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NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION**STATEMENT OF STANDARDS****UNIT NUMBER:** 2211173**UNIT TITLE:** COMMISSIONING PLANT AND EQUIPMENT

Acceptable performance in this unit will be the satisfactory achievement of the standards set out in this part of the specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

OUTCOME (ELEMENT OF COMPETENCE)

1. INTERPRET TECHNICAL INFORMATION FOR COMMISSIONING PLANT AND EQUIPMENT

PERFORMANCE CRITERIA

- (a) Technical information derived from given sources relates to the relevant tasks.
- (b) Corrective actions are implemented against deviations from technical information.
- (c) Co-ordinating directions are clear, concise and effective.

RANGE STATEMENT

Information sources: manufacturers' technical information; manufacturers' specifications; technical service bulletins; company instructions and records; statutory regulations; codes of practice; drawings; symbols; diagrams; oral or written instructions.

Corrective actions: specification and record amendment procedures.

Calculations: multiplication; division; addition; subtraction; percentages.

Location: site, depot.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in:

- (i) extracting information from information sources in the range;
- (ii) interpreting information and instructions from line manager;
- (iii) calculating from given information sources volumes, linear measurements and quantities.

Oral or written evidence of knowledge and understanding of:

- (i) types and purpose of information sources;
- (ii) methods of checking and reporting inaccuracies in information sources;
- (iii) reasons for and purpose of statutory and non-statutory commissioning of plant and equipment;
- (iv) reasons for records and amendment procedures.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENTS OF COMPETENCE)

2. SELECT TOOLS AND EQUIPMENT FOR COMMISSIONING PLANT AND EQUIPMENT

PERFORMANCE CRITERIA

- (a) Oral or written instructions and information given to the candidate are correctly interpreted and implemented.
- (b) The quality of tools and equipment selected complies with the specification.
- (c) Tools and equipment provided are appropriate for the task.
- (d) Corrective actions are implemented to establish utility of tools and equipment.

RANGE STATEMENT

Information sources: manufacturers' technical information; company regulations; technical service bulletins; workshop manuals; statutory regulations; oral or written instructions.

Corrective actions: defective and replacement procedures.

Tools and equipment: hand tools; specialist servicing tools; diagnostic tools; gauges; testing equipment.

Location: site; workshop.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in selecting tools and equipment.

Oral or written evidence of knowledge and understanding of:

- (i) types and purpose of information sources;
- (ii) purpose of inspecting tools and equipment before use;
- (iii) characteristics, uses and limitations of tools and equipment;
- (iv) use of diagnostic tools and equipment to aid commissioning procedures;
- (v) methods and procedures for carrying out adjustments during commissioning procedures;
- (vi) statutory regulations applicable to the selection of test equipment for commissioning purposes.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENT OF COMPETENCE)

3. OPERATE PLANT AND EQUIPMENT TO ASSESS MECHANICAL OPERATION AGAINST SPECIFICATION

PERFORMANCE CRITERIA

- (a) Oral or written instructions and information given to the candidate are correctly interpreted and implemented.
- (b) Technical information derived from given sources relates to relevant task.
- (c) Plant and equipment are operated safely by interpreting operating instructions and procedures.
- (d) Working methods and activities minimise damage to the natural environment.
- (e) Working methods and activities satisfy current legislation.
- (f) Tools and equipment selected enable the task to be carried out to specification.
- (g) Defects and faults at variance to manufacturers' or statutory requirements or specifications are identified and recorded.
- (h) Plant and equipment are serviced, repaired and maintained to conform with manufacturers' technical information.
- (i) Corrective actions are implemented against deviations from operating or performance specification.
- (j) Work is completed to agreed time schedules.

RANGE STATEMENT

Information sources: manufacturers' technical information; manufacturers' operating instructions; statutory regulations; oral or written instructions.

Corrective actions: fault, diagnostic reporting procedures; adjustments to specification.

Tools and equipment: hand tools; specialist servicing tools; diagnostic equipment.

Plant and equipment: static plant; wheeled plant; tracked plant; small plant; attachments.

Processes: starting; stopping; manoeuvring; testing; monitoring; checking; adjusting; diagnosing; recording.

Safety: personal protective equipment; safety of others; plant and equipment; statutory regulations.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in:

- (i) starting, stopping and manoeuvring plant and equipment;
- (ii) conducting pre-operating checks, functional checks, monitoring checks, statutory checks and systems operation on plant and equipment;
- (iii) reporting faults;
- (iv) carrying out adjustments to specification;
- (v) leaving plant and equipment secure when not in use.

Oral or written evidence of knowledge and understanding of:

- (i) types and purposes of information sources;
- (ii) usage of sensory perceptions;
- (iii) operation and working principles of plant and equipment in the range;
- (iv) methods and procedures for carrying out pre-operating checks on plant and equipment;
- (v) selection and location of appropriate testing equipment of evaluation of results from tests and procedures;
- (vi) methods and procedures for carrying out functional tests in plant and equipment;
- (vii) methods and procedures for carrying out monitoring checks on plant and equipment;
- (viii) reasons for using diagnostic aids on plant, equipment, systems and components;
- (ix) purpose of evaluating performance of plant and equipment against manufacturers' and statutory specifications;
- (x) procedures for reporting malfunctions and defects in plant and equipment;
- (xi) reasons for carrying out 'in-service' adjustments in accordance with manufacturers' specifications;
- (xii) application and suitability of tools for carrying out adjustments on plant and equipment;
- (xiii) reasons for meeting set time schedules;
- (xiv) methods of securing and isolating plant and equipment;
- (xv) responsibilities with regard to statutory regulations.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENT OF COMPETENCE)**4. DE-COMMISSION PLANT AND EQUIPMENT****PERFORMANCE CRITERIA**

- (a) Oral or written instructions and information given to the candidate are correctly interpreted and implemented.
- (b) Technical information derived from given sources relates to the relevant task.
- (c) Work methods and activities minimise damage to the natural environment.
- (d) Tools and equipment selected enable the task to be carried out to the specification.
- (e) De-commissioning of plant and equipment conforms with prescribed procedures regarding safe working practices and legislative requirements.
- (f) Defects and faults at variance to manufacturers' or statutory requirements or specifications are recorded.
- (g) Work is completed to agreed time schedules.

RANGE STATEMENT

Information sources: manufacturers' technical information; manufacturers' operating instructions.

Tools and equipment: hand tools; specialist servicing tools; diagnostic equipment.

Plant and equipment: static plant; wheeled plant; tracked plant; small plant; attachments.

Processes: checking; inspecting; running down; securing; isolating; diagnosing.

Safety: personal protective equipment; safety of others; operation of plant and equipment; statutory regulations applicable to de-commissioning plant and equipment; HASWA (Health and Safety at Work Act); COSHH (Control of Substances Hazardous to Health) Regulations.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in de-commissioning plant and equipment by isolating and securing.

Oral or written evidence of knowledge and understanding of:

- (i) types and purpose of information sources;
- (ii) usage of sensory perceptions;
- (iii) reasons for using diagnostic equipment to carry out de-commissioning procedures;
- (iv) operation and working principles of plant and equipment;
- (v) importance of recording de-commissioning findings;

- (vi) criteria for classification of defects as serviceable or unserviceable;
- (vii) statutory and non-statutory procedures for de-commissioning plant and equipment in the range;
- (viii) safety requirements for isolating and securing plant and equipment;
- (ix) procedures for storing or dispersing of defective parts and components;
- (x) responsibilities with regard to statutory regulations.

All the performance criteria must be met and all items in the range statement covered.

OUTCOME (ELEMENT OF COMPETENCE)

5. RECORD PLANT AND EQUIPMENT OPERATIONAL PERFORMANCE

PERFORMANCE CRITERIA

- (a) Working methods are designed to ensure that organisational objectives are achieved.
- (b) Records are complete, accurate, clear and accessible.
- (c) Co-ordinating directions and communications are clear, concise and effective.
- (d) Work methods and activities satisfy current legislation.

RANGE STATEMENT

Information sources: company record requirements; statutory requirements; manufacturers' technical information; company instructions.

Documentation: company or organisation records; statutory forms.

Location: site, depot.

Safety: codes of practice; statutory administration procedures applicable to the commissioning of plant and equipment; HASWA (Health and Safety at Work Act); COSHH (Control of Substances Hazardous to Health) Regulations.

EVIDENCE REQUIREMENTS

Performance evidence of competence under working conditions in:

- (i) recording and collating;
- (ii) processing information;
- (iii) report writing.

Oral or written evidence of knowledge and understanding of:

- (i) types and purpose of information sources;
- (ii) reasons for recording commissioning and de-commissioning findings;
- (iii) methods of maintaining records for plant and equipment repair and maintenance;
- (iv) methods and procedures for report writing and report compilation;
- (v) methods of maintaining parts and component records;
- (vi) purpose of statutory records;
- (vii) reasons and methods for reporting construction plant and equipment for safety serviceability requirements;
- (viii) responsibilities with regard to statutory regulations.

All the performance criteria must be met and all items in the range statement covered.

ASSESSMENT RECORDS

In order to achieve this unit, candidates are required to present sufficient evidence that they have met all the performance criteria for each outcome within the range specified. Details of these requirements are given for each outcome. The assessment instruments used should follow the general guidance offered by the SQA assessment model and an integrative approach to assessment is encouraged. (See references at the end of support notes).

Accurate records should be made of assessment instruments used showing how evidence is generated for each outcome and giving marking schemes and/or checklists, etc. Records of candidates' achievements should be kept. These records will be available for external verification.

SPECIAL NEEDS

In certain cases, modified outcomes and range statements can be proposed for certification. See references at end of Support Notes.

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NATIONAL CERTIFICATE MODULE: UNIT SPECIFICATION**SUPPORT NOTES**

UNIT NUMBER 2211173

UNIT TITLE COMMISSIONING PLANT AND EQUIPMENT

SUPPORT NOTES: This part of the unit specification is offered as guidance. None of the sections of the support notes is mandatory.

NOTIONAL DESIGN LENGTH: SQA allocates a notional design length to a unit on the basis of time estimated for achievement of the stated standards by a candidate whose starting point is as described in the access statement. The notional design length for this unit is 40 hours. The use of notional design length for programme design and timetabling is advisory only.

PURPOSE This unit is designed to enable the candidate to develop skills and knowledge related to commissioning plant and equipment. It is suitable for operatives working in the construction industry or a service industry related to construction.

SQA publishes summaries of NC units for easy reference, publicity purposes, centre handbooks, etc. The summary statement for this unit is as follows:

This module will help you to acquire the skills and knowledge necessary to select tools and equipment for commissioning plant, to operate plant to assess mechanical operation and to de-commission plant. You will also record the operational performance of plant and equipment.

On completion of the module you will have a working knowledge of relevant safety procedures and legislation.

CONTENT/CONTEXT The candidate successfully completing this module will require underpinning knowledge and skills relating to the interpretation of technical information for commissioning, de-commissioning and operating to assess mechanical operation of plant and equipment.

The unit would be offered to candidates from the construction and related services industries. The skills are transferable within different working environments but the unit is primarily aimed at candidates whose normal place of work would be a site or similar environment.

The range statement is applicable to all areas of construction and other related or similarly structured industries. The competences and underpinning knowledge gained in successfully completing this unit would be transferable across a range of disciplines within the built environment.

The unit deals with commissioning plant and equipment and is complemented by units dealing with related aspects of work in plant maintenance.

It should be delivered as part of a structured programme of training and orientated to the context of the candidate's work and area of responsibility.

APPROACHES TO GENERATING EVIDENCE The achievement of the underpinning knowledge required for this unit would be assisted by the use of slides and videos, and hands-on experience.

Tutors/trainers should demonstrate practical elements step by step until the candidate feels confident enough to attempt them on his/her own, and the safety factors should be thoroughly emphasised.

Supervisors and employers could also play an importance part in assisting candidates to generate evidence.

ASSESSMENT PROCEDURES Candidates will be able to provide evidence of performance using a variety of methods. These will include:

- Performance at work (recorded in candidate's Assessment and Evidence Record or other methods).
- Performance in training (recorded in Candidate's Assessment and Evidence Record or other methods).
- Simulated exercises (skills/progress test results).
- Past achievement/experiences e.g. letters of endorsement; past certificates.

Evidence gathering from the workplace will be the preferred method; however there may be situations where this is inappropriate or the evidence is insufficient. Supplementary evidence will also be required to demonstrate the underpinning knowledge related to the competences in the unit.

For detailed guidance on assessment, reference should be made to the publications listed at the end of the Support Notes and to the Assessment Guidance Notes available for the delivery of the Scottish Vocational Qualification of which this module is a component.

PROGRESSION This unit forms part of the level III SVQ in Plant Maintenance.

Each module is a separate unit and the modules are not necessarily taken in a prescribed order, although there is a logical sequence to the acquisition of the skills and knowledge concerned.

To gain the award, the candidate must successfully complete all of the following units:

Construction: Plant Maintenance (level III)

2211143	Servicing Plant and Equipment
2211153	Inspecting Plant and Equipment to Identify Defects
2211163	Repairing and Overhauling Plant and Equipment
2211173	Commissioning Plant and Equipment
4120723	Contributing to the Planning, Organisation, Monitoring, Control and Evaluation of Operational Activities
4120733	Maintaining Working Conditions and Operational Activities to Meet Quality Standards (x 0.5)

RECOGNITION Many SQA NC units are recognised for entry/recruitment purposes. For up-to-date information see the SQA guide 'Recognised and Recommended Groupings'.

REFERENCES

1. Guidelines for Module Writers.
2. SQA's National Standards for Assessment and Verification.
3. For a fuller discussion on assessment issues, please refer to SQA's Guide to Assessment.
4. Procedures for special needs statements are set out in SQA's guide 'Students with Special Needs'.

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