodic protection of ship hulls |
| ISO15589-2:2012 | Petroleum & natural gas industries – Pipeline transportation systems – Cathodic protection – Part2 : Offshore Pipelines  |
| DNV-RP-401B | Cathodic protection design |
| DNV-RP-F103 | Cathodic protection of Submarine pipelines by Galvanic anodes |

Table 3: Specific tasks to be fulfilled by Level 3 in the marine metallic structures application sector

| **Task No** | **Description of task** | **Level 3** | **Insert****R, C or N** |
| --- | --- | --- | --- |
| 1 | Design of simple cathodic protection systems for simple conditions (as defined in 5.3.ix and B.1.2). Examples are systems for buoys, small boats | YES |  |
| 2 | Design of all other cathodic protection systems. Examples are systems for coastal, offshore and submarine facilities, floating production and storage structures, ships | YES |  |
| 3 | Supervision of installation of galvanic or impressed current anodes and monitoring systems  | YES |  |
| 4 | Supervision of installation of dc power sources (a.c. power supply excluded, depending on regulations) | YES |  |
| 5 | Supervision of installation of isolation devices | YES |  |
| 6 | Verification of the electrical continuity of all parts of the structure to be protected | YES |  |
| 7 | Measurement of metal to electrolyte potential in seawater by simple methods from surface with mobile reference electrode | YES |  |
| 8 | Measurement of metal to electrolyte potential in seawater from surface with monitoring systems (permanent reference electrodes and connection by cables or acoustic transmission) | YES |  |
| 9 | Supervision of measurement of metal to electrolyte potential in seawater by diving with mobile reference electrode connected to measurement system in surface (diving operation and certification excluded) | YES |  |
| 10 | Supervision of measurement of metal to electrolyte potential in seawater by autonomous measurement device combining reference electrode, voltmeter and contact tip (diving operation and certification excluded) | YES |  |
| 11 | Measurement of anode current output from surface using monitoring systems (monitored anodes and connection by cables or acoustic transmission) | YES |  |
| 12 | Supervision of measurement of current output of stand-off anodes using underwater clamp meter (diving operation and certification excluded) | YES |  |
| 13 | Checking of calibration of measurement equipment before use | YES |  |
| 14 | Supervision of measurement of potential gradient in seawater (diving operation and certification excluded) | YES |  |
| 15 | Organisation of underwater potential and/or anode current output surveys for simple cathodic protection systems and simple conditions (as defined in 5.3.ix and B.1.2). Examples are systems for buoys, small boats  | YES |  |
| 16 | Organisation of underwater potential and/or anode current output surveys for all other applications of the application sector | YES |  |
| 17 | Analyse of the results of potential and/or anode current output surveys for simple cathodic protection systems for simple conditions (as defined in 5.3.ix and B.1.2). Examples are systems for buoys, small boats | YES |  |
| 18 | Analyse of the results of potential and/or anode current output surveys for all other applications of the application sector | YES |  |
| 19 | Measurement of current and voltage in the cathodic protection circuit | YES |  |
| 20 | Inspection & measurement of dc power sources output current and voltage | YES |  |
| 21 | Inspection & verification of dc power sources overall operations | YES |  |
| 22 | Inspection & maintenance of dc power sources output terminations and check polarity | YES |  |
| 23 | Inspection & maintenance of dc power sources components (extent depending on regulations) | YES |  |
| 24 | Verification of dc power sources voltage and current outputs with portable calibrated meter  | YES |  |
| 25 | Interpretation of data  | YES |  |
| 26 | Analysis of data and anomalies detected  | YES |  |
| 27 | Inspection & maintenance of dc power sources components including replacement of failed components (extent depending on regulations) | YES |  |
| 28 | Supervision of visual inspection by diving or remote operated vehicle: Physical damage to surface and cathodic protection system, coating damage, corrosion damage | YES |  |
| 29 | Estimation of anode dimensions by diving (diving operation and certification excluded) or remote operated vehicle (vehicle operation excluded) | YES |  |
| 30 | Supervision of measurement of pit depth with underwater mastic replica by divers | YES |  |
| 31 | Supervision of measurement of wall thickness with underwater ultrasonic meter by divers | YES |  |
| 32 | Supervision of measurement of extent of underwater corroded area | YES |  |
| 33 | Supervision of diver or remote operated vehicle cathodic protection survey of pipeline, riser or structure | YES |  |
| 34 | Measurement of resistivity of seawater or mud with soil box | YES |  |
| 35 | Measurement of resistivity of seawater by conductivity meter or salinity or chlorinity  | YES |  |

Referees shall confirm the Applicant is competent in the above indicated tasks and sign here:

REFEREE 1 ...................................................................

**Name** **........................................................................**

REFEREE 2 ...................................................................

**Name** **........................................................................**

Specific tasks for reinforced concrete structures application sector

Level 3 certificated personnel shall have a good understanding and full theoretical knowledge of:

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| --- | --- |
| BS EN ISO 12696:2012 | Cathodic protection of steel in concrete |
| [BS EN 13509:2003](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030105263) | Cathodic protection measurement techniques |
| DD/CEN/TS 14038-1:2004 | Electrochemical realkalization and chloride extraction treatments for reinforced concrete. Realkalisation |
| DD CEN/TS 14038-2:2011 | [Electrochemical re-alkalization and chloride extraction treatments for reinforced concrete - Chloride extraction](http://shop.bsigroup.com/ProductDetail/?pid=000000000030185961) |

Table 4: Specific tasks to be fulfilled by Level 3 in the reinforced concrete structures application sector

| **Task No** | **Description of task** | **Level 3** | **Insert****R, C or N** |
| --- | --- | --- | --- |
| 1 | Electrical continuity testing of reinforcement to allow accurate potential measurements | YES |  |
| 2 | Measurement of steel to concrete natural potential in concrete | YES |  |
| 3 | Measurement of “Half Cell Potential Survey” (close interval survey natural potential)  | YES |  |
| 4 | Processing of potential data for mapping | YES (T) |  |
| 5 | Location of reinforcement with cover meter | YES |  |
| 6 | Measurement of cover to reinforcement with cover meter | YES |  |
| 7 | Supervision or undertaking of the collection of concrete drilling dust or core samples for chloride testing | YES |  |
| 8 | Interpretation of chloride analysis results | YES |  |
| 9 | Carbonation testing to broken or cored concrete | YES |  |
| 10 | Measurement of concrete resistivity (two pins or four pins) | YES |  |
| 11 | Inspection of surface of reinforcement when exposed for corrosion or physical damage | YES |  |
| 12 | Measurement of pit depth with suitable gauge | YES |  |
| 13 | Inspection of surface of pre-stressing steel when exposed for corrosion or physical damage | YES |  |
| 14 | Design of cathodic protection system and other electrochemical treatments  | YES |  |
| 15 | Measurement of reinforcement electrical continuity (resistance and potential techniques) | YES |  |
| 16 | Supervision of reinforcement electrical continuity bonding and retest | YES |  |
| 17 | Supervision of installation of cable connection to reinforcement or embedded/surface mounted metallic items: mechanical | YES |  |
| 18 | Supervision of installation of cable connection to reinforcement or embedded/surface mounted metallic items: exothermic/welded/pin brazed | YES (T) |  |
| 19 | Supervision of installation of cable connection to pre-stressing steel | YES (T) |  |
| 20 | Supervision of installation of anode systems: galvanic and impressed current | YES (T) |  |
| 21 | Supervision of installation of reference electrodes, sensors and coupons | YES |  |
| 22 | Supervision of installation of dc power supplies and monitoring system (electrical input a.c. excluded due to regulations/safety) | YES |  |
| 23 | Measurement of anode to reinforcement isolation (resistance and potential techniques)  | YES |  |
| 24 | Measurement of anode circuit continuity or resistance | YES |  |
| 25 | Measurement of cathode and test circuit continuity or resistance | YES |  |
| 26 | Checking calibration of reference electrodes prior to installation or survey | YES |  |
| 27 | Correction or removal of anode to reinforcement short circuit | YES |  |
| 28 | Inspection and measurement of power supply output current and voltage and polarity checks | YES |  |
| 29 | Verification of dc power supply voltage and current outputs with portable calibrated meter and comparison with output meters or data logged values | YES |  |
| 30 | Inspection & maintenance of dc power supply components (extent depending on regulations) | YES |  |
| 31 | Setting up of synchronised current interruptions for instant OFF potential measurements | YES |  |
| 32 | Measurement of ON and Instant OFF potential and current at permanently installed electrodes | YES |  |
| 33 | Measurement of ON and Instant OFF potential and potential decay from instant OFF at permanently installed reference electrodes | YES |  |
| 34 | Survey / measurement of potential decay from instant OFF over concrete surface using portable reference electrodes | YES |  |
| 35 | Interference testing | YES |  |

Referees shall confirm the Applicant is competent in the above indicated tasks and sign here:

REFEREE 1 ...................................................................

**Name** **........................................................................**

REFEREE 2 ...................................................................

**Name** **........................................................................**

Specific tasks for inner surfaces of metallic structures application sector

Level 3 certificated personnel shall have a good understanding and full theoretical knowledge of:

|  |  |
| --- | --- |
| BS EN 12499:2003 | [Internal cathodic protection of metallic structures](http://shop.bsigroup.com/ProductDetail/?pid=000000000030154224) |
| [BS EN 13509:2003](http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030105263) | **Cathodic protection measurement techniques** |

Table 5: Specific tasks to be fulfilled by Level 3 in the inner surfaces of metallic structures application sector

|  |  |  |  |
| --- | --- | --- | --- |
| **Task No** | **Description of task** | **Level 3** | **Insert****R, C or N** |
| 1 | Measurement of resistivity of electrolyte: Soil box | YES |  |
| 2 | Measurement of resistivity of electrolyte: Conductivity meter | YES |  |
| 3 | CP design for simple conditions (as in B.1.2) | YES |  |
| 4 | CP design for any conditions | YES |  |
| 5 | Supervision of installation of galvanic or impressed current anodes and reference electrodes  | YES |  |
| 6 | Supervision of installation of dc power supply (electrical a.c. supply excluded, depending on regulations) | YES |  |
| 7 | Supervision of installation of isolation devices | YES |  |
| 8 | Verification of the operation of the automatic gas blow-off system | YES |  |
| 9 | Verification of the electrical continuity of all parts of the structure to be protected | YES |  |
| 10 | Supervision and verification of cable connections | YES |  |
| 11 | Inspection and measurement of isolation devices | YES |  |
| 12 | Measurement of current and voltage in the cathodic protection circuit | YES |  |
| 13 | Inspection & measurement of dc power supply output current and voltage | YES |  |
| 14 | Inspection & verification of dc power supply overall operations | YES |  |
| 15 | Inspection & maintenance of dc power supply output terminations and polarity check | YES |  |
| 16 | Inspection & maintenance of dc power supply components (extent depending on regulations) | YES |  |
| 17 | Measurement of metal to electrolyte natural potential | YES |  |
| 18 | Measurement of metal to electrolyte ON potential  | YES |  |
| 19 | Measurement of metal to electrolyte instant OFF potential | YES |  |
| 20 | Setting up and confirmation of synchronised current interruptions for instant OFF measurements | YES |  |
| 21 | Measurement of ON and IR free potential and current on coupons | YES |  |
| 22 | Interference testing | YES |  |
| 23 | Verification of dc power supply voltage and current outputs with portable calibrated meter  | YES |  |
| 24 | Interpretation of data and analysis of anomalies detected  | YES |  |
| 25 | Visual inspection inside the vessels: Physical damage to vessel and cathodic protection system, coating damage, corrosion damage | YES |  |

Referees shall confirm the Applicant is competent in the above indicated tasks and sign here:

REFEREE 1 ................................................................

**Name** **........................................................................**

REFEREE 2 ................................................................

**Name** **........................................................................**

**REFEREES**

Referees should be Professional Members of the Institute of Corrosion who are established Cathodic Protection Engineers, (preferably Certificated Level 3) who have known the Applicant personally and professionally for a minimum of three years. Two Referees are required, one of whom has direct knowledge of the applicants employment. If the MICorr referees cannot be found, a Professional Member of an alternative Engineering Institute who has direct knowledge of the applicant’s employment (e.g. supervisor or line manager) will be acceptable.

.

I confirm that I have read the Criteria for Level 3 Certification and confirm that the applicant is competent to carry out the tasks listed above. I recommend that the applicant, to the best of my knowledge and belief, is a fit person to be registered as a Certificated Level 3 Senior Cathodic Protection Engineer through the Institute of Corrosion. I agree, on request of the Institute of Corrosion, to provide a confidential written reference.

**Referee 1**

|  |  |  |  |
| --- | --- | --- | --- |
| Name |  | Qualification |  |
| Address |  | Signature |  |
| Date |  |
| Tel No |  | Email |  |

**Referee 2**

|  |  |  |  |
| --- | --- | --- | --- |
| Name |  | Qualification |  |
| Address |  | Signature |  |
| Date |  |
| Tel No |  | Email |  |

**Payment**

Please enclose the required registration and administration fee of £50.00 – applications will only be fully processed if the registration and administration fee is paid in advance and in full.

**Please send the following information to Institute of Corrosion by separate secure means, e.g. post or telephone.**

**Payment by cheque**

|  |  |
| --- | --- |
| I enclose a cheque crossed and made payable to ***The Institute of Corrosion*** for £50.00 |  |

**Payment by credit/debit card**

|  |  |
| --- | --- |
| Please debit my Credit/Debit card  |  |

Amount £50.00

Cardholder’s name:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Card Number |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 digit Security No |  |  |  |  |

##### Expiry date:

Cardholder’s address (if different from Applicant’s above)

Cardholder’s signature: Date:

Please send your completed form, copies of Certificates and Professional Report (See Guidance Notes and Example) to the INSTITUTE OF CORROSION

For office tracking and recording

|  |  |
| --- | --- |
| **Name** |  |
| **Individual Application Number** | **CP** |  | **Date of Award** |  |
| **Individual Certificate Number** | **CP** |  | **Date for Renewal** |  |
|  | Checked by | Date |  | Checked By | Date |
| Received |  |  | Assessors |  |  |
| Fee paid |  |  | Committee Chairman |  |  |
| Acknowledged |  |  | Certificate |  |  |
| Referees |  |  | CP register |  |  |