	Unit ID: 988
Domain	**RIGGING**
Title:	**Cut materials using the oxy-fuel gas cutting process(manual cutting)**
Level: 2	**Credits:6**

Purpose

This unit standard specifies the competencies required to cut materials using the oxy-fuel gas cutting process (manual cutting). It includes describing the oxy-fuel cutting process, preparing for the oxy-fuel cutting operation, cutting material, caring and storing of cutting equipment, tools, and materials. This unit standard is intended for those who work in lifting machine operations environment.

Special Notes

1. Entry information:

   Prerequisite:

   - *937 - Apply safety rules and regulations in lifting machine operations* or demonstrated equivalent knowledge and skills.

2. Assessment evidence may be collected from a real workplace, or an appropriate simulated realistic environment in which lifting machine operations are carried out.

3. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' specifications, guidelines and instructions.

4. Regulations and legislation relevant to this unit standard include the following:
   - Labour Act, No. 11, 2007
   - Regulations relating to the Health and Safety of employees at work, 1997 and all subsequent amendment.

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 on www.nta.com.na.

Elements and Performance Criteria

Element1: Demonstrate knowledge of concepts related to oxy-fuel cutting process

Performance Criteria

1.1 Types of gases used for oxy-fuel cutting process are identified.

1.2 Functions of oxy-fuel equipment parts are described.

1.3 Characteristics of metal to be cut are described.

1.4 Properties of oxygen, acetylene, propane and liquid petroleum gas (LPG) are described.

Element 2: Describe the oxy-fuel cutting process

Range

The thickness of materials, size and type of cutting nozzles in relation to fuel gas used, and the impact of cutting torch manipulation during the cutting process.

Performance Criteria

2.1 The importance of correct setting of cutting pressures, and the consequences of incorrect settings, is explained.

2.2 Basic and major components of the oxy-fuel cutting process and equipment are identified, and the explanation of function and purpose is correct in terms of cutting standards.

2.3 Consequences of incorrect start up and shut down procedures are explained.

2.4 Cutting characteristics of carbon steel are identified and the implications for un-safe conditions are described.

2.5 Terms and definitions used are consistent with generally accepted cutting terminology as recorded in cutting standards.

Element 3: Prepare for the oxy-fuel cutting operation

Range

Fuel gas used can be acetylene or LPG (liquid petroleum gas).

Cutting equipment, lifting equipment, material supports, applicable documentation, personal protective equipment, measuring tools (rulers, tape measure).

Prepared cutting equipment matches material thickness and cutting specifications.

Performance Criteria

3.1 The scope and precise nature of preparing for oxy-fuel cutting is in accordance with manufacturer's documentation and work instructions.

3.2 Oxy-Fuel gas equipment is assembled and tested in accordance with manufacturer's instructions and company specific safety operating procedures.

3.3 Resources are correct for the task, available on site by the agreed time, and checked for serviceability or status in accordance with worksite practices and cutting standards.

3.4 Pre-operational checks are carried out in accordance with manufacturer's operations manual and specifications.

3.5 Cutting of materials match work instruction sheet.

Element 4: Cut material

Range

Defects include excessive slag, rough cutting surface, jagged edges, rounded top corner.

Hazards may include but are not limited to flashbacks identify and correct cutting defects.

Thickness of the material to be cut is limited to a minimum of 10mm.

Cutting positions includes all positions/directions.

Cleaning tools may include but are not limited to wire brushes, chipping hammer and chisels.

Performance Criteria

4.1 Cutting of material is carried out in accordance with work instruction sheet and drawing requirements.

4.2 Safety precautions are applied and adhered to in accordance with OHS Act (applicable to the cutting process).

4.3 Scale, spatter, soot and sharp edge are removed from the cut materials.

4.4 Hazards associated with cutting materials using oxy-fuel cutting process are explained.

4.5 End product is inspected for defects and to conform to specifications as reflected on drawing or job requirement.

4.6 Quality checks on cut materials are applied.

Element 5: Care and store cutting equipment, tools, and materials

Performance Criteria

5.1 Procedures for caring and storage of tools, equipment and materials are explained in line with work site practices and specifications.

5.2 Oxy-fuel cutting equipment is dismantled and stored in line with manufacturer's specification and requirements.

Registration Data

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