Enclosure
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FINAL VERSION FOR MINISTERIAL APPROVAL

Request for a Defence EIA Exemption Direction

HYDRUS: Replacement Facility for Hydrodynamic Research

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1. EXECUTIVE SUMMARY

1.1 Project HYDRUS is the proposed replacement facility for undertaking hydrodynamic research. HYDRUS will provide one of the key capabilities required to underwrite the reliability, safety and performance of the UK's sole nuclear deterrent.

1.2 This capability is currently provided by a number of facilities at the Atomic Weapons Establishment at Aldermaston (AWE(A)) that are coming to the end of their operational lives. The HYDRUS facility will be purpose built to modern, efficient standards that will deliver a capability to meet the technical requirements for future experiments to support Trident for the foreseeable future. When the replacement facility is operational the existing buildings will be decommissioned and demolished. The replacement facility will have a similar functional area to that of the existing facility.

1.3 Specific details relating to the experiments undertaken within the HYDRUS facility are classified, some to Secret Atomic Principal (SAP) level. To release information about these experiments into the public domain would be contrary to the interests of national defence, as it would enable key information about the performance and design of the warhead to be determined. The release of precise information concerning specific materials, quantities and configuration utilised in the experiments could allow the deduction of warhead design and performance data by developing nations and extremist factions known to be seeking ways to acquire nuclear weapons. This is contrary to the security interests of the UK. Such information is classified within the UK Nuclear Weapon Classification Guide and cannot be placed in the public domain.

1.4 The Ministry of Defence (MOD) therefore believes that it cannot supply certain information required under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended). For this reason, an Exemption Direction is requested.

2. INTRODUCTION

2.1 This document is a request for a Direction from the Secretary of State for Communities and Local Government that the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 ("the EIA Regulations") shall

not apply to the development of a replacement Hydrodynamic Research facility at AWE(A). The request is made to the Secretary of State under Regulation (4) (a) (ii) of the EIA Regulations. The following sections provide a background to the project and set out the justification for this request.

3. DESCRIPTION OF THE NATURE AND PURPOSE OF THE DEVELOPMENT

3.1 This section summarises relevant public statements and policy commitments that have been made to date. It also discusses the need for the facility, provides a description of the facility design and a summary of the anticipated significant detrimental environmental impacts.

3.2 PUBLIC STATEMENTS AND POLICY COMMITMENTS

3.2.1 AWE plc published a Site Development Context Plan (SDCP) in November 2005 which identified how it envisaged development at AWE(A) and AWE Burghfield (AWE (B)) would take place. An update to the SDCP was published in April 2008. The SDCP covered a number of projects, which will be delivered during the period to 2015. Proposals 9 and 10 relate to the construction of a replacement hydrodynamic facility with an indicative floor space of 18,000 square metres.

3.2.2 The then Secretary of State for Defence announced in a Written Ministerial Statement on 19 July 2005 (*Official Report* Col 59WS), that a decision had been made '…to take forward a programme of investment in sustaining key skills and facilities at the AWE…The purpose of this investment of some £350m over each of the next three years is to ensure that we can maintain the existing Trident warhead stockpile throughout its intended in-service life…'

3.2.3 The second tranche of investment in skills and facilities at AWE up to 31 March 2013, valued at an average of £1 billion per annum, was announced by Written Ministerial Statement on 9 September 2009 (*Official Report* Col 136WS).

3.2.4 On 23 July 2009, in a policy statement on safety, health, environmental protection and sustainable development in the MOD, the Secretary of State for Defence stated, 'We seek to disapply legislation on the grounds of national security as far as possible only when such action is essential to maintain operational capability, or in accordance with applicable laws.'

3.2.5 Chapter 3 of JSP362 Planning and Development in the UK states at paragraph 037 that "…where a Defence [EIA] Exemption Direction is authorised, this must be in line with the SofS for Defence Policy Statement…"

3.2.6 On 11 November 2009 in a written answer to a Parliamentary Question (*Official Report* Col 402W) the then Minister (DES) indicated that the replacement hydrodynamic facility main and support building planning application would be submitted in April 2010.

3.2.7 On 8 June 2010 in a written answer to a Parliamentary Question (*Official Report* Col 93W) Minister (DEST) stated that the MOD would take full account of the EIA regulations in implementing Project HYDRUS, but noted that there was a process for gaining exemptions.

3.2.8 On 21 February 2002 an article was published in Nature Magazine Issue 415 entitled UK Nuclear Warheads: Scientific Assurance of Safety and Performance. The article [prepared with the assistance of MOD and AWE] describes the role of hydrodynamic experiments and highlights that "…though the current [AWE] facilities are very powerful, they are not capable of providing data of an accuracy sufficient to meet future programme needs and additional x-ray views are required…a new hydrodynamics research facility is therefore being planned…"

3.3 PURPOSE OF THE PROJECT

3.3.1 AWE plc undertakes operations on behalf of the MOD that are associated with the manufacture, maintenance and decommissioning of the United Kingdom's nuclear deterrent. Key to this capability is the requirement to continue with hydrodynamic experiments which help to underwrite the reliability, safety and performance of the UK's sole nuclear deterrent. Currently these experiments are carried out at the Aldermaston site.

3.3.2 The existing facilities are housed in a number of buildings, most of which were constructed in the late 1950s or early 1960s. The current facilities operate safely and comply with all environmental requirements but it is acknowledged that safe and environmentally sustainable operations cannot continue indefinitely in the buildings as they currently exist. Various option studies have concluded that extensive refurbishment of buildings is not viable. In addition, more detailed data will be required to meet future capability requirements. In order to retain long-term capability, a replacement facility located close to the existing facilities and explosives area at the AWE(A) site is, therefore, required.

3.3.3 The proposal is for the construction of a single replacement operations building, located to the north of the existing explosives area at AWE(A), which will accommodate all necessary equipment to allow the conducting of hydrodynamic experiments. In addition a support building will be constructed to provide employee welfare and equipment maintenance facilities together with a new electrical sub station. This new facility will replace a number of existing buildings/compounds/external plant and equipment located in the north east corner of the AWE(A) site, which will eventually be decommissioned, demolished and cleared as part of ongoing site improvements. There will therefore be no net increase in functional area as a result of this proposed development.

3.3.4 The operational requirements of the facility are set and clearly defined; consequently hydrodynamic experiment processes have not been assessed.

3.4 DESCRIPTION OF THE REPLACEMENT FACILITY

3.4.1 The proposed development will be in keeping with the general appearance of the AWE Aldermaston site and will be located in an area previously populated with explosives buildings. These buildings have been decommissioned, demolished and cleared to make the site available for the replacement research facility.

3.4.2 The replacement facility will comprise: Operations Building with a lightning protection system (LPS) including eight catenary towers and associated suspended catenary cables; Support Building; an electrical substation; a Sustainable Drainage System (SuDS) detention basin and associated swales; landscape scheme comprising earth mounds, tree and shrub planting; and associated safety fencing, access roads and an operational vehicle waiting area.

3.4.3 The Operations Building will comprise an eight-sided structure beneath a circular shallow-domed roof. It will house three main functions including a hardened structure within which experiments are undertaken, the Induction Voltage Adder (IVA) and machine

hall within which the primary diagnostic equipment is contained; and laboratories and waste management area. The proposed ground floor area will extend to 9,630m^2, with an overall floor area of 14,082m^2 including first floor and mezzanine levels. The maximum roof height will be 20m above ground level (AGL). Two fume cupboard flues and an exhaust stack will extend through the roof to 23.5m AGL.

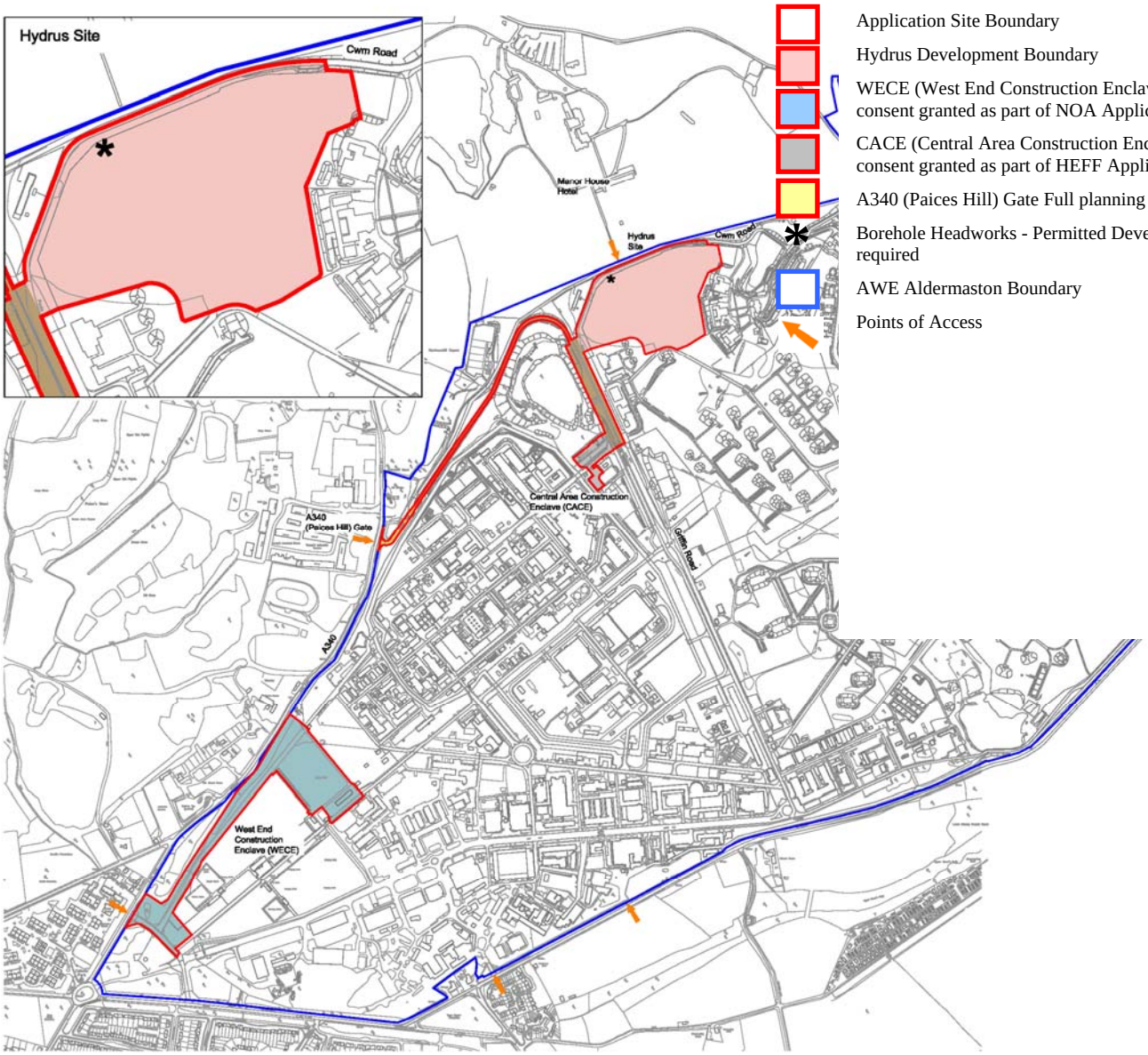
3.4.4 The LPS comprises eight masts measuring 1.8 m at the base, tapering to 0.7m, with a maximum height of 40.0m AGL.

3.4.5 The Support Building will include the works control centre, administrative, office and maintenance facilities extending to a ground floor area of 2,227m^2. It comprises a single storey building with stepped roof. The roof will step in height from west to east at three maximum roof level heights of 4.06m, 8.06m and 12.06m AGL. A fume cupboard flue will extend through the tallest (east) roof level with a maximum height of 15m AGL.

3.4.6 The Electrical Sub Station extends to 216m^2 with a maximum roof level of 5.5m AGL.

3.4.7 An AWE (A) site plan is included at Figure 1 showing the location of the proposed facility and with associated contractor management arrangements outlined.

Figure 1: AWE(A) Site Plan with Proposed HYDRUS Facility.



3.5 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

3.5.1 Detailed environmental studies have been undertaken in respect of the construction and operation of the proposed facility. The anticipated potential significant adverse environmental impacts include:

- effect of construction traffic in the local area particularly upon Aldermaston village – a conservation area;
- visual impact arising from the introduction of an additional skyline development upon the Grade 2* Listed Aldermaston Manor, Grade 1 Registered Parks and Gardens around the Manor and the North Downs Area of Outstanding Natural Beauty (AONB);
- direct physical impact [noise/visual/air quality] upon the setting of the Grade 2* Listed Aldermaston Manor, Grade 1 Registered Parks and Gardens around the Manor;
- additional surface water run off through the creation of further impermeable surfaces; and
- loss of natural resources (construction materials) from construction of a large industrial facility.

3.5.2 These potential adverse impacts will be mitigated wherever possible. For instance:

- A routing strategy for construction vehicles will be agreed with the highway authority together with hours of construction limited to exclude evening and weekend working;
- Full pre-application discussion with English Heritage, LPA Conservation Department has enabled agreement to be reached upon methods for minimising visual intrusion through siting and design [including a smooth domed roof profile, slender pole-like structures for the LPS, natural wood cladding materials];
- a Sustainable Drainage Scheme will be installed prior to any construction activities in order to manage surface water run off. The construction scheme will then be incorporated into an end state scheme which will include full landscape treatment which will seek to maximise biodiversity opportunities;
- a detailed landscape scheme has been prepared which reduces any visual impacts upon Aldermaston Manor through the use of bunding and semi-mature planting which will in the long-term provide a high quality visually-pleasing working environment;
- incorporation of noise suppression close to relevant equipment and machinery to reduce impacts to no greater than ambient noise levels;
- the use of Best Practicable Means techniques to ensure that any emissions to air are as low as reasonably practical; and

- completion of pre-construction ecological surveys and watching brief during construction to address any previously unidentified issues.

3.5.3 AWE has developed a detailed Code of Construction Practice (CoCP) which seeks to manage construction activities so that potential impacts upon the environment and people who live and work in the vicinity of AWE sites are minimised. The CoCP has been implemented on all construction projects at AWE and will also be used throughout the duration of the construction of HYDRUS.

3.5.4 The proposed facility will require the use of natural materials in its construction. These will where possible be sourced locally and from sustainable sources. Waste materials from the demolition of redundant buildings will if possible be re-used as required by AWE's Integrated Waste Strategy. If re-use on site is not possible re-use offsite will be considered prior to disposing in landfill. Radioactive waste arising from hydrodynamic experiments will be managed in the approved way, and either stored on-site or sent to any national repository according to current management systems, which are fully regulated by the Environment Agency and the Health and Safety Executive.

4. REASONS FOR INVOKING THE DEFENCE EXEMPTION

4.1 This section examines why the MOD believes it is necessary to make a direction that the EIA regulations shall not apply in the case of project HYDRUS.

4.2 BACKGROUND

4.2.1 A Direction that the EIA Regulations should not apply to a proposed development can be made in instances where compliance would have an adverse effect on a project serving national defence purposes.

4.2.2 The project falls within categories set out in Schedule 2 to the EIA Regulations which requires that an Environmental Statement (ES) is required if there is likely to be a significant impact upon the environment. As set out in Section 3 above, significant effects could occur upon the local environment through surface water run off, visual effects upon the AONB, direct physical effects upon listed buildings, parks and gardens and potential loss of ecological resources.

4.3 CONTENT OF THE EIA

4.3.1 Schedule 4 of the EIA Regulations describes the information that should be included within an ES. The purpose of providing this information is to enable the potential significant effects upon the environment to be understood and to assess whether they have been fully mitigated. If required, information is omitted from an ES due to its sensitive nature although it may not be possible for the ES to meet its primary purpose or comply with the requirements of Schedule 4.

4.3.2 The paragraphs below describe the specific items within Schedule 4 that cannot be addressed in a public document. Specific reasons are provided as to why release of this information would adversely affect a project serving national defence purpose.

4.3.3 **Schedule 4, Part 1, Para 1(b) requires 'a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used.'** The hydrodynamics experiments focus on how materials behave at high

strain rates and how compression and shock waves develop inside specific components. The experiments include types of materials, specific quantities and configurations which may reflect an accurate representation of parts of the warhead. Information relating to these detailed specifications is classified, some to SAP level. Release of precise information concerning any aspect of these experiments could allow the deduction of warhead design and performance data by developing nations and extremist factions known to be seeking ways to acquire nuclear weapons. As such, this is contrary to the security interest of the UK. Such information is therefore classified within the UK Nuclear Weapon Classification Guide and would be likely to be withheld were it the subject of a Freedom of Information request. To release this information could seriously impact on national security.

4.3.4 **Schedule 4, Part 1, Para 1(c) requires 'an estimate, by type and quantity, of expected residues and emissions (…air…radiation…) resulting from the operation of the proposed development.** Most of the hydrodynamics experiments use non-fissile materials such as tantalum, lead or depleted uranium to simulate plutonium but a small number of experiments have necessarily involved plutonium. The management of these wastes arising from hydrodynamic experiments is regulated by the Environment Agency and Nuclear Installations Inspectorate. Knowledge of the type and quantities of wastes could be used to deduce details of specific warhead components and design. Knowledge of these individual components and their experimental make-up could allow specific details about the performance and design of the weapon system to be deduced. This information could therefore not be released without jeopardising the national interest.

4.3.5 **Schedule 4, Part 1, Para 1(c) requires 'an estimate, by type and quantity, of expected residues and emissions (…noise, vibration…) resulting from the operation of the proposed development.** Data on the performance of materials and components when under stress is obtained from the explosively driven hydrodynamic experiments. The experiments generate both noise and vibration. Specific information on noise and vibration signatures could be used to gain an understanding about the configuration of warhead components leading to deduction about performance and design. To release this information could seriously impact on national security.

4.3.6 **Schedule 4, Part 1, Para (2) and Part 2 Para (4) require 'An outline of the main alternatives…'.** Detailed option studies have been undertaken which consider the most viable methods for maintaining the hydrodynamic research capability to support the Trident Programme. These studies include detailed definitions of the capabilities which must be met including specific data required for validation of computer models used to underwrite the performance and reliability of the warhead. Within an ES, the general approach to these options studies could be discussed, however, no specific details regarding existing facilities, locations, processes and scale of operation could be included or why certain options were not technically feasible. These details are themselves sensitive. For example site security would be jeopardised through advertising where hydrodynamic experiments are prepared and undertaken now and within the replacement facility. Identifying structural difficulties within existing buildings, which would need to be refurbished, could highlight possible weaknesses in security measures. Detailed floor plans of the facility could indicate potential locations for storage of experimental data and materials.

4.3.7 Developing nations and extremist factions known to be seeking ways to acquire special nuclear material in order to prepare a nuclear device / weapon would be able to target effort towards these specific locations where key experimental components of the

warhead are stored and, as such, the release of this information would increase the possibility of an impact upon national security.

4.4 AGGREGATION OF KNOWLEDGE

4.4.1 **Regulations 3, 17 and 20 of the EIA regulations describe the requirements for the ES to be made available widely to the public.** Notwithstanding the possible need to include classified information, the ES for this project will, as a minimum, have to describe the stages of hydrodynamic experiments including storage and preparation of the experimental materials together with frequency and locations of the experiments.

4.4.2. Over the past few years and in the immediate future, as set out in the SDCP, projects have been and will continue to be submitted to the planning authority which, unless granted exemptions, will need to be supported by ES. Some of these projects may have to reveal within the ES further steps in the research, development and manufacturing process together with locations of important facilities.

4.4.3 Over time, there would, therefore, be an increasing knowledge base created from information included in numerous statutory ESs. This cumulative release of precise information concerning the full processes, materials, quantities and production rates could allow the deduction of warhead design and performance data by developing nations and extremist factions known to be seeking ways to acquire nuclear weapons. As such this is contrary to the security interest of the UK. Such information is therefore classified within the UK Nuclear Weapon Classification Guide and would be likely to be withheld were it the subject of a Freedom of Information request. The release of such information would have an adverse effect on a project serving national defence purposes.

4.4.4 The MOD needs to be able to maintain a flexible approach to the content of an ES in order to avoid the potential impacts which could arise from 'cumulative knowledge'. It is against this background that the request is made for an Exemption Direction that the EIA regulations shall not apply to this proposed development.

5. MOD VOLUNTARY APPROACH TO ALTERNATIVE ASSESSMENT

5.1 If the request for an Exemption Direction is approved, the MOD will commit to preparing a Defence Exempt Environmental Appraisal (EA) to accompany the planning application. This submission will, as far as is reasonably practicable, include all the necessary information to allow an informed decision to be made on the merits of the planning application. This approach has already been applied in the cases of four other projects at AWE for which Exemption Directions have been granted. The local planning authority, together with statutory consultees, have not previously requested any additional information to that contained within the Defence Exempt EAs submitted with those four planning applications. This fact indicates that all necessary information was supplied to enable the planning authority to make informed decisions. In addition no third parties have sought to challenge any of the local authority planning decisions by way of judicial review.

5.2 This commitment to prepare a Defence Exempt EA is consistent with the advice given in JSP362 that "…where a Defence [EIA] Exemption Direction is authorised, this must be inline with the SoS for Defence Policy Statement…" The Secretary of State for Defence's Policy Statement is set out within JSP 418, the MOD Sustainable Development and Environment Manual, which states that, 'Where the MOD has been granted specific exemptions…from legislation…it will introduce standards and management arrangements

that are, so far as reasonably practicable, at least as good as those required by legislation.'

5.3 It should be noted that as part of the development of this project, decisions have been informed by Sustainability Appraisals, which have been undertaken in accordance with the methodology set out in the MOD Sustainability and Environmental Appraisal Tool Handbook. The project is also being assessed against the bespoke Defence Related Environmental Appraisal Method [DREAM] against which the project is striving to reach an 'Excellent' standard.

5.4 In addition it should be recognised that much of the information which could not be included within the ES relates to details about operational processes. These processes are regulated by amongst others the Environment Agency and the HSE. These regulators are also statutory consultees in the planning application process. The planning authority, through consultation with these authorities is, therefore, fully informed about these material planning matters and can take the regulator's consultation responses fully into account when making a decision about the acceptability or otherwise of the planning application.

6. CONCLUSION

6.1 The EIA Regulations specify certain information that must be included in the production of an ES. The replacement hydrodynamics research facility cannot meet the requirements of these regulations for the following reasons:

- Information relating to the precise process, nature and quantities of experiments together with the waste products could not be released without revealing the design and capability of the Trident weapon system. Releasing this information into the public domain could seriously impact national security.

- Consideration of alternatives could not be undertaken without discussing within the ES details of the existing processes, locations of facilities used to prepare and conduct experiments. This could jeopardise the security of the AWE site.

- There is a risk that information released in relation to the HYDRUS project and other forthcoming projects at AWE could be aggregated. Aggregation of information could reveal classified information about the Trident weapon system performance and warhead production capability.

6.2 Overall the release of precise information concerning the detailed experiments and results from those experiments could allow the deduction of warhead design and performance data by developing nations and extremist factions known to be seeking ways to acquire nuclear weapons. As such this is contrary to the security interest of the UK and such information is therefore classified within the UK Nuclear Weapon Classification Guide and cannot be placed in the public domain. To release this information could seriously impact on national security. In short, compliance with the EIA regulations in this context would unquestionably have an adverse effect on a project serving national defence purposes.

6.3 Detailed environmental investigations of the proposed site for the new facility have been undertaken as a matter of best practice. An EA is currently being prepared in order to demonstrate the extent to which the proposal impacts on the environment and the mitigation to be undertaken. The EA will cover the above points in very general terms to

allow an informed planning decision to be made, without providing detail that could affect the national interest or threaten the security of the AWE site. The EA can be considered as a suitable alternative to undertaking a statutory ES if an Exemption Direction is granted.