



# Level 2

## Occupational Standard for National Vocational Qualification Excavator Operations

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## ACKNOWLEDGEMENT

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## **INTRODUCTION**

The Grenada National Training Agency (GNTA) as empowered by the GCTVET Act of 2009 is the agency mandated to co-ordinate, facilitate and enable the development and growth of Technical and Vocational Education and Training in Grenada Carriacou and Petite Martinique.

The Agency through modes of training intervention intends to help in ensuring that there exists a supply of trained and skilled workers to service labour market needs and thereby contribute to higher levels of productivity in the Grenadian economy. The organisation by way of policy seeks to have developed and approved occupational standards derived from industry specifications and to guide the training, assessment and certification within the Grenada TVET System.

The Grenada Council for Technical Vocational Education and Training (GCTVET) created by an ACT of parliament in 2009 is empowered to approve standards for the award certification leading to Caribbean Vocational Qualification (CVQ's) and National Vocational Qualification (NVQ's). The GNTA has established industry lead groups responsible for vetting standards as well as specifying and recommending standards to be approved.

## **ABOUT THIS STANDARD**

This is a National Vocational Qualification Standard that has been approved for training and certification in Grenada.

This standard was adapted and approved by the Grenada Council for Technical Vocational Education and Training (GCTVET) on 06<sup>th</sup> September 2018.

There are some minor modifications made to accommodate the local context; however, the overall content of the document is unchanged.



## QUALIFICATION OVERVIEW

The NVQ Level 2 in Excavator Operations is for individuals whose role in the construction sector requires well developed behavioural competencies but whose scope for independent decision making and for bringing about change is unlimited.

This qualification is for prospective excavator operators who wish to enter the construction sector. The qualification focuses on understanding the functions of checking, starting, shutting down and operating the excavator to load and safely place materials. It also deals with the maintenance of an effective working environment as well as health and safety requirements to perform excavator operations tasks.

They are likely to be in roles where they are required to:

- Respond to Hazards and emergencies in the workplace
- Prepare basic technical report
- Operate the Excavator
- Plan and prepare for Excavator Operations
- Connect and inspect attachments and components

Normally persons working at Level 2 should be able to competently carry out simple, complex and routine work activities and to collaborate with others through groups and teams. The qualification covers competencies by providing services in Excavator Operations as indicated in the standard.

### **Persons who complete this qualification could be employed in the following job:**

- Excavator Operator

The holders of this qualification will demonstrate a range of personal presentations and demonstrations of team work skills and literacy skills. To achieve this qualification all core units must be achieved. Any elective completed will be awarded unit statement of competency. The nominal training hours are a guide for planning the delivery of training programmes.



Please note that certification can be gained through formal training or on the job experience by scheduling assessments with the Grenada National Training Agency (GNTA) certified assessors.



## Occupational Standards for National Vocational Qualification (NVQ)

**CNEO2011**

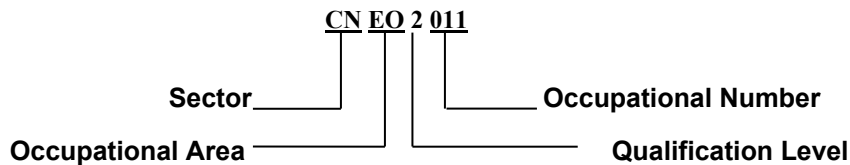
**NVQ Level 2 – Excavator Operations**

Unit Number	Unit Title	Requirement
EN00200	Maintain Health, Safety and Environmental Procedures in the Workplace	Mandatory
EN00201	Respond to Hazards and Emergencies in the Workplace	Mandatory
EN00202	Maintain Effective Workplace Communication	Mandatory
EN00203	Prepare Basic Technical Report	Mandatory
CN00690	Plan and Prepare for Excavator Operations	Mandatory
CN00691	Perform Pre-Operational and Operational Checks	Mandatory
CN00692	Connect and Inspect Attachments and Components	Mandatory
CN00693	Operate the Excavator	Mandatory

To obtain a National Vocational Qualification (NVQ) all Mandatory Units must be achieved.

### Legend to Occupational Standard code

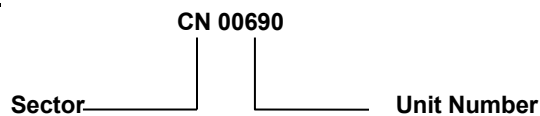
Example: CNEO2011



Key: CN – Construction; EO–Excavator Operation2- Level; 011 - Numerical sequence

### Legend to Unit Code

Example: CN00690



Key: CN– Construction; unit - #00690

EN00200

## Maintain Health, Safety and Environmental Procedures in the Workplace

Unit Descriptor:

This unit deals with the skills and knowledge required for the maintaining and applying health, safety and environmental regulations, legislation and procedures in the workplace.

### ELEMENTS

### PERFORMANCE CRITERIA

Candidates must be able to:

- |   |  |   |
|---|--|---|
| 1 | Maintain personal safety standards                             | <ul style="list-style-type: none"> <li>1.1 Wear recommended personal protective equipment to ensure own health and safety, as specified by the health and safety procedures and risk assessment</li> <li>1.2 Attend risk assessment development and safety meetings to identify and eliminate/reduce hazards related to workplace activities</li> <li>1.3 Perform safe manual handling and lifting to avoid injuries in accordance with safety policies and procedures</li> <li>1.4 Communicate with all parties to be affected by workplace activities as specified by workplace procedures</li> </ul>   |
| 2 | Apply occupational health, safety and environmental procedures | <ul style="list-style-type: none"> <li>2.1 Comply with health, safety and environmental procedures in accordance with organisational policies and safety plans</li> <li>2.2 Identify breaches of health, safety, security and environment policies and procedures and report to the appropriate personnel in accordance with workplace procedures</li> <li>2.3 Perform work activities in a safe manner to prevent hazards according to safety policies and procedures</li> <li>2.4 Perform housekeeping activities in accordance with workplace procedures</li> <li>2.5 Use all equipment and safety devices according to company/manufacture's procedures/instructions/standard operating procedures</li> </ul> |

- 2.6 Identify and follow all safety signs/symbols according to workplace instructions

## RANGE STATEMENT

All range statements must be assessed

1. Personal protective equipment may include but not limited to:
  - gloves
  - protective footwear
  - protective head gear
  - hearing protection
  - eye protection
  - protective clothing
  - respiratory protection
  - fall protection
  - flotation devices (where applicable)
2. Safety equipment may include but not limited to:
  - fire fighting/prevention equipment
  - fall protection equipment
  - eye wash and shower
  - medical/first aid kit
  - alarm monitors
3. Measures to prevent injury or impairment include:
  - risk register
  - Job Safety/ Hazard Analysis (JSA/JHA)
  - work permits
  - risk assessment
  - site orientations

## UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. what are the individual responsibilities with respect to health, safety and environmental legislation, regulations, safe working practices, local, national and site specific procedures
2. what are the procedures to contact authorised personnel in case of emergencies, including the location of local first-aid facilities, first-aiders and systems for alerting relevant professional authorities
3. what are the incident reporting documentation and systems relevant to the workplace
4. what are individual responsibilities with regard to the reporting lines and procedures in the workplace
5. what are relevant industry safety regulations and codes of practice
6. what are major safety requirements for the work environment
7. what are the personal protective equipment to conduct work



8. what are the safety requirements relating to handling and usage of tools, equipment and materials
9. what are the emergency evacuation procedures for the workplace
10. what are fire hazards and fire hazard minimisation procedures
11. what are the organisational health, safety, security and environmental policies and procedures that applies to the activity
12. what are the occupational safety decals
13. what are the procedures that apply to working in confined spaces (where applicable)
14. what are the procedures for lock out/tag out(when applicable)
15. what are the procedures for permit to work (when applicable)
16. how to identify classes of fire and the types of extinguishers required
17. how to identify major causes of workplace accidents relevant to the work activity
18. how to identify breaches to health, safety, security and environmental procedures and how to mitigate against them

## EVIDENCE GUIDE

### (1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- a. select and wear appropriate personal protective equipment to ensure own health and safety, following health and safety procedures
- b. attend risk assessment development and safety meetings to identify and eliminate/reduce hazards related to workplace activities
- c. comply with health and safety procedures in accordance with organisational policies and safety plans to prevent injuries and minimize workplace hazards
- d. identify breaches of health, safety, security and environmental procedures and report to the appropriate personnel in accordance with health and safety procedures
- e. use all equipment and safety devices according to company/maker's procedures/instructions

### (2) Method of Assessment

Assessors should gather a range of evidence, over a period of time, which is valid, sufficient and authentic. Evidence should be gathered through a variety of ways including direct observation, portfolios and oral and written questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, manufacturer's specifications, codes, standards, manuals and reference materials.

### (3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

EN00201

## Respond to Hazards and Emergencies in the Workplace

Unit Descriptor:

This unit deals with the skills and knowledge required for checking and identifying potential hazards and taking the appropriate action to minimise the risks posed. It also includes identifying and dealing with emergency situations.

### ELEMENTS

### PERFORMANCE CRITERIA

Candidates must be able to:

- |   |                                 |     |   |
|---|---------------------------------|-----|---|
| 1 | Identify and control hazards    | 1.1 | Identify industrial processes, tools, equipment, materials and environmental conditions that have the potential to cause harm                   |
|   |                                 | 1.2 | Work safely at all times, complying with health and safety and other relevant regulations and guidelines  |
|   |                                 | 1.3 | Identify hazards and take appropriate action to minimise the risk from hazards according to workplace procedures                                |
|   |                                 | 1.4 | Report hazards identified and any actions taken, according to workplace procedures  |
| 2 | Respond to emergency situations | 2.1 | Identify potential emergency situation and take action within scope of responsibility, in accordance with emergency response procedures         |
|   |                                 | 2.2 | Seek assistance in the event of an emergency, using warning systems where necessary, in accordance with workplace procedures                    |
|   |                                 | 2.3 | Take appropriate action to minimise risk of personal and third party injury, property and equipment according to workplace emergency procedures |
|   |                                 | 2.4 | Report details of emergency situation in accordance with organisational policies and procedures   |

## RANGE STATEMENT

All range statement must be assessed.

1. Types of workplace and environment may include but not limited to:
  - construction sites
  - controlled operations
  - offshore installations (where applicable)
2. Emergencies may include but not limited to:
  - fire/ explosions
  - bomb threats
  - earthquake
  - serious/medical injury
  - electric shock
  - hazardous material spills
  - severe weather
  - flood
3. Action to be taken to control hazards/emergencies may include but not limited to:
  - identification and evaluation of risk
  - follow safety procedures
  - feedback
  - stop unsafe work
  - increase voltage
  - underground utility indicators
4. Hazards may include but not limited to:
  - chemical
  - physical
  - biological
  - psychosocial
  - simultaneous operations (SIMOPS)
5. Health, safety, security and environmental policies and procedures may include but not limited to:
  - emergency, fire and accident
  - hazard identification and control
  - safe lifting and handling
  - security of documents, equipment, personnel
  - safe use of tools and equipment
  - safe use of chemicals and toxic substances
  - safe use of lifting/rigging equipment (where applicable)
  - substance abuse

## UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. what are the individual responsibilities with respect to health, safety and environmental legislation, regulations, safe working practices, local, national and site specific procedures
2. what are the hazard identification and safety assessment methods and techniques
3. what types of hazards can arise and how can they be dealt with
4. what are the effects on personnel, property and the environment, if a hazard occurs
5. what are the types of actions required to minimize risk
6. what are the individual responsibilities with regard to the reporting lines in the workplace
7. what are the procedures applicable to shutdown and evacuations and what is your responsibility in the event of an emergency/evacuation
8. what are the reporting procedures to be completed for emergency situations and what should be included in such a report
9. what information is contained in the Material Safety Data Sheet (MSDS)
10. what are the steps involved in lock out/tag out (where applicable)

## EVIDENCE GUIDE

### (1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- a. identify hazards and take appropriate action to minimise the risk from hazards according to workplace procedures
- b. identify potential emergency situations and take required action within scope of responsibility

### (2) Method of Assessment

Assessors should gather a range of evidence, over a period of time, which is valid, sufficient and authentic. Evidence should be gathered through a variety of ways including direct observation, portfolios and oral and written questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, manufacturer's specifications, codes, standards, manuals and reference materials.

### (3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

## EN00202

## Maintain Effective Workplace Communication

## Unit Descriptor:

This unit deals with the skills and knowledge required for establishing and maintaining productive working relationships and communicating work related information.

**ELEMENTS****PERFORMANCE CRITERIA**

Candidates must be able to:

- |   |                         |     |   |
|---|-------------------------|-----|---|
| 1 | Communicate with others | 1.1 | Communicate with others to maintain good working relationships according to workplace guidelines                      |
|   |                         | 1.2 | Inform others, in a timely manner, about work plans or activities which affect them according to workplace procedures |
|   |                         | 1.3 | Seek assistance from others, without causing disruption to work activities in accordance with workplace guidelines    |
|   |                         | 1.4 | Respond to others seeking information, in a timely manner, according to workplace procedures                          |
| 2 | Communicate information | 2.1 | Communicate information about tasks, processes or events according to workplace procedures                            |
|   |                         | 2.2 | Identify sources of information for the work activity according to workplace guidelines                               |
|   |                         | 2.3 | Report information in accordance with workplace policies and procedures   |

**RANGE STATEMENT**

All range statements must be assessed

- |   |   |
|---|---|
| 1. Working relationships include but not limited to: <ul style="list-style-type: none"> <li>• those for whom you have responsibility</li> <li>• those to whom you are responsible</li> <li>• clients</li> <li>• co-workers</li> <li>• visitors</li> </ul> | 2. Communication include but not limited to: <ul style="list-style-type: none"> <li>• formal</li> <li>• informal</li> <li>• written</li> <li>• verbal</li> <li>• signs/signals</li> </ul> |
|---|---|

3. Sources of information may include but not limited to:
  - those for whom you have responsibility
  - clients

## UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. what are the lines of communication and responsibilities of others in the workplace
2. what are the types of problems that can affect relationships and what actions can be taken to deal with difficulties related to the work activity
3. what are the methods to be used to convey information to others
4. how to create and maintain working relationships and why it is important to do so
5. how to use work schedules, charts, work bulletins and memos
6. how to use communication to resolve issues/conflicts

## EVIDENCE GUIDE

### (1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- a. communicate with others to maintain good working relationships
- b. identify sources of information for the work activity
- c. communicate information about tasks, processes or events
- d. respond to others seeking information
- e. report information

### (2) Method of Assessment

Assessors should gather a range of evidence, over a period of time, which is valid, sufficient and authentic. Evidence should be gathered through a variety of ways including direct observation, portfolios and oral and written questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, manufacturer's specifications, codes, standards, manuals and reference materials.

### (3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

## EN00203

## Prepare Basic Technical Reports

## Unit Descriptor:

This unit deals with the skills, knowledge and attitude necessary to prepare basic technical reports. This includes identifying reporting requirements, obtaining information from sources, analysing information and preparing reports.

**ELEMENTS****PERFORMANCE CRITERIA**

Candidates must be able to:

1	Identify reporting requirements	1.1	Identify the reasons/requirements for reports according to workplace procedures
		1.2	Identify format for reports according to workplace procedures
2	Gather and analyse information	2.1	Obtain information from sources according to priorities and requirements of the report
		2.2	Verify information and confirm accuracy according organisational policies and procedures
		2.3	Check that the information is sufficient and gather additional material, if required, in accordance with workplace policies and procedures
3	Prepare reports	3.1	Prepare reports according to workplace procedures
		3.2	Verify reports using approved analysis/observation or research
		3.3	Submit reports within specified time according to workplace procedures

**RANGE STATEMENT**

All range statements must be assessed.

- |   |  |
|---|--|
| <p>1. Reports may include but not limited to:</p> <ul style="list-style-type: none"> <li>• witness reports</li> <li>• routine periodic reports</li> <li>• service/repair reports</li> </ul> | <p>2. Sources may include but not limited to:</p> <ul style="list-style-type: none"> <li>• organisation's information recording and storage system</li> <li>• paper and computer sources of data and information</li> <li>• interviews</li> <li>• incident reports</li> <li>• historical data</li> </ul> |
|---|--|

- observations
3. Workplace policies and procedures may include but not limited to:
    - authorised access to or use of information
    - data protection and the storage and security of information
    - use of information technology and other electronic or telecommunication systems

## UNDERPINNING KNOWLEDGE & SKILLS

Candidates must know and understand:

1. what are workplace policies and procedures relating to preparing basic technical reports
2. what are the procedures to identify the reasons/requirements for reports
3. what are the reporting formats applicable to workplace, including graphs, charts or tables
4. what are the sources to obtain information
5. what are the procedures to gather information and determine the need for additional material
6. how to prepare a basic technical report
7. how to analyse and interpret documents containing the required information
8. how to verify with reliable sources, inside and outside the organization, the accuracy and relevance of information
9. how to sort information into a logical pattern
10. how to record accurate, clear and objective information
11. how to present written material using a range of media applicable to the workplace, including information technology software
12. how to use communication to verify information
13. how to handle and store information securely and safely and with an awareness of environmental and sustainable practices

## EVIDENCE GUIDE

### (1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- a. comply with workplace policies and procedures to prepare basic technical reports
- b. identify reasons/requirements for reports
- c. identify format for reports
- d. obtain information from sources
- e. verify information and confirm accuracy
- f. use communication to verify information
- g. prepare basic technical reports
- h. verify and submit reports



**(2) Method of Assessment**

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

**(3) Context of Assessment**

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

## CN00690

## Plan and Prepare for Excavator Operations

## Unit Descriptor:

This unit deals with the skills, knowledge and attitude required to plan and prepare for excavator operations. It involves selecting the excavator, identifying hazards and adhering to site safety requirements.

**ELEMENTS****PERFORMANCE CRITERIA**

Candidates must be able to:

- |   |   |   |
|---|---|---|
| 1 | Plan and prepare for job                                  | 1.1 Confirm work instructions according to workplace procedures   |
|   |   | 1.2 Obtain relevant authorisation prior to commencement of work activities according to workplace procedures          |
|   |   | 1.3 Determine procedure to carry out task according to work instructions  |
|   |   | 1.4 Select excavator according to job requirements  |
| 2 | Carry out personnel, equipment and site safety procedures | 2.1 Select and use personal protective equipment (PPE) according to occupational health and safety (OSH) requirements |
|   |   | 2.2 Inspect site for potential hazards according to work procedures   |
|   |   | 2.3 Adhere to site safety and signage requirements according to workplace procedures                                  |

**RANGE STATEMENT**

All range statement must be assessed.

- |  |  |
|--|--|
| 1. Authorisation may include but not limited to: <ul style="list-style-type: none"> <li>• safety permits</li> <li>• risk assessment/Job Safety Analysis (JSA)</li> <li>• work orders</li> <li>• line permission</li> </ul> | 2. Signage requirements may include but not limited to: <ul style="list-style-type: none"> <li>• public notifications</li> <li>• barricades</li> </ul> |
| 3. Excavator may include but not limited   | 4. Work instructions may include but not   |

- |   |  |
|---|--|
| <p>to:</p> <ul style="list-style-type: none"> <li>● crawler type excavator</li> <li>● wheel type excavator</li> </ul> | <p>limited to:</p> <ul style="list-style-type: none"> <li>● verbal</li> <li>● written</li> </ul> |
|---|--|
- 
- |  |  |
|--|--|
| <p>5. Personal protective equipment (PPE) may include but not limited to:</p> <ul style="list-style-type: none"> <li>● face/eye/ear protection</li> <li>● overalls (long sleeved)</li> <li>● high visibility clothing</li> <li>● steel toe boots</li> <li>● hard hats</li> <li>● gloves</li> </ul> | <p>6. Site may include but not limited to:</p> <ul style="list-style-type: none"> <li>● construction</li> <li>● controlled operations</li> </ul>   |
| <p>7. Potential hazards may include but not limited to:</p> <ul style="list-style-type: none"> <li>● chemical</li> <li>● physical</li> <li>● biological</li> <li>● psychosocial</li> </ul>   | <p>8. Site safety requirements may include but not limited to:</p> <ul style="list-style-type: none"> <li>● Occupational Health and Safety Legislation</li> <li>● statutory requirements</li> <li>● work place procedures</li> </ul> |

## UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. what are the different types of excavators and their functions
2. what are the potential hazards associated with excavator operations
3. what is the importance of using personal protective equipment (PPE) in excavator operations
4. what corrective action should be taken if the work site is unfit for excavator operations
5. how to select type of excavator to perform job
6. how to read and understand load chart
7. how to inspect for potential hazards associated with excavator operations
8. how to adhere to statutory requirements
9. how to adhere to standard operating procedures

## EVIDENCE GUIDE

### (1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- a. select type of excavator to perform task
- b. use personal protective equipment (PPE) base on site requirements
- c. inspect site for potential hazards
- d. comply with occupational health and safety (OSH) requirements
- e. prepare to perform tasks to job specifications
- f. perform all tasks according to established procedures

### (2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

**(3) Context of Assessment**

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

## CN00691

## Perform Pre-Operational and Operational Checks

## Unit Descriptor:

This unit deals with the skills, knowledge and attitude required to conduct pre-operational and operational checks. It involves inspecting excavating components, checking instruments and safety devices and maintaining records.

**ELEMENTS****PERFORMANCE CRITERIA**

Candidates must be able to:

- |   |  |   |
|---|--|---|
| 1 | Conduct pre-operational and operational inspection | <ul style="list-style-type: none"> <li>1.1 Perform checks to ensure excavator is ready for operation according to manufacturer's specification and standard operating procedures</li> <li>1.2 Inspect excavator tracks/wheels for damage/tension according to standard operating procedures and manufacturer's specifications</li> <li>1.3 Inspect excavating components according to standard operating procedures and manufacturer's specifications</li> <li>1.4 Check controls and functions of the excavator before performing task according to standard operating procedures and manufacturer's specifications</li> <li>1.5 Check instruments and safety devices according to standard operating procedures and manufacturer's specifications</li> <li>1.6 Record all findings on checklist in accordance with manufacturer's standards and workplace procedures</li> </ul> |
| 2 | Prepare inspection report                          | <ul style="list-style-type: none"> <li>2.1 Prepare inspection report in accordance with workplace procedures</li> <li>2.2 Submit report to the supervisor according to workplace procedures</li> <li>2.3 Maintain records in the appropriate location in accordance with industry standards</li> </ul>  |

**RANGE STATEMENT**

All range statement must be assessed.

1. Checks may include but not limited to:
  - visibility
  - fluid levels
    - windscreen washer tank (water)
    - hydraulic oil
    - coolant
    - engine oil
    - fuel
    - transmission
    - brake
    - swing gear oil
  - cab
    - horn
    - air condition
    - wipers
    - seat and seat belt
    - mirrors
    - steering wheel
    - presence of an operating manual
    - presence of a fire extinguisher
  - lights
    - head lights
    - brake lights
    - reverse lights
    - indicator lights
  - overhead guard/Roll Over Protective Structure (ROPS)
  - Falling Objects Protective Structure (FOPS)
  - under carriage
    - tracks/wheels
    - stabilizing bars
    - blade
    - tensioner/idler
    - rollers
    - propeller gear
    - sprocket
    - swing gear
  - guard rails
  - steps
  - walkways
  - hand holds
  - battery
  - radiator
  - leaks
  - ground engaging tools (GET)
  - air filter
2. Controls and functions may include but not limited to:
  - starting devices
  - engine speed control
  - stop control
  - gear selection
  - parking brakes
  - hydraulic controls
  - swing lock
  - attachment lock
  - steering mode selection
  - automatic idle switch
  - hydraulic activation lever/switch

- diesel sediment bowl / water separator
  - lubrication/greasing
3. Instruments and safety devices may include but not limited to:
- oil pressure gauges
  - ammeter, battery indicators
  - warning indicators
  - hour gauge
  - steering mode indicator
  - fire extinguisher
  - hydraulic activation lever/switch
  - warning devices
    - backup alarm
    - strobe lights
    - propel alarm
    - horns
4. Excavating components may include but not limited to:
- buckets
  - boom
  - dipper arm
  - ripper
5. Appropriate location may include but not limited to:
- checklist holder
  - site manager office
  - supervisor office

## **UNDERPINNING KNOWLEDGE AND SKILLS**

Candidates must know and understand:

1. what is the importance of the pre-operational and operational checks which should be conducted on the excavator
2. what is the importance of inspecting the excavating components
3. what is the importance of checking instruments and safety devices
4. what is the importance of checking controls and functions
5. what are the procedures for starting-up, shutting-down and parking excavator
6. how to check instruments and safety devices to monitor excavator operations
7. how to check controls and functions of the excavator before performing task
8. how to use a fire extinguisher
9. how to record findings on the checklist
10. how to prepare inspection reports
11. how to maintain and update records
12. how to adhere to manufacturer's specifications
13. how to adhere to statutory requirements
14. how to adhere to standard operating procedures
15. how to check for leaks when machine is on/off

**EVIDENCE GUIDE****(1) Critical Aspects of Evidence**

Evidence should include a demonstrated ability to:

- a. perform pre-operational and operational checks
- b. complete checklist during pre-operational and operational checks
- c. prepare inspection report
- d. maintain and update records

**(2) Method of Assessment**

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

**(3) Context of Assessment**

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.



## CN00692

## Connect and Inspect Attachments and Components

## Unit Descriptor:

This unit deals with the skills, knowledge and attitude required to connect and inspect excavator attachments and components. It involves checking and removing attachments and components as well as preparing inspection report.

**ELEMENTS****PERFORMANCE CRITERIA**

Candidates must be able to:

- |   |  |  |
|---|--|--|
| 1 | Select and inspect attachment and components | <ul style="list-style-type: none"> <li>1.1 Wear suitable personal protective equipment and work safely at all times, complying with health and safety and other relevant regulations and guidelines</li> <li>1.2 Obtain relevant resources according to requirements of the job</li> <li>1.3 Select attachments according to job requirements</li> <li>1.4 Connect attachments to excavator according to manufacturer's specifications</li> <li>1.5 Check the working condition of attachments and components according to manufacturer's specifications</li> <li>1.6 Check attachments, lubrication and fluid levels according to manufacturer's specifications</li> <li>1.7 Perform function tests on attachments according to manufacturer's specifications</li> <li>1.8 Remove attachments according to manufacturer's specifications</li> </ul> |
| 2 | Prepare inspection report                    | <ul style="list-style-type: none"> <li>2.1 Prepare inspection report in accordance with workplace procedures</li> <li>2.2 Submit report to the supervisor according to workplace procedures</li> <li>2.3 Maintain records in the appropriate location in accordance with industry standards</li> </ul>   |

**RANGE STATEMENT**

All range statement must be assessed.

1. Personal protective equipment may include but not limited to:
  - face/eye/ear protection
  - head protection
  - safety boots
  - coveralls
  - hand protection
  - respiratory protection
2. Resources may include but not limited to:
  - labour
  - materials
  - tools
  - equipment
3. Attachments may include but not limited to:
  - buckets:
    - standard duty
    - heavy duty
    - heavy duty rock
    - ditching
    - trenching
  - ripper
  - hammers
  - augers
  - thumbs/bucket clamp
  - vibratory plate compactors
  - quick couplers
  - shears
  - brooms
  - clamps
  - pile driver
4. Components may include but not limited to:
  - shackles
  - hooks
  - pins
  - bolts
  - split pins
  - hydraulic hoses
  - hose fitting
5. Function tests of attachment may include but not limited to:
  - bucket movement
  - ripper piercing action
  - hammer impact action
  - auger rotation
  - thumbs/bucket clamping movement
  - compactors movement
  - quick couplers movement
  - shears cutting action
  - brooms rotating action
  - clamps grabbing and securing action
  - pile driver impact action
6. Fluid levels may include but not limited to:
  - hydraulic oil
  - engine oil
  - lubrication/grease
  - water/coolant
  - diesel

7. Appropriate location may include but not limited to:
  - checklist holder
  - site manager's office
  - supervisor's office

## UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. what are the uses of the different attachments
2. what is the importance of lubricating attachments
3. what are the different types of components
4. what are the manual and hydraulic function test and the related attachments
5. what corrective action should be taken after checking for oil leaks
6. how to connect and detach attachments
7. how to check lubrication and maintain fluid levels
8. how to conduct function tests on attachments
9. how to prepare inspection reports
10. how to maintain and update records
11. how to adhere to manufacturer's specifications
12. how to adhere to statutory requirements
13. how to adhere to standard operating procedures

## EVIDENCE GUIDE

### (1) Critical Aspects of Evidence

Evidence should include a demonstrated ability to:

- a. select components and attachments to perform tasks
- b. inspect all components and attachments
- c. connect and remove components and attachments
- d. perform function test on attachments before performing actual work
- e. prepare an inspection report and maintain and update records
- f. perform all tasks according to established procedures

### (2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

**(3) Context of Assessment**

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

## CN00693

## Operate the Excavator

## Unit Descriptor:

This unit deals with the skills, knowledge and attitude required to operate the excavator. It includes starting the excavator, using safe operating techniques when performing excavations operations and parking the excavator.

**ELEMENTS****PERFORMANCE CRITERIA**

Candidates must be able to:

- |   |                               |   |
|---|-------------------------------|---|
| 1 | Prepare to move the excavator | <ul style="list-style-type: none"> <li>1.1 Confirm work instructions according to workplace procedures</li> <li>1.2 Mount the excavator according to safety requirements</li> <li>1.3 Position oneself in operator's seat and fasten seat belt securely to prepare for excavation operations according to job specification</li> <li>1.4 Start engine according to manufacturer's manual</li> <li>1.5 Load and unload excavator from transportation trailer where necessary according to workplace procedures, safety requirements and manufacturer's specifications</li> <li>1.6 Track/drive excavator to work area according to job requirements, manufacturer's specifications and statutory requirements</li> </ul> |
| 2 | Conduct Excavator Operations  | <ul style="list-style-type: none"> <li>2.1 Identify work site hazards according to manufacturer's specifications, statutory requirements and standard operating procedures</li> <li>2.2 Use safe operating techniques to minimise risk according to manufacturer's specifications, statutory requirements and standard operating procedures</li> <li>2.3 Monitor excavator during operations according to manufacturer's and/or workplace procedures</li> <li>2.4 Perform excavation operations according to job specifications and standard operating procedures</li> <li>2.5 Stabilise/position machinery according to job</li> </ul>   |

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		specifications and manufacturer's specifications
	2.6	Ensure swing area is free from contact with fixed/moving objects during operations according to safety requirements
	2.7	Secure material during movements according to manufacturer's specifications, statutory requirements and standard operating procedures
	2.8	Excavate and move materials according to job specifications and manufacturer's specifications
3	Park and secure the excavator	3.1 Park excavator on level surface, when possible and lower attachment to ground according to manufacturer's specifications and standard operating procedures
	3.2	Set parking brakes, where applicable according to manufacturer's specifications
	3.3	Cool down excavator and switch off engine according to manufacturer's specifications

### **RANGE STATEMENT**

All range statement must be assessed.

- |  |   |
|--|---|
| <p>1. Safety requirements may include but not limited to:</p> <ul style="list-style-type: none"> <li>• hand and foot hold</li> <li>• three-point rule</li> <li>• seat belts (operator's restraint device)</li> </ul> | <p>2. Materials may include but not limited to:</p> <ul style="list-style-type: none"> <li>• ferrous and non-ferrous materials</li> <li>• non hazardous materials</li> <li>• aggregates</li> <li>• dry chemical</li> </ul>  |
| <p>3. Work area may include but not limited to:</p> <ul style="list-style-type: none"> <li>• trenches</li> <li>• pits</li> <li>• road</li> </ul>   | <p>4. Safe operating techniques may include but not limited to:</p> <ul style="list-style-type: none"> <li>• lifting</li> <li>• lowering</li> <li>• picking up</li> <li>• placing</li> <li>• tilting</li> <li>• clamping</li> <li>• digging</li> <li>• augering</li> <li>• hammering</li> <li>• piling</li> </ul> |

5. Work site hazard may include but not limited to:
  - open trench
  - ditch
  - hydraulic
  - moving equipment
  - other equipment
  - underground utilities
  - blind spot hazards
  - overhead obstacles
6. Operations may include but not limited to:
  - bucket loading
  - equipment positioning
  - load discharge
  - observing site speed limits
  - other machines and personnel
  - stockpiling
  - excavating
7. Excavation operations may include but not limited to:
  - trenching
  - benching
  - sloping
8. Movements may include but not limited to:
  - swinging
  - tracking
9. Fixed/moving objects may include but not limited to:
  - equipment
  - pedestrians
  - fixed structures

## **UNDERPINNING KNOWLEDGE AND SKILLS**

Candidates must know and understand:

1. what are the legal requirements, safety requirements and statutory requirements relating to the use of an excavator
2. what are the safe excavation techniques
3. what are the site isolation and traffic control responsibilities and authorities
4. what are the methods of changing machine attachments
5. what are the operational, maintenance and basic diagnostic procedures
6. what are the leveling techniques
7. what are the safe operating techniques in all ground conditions
8. what are the hazards and risks associated with simultaneous operations
9. what is the capacity of the equipment
10. what are the underground utility indicators
11. how to secure materials during movements
12. how to read a load chart
13. how to shut down an excavator in an emergency situation
14. how to adhere to manufacturer's specifications
15. how to adhere to statutory requirements
16. how to adhere to standard operating procedures
17. how to respond to malfunctions and emergencies

**EVIDENCE GUIDE****(1) Critical Aspects of Evidence**

Evidence should include a demonstrated ability to:

- a. mount and dismount excavator using the principle of three points of contact
- b. follow approved safe operating procedures when performing tasks
- c. operate the excavator
- d. excavate and move material
- e. park and secure excavator

**(2) Method of Assessment**

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

**(3) Context of Assessment**

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.



## GLOSSARY OF TERMS

### *Occupational Standards*

Occupational Standards of competence are industry-determined specifications of performance, which describe the knowledge, skills and attitudes required by a worker in the performance of a particular role in the workplace. They specify what a person should know and do in order to carry out the functions of a particular job in the work environment. They are the building blocks for all activities in a competency-based training and certification system. An Occupational Standard is made up of a qualification plan, a unit title, elements, performance criteria, range statements, underpinning knowledge and skills and evidence guide.

***Qualification Plan*** – The Qualification Plan identifies the Mandatory units which are those units that are necessary to deem a candidate competent in the occupational area and provide flexibility in different work environments. It also contains the Title and Level of the qualification to be awarded.

***Unit Title*** - The unit title is a succinct statement of the outcome of the unit of competency. It reflects the major activities or functions of an individual's work as well as the discrete units of work.

***Unit Descriptor*** - The unit descriptor communicates the content of the unit of competency and the skill area it addresses.

***Elements*** - These are the basic building blocks of the unit of competency. They describe the tasks in which competence should be demonstrated in order to carry out the specific function.

***Performance Criteria*** - These are the descriptions of the outcomes of performance required for successful achievement of an element. They specify the required performance in relevant tasks, roles, skills and applied knowledge that enables competent performance.

***Range Statement*** - This describes the essential operating conditions that should be present in training and assessment, depending on the work situation, needs of the candidate, accessibility of the item and local industry contexts. It lists the parameters in which candidates must demonstrate their competence.

***Underpinning Knowledge and Skills*** – The knowledge identifies what a person needs to know to perform the work in an informed and effective manner. The skills describe the application of knowledge to situations where understanding is converted into a workplace outcome.

***Evidence Guide*** - The Evidence Guide is critical in assessment as it provides information to Training Providers and Assessors about how the described competency should be demonstrated. It provides a range of evidence for the Assessor to make a determination of competence and defines the assessment context. The Evidence Guide describes:

- Conditions under which competency must be assessed including variables such as the assessment environment or necessary equipment
- Suitable methodologies for conducting assessment including the potential for workplace simulation
- Resource implications, for example access to particular equipment, infrastructure or situations
- How consistency in performance must be assessed over time, various contexts and with a range of evidence

### **Level 1 – Directly supervised worker**

Recognizes competence in a range of varied work activities performed in a variety of contexts. Most work activities are simple and routine. Collaboration with others through work groups or teams may often be a requirement. Substantial supervision is required especially during the early months evolving into more autonomy with time.

### **Level 2 – Supervised skilled worker**

Recognizes competence in a broad range of diverse work activities performed in a variety of contexts. Some of these may be complex and non-routine and involve some responsibility and autonomy. Collaboration with others through work groups or teams and guidance of others may be required.

### **Level 3 – Independent/autonomous skilled worker**

Recognizes competence in a broad range of complex, technical or professional work activities performed in a wide variety of contexts, with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources are often a requirement. The individual is capable of self-directed application, exhibits problem solving, planning, designing and supervisory capabilities.

### **Level 4 – Supervisory specialist worker**

Recognizes competence involving the application of a range of fundamental principles and complex techniques across a wide and unpredictable variety of contexts. Requires very substantial personal autonomy and often significant responsibility for the work of others, the allocation of resources, as well as personal accountability for analysis, diagnosis, design, planning, execution and evaluation.

### **Level 5 – Managerial professional worker**

Recognizes the ability to exercise personal professional responsibility for the design, development or improvement of a product, process, system or service. Recognizes technical and management competencies at the highest level and includes those who have occupied positions of the highest responsibility and made outstanding contribution to the promotion and practice of their occupation.