

Unit ID: 1126	
Domain	HEAVY EQUIPMENT OPERATIONS
Title:	Carry out surface mining and quarrying activities using a hydraulic excavator
Level: 3	Credits: 35

Purpose

This unit standard is intended for those who work in road construction and maintenance operations. People holding credit for this unit standard are able to: Plan and prepare for work; demonstrate knowledge of the functions of a hydraulic excavator; fit and remove attachments; start and shut down hydraulic excavator; operate hydraulic excavator; load and place material; excavate and strip materials; use hydraulic excavator for rock breaking and drilling; prepare hydraulic excavator for transport to and from site; complete work related documents; and clean up work area.

Special Notes

1. Entry information:
 - Prerequisite
 - Unit 1113 - *Comply with health, safety and environmental rules and regulations pertaining to heavy equipment operations*
2. Hydraulic excavators can be wheeled or tracked.
3. Expected worksite production target are to be met.
4. Assessment evidence may be collected from a real workplace or a simulated workplace in which surface mining and quarrying operations are carried out.
5. Maintenance may include but is not limited to cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance and repair activities.
6. Safe working practices include but are not limited to day-to-day observation of safety policies and procedures, and compliance with emergency procedures.
7. Performance of all elements in this unit standard must comply with all relevant legal and workplace requirements, contractual agreement and/or manufacturers' specifications.
8. Regulations and legislation, including subsequent amendments, relevant to this unit standard may include but are not limited to the following:
 - Labour Act, No. 11 of 2007
 - Occupational Health and Safety Regulations No. 18, 1997
 and all industry specific regulations, legislations, code of practice, or code of conduct.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare for work

Range

Inspection and preparation of work area may include but is not limited to levelling ground; checking soil conditions; establishing positions of existing services and checking marks depicting lateral; vertical and horizontal boundaries.

Performance Criteria

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, explained, clarified and applied to the allocated task.
- 1.2 Safety requirements, including personal protective clothing and equipment are obtained from the site safety plan, workplace policies and procedures, and applied to the allocated task.
- 1.3 On-site traffic control requirements are obtained and implemented according to workplace requirements.
- 1.4 Plant, tools, fuel, lubricants, equipment, attachments and accessories selected to carry out tasks are checked for consistency with the requirements of the job, their usability and any faults rectified or reported prior to commencement of work.
- 1.5 Environmental protection requirements are identified from the project environmental management plan and applied to the allocated task.
- 1.6 Work area is inspected and prepared according to workplace procedures.

Element 2: Demonstrate knowledge of the functions of a hydraulic excavator

Performance Criteria

- 2.1 The main functions of hydraulic excavators are explained in terms of surface mining and quarrying processes.
- 2.2 The operation of all major components is explained in terms of their functions.
- 2.3 Safety features and warning devices on the excavator are identified, and their purposes explained in accordance with manufacturers' specifications.

- 2.4 The maximum operating capacities and efficiencies are explained in terms of the specific excavator capabilities in accordance with manufacturers' specifications.
- 2.5 Warnings from excavator indicators and gauges are explained according to manufacturers' specifications.
- 2.6 Corrective actions are described or demonstrated in terms of responses to warnings received.

Element 3: Fit and remove attachments

Range

Attachments may include but are not limited to grabbing, rock breaking, and drilling equipment.

Performance Criteria

- 3.1 Existing attachment is removed according to manufacturer's instructions.
- 3.2 Attachment required for the task to be carried out is selected and fitted according to manufacturer's and workplace instructions.
- 3.3 Correct fitting and operation of attachment is tested prior to the commencement of the required task as specified in the manufacturer's manual.
- 3.4 Attachment is used in accordance with manufacturer's recommendation and job requirement.
- 3.5 Removed attachment is cleaned and stored in designated location and in line with workplace.

Element 4: Start and shut down hydraulic excavator

Performance Criteria

- 4.1 Pre-operational checks are carried out according to appropriate checklist and workplace procedures.
- 4.2 Daily and weekly operator maintenance is performed according to appropriate checklist and workplace procedures.
- 4.3 Start-up and shutdown procedures are followed according to manufacturer's specifications.
- 4.4 Excavator hours are recorded, if required, in accordance with workplace requirements.
- 4.5 Excavator maintenance and faults are reported in accordance with workplace requirements.

Element 5: Operate hydraulic excavator

Performance Criteria

- 5.1 Functions of the various controls are demonstrated in accordance with manufacturer's specifications.
- 5.2 Temporary safety signs are explained in relation to their use and placement and are used as required.
- 5.3 The excavator is relocated without endangering people, other vehicles and/or buildings or facilities.
- 5.4 Excavator performance is monitored and corrective action is taken when necessary, in accordance with manufacturer's specifications.

Element 6: Load and place material

Performance Criteria

- 6.1 Communication with load vehicle driver is maintained at all times during loading operations.
- 6.2 Excavator is positioned strategically and material is placed in load vehicle in accordance with workplace requirements.
- 6.3 Materials are placed with minimal spillage in line with workplace instructions.

Element 7: Excavate and strip materials

Range

Safe load position may include but is not limited to reversing and working on slope situations.

Performance Criteria

- 7.1 Area for specified job is excavated to the depth and level according to workplace instructions.
- 7.2 Open drains and trenches are constructed to line, level, grade, and backfilled according to workplace instructions.
- 7.3 Materials are carried in safe load position.
- 7.4 Excavator performance is monitored and corrective action is taken when necessary, in accordance with manufacturers' specifications.

Element 8: Use hydraulic excavator for rock breaking and drilling

Performance Criteria

- 8.1 Rock breaking and drilling operations are conducted according to workplace instructions and manufacturers' requirements.

- 8.2 Machine operations are coordinated in such a manner as to enhance teamwork and avoid conflict within complementary operations.
- 8.3 Machine performance is monitored and corrective action is taken when necessary, in accordance with manufacturers' specifications.

Element 9: Prepare hydraulic excavator for transport to and from site

Performance criteria

- 9.1 Methods of loading an excavator for transport are demonstrated according to safety requirements, manufacturer's specifications and transport configuration.
- 9.2 Methods for securing an excavator for transport are demonstrated in relation to lashing points and safety requirements.

Element 10: Complete work related documents

Performance Criteria

- 10.1 Work related documents are completed in accordance with contract and workplace requirements.
- 10.2 Maintenance and service related documents are completed in accordance with manufacturer and workplace requirements.
- 10.3 Documents related to accidents or other incidents are completed in accordance with workplace requirements.

Element 11: Clean up work area

Performance Criteria

- 11.1 Work area is cleared and materials disposed of or recycled in accordance with project environment management plan.
- 11.2 Excavator, tools and equipments are cleaned, checked, maintained, serviced and stored in accordance with manufacturers' recommendations and standard work practices.
- 11.3 Unused materials are safely stored and stacked for future use.

Registration Data

Subfield:	Surface Mining and Quarrying
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