**Level 3 Diploma in Land-based Engineering Operations (0059-3)**

**Unit** **305 Assignment**

**Perform Thermal Joining Operations**

**Underpinning Knowledge**

**Candidate:**

**OVERVIEW**

The aim of this unit is to provide you with the knowledge, understanding and skills required to safely carry out thermal joining operations.

This assignment consists of element two of this unit and successful completion will demonstrate that you understand high temperature thermal joining techniques.

1. You are to **destructively** test a weld sample to check for undercutting, slag traps and poor penetration.

a) State how you might prepare a sample of this welding to check for any of these defects.

b) Describe what the indications are that these defects have taken place.

c) Describe how you might check for hairline cracking in a **non-destructive** manner.

2. You have been asked to produce “**A Simple Guide to Using Thermal Joining Systems in Land-Based Industries**” to help people who want to perform simple welding on ferrous metals. One of the basic points that need to be included is a description of how to select, prepare & setup the following equipment for welding and joining:

- MIG/MAGS equipment

- TIG equipment

- MMA equipment.

Produce a simple guide that will achieve this.

3 Descibe **TWO** ways in which the following materials could be joined:

a) cast iron

b) alloys

c) dis-similar metals.

4 With safety in mind, describe the precautions you would take to reduce the risks of the following hazards when setting up a welding shop:

a) flammable waste

b) fumes

c) explosions

d) heat damage

e) electrical installations/equipment

f) sharp edges

g) airborne debris

h) personal injury.