Background

The Atomic Weapons Establishment (AWE) has played a central role in national defence for more than 50 years. We are responsible for the entire life cycle of the United Kingdom's nuclear warheads, from initial research and design, through component manufacture and assembly, to in-service support and, finally, decommissioning and disposal.

AWE plc manages and operates AWE on behalf of the Secretary of State for Defence under a 25-year contract that commenced in April 2000.

Our core mission is to build and maintain the warheads for the submarine-launched Trident ballistic missile system that today forms the United Kingdom's sole nuclear deterrent. We are also required to maintain a capability to design a Trident-successor warhead should the Government ever require it.

AWE must invest in buildings, facilities and employees in order to support Trident safely and reliably in service for perhaps the next 20 years.

In a Written Ministerial Statement to Parliament on 19 July 2005, The Secretary of State for Defence emphasised the Government's commitment to maintain the effectiveness of the nuclear deterrent. He announced a substantial programme of investment in sustaining key skills and facilities at AWE.

The Government also indicated publicly its commitment to keep open options for a successor to Trident until a decision on its future is required.

There are other significant factors that drive our investment in state-of-the-art research and development facilities.

Following ratification by the United Kingdom of the Comprehensive Nuclear Test Ban Treaty, we must achieve our mission without conducting actual nuclear tests. This applies to both the support of Trident to ensure safety and performance, as well as to the capability to design a potential successor warhead.

This poses significant scientific and technical challenges as we must move away from a largely engineering-based regime, which relied on underground testing, to one that is based firmly on scientific research and computer modelling.

This means exploring new areas of science to further our understanding of the underlying physics of nuclear phenomena and of the properties of materials that make up component parts of a warhead.

Our mission requires us to decommission and dispose of warheads, facilities and buildings as they reach the end of their useful life and to clean up areas of historic contamination on our sites.

Another aspect of our role is the requirement to maintain and develop further the skills and technologies that could provide the confidence necessary to support any future arms limitation treaty. The Company has a strong track record in developing the skills of our employees. Indeed, our Apprentice Training Academy has been rated one of the best in the country. AWE also has an excellent record in developing spin-off technologies from our core business with the potential to benefit science, medicine and industry.

AWE is committed to following principles of sustainability wherever reasonably practicable and cost effective. This is reflected in our approach to:

- Providing our employees with modern, purpose-built facilities that help make AWE a place where people can work effectively and efficiently, and are proud to work;
- Minimising the impact on the environment of our operational activities and construction programme;
- Decommissioning and disposing of redundant facilities and buildings as they reach the end of their useful lives, together with cleaning up areas of historic contamination on our sites wherever reasonably practical;
- Being a good neighbour to the communities around our sites and in which many of our employees have made their home.

It is important that we deliver value-for-money in our programmes, not just in the work AWE undertakes directly, but also throughout our supply chain.

A future based on science

The four key areas of research essential to our work in support of the UK's nuclear deterrent are laser physics, hydrodynamics, materials science and high performance computing.

Laser Physics is the area in which we use high-powered lasers to replicate – albeit on a minute scale – the extremely high temperature materials would encounter in a nuclear detonation. By 'minute' we refer to test targets that are less than one millimetre across! The production of these targets is an art in itself.

For more than 25 years AWE has carried out research using the HELEN laser at Aldermaston which, even with essential periodic upgrades, is now getting close to the end of its useful life. We described the need for a replacement for HELEN in our 2003 leaflet.

The Ministry of Defence has approved the construction of a new laser to replace the HELEN facility. Known as Orion, this laser will be capable of reaching much higher temperatures than HELEN and will play an important part in future plasma physics research. Orion will take approximately five years to build and commission, with the first stage involving detailed design work and site preparation now in hand.

When operational, some of the laser's time will be allocated for experiments to be conducted by the wider academic community. This will help to improve AWE's links with universities and centres of research. To support this interaction, Orion will be built close to the entrance on the western edge of the Aldermaston site. The new facility was the subject of a Notice of Proposed Development approved by West Berkshire Council in June 2004. A further detailed or full NOPD has been submitted and is currently being considered by the planning authority.

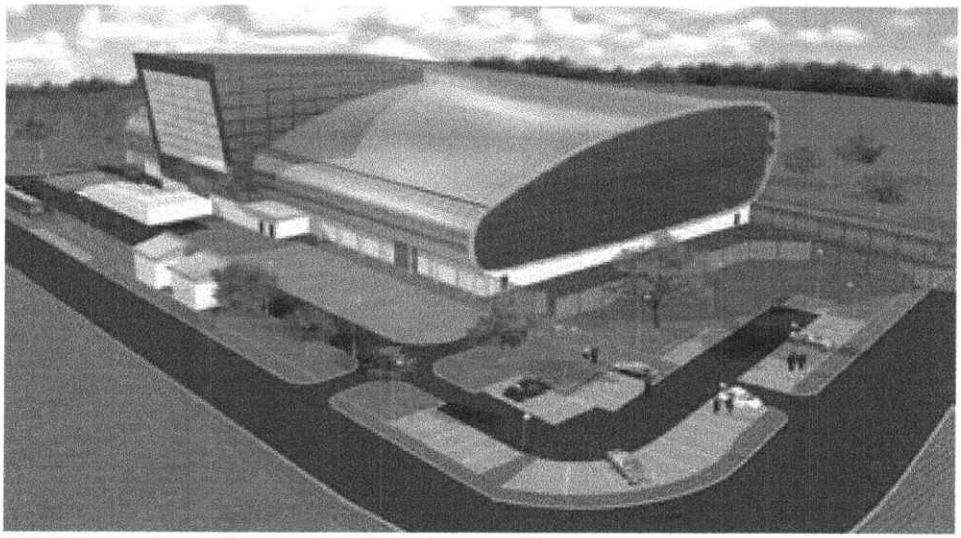
Hydrodynamics is the science of shock forces acting on solid materials causing them to exhibit fluid-like behaviour. It is an important field of investigation for us since, during a nuclear explosion, solid materials behave like fluids as they are subjected to extremes of pressure and shock.

We conduct hydrodynamics experiments in special facilities at AWE Aldermaston. In these experiments, weapons mock-ups or very small quantities of fissile material are subjected to explosive shock and 'photographed' by powerful X-ray machines.

AWE has led the world in this area of science and plans to maintain that lead with the construction of a new hydrodynamics research facility - known as a Core Punch Facility – with greatly improved diagnostic ability.

Materials Science is the study of the behaviour of materials. It is another important area of research at AWE since a warhead contains a variety of special materials - such as metals, inorganic salts, rubbers, foams, adhesives, high explosives and radioactive materials – all in close proximity.

With the option of nuclear testing ruled out, our scientists are required to accurately predict, by



Artist's impression of the completed Orion Laser Facility

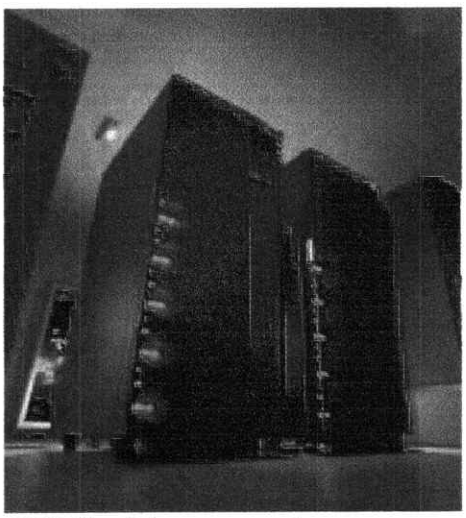
scientific means, the characteristics of both new and ageing materials. This task is particularly important in the case of the Trident warhead that has an expected total lifetime of around 30 years.

We plan to bring our materials science work together in a few state-of-the-art facilities at AWE Aldermaston and possibly at AWE Burghfield. They will incorporate the most modern safety, technical and energy-saving features. Again this plan will enable us to close and demolish a significant number of older buildings, particularly at the eastern end of the AWE Aldermaston site.

Supercomputing provides us with the ability to create the three-dimensional modelling and simulation requirements of our Physics, Engineering and Materials Departments.

All the information gathered from our hydrodynamics and laser research, together with data from previous actual nuclear tests, is used to refine computer codes used in the mathematical modelling of nuclear weapon performance. This is now the principal means of verifying the safety and reliability of the United Kingdom's nuclear warhead stockpile. AWE's current supercomputer – known as 'Blue Oak' – is capable of 3 million million calculations a second. This enormous calculating power enables us to take full advantage of new computer codes and conduct mathematical modelling in three dimensions.

Like other areas of science, supercomputing does not stand still. Demand for use of Blue Oak is huge and we are already planning to expand our computing power still further in the future.



AWE's Blue Oak supercomputer

Taking our vision forward

By setting out our long-term vision for AWE sites, we intend to engage with stakeholders in a constructive manner. This will enable issues to be understood and managed effectively as we continue to meet our primary responsibilities.

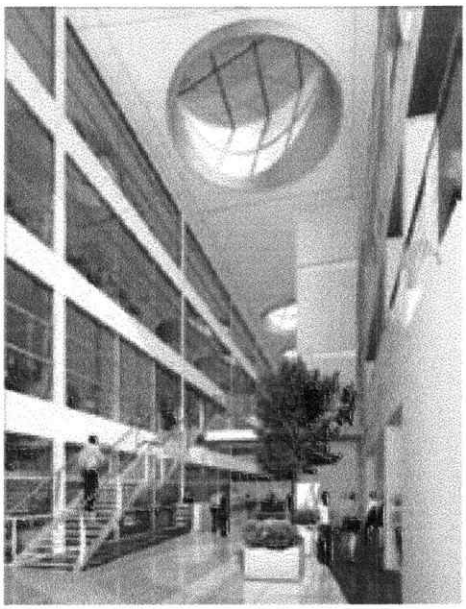
In our September 2003 leaflet we showed a 'Landscape Vision' for Aldermaston. We have now taken this significantly further forward and, in later sections, we will outline our proposed land use strategy, traffic and travel plans, as well as our landscape vision and principles. Similar plans are being developed for Burghfield.

Our vision is to change the appearance of our Aldermaston site from that of an 'industrial complex' to one more fitting for a centre with a reputation for world-class scientific and technical excellence. We need to ensure that we have the right facilities and infrastructure in place to meet our operational requirements. We also want to make the site more accessible for external partners, while maintaining necessary levels of security.

Our plans for the western end of the Aldermaston site are well advanced. To improve traffic flows and provide a new approach to the site fitting for a world class centre of science and technology, we are considering relocating our main entrance to the existing West Gate. In this area we will locate new accommodation buildings which will include modern conferencing facilities. This will provide easier access for visitors and help us improve links with academic, business and community partners.

We have already demolished many buildings close to the West Gate and cleared their sites. This includes the removal of two large redundant towers, which had been prominent features of the local landscape for many years.

Proposed new accommodation blocks will be designed to facilitate modern working practices and will provide attractive energy-efficient office facilities for our staff. As they are completed, we will be able to close a number of ageing office blocks. This will result in a further reduction in energy use and allow the safe removal of any asbestos and other hazardous materials prior to demolition.



Concept for new accommodation building

The new buildings will be architecturally attractive and will occupy 'brown field' sites. During construction, considerable amounts of recycled building material from our demolition programme will be used.

Earlier this year, West Berkshire Council raised no objections to a Notice of Proposed Development for two new buildings to house IT business systems. This equipment is currently spread around existing buildings that were not designed for this purpose and are reaching the end of their operational lives.

A complete refurbishment of our staff restaurant has taken place, creating a flexible, modern facility for dining and a place where informal meetings can be held. Our corporate planning centre has also been refurbished to provide contemporary open plan accommodation.

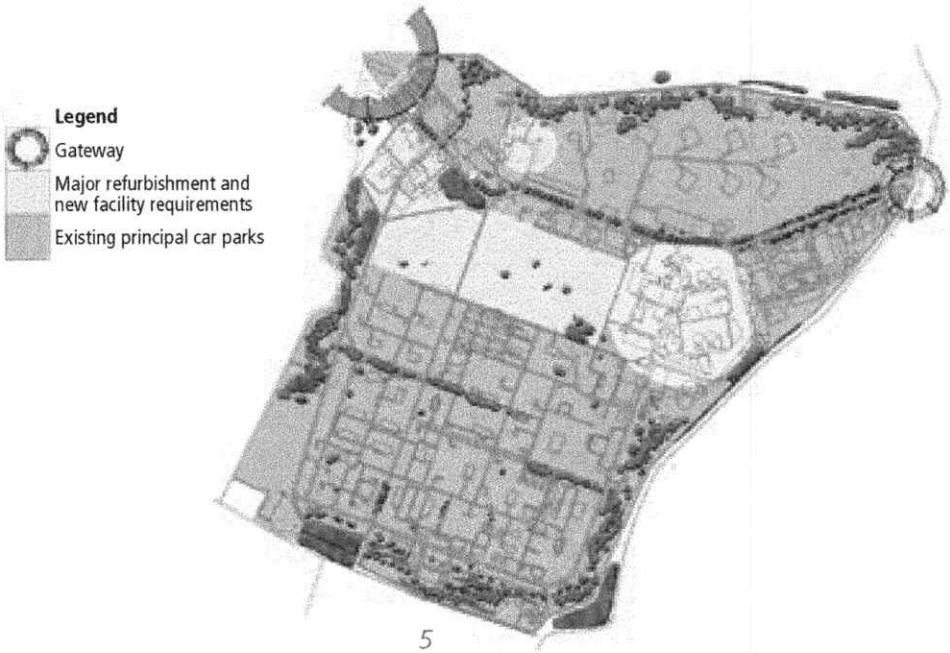
Inevitably the work to refurbish or replace facilities and bring teams together requires buffer capacity to be available on our sites. Temporary modular accommodation units are therefore being used to relieve pressure wherever necessary.

West Berkshire Council has already approved detailed applications for three of these temporary units, each capable of housing 150 people, and outline applications for two further units. These buildings will be used to house both existing and new staff, as well as contractors engaged in the site modernisation programme.

We have also been considering what investments and improvements are needed at the Burghfield site, where warhead assembly and disassembly takes place, and which will continue to play an important role in achieving our mission.

Alongside all this we are also investing in our workforce – currently around 4,000 strong - through recruitment and training and development programmes. This is to ensure that we have the right mix of skills and age profile to deliver our mission for the remainder of our contract.

Development Strategy Map of AWE Burghfield



What else is planned ?

Over half of the facilities on AWE's sites are housed in buildings over 50 years old. As a result some are becoming increasingly inefficient and costly to run, and do not provide the environment we want for our employees.

Some of the uranium component manufacturing facilities at Aldermaston will need to be replaced in order to support Trident for the remainder of its life cycle. Plans are being drawn up for a replacement facility to be located close to the centre of the Aldermaston site. We will also need to upgrade manufacturing facilities for non-nuclear components of the Trident warhead in due course.

Some of our explosive handling facilities are currently housed in a number of older buildings on the Aldermaston and Burghfield sites. While these continue to operate to high safety standards, we plan to improve the efficiency of these operations by bringing them together in one new facility at Aldermaston. Here current operations such as drying, pressing, machining and coating will take place.

Graded material from demolition is stored on site for re-use

As confirmed in the 2003 Update, following a comprehensive review, the Ministry of Defence endorsed AWE's assessment that we will continue to need both the Aldermaston and Burghfield sites to deliver our mission in future. Burghfield - which has just celebrated its 50th year in the nuclear weapons business – will continue to be needed for assembly and disassembly of warheads. These processes take place during in-service maintenance and when warheads are withdrawn from service and dismantled. Steps have already been taken to improve some of the older infrastructure on the site including improvements to the power and heating supplies.

To support the Trident system for the remainder of its life cycle, including eventual decommissioning and disposal, the assembly/disassembly facilities will need to be replaced with a single modern facility. A project team has begun working on this planned facility and detailed plans will emerge during 2006.

Decommissioning and demolition

Since the beginning of 2003, AWE has demolished more than 100 facilities on our sites. This leaves over 1100 buildings on our Aldermaston site and over 360 at Burghfield, many of which date back to the 1950s. Surveys continue to identify further buildings for demolition.

As decommissioning and demolition work continues, we will be able to improve the appearance of our sites as well as cutting maintenance and utility costs. During demolition work great care is taken to reduce the environmental impact and avoid disruption to our neighbours. Water is sprayed to minimise dust and building rubble is crushed, compacted and sorted on site to reduce the number of off-site lorry movements. This also provides us with a stock of graded material for future re-use.

Wherever possible, it is our intention to make use of appropriately cleaned and cleared 'brown field' sites for future building projects in order to minimise encroachment on undeveloped sites.

Legacy issues

Independent surveys continue to demonstrate that AWE's impact on the environment over more than half a century of operation is negligible.

We are continuing with our programme of work to identify areas of historic contamination and we are prioritising a plan to deal with them. So far we have completed a survey of the Aldermaston site and are in the early stages of a survey of the Burghfield site.

Environmental resources

Both AWE sites contain a wealth of environmental resources. The Company is continually recording this information so we can prepare appropriate

management plans and minimise potential effects during the development programme.

Since 2003 AWE has commissioned Reading University to investigate the archaeology of Grims Bank, an ancient monument which is thought to of have formed part of the outer defences of the Roman town of Calleva.

Environmental improvements

The landscape and master plan strategies set out the long-term framework that will guide future environmental improvements for our sites.

As development work proceeds, it is our aim to improve the appearance of our sites for our neighbours and to create a more attractive working environment for our employees. We remain committed to the environmental improvements outlined in previous versions of this information leaflet.

New buildings are being designed to be attractive and pleasant places to work while at the same time featuring energy-saving technologies together with design standards that will enhance natural temperature control.

AWE's tree planting programme

We are making good progress with a tree planting programme at AWE Aldermaston that will soften the outward appearance of the site. And, by concentrating our manufacturing operations at the centre of the site, visual impact will be further reduced.

Other areas of the site will be developed to provide amenities for employees and natural habitats will remain protected as havens for wildlife.

Work is already taking place to modernise the heating systems at Aldermaston and Burghfield. This will enable us to remove large sections of steam pipes that currently provide heating to our many buildings, so improving the appearance of both sites. It will also reduce energy consumption, water usage and greenhouse gas production.

One of the UK's leading utility companies has been awarded a contract to provide AWE with the expertise to improve the efficiency of our water & wastewater systems, reducing leakage & further improving our environmental performance.

Pangbourne Pipeline closure ceremony

In March this year we met our commitment to close the Pangbourne Pipeline which has, for the past 50 years, carried low level liquid effluent for discharge into the River Thames. A new liquid effluent treatment plant has been built and is at present being commissioned to replace it. This plant will reduce the already minute levels of radioactive material in our wastewater by a further 99 per cent.

Transport and traffic issues

Throughout our planning we have sought to minimise the impact of our developments, both during construction and operation, on the local transport network. We know this is the right approach as local feedback consistently highlights traffic issues as a significant concern.

Consequently we have commissioned consultants to produce a long-term transport strategy for both our sites which is currently being discussed with

the planning authority. They will also help us produce plans for travel, traffic management and car park management. Key objectives will include managing vehicle use to and from site,as well as on site, in a safe and environmentally responsible manner.

We are talking with West Berkshire and Hampshire County Council's Highways Authorities on all aspects of transport strategy, including existing access arrangements and speed limits on the surrounding road network. We already operate a 20-mph maximum speed limit on our sites.

Planning

As AWE operates on behalf of the Crown, it is currently exempt from the Town and Country planning system. Instead Notices of Proposed Development (NOPD) are submitted to West Berkshire Planning Department for all proposed developments under procedures that mirror planning requirements for Non Crown developments.

In effect AWE follows procedures as if developments were planning applications. Depending upon the scale and nature of the development, additional supporting information may be supplied and, if required, an Environmental Impact Assessment.

Under the terms of the Planning and Compulsory Purchase Act 2004, AWE will no longer have exemption from the Town and Country planning system under Crown Immunity. The formal planning control for the site will pass to West Berkshire Council. This change in procedure is due to take place during 2006.

In practical terms, however, AWE will continue to prepare applications in a similar fashion but will submit them to the Planning Authority as planning applications rather than NOPDs.

In preparing planning submissions, AWE will make reference to the long-term vision and strategies that are mentioned in this leaflet. AWE therefore welcomes comments upon the content & direction of our strategies and vision, as they will shape our approach to the delivery of our investments.

AWE has prepared a Site Development Context Plan (SDCP) which describes in more detail the future development of Aldermaston and Burghfield. A Strategic Sustainability Appraisal has also been produced which identifies the issues that will arise in implementing the SDCP and the way in which AWE will address them.

Next steps

AWE will discuss these documents with West Berkshire Council and other key stakeholders to agree an approach to the submission of the necessary planning applications and supporting information. Planning applications will then be submitted from early 2006.

AWE plc has a 25-year contract to run the AWE sites on behalf of the Ministry of Defence. This enables us to take a long-term view of the modernisation and improvement schemes needed as we continue to maintain the United Kingdom's nuclear warhead stockpile and meet our environmental and social responsibilities.

Conclusion

Our Sites Development Context Plan shows how future developments relate to the two sites and indicates projects for which planning consent will be required. These projects will be submitted to WBC from early 2006. The SDCP also underlines the Company's commitment to the future of AWE as a responsible neighbour and a good place for people to work.

The plans outlined in this leaflet will naturally evolve, but they do provide us with the basis for long-term planning and investment in our sites.

Both AWE plc, as the operating company, and the Ministry of Defence, as the owner of the sites, will continue to discuss the issues raised with the Planning Authority and the local community. Proper account has and will continue to be taken of the views expressed.

Any comments on the content of the public information leaflet should be directed in writing to AWE's Public Affairs Manager, AWE plc, AWE Aldermaston, Reading, RG7 4PR. Information about AWE can also be found on our website at www.awe.co.uk