

Planning Act 2008

**Application by Horizon Nuclear Power for an Order Granting Development Consent
for the Wylfa Newydd Nuclear Power Station: EN010007**

**Written Representation to the Planning Inspectorate
Office for Nuclear Regulation**

4th December 2018

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1. Background

The Office for Nuclear Regulation (ONR) made an initial written representation to the Planning Inspectorate (PIIs) in August 2018. At that point we provided no substantive comments; however, we committed ourselves to providing a more detailed written representation once the Development Consent Order (DCO) examination phase had begun. This statement is intended to fulfil ONR's commitment.

The following sections of this document give a brief overview of the licensing and permissioning process administered by ONR and the Generic Design Assessment (GDA) process applied to the reactor design proposed for this development. We also provide some information on our progress with licensing of the Wylfa Newydd site in accordance with the Nuclear Installations Act 1965 (NIA 1965).

Extensive background information and guidance on all aspects of ONR's work, including GDA and the site licensing process is available in documents published on the ONR website.

2. The Office for Nuclear Regulation and Nuclear Site Licensing

The ONR is the principal regulator of the safety and security of the nuclear industry in the UK. This is achieved by the statutory licensing regime created by the NIA 1965. Any organisation intending to install and operate a nuclear reactor in the UK must obtain a nuclear site licence before any nuclear construction commences. ONR is the body responsible for granting nuclear site licences and, after a licence has been granted, regulating licensees' activities on licensed sites.

HNP Nuclear Power Wylfa Limited ('HNP') submitted an application to ONR for a nuclear site licence on 31st March 2017 for two UK Advanced Boiling Water Reactors (UKABWR) at the Wylfa Newydd site. ONR is currently assessing HNP's application – the anticipated date for the granting of a nuclear site licence, subject to the successful completion of ONR's assessment, is October 2019.

In assessing the nuclear site licence application, ONR is examining the adequacy of HNP's:

- Organisational Capability
- Licence Condition Compliance Arrangements
- Safety Cases
- Security Case and Arrangements

At the conclusion of this process, ONR will decide whether it should grant a nuclear site licence to HNP to allow the construction, commissioning and operation of two UKABWR reactor units at Wylfa Newydd.

Organisational Capability

ONR expects a prospective nuclear site licensee to establish an organisation which is capable of managing nuclear safety and discharging the obligations associated with holding a nuclear site licence. These expectations are principally summarised in ONR's publication Licensing Nuclear Installations and more detailed guidance to inspectors is given in ONR's Technical Assessment Guides (TAGs).

At the point of licensing ONR requires assurance that HNP can demonstrate control of all activities on the Wylfa Newydd site, together with control of the design to be built and its

safety justification, and that it has a robust intelligent customer capability that can secure appropriate oversight of all nuclear safety related activities carried out on its behalf.

HNP has set out its arrangements to meet these expectations in the following documents which were submitted as part of the licence application:

- Safety Management Prospectus: The organisational safety case which sets out how HNP is structured and proposes to operate.
- Nuclear Baseline: Demonstrates that HNP has suitable and sufficient organisational structures, staffing and competences in place to effectively and reliably carry out those activities which could impact on nuclear safety.
- Company Manual: Outlines the corporate governance structure, internal management structure and governance arrangements.

In addition to these documents, HNP is expected to manage security risks through a Site Security Plan and provide evidence of effective security management.

As part of its on-going assessment ONR continues to provide advice and guidance to HNP during the development of the arrangements described in the above documents. These are currently undergoing formal ONR assessment to underpin a recommendation on whether to grant a nuclear site licence.

Licence Condition Compliance Arrangements

The NIA 1965 allows ONR to attach conditions to a nuclear site licence. There are thirty-six licence conditions attached to the nuclear site licence which require licensees to put in place and implement suitable management 'arrangements'.

HNP's Licence Condition (LC) compliance arrangements must be fit for purpose to ensure nuclear safety throughout the entire life cycle of the nuclear facility, i.e. from initial design, procurement, construction, operation and eventual decommissioning of the installation. At the time of granting a nuclear site licence, ONR accepts that, during the early stages of the site's development, all of the LCs may not be applicable since these relate to activities which are not being carried out. However, following the granting of a nuclear site licence, HNP will be required to continue to develop its arrangements as its corporate and site-based organisations evolve into that required for full operation.

Safety Cases

A safety case provides a written demonstration that relevant standards have been met and that risks have been reduced so far as is reasonably practicable.

Broadly, there are three regulatory phases covering new power stations up to their operation and safety cases evolve during these phases:

1. Generic Design Assessment
2. Licensing
3. Construction

In relation to HNP's application to PInS for a DCO for its Wylfa Newydd New Nuclear Power Station (NNPS) project, Phase 1 is complete and Phase 2 is currently ongoing. In the context of safety cases a brief discussion of Phases 1-3 is provided first, followed by a more detailed discussion of Phase 2.

Phase 1: Generic Design Assessment

In December 2017, ONR granted Hitachi-GE Nuclear Energy, Ltd (the organisation requesting the GDA) a Design Acceptance Confirmation ([DAC](#)) for its UKABWR reactor design, marking the successful completion of the GDA. ONR's [Summary of the GDA Assessment](#) report notes that provision of the DAC means that, in ONR's opinion and on a site bounded by the generic site envelope, the generic reactor design could be built and operated in Great Britain, in a way that is acceptably safe and secure (subject to site specific assessment and licensing).

Phase 2: Licensing

ONR's top level guidance related to licensing is [Licensing Nuclear Installations](#) (LNI). The Chief Nuclear Inspector's foreword to LNI notes that before a licence is granted, ONR needs to be satisfied that the applicant's choice of site is suitable, that it understands the hazards and risks of the activities that it proposes to carry out, and that it has a suitable schedule of safety submissions leading through to a site specific Pre-Construction Safety Case.

Phase 3: Construction

The start of Phase 3, for which construction should be interpreted as nuclear construction, will follow ONR granting a nuclear site licence and a subsequent separate permission under a condition attached to the licence. A site specific Pre-Construction Safety Case supports this separate permission.

Licensing Safety Case Discussion

As stated above, ONR is currently assessing HNP's application for a nuclear site licence. As part of its assessment, a key element of ONR's consideration is the suitability of the site.

In terms of site suitability, LNI notes that before a nuclear site licence is granted the prospective licensee will need to satisfy ONR that:

- The proposal conforms with Government siting policy.
- The location is suitable for the establishment and maintenance of an adequate emergency plan during all phases of the power station.
- The proposed nuclear power station is capable of being designed to have robust defences against the site specific external hazards.

In relation to site specific external hazards, there is a link to the generic site envelope used during the GDA phase. Specifically, HNP needs to identify and characterise all external hazards that could affect the safety of the nuclear installations to be installed and operated on the Wylfa Newydd site and compare this "site challenge" to the generic site envelope used during the GDA phase. For site suitability and licensing, HNP only need to justify external hazards where there is little or no margin to the generic site envelope (which includes external hazards not included in the generic site envelope) and cases where it intends to adopt a lesser site challenge than that represented in the generic site envelope.

To demonstrate that the Wylfa Newydd site is suitable, HNP submitted to ONR a Wylfa Newydd Site Justification Report (SJR) to support, and be consistent with, its separate application to PIns for a DCO. ONR continues to review this safety case, consisting of the SJR and its supporting references. In addition, HNP intends to issue an updated SJR and supporting references later this year. It is this updated SJR that ONR will use to inform its licensing decision.

As part of the SJR and its references, HNP has presented information relevant to a number of strategic siting criteria and matters flagged for detailed consideration by PINS and/or ONR as defined in [“Government Response: Consultation on the Siting Criteria and Process for a New National Policy Statement for Nuclear Power With Single Reactor Capacity Over 1 Gigawatt Beyond 2025”](#). The SJR has also addressed a number of Nuclear Impacts defined in [“National Policy Statement for Nuclear Power Generation \(EN-6\). Volume I of II. July 2011”](#).

Whilst ONR’s assessment of site suitability for licensing is ongoing, the section below provides a position statement. This is structured around the following themes referred to previously:

- a. Government siting policy.
- b. Emergency planning.
- c. External hazards.
- d. Additional matters related to National Policy Statements for nuclear power.

3. Current Position Relating to ONR’s Site Suitability Work

Government Siting Policy/ Demographics

In relation to the siting of nuclear installations adjacent to existing populations and residential developments etc., the UK Government policy is to make use of the “semi-urban” demographics criterion as the limiting values for the siting of modern reactors such as the UKABWR units proposed to be installed and operated at the Wylfa Newydd site. ONR’s demographics assessment has concluded that the Wylfa Newydd site meets the “semi-urban” criterion.

The draft DCO includes a provision of a temporary Site Campus (Work No. 3A) to provide accommodation for workers involved in construction of the station. Temporarily occupied buildings have not been included in ONR’s demographics assessment.

ONR does not object to the grant of a DCO for Wylfa Newydd based on demographics considerations based on the existing text of the draft DCO (Revision 2.0). ONR consider that the siting criteria will be met as the re-purposing the temporary Site Campus for residential use after completion of construction works is specifically excluded.

However, ONR notes that the term “temporary” is not defined in any of the relevant HNP submissions (including the draft DCO), and although no change to the wording of the draft DCO is crucial, ONR considered that it could be enhanced by the following changes, if these are practicable to apply to the draft DCO:

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j) in connection with Work No. 3A, the following additional works—

- demolition/removal of temporary buildings, amenity buildings; hard-standing, parking areas **and** associated structures and plant, **to commence prior to the start of the operational period**; and associated post-operation phase work;

k) in connection with Work No. 5, 6 and 7 the following additional works—

- demolition/removal of temporary buildings, amenity buildings; hard-standing, parking areas; associated structures and plant; and associated post-operation phase work;

... with subsequent bullets being advanced by one letter to accommodate the addition.

Emergency Planning

In response to HNP's application for a DCO for its Wylfa Newydd NNPS project, ONR has consulted with: the Isle of Anglesey County Council Emergency Planner; HNP; and, the Magnox Limited Wylfa Emergency planning function. Based on this consultation, ONR does not object to the grant of a DCO for the Wylfa Newydd NNPS project based on emergency planning considerations.

External Hazards

Flood Risk

ONR has jointly engaged with Natural Resources Wales and HNP with respect to flood risk for the Wylfa Newydd site. ONR is broadly content with the strategy that HNP is developing for the nuclear flood risk assessment, and its consistency with its flooding analysis for DCO. Rainfall forecast and coastal flooding hazard characterisation is being assessed as part of ONR's nuclear site licence assessment. No major issues have been identified at present.

Proximity to Civil Aircraft Movements

HNP has recently submitted updated hazard characterisation documentation for accidental aircraft crash to the ONR. The aircraft crash hazard will be assessed as part of ONR's nuclear site licence assessment. Currently, no significant issues have been identified.

Seismic Risk (Vibratory Ground Motion)

ONR is engaging with HNP in relation to the seismic vibratory ground motion hazard for the Wylfa Newydd site and HNP's proposed approach to define the design basis earthquake. This is a technically complex matter and engagement with HNP has been on-going for some time through meetings, workshops and teleconferences. Assessment of the seismic hazard will form part of ONR's nuclear site licence assessment.

Capable Faulting

ONR has been engaging with HNP in relation to the capable faulting hazard for the Wylfa Newydd site for some time, and has undertaken some preliminary assessment. From the evidence assessed to date, ONR is broadly satisfied that capable faulting does not pose a significant risk to the Wylfa Newydd site.

Meteorological Conditions

HNP has recently submitted updated hazard characterisation documentation for meteorological hazards to the ONR for assessment. Meteorological hazards will be assessed as part of ONR's nuclear site licence assessment. At present, ONR foresees no significant issues arising from meteorological hazards for the Wylfa Newydd site.

Proximity to Mining, Drilling and Other Underground Operations

ONR has not been informed of any proposals to perform underground operations (including mining and drilling) in proximity to the Wylfa Newydd site (apart from those required during construction of the plant), and is not aware of any mineral resources that could lead to future proposals (the nearest being at Parys Mountain located 11km east of the Wylfa Newydd site). HNP has recently submitted to ONR updated licensing submissions characterising

man-made and biological external hazards. ONR will continue to engage with HNP during ONR's nuclear site licence assessment in relation to these potential hazards.

Additional Matters Related to National Policy Statements for Nuclear Power

Water Quality and Resources

ONR's concerns are restricted to the engineering aspects of supplying cooling water to the nuclear safety systems and the effects that the proposed development (marine structures) could have on nuclear safety. ONR's assessments remain on-going. Water quality (groundwater) is only covered in terms of identifying aggressive chemicals to the foundations and ONR is broadly satisfied that these matters do not pose a significant risk to the proposed development.

Access to Transmission Infrastructure

ONR's interest is limited to how HNP is demonstrating that they will have access to the transmission system. HNP has ongoing interactions with National Grid, the Department for Business, Energy & Industrial Strategy (BEIS) and the Office of Gas and Electricity Markets (Ofgem) regarding the connection of the Wylfa Newydd NNPS to the grid system. HNP has reached agreement on the applicable set of codes that will need to be satisfied before connecting each unit to the transmission system. HNP continue to progress the work involved with developing the design and satisfying the applicable codes and current progress is satisfactory with no major issues identified by ONR at this time.

Significant Infrastructure / Resources

ONR's interest is limited to the impact that the proposed construction could have on the existing infrastructure, specifically the potential hazards that this could pose to the adjacent Magnox Limited Wylfa site. ONR has engaged with HNP to understand the effects that dewatering (during construction) could have on the Magnox Limited Wylfa site. This work is on-going and it will form part of ONR's nuclear site licence assessment.

Size of Site to Accommodate Construction and Decommissioning

ONR has engaged with HNL to ascertain whether the site is of a sufficient size to accommodate all of the proposed construction activities. Ultimately, ONR would expect any future decommissioning activities to require a smaller footprint than that required for construction work. This work is on-going and it will form part of ONR's nuclear site licence assessment.

Size of Site to Accommodate Operation

ONR has had early engagement with HNP on this matter and HNP is developing safety documentation which will be referenced in its updated SJR for the Wylfa Newydd site. This documentation will be assessed by ONR from several technical areas, including internal hazards.

Non-Seismic Ground Conditions

ONR has assessed HNP's detailed onshore ground investigation report and is in the process of reviewing a supplementary report. ONR is broadly satisfied that the non-seismic ground conditions do not pose a significant risk to the proposed Wylfa Newydd NNPS, but this will be confirmed when we complete our review of HNP supplementary report. This will form part of ONR's nuclear site licence assessment.

4. Concluding Remarks

ONR continues to assess HNP's nuclear site licence application which was received by us in April 2017. Subject to the satisfactory outcome of our assessment, the current proposed date for grant of a licence is October 2019. This timing will depend on the quality of our continuing interactions with HNP, including HNP's ability to commit the necessary resources over the coming months, as well as ONR's ability to maintain its assessment resource.

Notwithstanding the above, ONR's decision to issue a Generic Design Assessment (GDA) Design Acceptance Confirmation (DAC) for the UKABWR design gives us confidence that, on a site bounded by the generic site envelope adopted in the GDA, the generic reactor design could be built and operated in Great Britain, in a way that is acceptably safe and secure. As part of ONR's licensing work we are assessing HNP's work to compare the characteristics of the Wylfa Newydd site to the generic site envelope adopted in the GDA as part of a wider programme of work related to site suitability. To date, no matters have been identified which indicate that Wylfa Newydd is an unsuitable site to install and operate the nuclear facilities described in HNP's DCO application to PIns. One aspect of ONR's wider programme of work related to site suitability relates to demographics. Although no change of wording of the draft DCO is absolutely necessary, some changes have been suggested for consideration to prevent re-purposing the temporary Site Campus for residential use after completion of construction works.

Following licensing, HNP will require a separate permission from ONR before nuclear construction can begin. ONR granting of this separate permission will be informed by its assessment of a separate substantial safety case to be submitted by HNP. In its assessment of this safety case, ONR will focus on changes to the design or safety documentation since the GDA DAC was granted.

ONR is delivering a strategy of interventions to assess the suitability of HNP to be granted a nuclear site licence. In advance of our decision, we will expect HNP to conduct its own readiness review. That review will be expected to confirm that HNP has a suitable organisational capability and management arrangements in place to discharge the obligations associated with holding a nuclear site licence. ONR will carry out its own assessment, which includes a review of HNP's arrangements.

ONR's work in this area is ongoing; however, we expect to complete our assessments over the next few months; therefore, we are unable to provide any definitive statements on the outcome of this work. However, we have not so far identified any fundamental shortcomings that we consider should prevent the grant of a nuclear site licence to HNP for the Wylfa Newydd site in due course, or to subsequently permit the commencement of nuclear construction. As discussed above, these decisions will be taken in the light of the findings from our ongoing assessment.

Office for Nuclear Regulation

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