

ATOMIC WEAPONS ESTABLISHMENT PLC, ALDERMASTON, U.K.

SITE OVERVIEW and REVIEW OF RH&A ACTIVITIES

presented at  
THE SEVENTH REMOTE HANDLING AND AUTOMATION 39FSUBWOG  
MMES, OAK RIDGE Y12 PLANT  
18-21 April 1994  
by

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SUPERINTENDENT MANUFACTURING DEVELOPMENT AWE (A)

**1. AWE - MoD to GOCO**

1.1 The UK Nuclear Weapons Industry has at its core the Atomic Weapons Establishments at Aldermaston, Burghfield, Cardiff and Foulness all of which were part of the Ministry of Defence, MOD until 1 April 1993.

1.2 Contractorisation followed a two phase plan.

1.3 Phase 1, a management contract, initiated in October 1990, saw a joint venture company Hunting BRAE Ltd (Hunting Engineering Ltd, Brown and Root (UK) Ltd and AEA Technology) awarded the contract to managed AWE.

1.4 Bids for Phase 2, full contractorisation, were received on 7 September 1992 from Babcock International, Hunting BRAE and Rolls Royce/Royal Ordnance.

1.5 MOD awarded Hunting BRAE Ltd the Phase 2 contract and AWE became a Government owned Contractor operated (GOCO) establishment with effect 1 April 1993.

1.6 Figures 1&2 illustrate the upper echelons of the M.O.D. and indicates the Contractual and Financial link to AWE PLC.

**2. AWE Sites**

Figure 3 shows the locations of the AWE establishments.

### 3. Remote Handling & Automation focus

3.1 Figures 4-6 illustrate the structure within Aldermaston from Chief Executive, through Director Operations (D.Ops.) to Superintendent Manufacturing Development (SMD). This Superintendency has four Sections; Services, Joining, Laser & EB Welding and Development.

3.2 A 'Watching brief' is maintained over Remote Handling and Automation (RHA) activities by SMD/Development staff in the Machine Tools & Remote Handling Group.

3.3 Remote handling and automation of production procedures are considered for the following areas:-

- a. The "Glovebox" environment where Radio Active and hygroscopic materials are machined and measured.
- b. The "Remote Cell" environment for machining and assembly of explosive and Radio Active materials.
- c. De-commissioning activities in the Waste Management Group at Aldermaston.

3.4 There have been no new projects announced across the AWE sites that demand Remote Handling and Automation activities but close liaison with other Superintendencies engaged in related activities is maintained.

### 4. Developments (Figure 7)

4.1. Since the September 1992 meeting of SUBWOG F progress has been as follows:-

4.2. The maintenance of a capability to investigate RHA activities has been allocated resources for the 1994/5 FY and GRASP, the graphical simulation software package, will be maintained on the Sun Workstation.

4.3. The Whole Arm Manipulator (WAM) will remain sited at Southampton University under the supervision of Dr Richard Crowder who remains keen to maintain and develop the system. This system is a tele-operated human like arm fitted with a dexterous 'five fingered hand' end effector and was designed to operate within a standard glove attached to a glovebox.

4.4. The A90 pyrochemical furnace loader has been fully developed and installed. Site Acceptance Tests have been completed after considerable changes to the control software. Hand-over and 'white' commissioning have been in progress since April 1993.

Tests using simulation materials with fused Salts are scheduled to start in May 1994 once the permanent nitrogen circulation and argon supplies are in place.

It is expected that the twelve month 'red' commissioning will commence towards the end of 1994.



Atomic Weapons Establishment  
Aldermaston

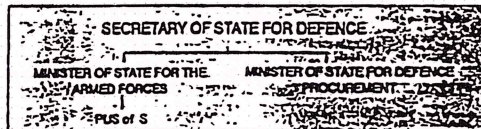
**Ralph Elliott**

Services Section Leader  
Superintendent Manufacturing Development

**Seventh Meeting  
JOWOG 39 SUBWOG F  
Remote Handling & Automation**

18 - 21 April 1994  
Y12 Plant Oak Ridge TN

**OUTLINE MOD ORGANISATION**



MINISTERS

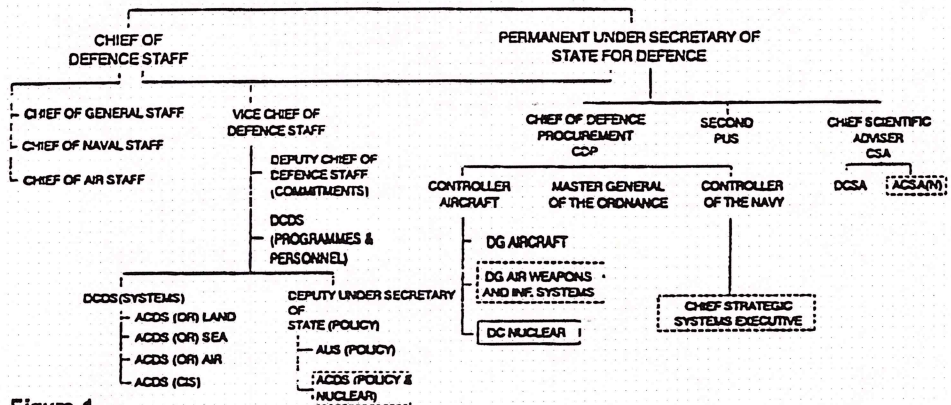


Figure 1

**AWE AND THE MINISTRY OF DEFENCE CUSTOMER**

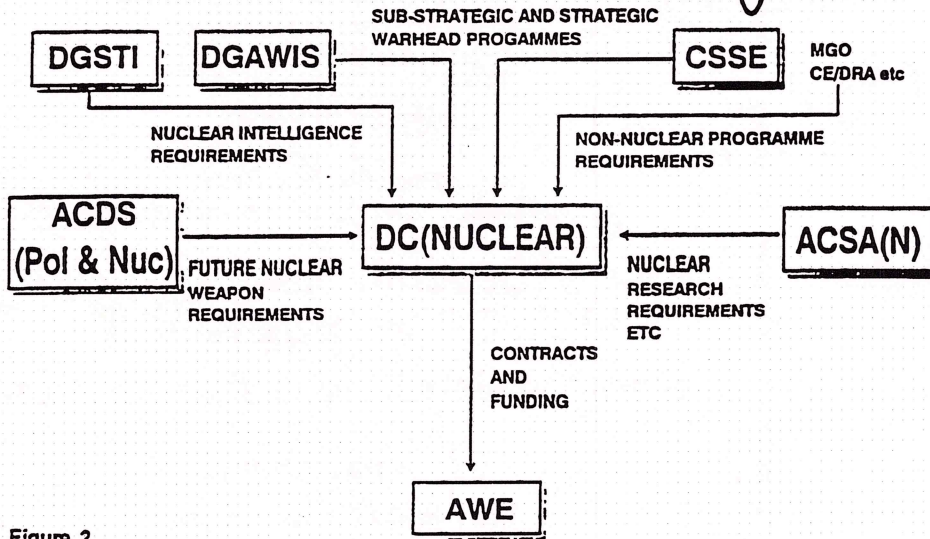


Figure 2

**AWE SITES MAP**

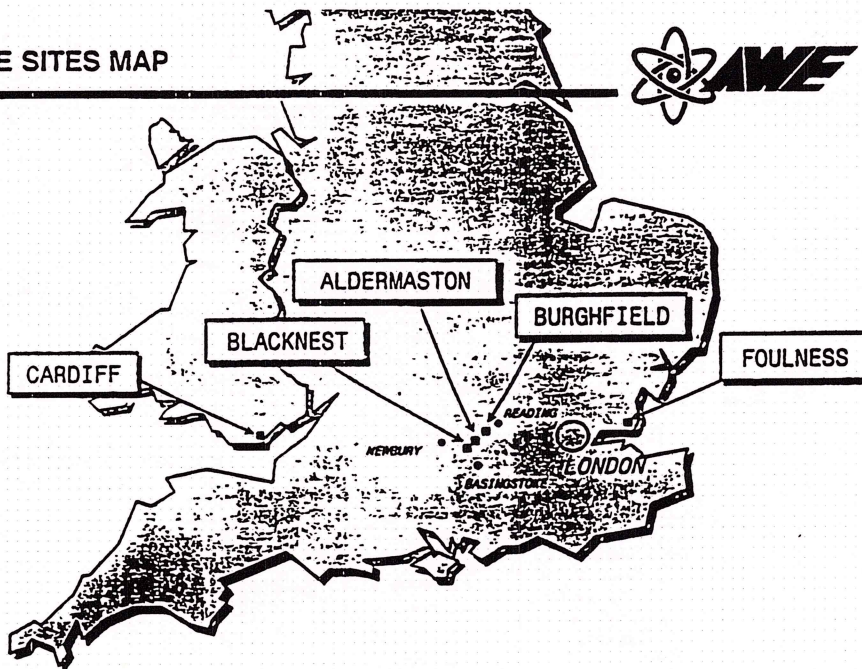


Figure 3

## AWE MANAGEMENT STRUCTURE

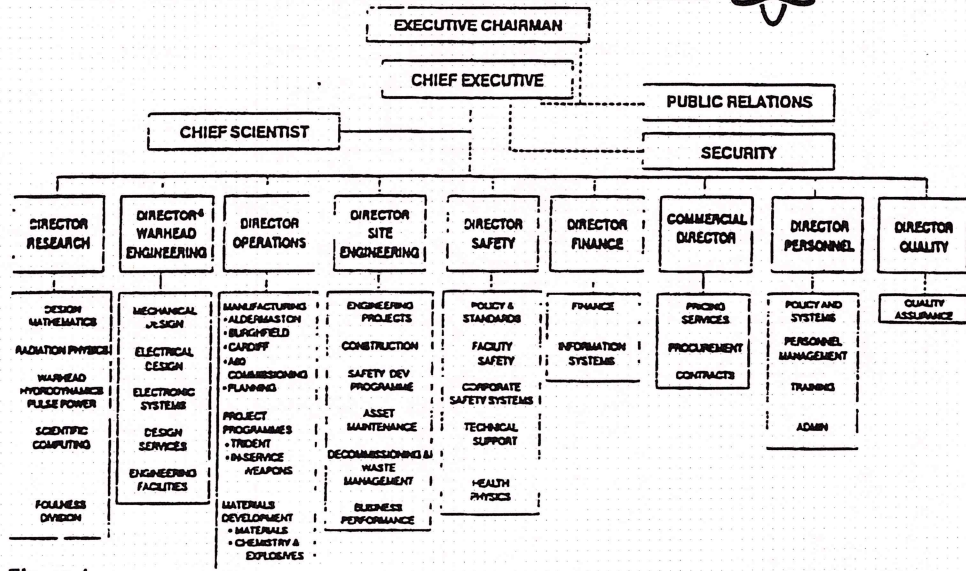


Figure 4

## THE OPERATIONS DIRECTORATE



### Director Operations

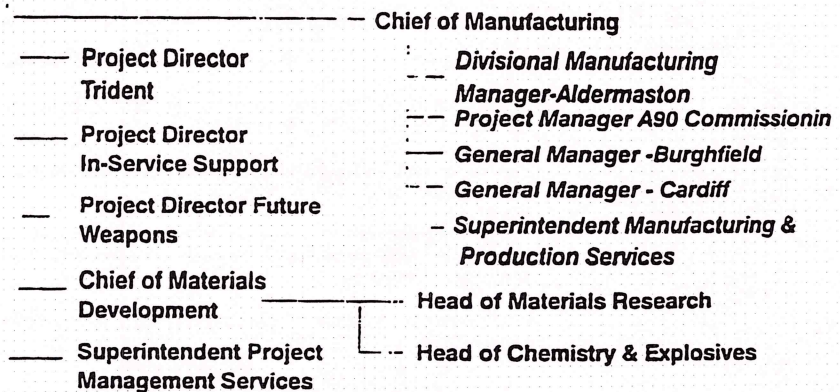
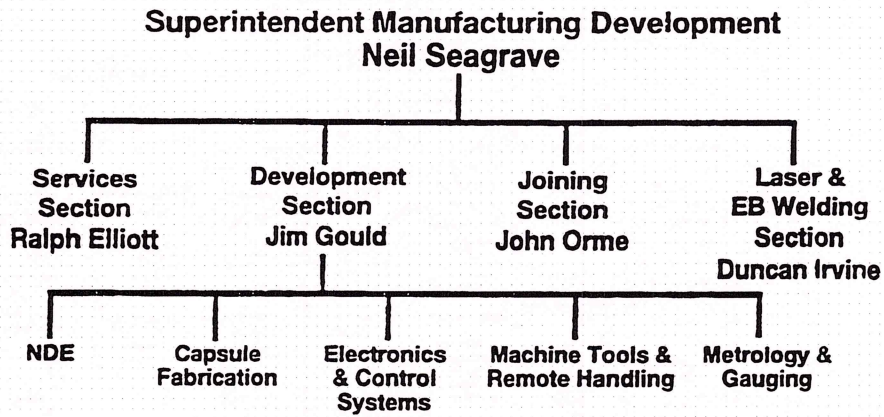


Figure 5

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 **AWE STRUCTURE**

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Figure 6

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 **AWE Developments**

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- Remote Handling and Automation activities to be funded in FY 1994/5
- GRASP (graphical simulation software package) to be maintained on the Sun Workstation.
- The Whole Arm Manipulator to remain sited at Southampton University.
- The A90 pyrochemical furnace loader has been fully developed and installed.

Site Acceptance Tests have been completed after considerable changes to the control software

Hand-over and 'white' commissioning have been in progress since April 1993.

Tests using simulation materials with fused Salts are scheduled to start in May 1994 once the permanent nitrogen circulation and argon supplies are in place.

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Figure 7