



# Whetstone Facility

## Overview

The Manufacturing Test and Assembly facility is located at Whetstone, Leicester. A stand-alone facility located in close proximity to our project and design offices at Radar Road, effectively providing one fully integrated computer linked organisation. The facility offers manufacturing, component production, development, assembly and test facilities and a Nuclear Spares production capability. A whole spectrum of engineering, scientific and managerial skills support the facility's multi-disciplinary output. Special capabilities available include: metallurgy and health physics, together with mechanical, electrical, control and civil engineering.

## Manufacturing

At Whetstone we are able to offer a broad range of support and specialist manufacturing techniques. Capabilities available include: CNC lathes and multi-axis machining centres, stainless steel and carbon steel fabrication, non-destructive testing (NDT). There are extensive assembly and test services including a high bay with a large 28m deep pit facility and craneage up to 50 tonnes, and the facilities to manufacture, assemble and test all types of electrical and electronic assemblies.

A purpose built Active Maintenance Facility provides decontamination, machining, winding, fitting, inspection and test capabilities within a shielded and environmentally controlled unit with all the necessary health physics services.

One of the features of the facility which is proving particularly useful to EDF, Magnox and AWE is the works assembly and test area and its ability to provide a comprehensive quality driven assembly and Factory Acceptance Test (FAT) facility. Consequently, completed systems (as well as sub-systems) can be fully assembled and tested prior to delivery to site - thereby minimising as far as possible the extent of on-site effort.

## Assembly and Test Facilities

The following unrivalled assembly and test facilities are available at Whetstone and are used extensively on projects covering fuel route, reactor internals and critical reactor island plant etc. This included the use of the facility to assemble and test the fuel route equipment supplied to Chapel Cross and Calder Hall (2006) as part of the Fuel Route Refurbishment.

## High Bay Facility

The High Bay Facility, where the majority of the larger assembly and testing takes place, has a usable floor area of 18m wide x 70m long with a maximum crane hook height of 10.2m over 75% of its length. Within the remaining 25% of its length is a pit, 8m x 5m x 26m deep, of a two tier construction with pre drilled holes in its walls in order to set flooring at various levels. Within this area the maximum crane hook height available is 18.2m.

Three electric overhead cranes service the overall area. The High Bay over the pit has a triple hoist crane of 50 tonne maximum, with 10 tonne secondary and 2.5 tonne auxiliary cranes, for reaching the extremes of the bay.

The lower bay has two cranes, one with a hoist of 50 tonne maximum with a 10 tonne secondary hook and the other a 12 tonne crane which also extends over the pit area by using the same crane rails that run the full length of the facility.

The area is used mainly for larger items of equipment to be assembled and tested, primarily for the nuclear industry and its associated disciplines. A recent example of which is the build and test of the first phase of the Berkeley Vaults Waste Retrieval facility.

The above assembly and test area has available its own bench fitting equipment, hand tools and light engineering equipment

## General

Other areas available for more specialised assembly and test work include:

Light duty assembly tower some 16m high served by an overhead crane of 5 tonne maximum capacity.

Our Test and Development Centre comprises two assembly two assembly and test workshops, totalling some 20,000 sq. ft., served by overhead cranes of 12.5 – 15 tonne capacity details as follows:

Assembly and Test Workshops (2 bays)

Floor Space 2,200 m<sup>2</sup>

2 Cranes in total:

- 1 off 12.5 tonnes
- 1 off 15 tonne
- Crane hook – 5.5m, fully retracted
- Access dimensions: 4.5m wide x 5.3m high

A team of multi-disciplined technicians are also based within the Test and Development Centre to fully support the assemble and testing operations



We also have a secure storage facility and are fully conversant with storage, segregation and handling requirements.

## Active Maintenance Facility

In addition our site at Whetstone is an Environment Agency Nuclear Registered site; this permits a maximum radionuclide inventory of 100GBq for any non-alpha emitting radionuclide and 2MBq for alpha emitting radionuclide.

A purpose built Active Maintenance Facility (AMF) providing a variety of clients with a decontamination, refurbishment and testing service for radiologically activated and contaminated equipment.

Comprehensive Health Physics monitoring services are provided from the AMF's dedicated Health Physics Laboratory, which is equipped to quickly identify and quantify a broad range of emitters. The Laboratory is staffed by multi-trained personnel who operate under working procedures that are maintained to remain compatible with the systems and consignment arrangements operated by EDF, Magnox and AWE.

Facilities for carrying out a variety of decontamination techniques, including ultrasonic bath cleaning, are provided in a controlled area within the facility. Active machining, fitting, welding, inspection and testing services are also available in other controlled areas. The AMF has areas for decontamination, strip down and assembly operations to be carried out in a negative pressure atmosphere, with high efficiency filters protecting emission of extract air.

The workshop facility measures 7m x 12.25m and a gantry crane serves the facility with a height of 2.6m with a maximum capacity of 3.2 tonnes. Over the last thirty years the AMF has been utilised for the decontamination, modification, refurbishment and testing of a wide range of equipment.

## Mechanical Development Equipment

Facilities include:

- The development and testing of materials
- Investigation of the effects of temperature and pressure in a variety of environments

- Confirmation of component design by testing
- The development of specialised remote handling equipment

### Electrical Development Assembly & Test

The Electrical Development Assembly and Test Department has a core team of electrical and electronic engineers, technicians and technician wiremen who provide an overall electrical assembly and test capability for the company. The department is heavily involved in supporting the activities of the Mechanical Assembly and Test department, providing the necessary control, instrumentation and high-speed data acquisition.

The Electrical Development Assembly and Test Department also undertakes work packages in its own right. This often involves the design, detailing, procurement, manufacture, inspection, system testing and on-site commissioning of the equipment. As the department has all of the skills necessary to see the jobs through from start to finish with a small effective SQEP team, customer satisfaction is assured.



Typical services provided by the department include:

- Electronic + Control + Instrumentation
- Electrical circuit design and development
- Electronic circuit simulation
- Testing of site-installed nucleonics equipment, refurbishment and upgrade support through life.
- LV + ELV
- Trouble shooting EC+I problems at Whetstone and at site.
- Data acquisition
- Type testing of equipment to the requirements of IEC
- CCTV surveillance, inspection and system design
- Maintenance and repair of CCTV equipment
- Assembly and Test of electronic, electrical and EC+I equipment
- PCB layouts and manufacture
- Development an inspection of remote handling control systems
- Testing of marine electrical plant at 60Hz
- Termination and testing of superscreened cables
- On machine wiring, inspection and test
- Development and manufacture of custom test and diagnostic solutions

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