



Wylfa Newydd Project

Post Oral Hearing Summaries - Friday 11th January

PINS Reference Number: EN010007

17 January 2019

Revision 1.0

Examination Deadline 4

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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HORIZON NUCLEAR POWER WYLFA LIMITED – WYLFA NEWYDD PROJECT – DEVELOPMENT CONSENT ORDER APPLICATION

Written summary of Horizon's oral submissions at the Biodiversity Day 2 Issue Specific Hearing held on 11 January 2019

Introduction

1. This note summarises submissions made on behalf of Horizon Nuclear Power Wylfa Limited at the Biodiversity Day 2 issue specific hearing on 12 January 2019.
2. Oral submissions by all parties attending the hearing were made pursuant to the agenda published by the Examining Authority on 19 December 2018 (the "Agenda"). In setting out Horizon's position on the issues raised in the agenda, as submitted orally at the hearing, the format of this note follows that of the agenda.
3. In addition to covering the agenda items as noted above, this note also relates to the Examining Authority's list of action points arising from the hearing.
4. A CV for each of the witnesses who made oral submissions on behalf of the Applicant is appended to this document.

ExA's Agenda Item	Summary of Horizon's Oral Submission made in the hearing	Relevant document references
Item 5 – Terrestrial ecology and birds (continued from Biodiversity Day 1)		
5(v) baseline information for reptiles etc.	<p>Baseline data</p> <p>In response to concerns from NRW and IACC regarding limited baseline data for reptiles and section 7 habitats and the lack of detail within the control documents, Mr Nick Clark on behalf of Horizon confirmed that:</p> <ul style="list-style-type: none"> • Additional baseline data relating to reptiles would be submitted 	<p>Horizon's response to IACC's Local Impact Report [REP3-004]</p> <p>Main Power Station Site sub-CoCP [REP2-032]</p> <p>Environmental Statement, Chapter 15 - Inter-project cumulative effects</p>

	<p>at Deadline 5 (12 February 2019).</p> <ul style="list-style-type: none"> • Additional information relating to section 7 habitat would be submitted at Deadline 4 (17 January 2019), as per Horizon's response to IACC's Local Impact Report [REP3-004]. • Additional details of mitigation secured under the species licences would be included within the Main Power Station Site sub-CoCP at Deadline 5 (12 February 2019) in respect of reptiles and other species. • Horizon has committed to undertaking pre-construction surveys for a number of species within the Wylfa Newydd CoCP and the Main Power Station Site sub-CoCP prior to the commencement of works (even those that have been scoped out as not considered to be affected (i.e. badgers and mammals). • Horizon considers that it is unlikely that there will be a change in baseline data over time and so the baseline data is robust. However, the pre-construction surveys will ensure any additional species are identified and appropriately managed. • Horizon would provide a technical note on monitoring of common lizard at Deadline 5 (12 February 2019). <p>Exclusion zones around bat roosts and barns</p> <p>The ExA noted that it was unclear how exclusion zones around bat barns and roosts are secured. In response, Mr Nick Clark on behalf of Horizon made the following points:</p> <ul style="list-style-type: none"> • Bat barns have been provided to provide roosting opportunities for bats; there will be buffer zones in place around those areas which will be secured through the Main Power Station Site sub-CoCP. • The control documents will maintain dark corridors around bat 	<p>cumulative assessment [APP-388]</p> <p>Statement of Common Ground between Horizon Nuclear Power Wylfa Limited and the Isle of Anglesey County Council [REP2-041]</p>
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barns and hot spots around foraging areas (Tre'r Gof and Wylfa Head). These are protected through designations. Light spill from the Site Campus Multi-use Games Area will also be controlled through the Main Power Station Site sub-CoCP.

- Updates to the Wylfa Newydd CoCP and Main Power Station Site sub-CoCP, to include a lighting strategy, will be submitted at Deadline 5 (12 February 2019).

Impacts on red squirrel

IACC stated its concerns with the loss of red squirrel habitat during construction (particularly when considered with the impacts from National Grid's North Wales Connection Project which predicted a removal of 1.3 hectares of habitat). In response, **Mr Nick Clark**, on behalf of Horizon, noted that:

- Horizon considered the North Wales Connection Project in its cumulative assessment [APP388 at paragraph 5.2.62] and concluded that habitat loss and fragmentation is a potential impact and there could be minor adverse impacts following mitigation.
- The area of foraging habitat retain at Dame Sylvia Crowe's mounds will be sufficient for the one active drey recorder in that area. Academic evidence states that between 1 and 60 hectare is required to sustain a viable population, with size and quality being key characteristics. Although Horizon cannot change the size of the habitat (which will be around 10 hectares), it can ensure quality through nest and food resource to support population within in. These measures are secured within the Main Site sub-CoCP. References to this evidence will be provided at Deadline 5 (12 February 2019).
- The Landscape and Habitat Management Strategy will also

	<p>provide for another 25ha within WND and strengthened corridors throughout the WND (i.e. hedgerow, cloddiau). These improved corridors will support territorial expansion and enable further re-colonisation.</p> <p>Mitigation for bats</p> <p>IACC noted that the mitigation provided by Horizon was insufficient to replace the lost roosting opportunities and impacts on bats. NRW also noted that details from the mitigation licences needed to be included within the Main Site sub-CoCP.</p> <p>In response, Mr Nick Clark, on behalf of Horizon, noted that the sufficiency of mitigation was a matter of professional judgement and that the mitigation offered was considered sufficient as in addition to bat roosts, Horizon was also offering a roosting tower which offered additional roosting opportunities. In addition, IACC has confirmed through the SoCG that there is no detriment to favourable status.</p>	
5(vi) breeding birds, chough and barn owls.	<p>In relation to whether breeding bird surveys identified all species on site, Horizon noted that surveys of breeding birds were undertaken between 2009 and 2015 and a large data set was gathered. In addition to walked transects, surveys also included focused vantage survey points and so it is unlikely that any species were not identified. In any event, the Wylfa Newydd CoCP and the Main Power Station Site sub-CoCP require Horizon to undertake pre-construction surveys for birds prior to commencing works on site.</p> <p>The ExA queried how the technical note relating to chough submitted at Deadline 3 (18 December 2018) [REP3-046] would be included as part of the Environmental statement. In response, Mi-</p>	<p>Wylfa Newydd Code of Construction Practice [REP2-031]</p> <p>Main Power Station Site sub-CoCP [REP2-032]</p> <p>Deadline 3 (18 December 2018) Submission - Addendum to 2018 Chough Baseline Report [REP3-046]</p> <p>Draft Development Consent Order</p>

	<p>chael Humphries QC, Counsel for Horizon, noted that this could be included through the definition of "Environmental Statement" in article 2 of the Draft DCO. Horizon would consider this definition and make the necessary updates to the Draft DCO.</p> <p>Theresa Hughes, on behalf of the eNGOs raised concerns regarding the phasing of landscaping and the fact that landscaping design was only finalised at operation. In response counsel and Mr Phil Shepherd made the following points on behalf of Horizon:</p> <ul style="list-style-type: none"> • Final landscaping will be submitted for approval in accordance with WN9 prior to operation. This is because, it is not possible to finalise the design until all excavations on site have been completed. • During construction, Horizon must undertake construction landscaping in accordance with the LHMS as per WN8. • Concerns about the loss of habitat and detrimental effects on the chough during construction are unfounded; assessment undertaken by Horizon shows that the chough currently have sufficient habitat to breed and that this habitat will not be removed during construction. <p>In response to RSPB's comments that a foraging strategy was needed to provide additional foraging areas for chough during construction and operation, Philip Shepherd on behalf of Horizon noted that the intention was that habitats that were created within the WNDA in accordance with the LHMS would increase in foraging value over time and would support more foraging than currently provided. Horizon would review the LHMS to see whether additional controls could be provided to address long-term management and phasing of foraging areas.</p>	<p>[REP2-020]</p> <p>Workforce Management Strategy [APP-413]</p> <p>Draft DCO s.106 Agreement [REP3-042]</p>
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In response to IACC and the eNGO's concerns around visitor pressure impacts on chough, Horizon noted that the Workforce Management Strategy (WMS) includes a range of controls on workforce behaviour in and around Wylfa Head and the provision of a warden to enforce this behaviour. Funding of the warden would be provided through the draft section 106 agreement. Horizon will submit an updated WMS at Deadline 5 (12 February 2019) to provide additional principles relating to expected behaviours.

In response to a question from the ExA as to how the Ecological Clerk of Works (ECoW) would operate in practice, **Mr Charlie Tasker** and **Dr James Cook** made the following comments on behalf of Horizon:

- Commitment to an ECoW and its role are set out in the Wylfa Newydd CoCP (section 11.2) and the Main Power Station Site sub-CoCP.
- The ECoW would comprise a team of specialists, with a lead ECoW overseeing activities on site.
- The ECoW would be responsible for monitoring construction works; overseeing pre-construction surveys and clearances, identifying protective measures and methodologies (i.e. the establishment of buffer zones); educating construction staff on legal requirements and protections; supervising licence works to ensure compliance; and monitoring of species during construction (i.e. active nests and chough foraging behaviours).
- The ECoW will have the power to intervene and/or stop works on site where it is in breach of a control document or there may be harm to a protected species.
- Horizon would review the controls relating to the ECoW within

	<p>the controls documents and make any necessary amendments to make the role clearer at Deadline 5 (12 February 2019).</p> <p>In response to the eNGOS request for fencing around Dame Sylvia Crowe's Mound, Horizon noted that buffer zones were provided through the Wylfa Newydd CoCP; however, Horizon could provide some indicative fencing around the Mounds to identify these buffer areas.</p>	
Item 3 – Coastal Change		
3(a) To identify areas where there are still differences of opinion and whether additional work, mitigation or changes to the Proposed Development are required in respect of the loss of intertidal and subtidal habitats.	<p>The ExA noted that Guidance for Pollution Prevention 5: Works and maintenance in or near water has now been published and is the most relevant guidance to be followed in respect of any assessment of suspended sediment.</p> <p>On behalf of Horizon, Mr Rob Bromley confirmed that Horizon would ensure that GPP5 is reflected and secured in the DCO application.</p>	
3(b) To understand the concerns expressed by National Trust in the Statement of Common Ground [REP2-	<p>In response to the ExA's question whether the parties were still in disagreement over coastal change hydrogeomorphology, Horizon noted that:</p> <ul style="list-style-type: none"> There were still differences between Horizon and National Trust regarding the interpretation of additional modelling provided at Deadline 2 (4 December 2018) [REP2-007]. However, Horizon 	Supplementary Information on Coastal Processes to Support Wylfa Newydd EIA and Shadow HRA [REP2-007]

058] regarding the impacts from construction and operation of marine works and how these can be resolved.	<p>stated that they would provide a monitoring programme and adopt an adaptive management approach.</p> <ul style="list-style-type: none"> • While Horizon is willing to discuss mitigation proposals with National Trust, it's primary focus is on reaching agreement with the regulator, NRW and so does not consider tripartite meetings are necessary. 	
<p>3(c) To identify areas where there are still differences of opinion and whether additional work, mitigation or changes to the development proposals in relation to:</p> <p>i. Sediment Regime Report [APP-217]; ii. Main Site Wave Modelling Report [APP-218]; and iii. marine modelling of the construction discharge [APP-232]</p>	<p>Capacity of Holyhead Deep</p> <p>The ExA raised concerns that the Holyhead Deep Site was not licensed to receive rock. NRW confirmed that the site was not designated to receive rock but that Horizon had secured mitigation to undertake further benthic sampling and micro-siting within the Marine Works sub-CoCP.</p> <p>Horizon confirmed this position; noting that the applications for the Marine Licences are before NRW and will be approved after the examination in 2020. Counsel for Horizon noted that NPS EN-1 contemplates that other licences will be sought and granted after DCO and so the fact that the Marine Licences had not been granted was not unusual.</p> <p>Shingle ridge effects</p> <p>In response to concerns from NRW and National Trust about the impact of sediment on and the long-term stability of the ridge, Horizon noted that the shingle ridge would be affected irrespective of the Project as it was already moving landwards (as per research by Dr Kenneth Pye).</p> <p>Mr Rob Bromley, on behalf of Horizon, confirmed that Horizon had committed to agreeing a monitoring and adaptive management ap-</p>	Marine Works sub-CoCP [REP2-033]

	proach with NRW to examine changes with and without the Wylfa Newydd DCO Project.	
	<p>Cemaes bathing water</p> <p>NRW noted that Horizon had provided additional modelling on sewage discharges as part of its application for a construction water discharge permit and that this modelling should be submitted into Examination.</p> <p>Mr Rob Bromley, on behalf of Horizon, noted that:</p> <ul style="list-style-type: none"> • The ES submitted with the DCO application identifies that there would not be an increased risk to bathing water quality as a result of the Wylfa Newydd DCO Project. • This conclusion is reconfirmed in the additional modelling undertaken as part of the environmental permit application. • Horizon would submit the additional modelling in relation to foul water discharges from WNDA and in combination with DCWW into Examination at Deadline 5 (12 February 2019). 	Environmental Statement, Chapter D13 [APP132]
	<p>Construction marine works and coastal protection</p> <p>National Trust, as owner of the coastline, raised concerns regarding the long-term protection and restoration of the shoreline, particularly in relation to the temporary causeway. The ExA also raised queries about how pollution events would be managed during construction, operation and decommissioning of the temporary causeway.</p> <p>In response, Mr Rob Bromley on behalf of Horizon noted that:</p>	<p>Environmental Statement, Chapter D13 [APP132]</p> <p>Marine Works sub-CoCP [REP2-033]</p> <p>Construction Method Statement [APP-136]</p>

- Chapter D13 [APP132] had assessed 16 pathways from construction of the marine works, including intertidal and sub-tidal communities.
- With the exception of rocky reef habitat and the potential for introduction of INNS, all other assessments concluded there were no significant effects associated with the construction of the Marine Works.
- Removal of the causeway will enable habitat restoration and ecological enhancement. Effects from suspension of sediment from construction and decommissioning of the causeway will be similar.
- Horizon will apply good practice mitigation to ensure that dust, water quality and vessels are managed and this will be controlled in the Marine Works sub-CoCP which will be updated at Deadline 5 (12 February 2019) to address GPP5.
- The Deadline 2 (4 December 2018) update of the Marine Works sub-CoCP included a specific paragraph requiring Horizon to prepare and implement a shoreline protection and restoration plan. Horizon will consider what additional detail can be included within the Construction Method Statement to provide further details on the shoreline protection.
- At Deadline 5 (12 February 2019), Horizon will provide a technical note regarding the construction and decommissioning of the temporary causeway and how pollutants will be captured at removal.

Item 4– Climate Change

4(a) To identify In response to the ExA's request for the ES to be updated to reflect Sustainability Statement [APP-

areas where there are still differences of opinion and whether additional work, mitigation or changes to the Proposed Development are required in respect of the measures incorporated into the design of the Proposed Development to enable it to adapt to the effects of climate change

the UK Climate Projections (2018), Horizon made the following statements:

- The ES has assessed climate change in two ways: the effects of the Project on the climate; and how the Project has been designed to be adaptive to climate change impacts.
- The Power Station has been designed to a year 2183 which is the functional end of life. The design is resilient from the outset and a Nuclear Site Licence will not be granted without confirmation that the design can withstand highly conservative predictions of the effects of climate change.
- The Sustainability Statement [APP-426] accompanying the application for development consent outlines the design measures that have been incorporated with regards to climate change adaptation.
- The following elements of the design are examples of where climate change has been considered:
 - Cooling water system (including breakwater (design):
 - ◆ Rise in sea temperature.
 - ◆ Sea level rise (including tide and surge effects).
 - ◆ Change in flora and fauna.
 - Site drainage
 - ◆ Increase in precipitation (including hail).
 - Building design
 - ◆ Increase in precipitation – including snow loading.
 - ◆ Changes in wind speed.

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Coastal change: Wave modelling appendix, D12-3 [APP-218]

App D8-4 Flood Consequence Assessment [APP-150]

◆ Increase in lightning.

- For relevant ES chapters the potential effects of the Project on the environment have been assessed in the context of a changing climate. Where appropriate, topic chapters provided a description of the evolution of the baseline and the predicted effects of climate change. This allowed the potential effects of the Project to be considered in combination with the effects of climate change.
- Flood risk: Climate change allowances are included in the Flood Consequences Assessment.
- Coastal change: Wave modelling appendix, D12-3 [APP-218] the foreseeable future (2087) baseline scenario reflects precautionary values for climate change conditions of sea level rise and increases in storm events recommended within UK Climate Predictions 2009 (UKCP09) and Welsh government guidance.
- Marine environment: The UK Climate Projections (UKCP09) have been used in the marine modelling. Modelling outputs show a 'reasonably foreseeable' future sea level rise from 2008 to 2023, to 2087 and to 2187 of 0.05m, 0.67m and 2.12m, respectively (0.07m, 0.48m and 1.48m in the Further Wave Model Phase 2 study) with no additional allowance for surge.

The standard UK Climate Projections 2018 output does not yet include a full data set, for example it doesn't include sea surface temperature, which is required to confirm/calculate the surface heat flux coefficients used in the wave model. Although Horizon does not have the data, it can provide a qualitative assessment of the DCO application against the 2018 projections and provide this at Deadline 5 (12 February 2019).

	<p>In response to comments by Ms Marg Richards on behalf of WANA, on the suitability of the site and the need for nuclear in the UK, Counsel for Horizon referred the Inspectors of their powers under section 94 of the Planning Act and that the Examination is not a forum for debate or challenge merits of UK Government Policy.</p> <p>Ms Marg Richards also noted that the design of the Power Station had to take into account predicted sea-level rises. In response to this, Horizon noted that the Power Station had been designed to 2183 and that sea level had been taken into account within the Sustainability Statement [APP-426], and the Flood Consequence Assessments for the WND A [APP-150 at [5.2.2, 8.1 and 9.1] and for the Associated Development sites.</p>	
<p>4(b) To identify areas where there are still differences of opinion and whether additional work, mitigation or changes to the Proposed Development are required in respect of flood risk at: i. Wylfa Newydd Development Area; ii. Dalar Hir Park & Ride; and iii. Off-line high-way improve-</p>	<p>Flood design for the Park and Ride at Dalar Hir</p> <p>In response to questions from the ExA whether the proposed new mitigation at Dalar Hir was sufficient, NRW raised a number of concerns or clarifications with the revised designs provided by Horizon at Deadline 2 (4 December 2018). IACC also raised concerns on the potential flooding of the Nant Dalar Hir crossing.</p> <p>In relation to each of these issues, Mr Phil Raynor, on behalf of Horizon, provided the following response:</p> <ul style="list-style-type: none"> • The only remaining area that is subject to flood risk at Dalar Hir (and therefore not compliant with TAN15) is the bottom corner of a single parking space. Horizon will consider whether this can be resolved through manipulation of levels. • In order to enable NRW to understand the changes in field levels, Horizon will provide NRW with plans illustrating the existing 	<p>Dalar Hir FCA Addendum [REP2-372]</p>

ments.

field levels. Further details of the topographical survey of the site are contained in the initial FCA.

- Horizon has not assessed blockages of culverts within its modelling work as the site would be maintained throughout operation and so it would be unlikely that debris would cause any blockages. In any event, earlier modelling is considered to represent a worst case. However, Horizon confirmed it would undertake further modelling in accordance with the NRW Guidance and submit this into examination at Deadline 5 (12 February 2019).
- The spine road/Nant Dalar Hir crossing would not flood in the modelled scenario.

Horizon confirmed that the above points would be detailed in a note to be submitted into Examination at Deadline 5 (12 February 2019).

Flooding concerns at A5025 Off-line Highway Improvements–Valley

NRW noted that Horizon had provided additional detail regarding impacts on tidal embankment which additional compensation for any breach. In response to this, Horizon confirmed that this note would be submitted into Examination at Deadline 4 (17 January 2019).

Flooding concerns at A5025 Off-line Highway Improvements – Llanfachraeth

In response to NRW's concerns regarding the flood risk of agricultural land at Llanfachraeth, Horizon noted that flooding at Llan-

fachraeth cannot be avoided and so it is exploring a legal agreement with the landowner.

In respect of the flooding impacts, **Mr Phil Raynor** made the following comments on behalf of Horizon:

- Horizon acknowledges that impacts to land at Afon Alaw Viaduct (Section 3) is non-compliant with TAN15, however, considers these impacts to be of Slight significance:
 - Off-site properties, <0.001m change in flood level
 - Off-site land, +0.02m to +0.09m change in flood level
- The requirements of NPS EN-1, para 5.7.17, would be met because the wider sustainability benefits of the WNDAs outweigh the impacts on flood risk to this receptor.

WNDAs

In response to concerns raised by NRW about increased flood risk due to changes in catchments at the WNDAs, **Mr Phil Raynor** made the following points on behalf of Horizon

- Horizon will further develop the drainage design for the WNDAs to minimise increases in flood risk as far as practicable.
- A detailed drainage design is being developed and will be made available later in 2019 once completed. It will not be possible to submit this during the Examination.
- Information can be provided during the Examination to show that no increase in flows into the Nant Cemaes is realistically achievable. In respect of the Afon Cafnan and Nant Cemlyn, Horizon will progress this as far as possible, and will keep the

	ExA informed of this.	
Item 5 – transboundary		
5(a) To receive an update on any outstanding trans-boundary issues	<p>In response to the ExA's query regarding the methodology used within the EU in relation to flex risk methodology, Horizon advised that it would submit a detailed note into Examination on the UK and EU approaches to flex risk methodology at Deadline 5 (12 February 2019).</p> <p>In response to concerns raised by WANA and PAWB on the appropriateness of the site, the choice of UK-ABWR, transboundary impacts and discharges, Horizon noted that:</p> <ul style="list-style-type: none"> • NPS EN1 and EN6 sets out clear policy for the need for new nuclear in the UK and the suitability of the Wylfa Newydd Site. This is government policy that cannot be challenged during hearings of a DCO application. • Section 94(8)(c) of the Planning Act 2008 provides the ExA with the power to disregard any submissions which challenge the merits of policy set out in an NPS. • The UK-ABWR has received Generic Design Assessment approval from the Office for Nuclear Regulation and is subject to a nuclear site licence application. The ONR has advised that it will make a decision on the site licence application in October 2019. • Horizon also received a positive opinion from the European Commission under the Euratom treaty in June 2018. The EC concluded "<i>the Commission is of the opinion that the implementation of the plan for the disposal of radioactive waste in whatever form, arising from the two UK-ABWR reactors of the Wylfa</i> 	<p>Appendix D14-2 - Analysis of accidental releases [APP-234]</p> <p>Chapter D14 – Radiological effects [APP-133]</p>

Newydd nuclear power station, located in Wales, United Kingdom, both in normal operation and in the event of accidents of the type and associated magnitudes of unplanned releases of radioactive effluents as considered in the General Data, is not liable to result in a radioactive contamination, significant from the point of view of health, of the water, soil or airspace of another Member State, in respect of the provisions laid down in the Basic Safety Standards Directive."

- As part of its DCO application, Horizon also submitted Appendix D14-2 - Analysis of accidental releases [APP-234] which is a requirement under the 2017 EIA Regulations to provide additional assurances. Although Horizon is not subject to the 2017 EIA Regulations, it provided this report on a voluntary basis. In response to a question from the ExA.
- Horizon confirmed it would check whether this appendix included the additional, supplementary and future information referred to in the EC June 2018 opinion and provide a response at Deadline 4 (17 January 2019).
- Radiological effects during operation are assessed in Chapter D14 – Radiological effects [APP-133].
- NPS EN1 at [4.10.3] also provides that the ExA should focus on whether the " development itself is an acceptable use of the land, and on the impacts of that use, **rather than the control of processes, emissions or discharges themselves**. The IPC should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator" (emphasis added), in this case, NRW. It is therefore NRW, not the ExA, that is responsible for ensuring discharges are adequately controlled during operation.

Post-hearing Action Items		
	<p>At the end of the hearing, Horizon confirmed the following actions:</p> <ul style="list-style-type: none"> • Batch 2 Requests for non-material changes would be submitted at Deadline 4 (17 January 2019). • The updated Phasing Strategy and the Design and Access Statement would be submitted at Deadline 4 (17 January 2019). • The next update of the Draft DCO and Explanatory Memorandum would be submitted at Deadline 5 (12 February 2019). • All control documents would be updated with stakeholders and submitted at Deadline 5 (12 February 2019). • A diagram of the relationship between all plans and strategies under the DCO and control documents would be submitted at Deadline 5 (12 February 2019). • Updated modelling and technical notes regarding impact of blocked culverts at Dalar Hir and the discharge of foul water from the WNDA would be submitted at Deadline 5 (12 February 2019). • The updated Mitigation Route Map would be submitted at Deadline 6 (19 February 2019), following the Deadline 5 (12 February 2019) updates of the control documents. • Technical note regarding potential flooding risk of Afon Cafnan to be submitted at Deadline 6 (19 February 2019). 	



Nick Clark

EXPERT WITNESS FOR TERRESTRIAL ECOLOGY

AREA OF SPECIALISM

Nick has led the ecology input into a range of major infrastructure schemes across the UK, including ecological impact assessments, European Protected Species mitigation licences, mitigation designs and habitat creation and management plans, and Habitat Regulations Assessments.

He has 16 years' experience as a professional ecologist, and has acted as the head of discipline for terrestrial ecology on the Horizon project since 2012.

PROFESSIONAL ORGANISATIONS

- Member of the Chartered Institute of Ecology and Environmental Management (CIEEM)
- Chartered Environmentalist (CEnv)

QUALIFICATIONS

- MSc Oceanography
- BSc Zoology

RELEVANT WORK EXPERIENCE

Nick has acted as lead ecologist on a range of road, rail, utilities and flood risk schemes. He has a background in nature conservation, having managed conservation enhancement programmes across nationally and internationally designed wildlife sites, as well as managing a number of nature reserves.

Nick provided technical review of the three options short-listed by the Airports Commission for increasing airport capacity within the UK. He has undertaken due diligence of Habitat Regulations Assessments on behalf of the European Bank, and is the retained technical advisor on one of Highways England's largest mitigations schemes for impacts to European sites.



Phil Raynor

EXPERT WITNESS FOR SURFACE WATER AND FLOOD RISK

AREA OF SPECIALISM

Phil provides a technical leadership role in flood risk, hydrology and water management on major infrastructure projects across the UK. Phil has 17 years of experience, predominantly in hydrological analysis, hydraulic modelling and environmental impact assessment of the water environment and is Jacobs' Head of Discipline for Hydrology.

Phil has been the technical lead for surface water and flood risk issues on the Horizon project since early 2016.

PROFESSIONAL ORGANISATIONS

- MCIWEM – Member of the Chartered Institution of Water and Environmental Management

QUALIFICATIONS

- Chartered Water and Environmental Manager (C.WEM)
- Chartered Scientist (CSci)
- Chartered Environmentalist (CEnv)
- MSc in Leadership and Management
- MSc in Environmental and Resource Assessment
- BSc Natural Environmental Sciences

RELEVANT WORK EXPERIENCE

Wylfa Newydd DCO, Horizon Nuclear Power Ltd, Surface Water and Flood Risk Consultant, 2016 – ongoing

HS2 Phase 2b, HS2, Water Resources and Flood Risk EOC Flood Risk Lead, 2017 - ongoing

A19 Testos Junction DCO, Highways England, Water Environment and Flood Risk Lead, 2015 - ongoing

A9 Pitlochry to Killibrankie, Transport Scotland, Project 4 FRA Lead and Flood Risk Project Principal, 2016 - ongoing

A465 Section 5 & 6, Welsh Assembly Government, Water Environment and Flood Risk Lead, 2016 – 2018



Phil Shepherd

Expert witness for Ornithology impacts

AREA OF SPECIALISM

Primary specialism is ornithology, in terrestrial and marine environments. Key roles since 1992:

- Technical Director, Jacobs, 2014-present.
- Technical Director - Ornithology, Ecus, 2012-2014
- Principal Ecologist, Hyder, 2011-2012.
- Senior Consultant, WWT Consulting, 2006-2011.
- General Manager/warden roles, WWT, 1992-2006.

PROFESSIONAL ORGANISATIONS

- Full member of Chartered Institute of Ecology and Environmental Management (MCIEEM)

QUALIFICATIONS

- MSc Ecology & management of the Natural Environment
- BSc Civil Engineering

RELEVANT WORK EXPERIENCE

Jacobs' technical lead for ornithology, leading on complex assessments for major infrastructure schemes.

Key roles and responsibilities held for delivery of ornithology survey programs and impact assessments at renewables developments, primarily wind farms, onshore and offshore, in UK and overseas.

Experienced in ecological survey and appraisal, ecological impact assessment (EclA), Habitat Regulations Assessments (HRA), mitigation proposals and habitat creation.



Robert Bromley

EXPERT WITNESS FOR MARINE ENVIRONMENT

AREA OF SPECIALISM

Rob has 20 years' experience working in the field of marine science specialising in marine surveys, site characterisation, and marine impact assessments. Rob has been at the forefront of assessing water intakes in the UK and involved in the preparation of UK's Best Practice guidance for new nuclear builds. Rob has been the project manager and lead marine consultant for Horizon since 2010.

Rob's other areas of specialism include:

- Assessment of impingement and entrainment of fish.
- Cooling water mitigation measures.
- The function and ecology of eelgrass.

PROFESSIONAL ORGANISATIONS

- MRSB – Member of the Royal Society of Biology

QUALIFICATIONS

- Chartered Biologist
- MSc in Oceanography
- BSc Joint Hons - 2.1 in Marine Biology and Oceanography

RELEVANT WORK EXPERIENCE

Wylfa Newydd DCO, Horizon Nuclear Power Ltd, Environmental Project Manager and Marine Consultant, 2010 – ongoing

Pembroke Power Station Marine Services, RWE npower, Project Manager and Marine Consultant, 2009 – 2015

Beckton Desalination Entrainment Studies, Thames Water Utilities Ltd, Project Manager and Marine Ecologist, 2009 – 2013

Takoradi Power Station Marine EIA, World Bank, Author, 2010 – 2012

Rosyth International Container Terminal (RICT) Marine EIA, Marine Ecology Consultant and Expert Witness, 2009 and 2011-2012

Cooling Water options for New Generation of Nuclear Power Stations. Environment Agency, Marine Consultant, 2010

BEEMS Entrainment Studies at Nuclear Sites, CEFAS, Project Manager and Marine Consultant, 2009-2010

Tilbury Power Station Marine EIA, RWE npower, Project Manager and Marine Consultant, 2007 – 2009.



Charlie Tasker [Senior Construction Adviser]

DCO Client Expert Witness Construction [Various Construction Topics]

AREA OF SPECIALISM

Charlie has over 30 years' experience in the electricity industry, the majority of which have been in power plant development and construction which included five years in an operations and maintenance management position.

Charlie is responsible for establishing Construction Management arrangements for Horizon's lead project, Wylfa Newydd Power Station. Prior to this Charlie oversaw the development activities associated with the Nuclear new build programme including establishment of Early Works Contracts, Front End Engineering Contracts, Associated developments and owners scope activities.

Electricity industry experience includes a wide range of Power plant construction activities including Nuclear, Coal, Flue Gas Desulphurisation retrofit projects, Coal Importation Facilities and Combined Heat and Power projects.

Many of these projects have been delivered using innovative construction management approaches combined with latest technology to maximise commercial benefits.

PROFESSIONAL ORGANISATIONS

- Member of the Institution of Civil Engineers
- Chartered Engineer

QUALIFICATIONS

- BSc Engineering
- CEng

RELEVANT WORK EXPERIENCE

Experienced construction project director/senior project manager that encompasses a wide range of Power plant construction activities including Nuclear, Coal, Flue Gas Desulphurisation retrofit projects, Coal Importation Facilities and Combined Heat and Power projects.

Experienced in managing large multi-disciplined project engineering teams associated specialist technical support organisations.

7 years design and construction experience in the water industry prior to entering Electricity Industry.



James Cook

EXPERT WITNESS FOR SSSI / COMPENSATION

AREA OF SPECIALISM

James is a terrestrial ecologist with 12 years consultancy experience following early career experience in ecological research and countryside management. His key areas of expertise include Ecological Impact Assessment, mitigation design and habitat management planning.

PROFESSIONAL ORGANISATIONS

- Full Member of the Chartered Institute of Ecology and Environmental Management
- Chartered Environmentalist

QUALIFICATIONS

- PhD – Durham University, 2006
- BSc (Hons) First Class: Ecology & Conservation – University of Sussex, 2001
- Survey licences for bats, dormouse, barn owl and great crested newt

RELEVANT WORK EXPERIENCE

- 2014– present: Ecologist with Horizon, undertaking reviews of ecology reports, impact assessments and environmental management arrangements; specifying environmental works; habitat management planning; and providing technical leadership on compensation and mitigation proposals.
- 2006–2014: Ecologist roles with Andrew McCarthy Associates, Keystone Environmental and Atkins, undertaking species/habitat surveys; mitigation design; and preparing EIA chapters, HRA screening reports, habitat management plans and licence applications.
- 2006: Conservation Assistant with Exmoor National Park Authority, undertaking botanical surveys and preparing habitat management plans.
- 2002–2005: PhD Student, undertaking research on the ecological and biogeochemical responses of Swedish arctic tundra habitats to different snow cover regimes.
- 2002: Research Assistant with Oxford University, monitoring a trial beaver reintroduction to a fen in Kent.