

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Rt Hon. Mark Drakeford MS
First Minister
Welsh Government

22 December 2020

Dear Mark

I am writing to outline the progress made by the Hinkley Point C Stakeholder Reference Group this year. Since the inception meeting in July, which you kindly attended to set out your vision for our work, the Group has met a further five times and has made significant progress in understanding the main issues for Wales arising from the Hinkley Point C development. The Group has met with, and received evidence from, a range of stakeholders and I am confident that our first report to you will reflect those views and provide a thorough analysis of the various issues that have been raised.

The Group has held virtual meetings each month and I have been very pleased with how well the format has worked. Meeting virtually has enabled us to attract and retain members with real expertise in their fields, and to reach key personnel within stakeholder organisations. In the periods between meetings, the members have been active in sharing information, drafting papers and developing lines of inquiry to raise with stakeholders.

The Group has been successful in developing good relationships with a number of the organisations involved in, or with an interest in, Hinkley Point C. In the course of our inquiries the Group has engaged with, among others, the Geiger Bay campaign group, Natural Resources Wales, the Environment Agency, Cefas, the Devon & Severn Inshore Fisheries Conservation Authority, the Office for Nuclear Regulation as well as the developers, EDF.

The Group's inquiries have led to the identification of six areas we believe should be a priority for the Welsh Government. In each of these six areas we will consider impacts on the environment, on health, on current and future generations:

- The resilience of the Severn Estuary marine ecosystem. The Hinkley Point C development is a major additional pressure on the internationally significant estuarine ecosystem and the Group has gained an understanding of its potential impacts on fish populations and is examining other potential adverse impacts from the development.

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

- The environment and public health implications of the use of Cardiff Grounds marine disposal site for dredged material from Hinkley Point C. The status and use of the Cardiff Grounds marine disposal site in the Severn Estuary for dredged material, including from Hinkley Point C. The Group has been examining the evidence regarding the content and dispersal of material from this site and is also keen to understand the cumulative impacts arising from its use by different operators.
- Emergency and contingency planning. The Group has not yet identified any public record of emergency plans, though there is guidance to suggest how such plans should look. The Group has engaged with the Office for Nuclear Regulation and will be engaging with relevant Welsh and English local authorities, to ascertain the true picture.
- The use of legal powers held by the Welsh Government and its agencies. The Group continues to explore what powers are available to Welsh Government and the impact that delegation of these powers may have on public confidence, protection of the environment, human health and other aspects of wellbeing. The Group has twice written to the Counsel General with questions on this subject.
- The independence of agencies in the development process. There are a relatively small number of organisations and scientists with the particular range and depth of skills needed for the regulation and delivery of complex marine projects. Relying on them to perform multiple roles can create a perception of a lack of independence which agencies take a range of measures to mitigate. The Group intends to explore this area further to establish whether arrangements can be strengthened to maximise public confidence.
- Cross-border relations and arrangements. This area crosses into several of the above points but the Group considers this a more general issue worthy of exploration, to establish the nature and functioning of the cross border interagency relationships which are required to deliver Welsh interests effectively.

Our intention is to provide you with a report in March, setting out our assessment of these issues, with advice on how the Welsh Government may act to protect the interests of the environment and people of Wales. The report will be evidence based and is likely to be structured around these six areas, while recognising the linkages between them. We are continuing to gather evidence and the Group has three further meetings scheduled before the report will be finalised and published. Those meetings will be used to finalise our inquiries, to seek further evidence from some stakeholders we have already heard from, and to seek evidence from a small number of stakeholders whose views we have not yet heard.

Best wishes for Christmas and the New Year,



Jane Davidson
Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group



Jane Davidson
Chair, Hinkley Point C Stakeholder Reference Group

HinkleyGroup@gov.wales

12 February 2021

Dear Jane

I am writing in response to your letter of 22 December outlining the excellent progress made by the Hinkley Point C Stakeholder Reference Group since its inception last July. It is clear the Group has established an effective working pattern and, more importantly, has quickly identified and understood issues of real significance for the people and environment of Wales associated with the Hinkley Point C development.

I very much welcome the Group's commitment to producing an evidence-based report with a focus on actions the Welsh Government can take to protect and enhance our environment. The breadth of the priority areas identified by the Group is a reflection of the scale and significance of the project, and its potential to impact on Wales in a multitude of ways. I look forward to receiving your report in due course and I will consider the evidence you have gathered and the conclusions you reach with much interest.

Best wishes

A handwritten signature in black ink that reads "Mark Drakeford".

MARK DRAKEFORD

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Jeremy Miles MS
Counsel General

PSCGBM@gov.wales

29 September 2020

Dear Counsel General,

You will be aware that I have been appointed by the First Minister to chair an expert group providing advice on the implications to Wales of the Hinkley Point C nuclear power station. I attach the membership, terms of reference and agreed ways of working for your information. The Group was established in July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process and from the organisations with responsibilities for permitting and licensing the development activities.

In the course of the Group's discussions to date it is clear to us that some uncertainty surrounds the legal powers available, and the legal duties that apply to, Welsh Ministers in this area. Although the development is located in Somerset, and has obtained a Development Consent Order from the UK Government (in March 2013, by the then Secretary of State for Energy and Climate Change), there are aspects of the development process which require clarity, at both the national and local level to ensure the protection of Welsh interests.

The most significant of these responsibilities, in a Welsh context and at the current point in time, is the potential determination of an application for a marine licence to dispose of sediment at the Cardiff Grounds in Welsh waters. EDF have commenced a process in which it hopes to obtain a licence from Natural Resources Wales early next year. The Group would be grateful for your summary of the powers conferred to Welsh Ministers, and delegated to Natural Resources Wales, in this area and any views you might have in your role as to whether the delegation/duties sit in the right place. I would also be very interested in your view on how the Well-being of Future Generations (Wales) Act and the Environment (Wales) Act apply in the discharging of Welsh Ministers' powers in relation to marine licences in particular and other aspects of the development in general.

I would also be grateful for your assessment of any legal duties that sit with local authorities, and indeed the Welsh Government, in relation to emergency planning arrangements, arising from proximity to Hinkley Point C. We understand that there is a requirement for the lead local authority to consult and notify others with a relevant interest e.g. some local authorities in south Wales should expect to be consulted and notified of relevant developments at Hinkley, but we are less clear on the legislative requirements on those authorities once they receive due notice from the lead local authority of matters that may affect their area.

We are meeting with EDF, NRW and Cefas at our next meeting on 19 October, so I would be grateful if it was possible to advise us by then.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', with a stylized, cursive script.

Jane Davidson
Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Jeremy Miles AS/MS

Cwnsler Cyffredinol a'r Gweinidog Pontio Ewropeaidd
Counsel General and Minister for European Transition



Llywodraeth Cymru
Welsh Government

Ein cyf/Our ref CG/00205/20

Jane Davidson
Chair
Hinkley Point C Stakeholder Reference Group

jane.davidson@uwtsd.ac.uk

15 October 2020

Dear Jane,

Thank you for your letter of 29 September, seeking clarity on the Welsh Ministers legal responsibilities for marine licensing and in respect of civil emergency planning matters due to the close proximity to Wales of the new Hinkley Nuclear Power Station.

With regards to marine licensing, under Part 4, Section 113 of the Marine and Coastal Access Act 2009, the Welsh Ministers are defined as the “appropriate licensing authority” in respect of the licensing of marine activities in Welsh waters with the exception of matters reserved to the UK Government.

The Welsh Ministers delegated certain marine licensing functions to Natural Resources Wales (NRW), namely the administration and determination of marine licence applications via The Marine Licensing (Delegation of Functions) (Wales) Order 2013 and the Marine Licensing (Delegation of Functions) (Wales) Order 2017. The Welsh Ministers retained responsibilities relating to appeals against marine licensing decisions made by NRW, making the Welsh Ministers the appeals body.

Following the delegation of the Welsh Ministers marine licensing functions to NRW, amendments were made to the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) to make NRW the “appropriate authority” and the “regulator” in respect of matters relating to Environmental Impact Assessment, which when required supports an application for a marine licence.

Further to your enquiry as to whether the delegation of the Welsh Ministers marine licensing functions sit in the right place, NRW has been delivering the Welsh Ministers function for seven years and works with the Welsh Government to ensure the marine licensing function is fair for all, fit for purpose, robust and transparent and decisions are based on sound evidence.

Bae Caerdydd • Cardiff Bay
Caerdydd • Cardiff
CF99 1SN

Canolfan Cyswllt Cyntaf / First Point of Contact Centre:
0300 0604400

YPCCGB@llyw.cymru PSCGMET@gov.wales

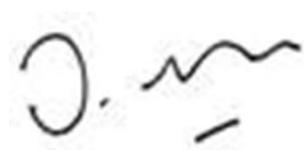
Rydym yn croesawu derbyn gohebiaeth yn Gymraeg. Byddwn yn ateb gohebiaeth a dderbynnir yn Gymraeg yn Gymraeg ac ni fydd gohebu yn Gymraeg yn arwain at oedi.

We welcome receiving correspondence in Welsh. Any correspondence received in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in responding.

With regards to your query about the application of the Well-being of Future Generations (Wales) Act 2015 (the WFG Act) and the Environment (Wales) Act 2016 to the Welsh Ministers, I can confirm that the Welsh Ministers comply with all relevant legal obligations in the exercise of their own functions. As mentioned above, the Welsh Ministers have delegated their marine licensing functions to NRW. Therefore, since the marine licensing functions are undertaken by NRW, it would be for NRW to advise you on how it considers the requirements of these Acts in its decision making on marine licence applications.

Finally, with respect to your query regarding the legal duties that sit with local authorities and the Welsh Government in relation to emergency planning arrangements, arising from the proximity of Hinkley Point C. Matters relating to emergency responses are dealt with under the Civil Contingencies Act 2004. Whilst the Welsh Ministers have some functions in respect of local arrangements for civil protection, matters relating to emergency responses under Part 2 of the Civil Contingency Act 2004 and nuclear issues fall to the UK Government and are a matter for the UK Government Department for Business, Energy and Industrial Strategy. Any queries in respect of local authority emergency plans and their engagement with Somerset Council as the lead authority should be directed to the local planning authorities.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'J. Miles', with a stylized flourish underneath.

Jeremy Miles AS/MS

Cwnsler Cyffredinol a'r Gweinidog Pontio Ewropeaidd
Counsel General and Minister for European Transition

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Jeremy Miles MS
Counsel General and Minister for European Transition

PSCGMET@gov.wales

20 November 2020

Dear Counsel General,

Thank you for your letter of 15 October, reference CG/00205/20, regarding the Welsh Ministers' legal responsibilities for marine licensing and in respect of civil emergency planning in Wales in relation to the new Hinkley Point C nuclear power station.

The Group considered your letter at our meeting in October and the role of different bodies and the configuration of legislative duties which you have helpfully clarified. The group is of the view that this matter requires further examination.

We would like therefore to ask your further views as to **the advantages and disadvantages of a greater share of these responsibilities being taken on by Welsh Government**, in particular in relation to emergency and contingency planning.

The EDF Power Station Consequences Report (2019) for Hinkley Point C identifies a 43km radius in which precautionary measures may be needed in the event of an emergency. This area covers all or part of five Welsh local authorities – Cardiff, Caerphilly, Newport, Rhondda Cynon Taf and the Vale of Glamorgan. This area is home to more than one million Welsh citizens. The group has not yet formed a settled view but there is a case, we believe, that whilst a major incident at Hinkley Point C is an unlikely event the potential severity would justify the Welsh Government demanding a greater involvement in developing emergency planning arrangements.

At our most recent meeting, on 16 November, the Group identified the six areas on which it will focus its attention. Our intention is to provide advice on these matters to the First Minister by March 2021. The six areas are:

- The status and use of marine disposal grounds in the Severn Estuary for dredged material, including from Hinkley Point C;
- Examining the resilience of the Severn Estuary marine ecosystem;

- Emergency and contingency planning;
- The use of legal powers held by the Welsh Government and its agencies;
- Cross-border relations and arrangements;
- The independence of agencies in the development process.

These issues have been identified in the course of the evidence we have gathered and received to date. The evidence is leading us towards the view that these are areas in which a more proactive and involved approach from Welsh Government could strengthen the protection of Welsh interests, in line with the remit the First Minister has set for the group and the basis on which he has asked the group for its views. Should you have views that you would like us to consider on the other matters being pursued by the Group we would of course be very pleased to receive them.

In addition to seeking your views, to aid our understanding of emergency and contingency planning arrangements for Hinkley Point C, I have written to the Office for Nuclear Regulation. The ONR is an independent expert authority on the robustness of emergency plans and procedures for nuclear power stations. I would expect the ONR's views, in addition to your own, to strongly influence the advice we provide to the First Minister.

Yours sincerely



Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Jeremy Miles AS/MS

Cwnsler Cyffredinol a'r Gweinidog Pontio Ewropeaidd
Counsel General and Minister for European Transition



Llywodraeth Cymru
Welsh Government

Ein cyf/Our ref CG/00257/20

Jane Davidson
Chair, Hinkley Point C Stakeholder Reference Group

jane.davidson@uwtsd.ac.uk

7 January 2021

Dear Jane,

Thank you for your further letter of 20 November regarding legal responsibilities for marine licensing and in respect of civil emergency planning in Wales, in relation to the new Hinkley Point C nuclear power station. Please accept my apologies for the delay in replying while officials consulted partner bodies further.

As you have previously noted, there are aspects of the development process which require clarity, at both the national and local level to ensure the protection of Welsh interests.

In terms of marine licensing functions, the Welsh Government acknowledges the significant technical expertise of Natural Resources Wales (NRW), particularly in considering complex regulatory matters and we are appreciative of having prompt access to this. This has proved an important feature of current arrangements, while Welsh Ministers retain responsibilities relating to appeals against marine licensing decisions made by NRW, making the Welsh Ministers the appeals body.

With regards to emergency and contingency planning, the close proximity of five Welsh local authorities to the development certainly suggests that clear and robust plans and co-operation processes are needed by all Welsh local authorities as well as that of Somerset Council, the lead authority.

As previously noted, matters relating to emergency responses are dealt with under the Civil Contingencies Act 2004. Whilst the Welsh Ministers have some functions in respect of local arrangements for civil protection, matters relating to emergency responses under Part 2 of the Civil Contingency Act 2004 and nuclear issues fall to the UK Government and are a matter for the UK Government Department for Business, Energy and Industrial Strategy.

I note you have also sought advice from the Office for Nuclear Regulation. We welcome this approach and would be pleased to receive the Group's particular advice on the robustness of existing arrangements and in terms of whether greater involvement in developing emergency planning arrangements is something the Welsh Government should consider.

Bae Caerdydd • Cardiff Bay
Caerdydd • Cardiff
CF99 1SN

Canolfan Cyswllt Cyntaf / First Point of Contact Centre:
0300 0604400

YPCCGB@llyw.cymru PSCGMET@gov.wales

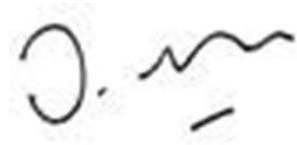
Rydym yn croesawu derbyn gohebiaeth yn Gymraeg. Byddwn yn ateb gohebiaeth a dderbynnir yn Gymraeg yn Gymraeg ac ni fydd gohebu yn Gymraeg yn arwain at oedi.

We welcome receiving correspondence in Welsh. Any correspondence received in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in responding.

Please do not hesitate to contact me should the Group have further queries.

May I wish you and the Group the best of health for the New Year and beyond.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'J. Miles', with a stylized flourish extending to the right.

Jeremy Miles AS/MS

Cwnsler Cyffredinol a'r Gweinidog Pontio Ewropeaidd
Counsel General and Minister for European Transition

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group

Sir David Henshaw
Chair
Natural Resources Wales



Llywodraeth Cymru
Welsh Government

30 September 2020

Dear Sir David

HINKLEY POINT C STAKEHOLDER REFERENCE GROUP

The Hinkley Point C Stakeholder Reference Group, appointed by the First Minister Mark Drakeford MS, would like to invite Natural Resources Wales to attend the Group's next meeting on 19 October. The Group is interested in any implications the Hinkley Point C project may have on the people and environment of Wales, and the Group recognises the important role held by Natural Resources Wales in this matter. I attach a list of questions that Members of the Group wish to ask during the meeting. The group has also invited EDF and Cefas to attend the next meeting, and the questions for those organisations are included for information.

The Group members and Terms of Reference can be found at <https://gov.wales/hinkley-point-c-stakeholder-reference-group>.

I would be grateful if you could confirm the details of NRW's representative(s) with the Group's secretariat by Monday 5 October, via email to hinkleygroup@gov.wales. The secretariat will arrange access to the meeting via MS teams and confirm timings.

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

cc Ceri Davies
Gareth Oshea
hinkleygroup@gov.wales

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

Questions to NRW for Hinkley SRG meeting 19 Oct 2020

In relation to Questions 1-4, some of the points have been addressed in NRW's SP1914 Preapplication Advice¹ provided to EDF on 10 June 2020 and the approved Sample Plan², text those documents have been used here.

1. Could NRW outline the process, now that it has agreed the Sediment Sampling Plan, until EDF may be permitted to dispose of the sediment from Hinkley?

- EDF has agreed to undertake a full EIA under the Marine Works (EIA) Regulations 2007 (as amended)³ (hereafter the Regulations). for the disposal licence application and have formalised a Regulation 5 agreement⁴ with NRW, meaning both organisations consider this to be an EIA activity.
- An overview of the EIA marine licence process can be found on our [web-site](#).
- The administration of the application will start at the point of submission of a licence application form and must be accompanied by an Environmental Statement (ES). EIA marine licence application determination has non- statutory service level and we cannot pre-determine how long it would take to process the application and come to a decision. Determination timescales for complex cases are often influenced by the quality of the initial application, and where additional information is submitted or asked of the applicant, the consideration such information may require and result in additional statutory consultation exercises.
- Once received the application form, the ES and supporting information will be checked and will be deemed 'duly made', if we are satisfied that we have sufficient information to commence the determination of the application.
- All documents that have been submitted in support of the application will form part of a consultation with technical advisors and with the public. The consultation period (including the public notice) with technical consultees and the public, is a minimum of 42 days as specified in the Regulations⁵.
- After this consultation period, NRW will assess all responses and work with the applicant on addressing issues. If further information to inform the determination is required, then a new consultation period will be initiated. Once NRW considers the issues fully addressed, then our Habitats Regulations Assessment (HRA) and Water Framework Directive (WFD) assessments will be finalised. An EIA Consent Decision summarising the process and the decision taken by NRW will be produced. If an EIA consent is granted NRW will make the decision to grant or refuse a marine licence. All NRW decisions will be issued to the applicant and made publicly available.
- In light of the high public interest in this case, we will continue to undertake enhanced communication activities. This includes maintaining our position statement on our web-site⁶ with key developments; notifying interested parties and elected representatives; and we will ensure a full and open consultation process as part of any application process.

2. Could NRW clarify the difference between capital and maintenance dredging, and how these relate to the requirement for an EIA? Following on, does the stipulation for an EIA for projects involving Nuclear Power Stations (as listed under Schedule A1 of The Marine Works Regulations 2017), relate to marine dredging?

As described by OSPAR and in NRW's Pre-application Advice to EDF¹:

¹ <https://publicregister.naturalresources.wales/Search/Download?RecordId=32304>

² On the 15 September 2020, NRW notified EDF Energy that we had approved the sampling plan <https://publicregister.naturalresources.wales/Search/Download?RecordId=36387>

³ [The Marine Works \(Environmental Impact Assessment\) \(Amendment\) Regulations 2017](#)

⁴ <https://publicregister.naturalresources.wales/Search/Results?SearchTerm=SC2005>

⁵ Regulations 16 and 17, [The Marine Works \(Environmental Impact Assessment\) \(Amendment\) Regulations 2017](#)

⁶ <https://naturalresources.wales/about-us/news-and-events/statements/marine-licence-to-dispose-dredged-material-off-the-coast-of-south-wales/?lang=en>

- Capital (or new-work) dredging involves enlarging or deepening existing channel and port areas or creating new ones; and for engineering purposes includes constructing trenches for pipes, cables, immersed tube tunnels, and removal of material unsuitable for foundations or for aggregate extraction, and for hydraulic purposes this involves increasing the flow capacity of the waterway;
- Maintenance dredging to maintain channels, berths or construction works, etc. at their designed dimensions (i.e. to counteract sedimentation and changes in morphology).
- Hinkley Point C Development Consent Order (DCO) was granted on 9 April 2013 and includes a condition imposed to keep the dredged material within the Severn Estuary SAC (Condition PW23⁷). Dredge disposal activities do not fall within the projects listed under any of the Schedules of The Regulations. Moreover, the Regulations do not explicitly define the types of activities that shall be included in Section A1 paragraph 3⁸. Therefore, it is not clearly stated under which Schedule (A1 or A2) dredge disposal activity need to be included. NRW considers the disposal of material arising from the construction of Hinkley Point C intakes is intrinsically linked with the construction of the Schedule A1 Hinkley Point C nuclear power station and fall within project listed in Schedule A2, paragraph 88 of the Regulations. However, as stated above, the applicant has agreed for the licence application to be subjected to an EIA process by agreement (Regulation 5) and as such an assessment against Schedule 1 criteria is not required.

3. *NRW has indicated that it is satisfied that the sampling strategy, proposed by EDF, provides more than the recommended number of samples. Is NRW also satisfied that the sampling methods are capable of obtaining adequate samples to indicate any underlying contamination within the sediments? At what depths will the samples be taken until they reach the maximum depth of the dredge?*

- As stated in our Preapplication Advice note¹, before an application for dredge disposal is submitted, the sampling and analysis performed to characterise the material must comply with guidelines established by OSPAR⁹.
- In this case, due to the nature and location of the sediments to be dredged and disposed, the sediment also has to comply with the radiological assessment procedure developed by the International Atomic Energy Agency (IAEA¹⁰).
- NRW has reached a decision on the sample plan through consultation with our technical advisors and the public. Grabs and cores are standard techniques utilised for the collection of samples throughout dredging sites. These are standard methods for which we have been advised of their adequate processing and handling.
- Dredging will only be allowed at the depth of characterisation. Cores will be used to characterise areas of capital dredge (not previously dredged) to the maximum planned dredge depth. These will be subsampled to understand the characteristics of the sediment at specified depth intervals throughout the core. The areas characterised by cores will be allowed to be dredged to the maximum depth achieved by the cores, a maximum of 7.5m.

⁷ Condition PW23: "Dredged material arising from the authorised project shall not be disposed of except within the Severn Estuary Special Area of Conservation." (DCO can be accessed at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010001/EN010001-000021-130319_EN010001_SoS%20HPC%20Decision%20Letter%20Annex%20B.pdf)

⁸ Schedule A1 paragraph 3: "Nuclear power stations and other nuclear reactors including the dismantling or decommissioning of such power stations or reactors (except research installations for the production and conversion of fissionable and fertile material, whose maximum power does not exceed 1 kilowatt continuous thermal load)."

⁹ Oslo/Paris conventions regarding the disposal of waste at sea: OSPAR, 2014. OSPAR Guidelines for the Management of Dredged Material at Sea. OSPAR Commission Agreement 2014-06.

¹⁰ International Atomic Energy Agency (IAEA): is the world's central intergovernmental forum for scientific and technical cooperation in the nuclear field. It contributes to international peace and security promoting safe, secure and peaceful uses of nuclear science and technology. IAEA (2003). Determining the suitability of materials for disposal at sea under the London Convention 1972: A radiological assessment procedure. TECDOC-1375, IAEA, Vienna. IAEA (2004). Sediment distribution coefficients and concentration factors for biota in the marine environment. Tech. Rep. Ser. No. 422, IAEA, Vienna. IAEA (2015), Determining the Suitability of Materials for Disposal at Sea under the London Convention 1972 and London Protocol 1996: A Radiological Assessment Procedure, IAEA-TECDOC-1759, IAEA, Vienna.

- Areas of maintenance dredging will be characterised by grab samples as per OSPAR requirements and will only be allowed to dredged to the depth previously dredged (infill). Table 3 and text in section 2 of the approved sample plan¹¹ provides all the subsampling information.

4. *Has there been cross-border communications with the relevant authorities on the English side regarding the Sampling Plan? Will NRW be undertaking further discussion with the Marine Management Organisation regarding permitting for extracting the samples and the dredging licence?*

- NRW has and continues to communicate with the MMO on matters related to the proposed dredge-disposal activity. The MMO has formally consulted NRW on marine licence applications relating to Hinkley.
- The suitability of the sampling plan to characterise the sediment to be dredged is managed by NRW and during the process we have liaised with the MMO as they are the Regulatory Authority in England responsible for licencing the collection of the samples. This was to ensure that the sampling requirements detailed in EDF's sample plan were fully reflected in the sample collection licence which the MMO have issued.
- We continue to communicate with the MMO as necessary on matters regarding Hinkley licences, so that the sample collection and dredging is conducted in line with the requirements of the approved sample plan and the disposal licence.

5. *Has there been any consultation from EDF regarding the construction of the intake system? Does NRW have any concerns regarding impacts to fisheries, general water quality, geomorphology and sensitive species, such as Sabellaria*

NRW has been consulted on all of the above, at different times and on different levels, depending on the locations of effects and our responsibilities. We have provided detail below under the following topic to separate between those matters principally regulated by English authorities and where we have had a larger involvement.

Water Quality, Geomorphology and Sensitive Species, such as Sabellaria

- The Cooling Water system for Hinkley Point C Nuclear Power station (HPC) is subject to three permissions granted in 2013, comprising a Development Consent Order (DCO), a Marine Licence (ML) from the Marine Management Organisation (MMO) and a Water Discharge Activity (WDA) Permit from the Environment Agency (EA). These were issued following a public Inquiry which considered environmental impacts based on the information then available.
- The DCO, ML and WDA Permit all include requirements or conditions to control remaining detail and relevant environmental risks, including pollution from construction under the ML and pollution from discharge under the WDA Permit. The ML requires erosion and sediment transport monitoring to consider geomorphological effects.
- Impacts on Sabellaria was principally considered for the original permissions, as with other sensitive interests, but the MMO will need to take into account any new information in determining the final details to be agreed and the programme of works.
- For the above, the risks relate principally to English Coastal waters and the English statutory bodies and advisors lead, but NRW are consulted on some aspects, such as the below.

Fisheries

- All three permissions address the agreement of final detail of the fish protection measures, prior to the construction or operation of the intake heads. NRW are one of the parties that would be consulted prior to their agreement, as are Natural England (NE).

¹¹ <https://publicregister.naturalresources.wales/Search/Download?RecordId=36388>

- The three principal fish protection measures under these permissions are
 - A Fish Recovery and Return System (FRR)
 - Low Velocity Side Entry intakes (LVSE), and
 - Acoustic Fish Deterrents (AFD)
- In late 2017 NRW were informed that EDF did not consider that AFD could practically be deployed and that applications to vary the permissions would be sought to removal AFD from the requirement. NRW were subsequently invited by EDF to join discussions on a reassessment by Cefas of the impacts without AFD, along with the EA, MMO, Natural England and the Devon & Severn Inshore Fisheries & Conservation Authority (IFCA).
- EDF applied to vary the EA WDA Permit in March 2019, providing their assessment of the effects. This was the subject of a public consultation.
- Assessing the likely levels of fish killed within the Cooling Water System (CWS) and the resultant effect on fish populations, is technically difficult. Amongst other factors, an assessment needs to account for the specific design of the CWS structures and their fish protection measures; the likely species specific survival rates through the system; the location of its' intake heads and volume of water taken; available knowledge on how the different fish species use the intake area; the population ecology of the species; the size/age of the fish killed and an Equivalent Adult Value to consider their contribution to the adult population; and the estimated size of the relevant fish stocks.
- Cefas have used a mathematical modelling approach to make predictions on the levels of impingement mortality for a selection of fish species, with the predictions compared with estimates of fish stocks, where stock information is available. Catch data and trend analysis has also been considered where stock data is not available. The principle source of data on fish populations using the Severn Estuary is from fish impingement monitoring at Hinkley Point B and other now decommissioned power stations.
- Models and their predictions can only be as good as the knowledge that they are based on and there are aspects relevant to the construction and use of the model where there are limitations or substantial evidence gaps. Expert opinion can be used to address gaps in knowledge, but where there is little information, expert opinion is constrained in its ability to address that aspect with confidence. However, if a model is run it will produce an output prediction. It is therefore important that the predictions of any model, or other assessment approach, are considered in the light of the limitations and the potential level of confidence that can be assigned to any prediction.
- The CW intake heads will be within the Severn Estuary/ Môr Hafren Special Area of Conservation (SAC), and close to the Severn Estuary Ramsar and SSSI sites. There is potential to affect fish designated features of these and other designated sites, including salmon, shad and lamprey species whose populations are potentially vulnerable to small additional mortalities. In Wales the sites potentially affected also include the River Usk/Afon Wsyg SAC and the River Wye/Afon Gwy SAC, as the above designated fish populations rely on both the river and estuarine systems. Fish also comprise an important component part of the Severn Estuary SAC designated estuary habitat feature and the potential for changes to the wider fish assemblage also needs to be considered. Fish assemblages are also a reason for designation of the Severn Estuary Ramsar site. There is also a need to consider if fish mortalities could be substantial enough to affect designated piscivorous species such as harbour porpoise.
- It is important that the assessment undertaken makes the best use of the scientific knowledge available and is clear on the limitations and confidence that can be placed in its predictions. For the purposes of Habitats Regulation Assessment there is case law and guidance to this effect.
- The EDF/Cefas assessment submitted for the WDA Permit Variation application concludes that no fish stock would be significantly impacted. NRW, however, have concerns that the modelling and assessment does not provide the best available scientific approach and does not sufficiently represent the uncertainties. There is also an issue over the very large geographical scale of the stock areas used for some species and to what degree this is useful for considering the predicted effect on the Severn Estuary SAC/Ramsar site area and their Conservation Objectives.
- NRW had raised a number of concerns over the assessment approach during the preapplication phase, in conjunction with the DEFRA family bodies, and at the 2019 formal consultation we raised a range issues on the assessment, ranging from high level matters such as the difficulties for HRA from the scale of fish stock areas used, to finer level comments including queries on the appropriateness of survival rates within the FRR; queries over data sources used; matters over uncertainties in calculating EAVs; and the seeking of further clarity on how specific aspects of the assessment had been carried out. In conclusion it was not clear

to us that the assessment was robust and could be relied on. We were therefore unable to advise that adverse effects to the integrity of the SAC/Ramsar/SPA sites would be avoided and we advised that EA consider the matters we raised further prior to determination. Natural England also provided advice and came to similar conclusions.

- EDF has now lodged an appeal based on 'deemed refusal' of the WDA Permit Variation application. Since the 2019 public consultation on the application the Environment Agency have been reviewing and revising the applicants' assessment approach, taking into account comments made via the public consultation and liaising further on specific technical aspects. We understand that EA's assessment was close to complete at the point that the applicant lodged the appeal and that EA's assessment will comprise part of EA's case.
- NRW and NE will be interested parties at the appeal based on our roles as the Appropriate Nature Conservation Bodies with respect to the HRA for the SAC, SPA and Ramsar sites.

6. *How is NRW working with and consulting Public Health Wales on any public health risk assessment?*

- The licensing process has a statutory responsibility to consider the risk to public health from this activity.
- The primary risk to public health from this activity is the chemical and radiological composition of the dredge material.
- The approved sampling plan has set the requirements that the applicant needs to meet in order to provide representative sample results of the dredge area.
- The results from the sample analysis will be measured against the OSPAR and IAEA standards¹² so that we can assess the risk to public health and determine if the material is safe for disposal.
- We will formally consult with Public Health Wales on the sample results through the provision of the raw data and the applicants own assessment of the results against the OSPAR and IAEA standards.
- The response we receive from Public Health Wales will help inform our decision as to whether there is a risk to public health and if the material is safe for disposal.

7. *Does NRW hold any concerns that the group should be aware of?*

- NRW has delegated responsibility to undertake the statutory marine licensing function on behalf of Welsh Ministers. Our marine licensing decisions are regulated by Part 4 of the Marine & Coastal Access Act and the Regulations, in addition there is a range of other legislation relevant to marine licensing, which NRW as the regulator, must act in accordance with or have regard to.
- The legislation requires us to consider pollution of the environment, harm to human health and detriment to legitimate users of the sea. Our licensing process and consultation with relevant technical advisors, for example, topic and receptor specialists within NRW's as the Statutory Nature Conservation Body and also chemical and radiological experts within CEFAS, will help ensure that any concerns we have are addressed during our determination of the application.
- The marine licensing process will involve a full and open public consultation and we would welcome any representations the SRG would like to make should we receive a future application for the disposal of marine sediment from the construction of the Hinkley C development.

¹² Oslo/Paris conventions regarding the disposal of waste at sea: OSPAR, 2014. OSPAR Guidelines for the Management of Dredged Material at Sea. OSPAR Commission Agreement 2014-06.

International Atomic Energy Agency (IAEA): is the world's central intergovernmental forum for scientific and technical cooperation in the nuclear field. It contributes to international peace and security promoting safe, secure and peaceful uses of nuclear science and technology. IAEA (2003). Determining the suitability of materials for disposal at sea under the London Convention 1972: A radiological assessment procedure. TECDOC-1375, IAEA, Vienna. IAEA (2004). Sediment distribution coefficients and concentration factors for biota in the marine environment. Tech. Rep. Ser. No. 422, IAEA, Vienna. IAEA (2015), Determining the Suitability of Materials for Disposal at Sea under the London Convention 1972 and London Protocol 1996: A Radiological Assessment Procedure, IAEA-TECDOC-1759, IAEA, Vienna

Additional question to NRW based on answers received on 15 October 2020

1. Could NRW outline the process, now that it has agreed to the Sediment Sampling Plan, from now until disposal of the sediment from HPC?

Considering the reference in the NRW review into Sediment Disposal Sites to the involvement of Cefas in producing Sediment Sampling Plans on behalf of NRW, what involvement have Cefas had in this process so far, and will they have any further involvement in the HRA and WFD assessments, and EIA consent decision?

2. Do NRW have any concerns that the group should be aware of? To clarify, when NRW receive a marine licence application from EDF/NNB, will members of the Cefas staff be acting as technical advisors and experts to assist with the determination of an outcome?

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group

Sir David Henshaw
Chair
Natural Resources Wales



Llywodraeth Cymru
Welsh Government

2 November 2020

Dear Sir David

HINKLEY POINT C STAKEHOLDER REFERENCE GROUP

Thank you for facilitating the attendance of your colleagues to the above meeting on 19 October 2020. The Group found the discussions valuable and were grateful for your time.

There are a few follow up queries which the Group would welcome clarification on. Grateful if these could be supplied by 9 November 2020 to the Hinkley secretariat (hinkleygroup@gov.wales).

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

cc Ceri Davies
Gareth Oshea
John Wheadon
Wendy Dodds
Maria Alvarez
Stuart Reid
hinkleygroup@gov.wales

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

1. Could NRW outline the process, now that it has agreed to the Sediment Sampling Plan, from now until disposal of the sediment from HPC?

Considering the reference in the NRW review into Sediment Disposal Sites to the involvement of Cefas in producing Sediment Sampling Plans on behalf of NRW, what involvement have Cefas had in this process so far, and will they have any further involvement in the HRA and WFD assessments, and EIA consent decision?

NRW commissions Cefas, an executive agency of Defra (Department for Environment, Food and Rural Affairs) to provide us with robust scientific and technical advice to inform our regulatory licensing decisions. This arrangement has been in place since the inception of NRW in April 2013.

In this instance, the advice sought by NRW from Cefas is confined to the disposal of dredged material from the development of Hinkley Point C in Welsh Waters (Cardiff Grounds disposal site).

Cefas has extensive expertise with the assessment of chemical, physical and radiological characteristics of marine sediments. To date, their highly specialised radiological advice has been provided by Dr Kinson Leonard, a leading and well-respected figure in this field who provides expert advice to national and international organisations and is the main author in the annual Radioactivity in Food and the Environment (RIFE) reports. The latest edition was published on the 5th November 2020 and sets out the findings of the UK-wide annual radiological monitoring programmes in 2019.

Internal project management and governance of the relationships respectively with NRW and developers have always been maintained separately within Cefas. This matter was raised during the scrutiny of the former marine licence (12/45/MLv1) in 2017/2018 and is a matter of public record following the attendance of NRW and Cefas representatives in front of the Petitions Committee in the Senedd on 9 January 2018¹.

NRW is content that the work Cefas has provided to date for both EDF and NRW, specifically in relation to Hinkley Point C dredge disposal activities which require a Welsh marine licence, is appropriately managed through their internal governance arrangements. NRW will continue to seek advice from Cefas on chemical, physical and radiological characteristics of marine sediments within the dredge area.

¹ <https://record.assembly.wales/Committee/4521>

Additionally, NRW will also continue to seek technical and specialist advice from our own technical experts, the Environment Agency (EA), our framework consultants ABPmer, and Public Health Wales. The advice will inform and support the process of determination of the Hinkley Point C disposal licence application and other dredge disposal applications that NRW receives.

In the case of Hinkley Point C, EDF produced its sample plan using Cefas commercial services which are separate and independent from Cefas' Regulatory Assessment Team. To avoid any conflict of interest for this case, we have ensured that the marine licensing case officer interacts only with Cefas' Regulatory Assessment Team.

NRW consulted on the suitability of EDF's draft sample plan with technical advisors from several organisations including Cefas, ABPmer, NRW Technical Experts, and the Environment Agency. Additionally, in recognition of the public and national interest in this matter, we also undertook a six-week public consultation (5 February 2020 - 18 March 2020) to provide the opportunity for the public and stakeholders to submit their views on whether the sampling plan complies with the internationally agreed guidance. Our pre-application advice document² to EDF presented an overview of all submissions that were received and detailed how they had been considered.

With regards to WFD and HRA assessments; these will be drafted by the marine licensing case officer and we will consult internally with NRW Technical Experts in their functional role as Statutory Nature Conservation Body (SNCB). Cefas will not be consulted on the WFD or HRA assessments, unless there are specific elements related to their expertise.

Cefas, in their capacity as a scientific advisor to us, will be consulted for their views in the assessment of the suitability of the sediment dredged to be disposed of in Cardiff Grounds. As with all dredge disposal licence applications, they will undertake a detailed evaluation of the impacts of the proposed disposal activity on the marine environment, human health and other legitimate uses of the seas which includes consideration of:

- the level of contamination of the material to be dredged and disposed of to the site;
- the amounts that the disposal site has previously received (based on returns received in line with OSPAR requirements);
- the suitability of the disposal site to receive the volume and type of sediment applied for (based on expert judgement and records of previous disposal operations at the site); and
- the capacity of the site in relation to other licences disposing of material on the site, their total licensed tonnage.

We would also reiterate that any marine licence application that we receive from EDF will be subject to a public consultation. This will provide the public and

² <https://publicregister.naturalresources.wales/Search/Download?RecordId=32304>

stakeholders with the opportunity to comment on all information that supports the application, including the Environmental Statement.

The marine licence and EIA consent decision will be made by NRW. These decisions will be informed by the advice we receive from Cefas, other technical advisors and the response to the public consultation.

- 2. Do NRW have any concerns that the group should be aware of?** To clarify, when NRW receive a marine licence application from EDF/NNB, will members of the Cefas staff be acting as technical advisors and experts to assist with the determination of an outcome?

As stated above, Cefas will be acting as one of our technical advisors for the assessment of chemical, radiological and physical characteristics of the sediment to be disposed, and the suitability of the receiving disposal site (Cardiff Grounds).

NRW will consider Cefas' advice, together with the advice of other technical advisors (EA, NRW Technical Experts and ABPmer), other consultees such as Public Health Wales, and the views of the public and stakeholders (through the public consultation process). All relevant responses will be taken into consideration and will inform our decision. Consultation responses will be summarised in our decision document which will be publicly available.

We consider the breadth and knowledge of our all advisors allows us to take informed and robust decisions. We would reiterate that marine licence decisions, including those that require an EIA consent decision, are the responsibility of and restricted to NRW as the delegated marine licensing authority in Wales.

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Simone Rossi
Chief Executive Officer
EDF

30 September 2020

Dear Simone Rossi

HINKLEY POINT C STAKEHOLDER REFERENCE GROUP

The Hinkley Point C Stakeholder Reference Group, appointed by the First Minister Mark Drakeford MS, would like to invite EDF to attend the Group's next meeting on 19 October. The Group is interested in any implications the Hinkley Point C project may have on the people and environment of Wales, and the Group recognises the critical role of EDF as the project's developer. The Group is also inviting Cefas to attend the meeting, and we would be happy for EDF and Cefas to attend jointly. I attach a list of questions that Members of the Group wish to ask during the meeting.

The Group members and Terms of Reference can be found at <https://gov.wales/hinkley-point-c-stakeholder-reference-group>.

I would be grateful if you could confirm the details of EDF's representative(s) with the Group's secretariat by Monday 5 October, via email to hinkleygroup@gov.wales. The secretariat will arrange access to the meeting via MS teams and confirm timings.

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

cc Alexander Gray
hinkleygroup@gov.wales

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

Rt Hon Mark Drakeford MS
First Minister of Wales
Welsh Government
5th Floor
Tŷ Hywel
Cardiff Bay
CF99 1NA

1st October 2020

Dear First Minister,

Thank you for your letter dated 24th September. We have been seeking an introductory meeting with the Hinkley Point C Stakeholder Reference Group since its formation. We welcome your approach and we are looking forward to offering the group our full support with their important work.

We see Wales, its people and businesses as key partners in Hinkley Point C. As you may know, more than 130 Welsh firms have won contracts on the project and around 1,000 of our workers live in Wales. The plant is being built with steel manufactured in Cardiff and Neath, with other major contractors in Bridgend and Newport.

We have also run 14 supply chain events in Wales as we seek to extend our Welsh supply chain further. I believe that our follow-on project at Sizewell C will provide significant benefits for Welsh jobs and industry as well as both projects being vital for our climate.

While Hinkley Point C presents positive opportunities for Wales, we recognise that there has been a focus on the mud dredging and disposal at the Cardiff Grounds site. This mud is no different to mud found elsewhere in the Bristol Channel and is not classed as radioactive under UK law. We want to reassure the public of the safety of this activity and we have listened carefully to the concerns and questions that were raised during that first phase of dredging activities.

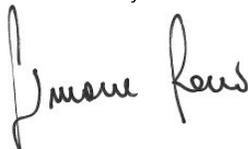
For this second phase of dredging, we intend to go further than the requirements set by the regulators in order to provide the public with that reassurance. We have proposed a testing plan that goes above and beyond internationally recognised best practice, with more samples at greater depth and with a greater range of analysis - including tests for pure alpha emitting particles and tritium.

I can tell you that we also intend to conduct a full Environmental Impact Assessment as part of our disposal licence application. There is a technical argument over whether an EIA is required for this work, but I believe it is right to go beyond technical arguments to provide the necessary public confidence that all concerns have been addressed.

I would be delighted to welcome you and the group to the Hinkley Point C site to hear from the Welsh companies and workers that benefit from the project, including the apprentices we recently took on from Wylfa Newydd. In the current circumstances we can also offer a virtual tour should restrictions continue to present a challenge to agreeing a visit.

Once again I am grateful for your letter and personal interest in Hinkley Point C. Please rest assured we will continue to engage positively with the Stakeholder Reference Group and the Welsh Government to ensure that the opportunities of Hinkley Point C and new nuclear development fully benefit Wales.

Yours sincerely

A handwritten signature in black ink that reads "Simone Rossi".

Simone Rossi

14th October 2020

Hinkley Point C response to questions from the Hinkley Point C Stakeholder Reference Group

Hinkley Point C welcomes the interest of the Hinkley Point C Reference Group and offers the group its full support. We see Wales, its people and businesses as partners in a project which will play a key role in helping Britain reach net zero. Around 200 Welsh firms have won contracts on the project and around 1,000 of our workers live in Wales. The plant is built with Welsh steel and we have major suppliers in Bridgend, Newport, Cardiff and Neath.

While Hinkley Point C presents opportunities for Wales, we recognise that there has been a focus on activities associated with our cooling systems. Many power stations in Wales and England have taken water from the Bristol Channel over the years. Hinkley Point C will be the first to install fish protection measures. We have responded to your questions set out below and look forward to our discussion on 19th October.

1. Could you explain how the Fish Recovery and Return System works with consideration of the Low Velocity Intake and Acoustic Fish Deterrent (AFD). Is it the case the effectiveness of the LVI becomes less if not used in conjunction with the AFD? What is the criteria for "Low Velocity"?

Seawater filtration in a coastal power station relies on a number of different stages to ensure that material which can cause blockages (e.g. debris, fish, seaweed) is prevented from entering components essential to the operation of the station (e.g. the cooling water heat exchangers). Hinkley Point C will be the first power station in the Bristol Channel to install fish protection measures. It will come into service after the end of operations at the neighbouring Hinkley Point B power station.

Fish Recovery and Return System

The main filtration tools are fine mesh drum and band screens that prevent fish from entering the system (impingement) but allow smaller organisms such as eggs and larvae to pass through the cooling water systems (entrainment). Impinged fish are washed off the screens and are returned to sea via a subtidal outfall in a dedicated fish return system. The system has been designed to return fish to the sea safely and is engineered to meet Environment Agency guidance on the design and operation of such systems.

This return system is known as the Fish Recovery and Return System (FRR). The Hinkley Point C FRR design was subject to detailed review and agreement with the Environment Agency. Well-designed FRR systems have proven ability to reduce the losses from fish impingement. They work best for epibenthic (seabed dwelling) species such as gobies, flatfish, rays, eels where survival rates of approximately 80% have been measured.

For demersal (living close to the seabed) species such as cod and whiting survival is approximately 50% but for pelagic (living in the upper waters of the sea) species like sprat and herring survival is low as the fish do not tolerate contact with the screen mesh. These fish will benefit from the low velocity side entry intakes described below.

Studies from the Government marine science experts CEFAS and local data gathered over many years show the impingement will not affect the marine eco-system or individual species. For example, the impact on sprat will be as low as 0.043% every year. The power station's impact with the two remaining measures in place will be negligible and very low in comparison to the impact of natural mortality, predation and commercial fishing.

The Hinkley Point C FRR system's effective operation is not dependent upon the operation of other impingement mitigation systems.

Low velocity side entry (LVSE) intakes

Low velocity side entry (LVSE) intakes have been designed to reduce the number of fish abstracted. The Hinkley Point C LVSE intakes are expected to have beneficial effects for all species but in comparison with the existing intake heads at Hinkley Point B, they are most effective for pelagic species (e.g. sprat and herring) where reductions of impingement of 75% per cubic metre of seawater abstracted are expected based upon measurements at other sites. LVSE intakes work in a complementary way with the FRR system to substantially reduce fish impingement of all species.

LVSE heads work in three ways:

- They reduce vertical velocities that pelagic fish are poorly adapted to avoid.
- The intake velocities into the head are designed to meet the Environment Agency criterion of being less than 0.3m/s at all states of the tide, which would give many species the opportunity to avoid abstraction. It is relatively straightforward to design heads to meet this criterion at slack water but when the tidal current is flowing this dominates intake velocities for conventional omnidirectional heads e.g. intake velocities exceed 1m/s at HPB at maximum tidal flow which is beyond the capacity of most fish to avoid. By mounting the heads at right angles to the tidal flow, intake velocities are significantly reduced at all states of the tide.
- As LVSE heads are mounted at right angles to the tidal flow, the intercept cross sectional area is substantially reduced compared with omnidirectional heads and the abstraction risk zone is reduced to a few metres either side of the intakes.

The suggested low velocity criteria for LVSE intake head is for velocities into the intake to be <0.3 m/s – this is described in the Environment Agency evidence report “Cooling Water Options for the New Generation of Nuclear Power Stations in the UK” (SC070015/SR3), published in 2010. The HPC LVSE intake heads meet these criteria.

Acoustic Fish Deterrents (AFD)

Acoustic Fish Deterrents aim to reduce fish abstraction by creating an underwater sound field that causes some fish to be deflected from a path that would otherwise cause them to be abstracted.

They have been used on simple shore-mounted (or close to shore) intakes where they can readily be serviced from fixed platforms and appropriately designed systems have been shown to reduce impingement of particularly pelagic species (sprat and herring) but also to a lesser extent for some demersal species. They have no or little effect for species that have poor hearing or that do not respond to these sound stimuli (e.g. eels, some flatfish).

AFDs have only been used with conventional intake designs and there is, therefore, no operational experience of what additional benefits they would offer with LVSE intakes. Such a system does not exist anywhere else in the world to our knowledge. By deflecting some fish away from the LVSE heads before they come into the zone of influence of the intakes, impingement of some species could be further reduced by AFDs but there is no operational data to quantify the extent of any such effect.

- 2. AFD producer Fish Guidance Systems have announced that the recent developments in technology mean there is no reason why an AFD should be removed from the Environment Agency's permit requirements. Along with many other knowledgeable organisations, such as Devon and Severn Inshore Fisheries and Conservation Authority (IFCA) there is strong concern regarding the detrimental impact that this would have on the sensitive fish assemblage, and wider marine ecosystem. Therefore can you explain how you have come to the conclusion that it is better to remove this stipulation?**

In 2017, Hinkley Point commissioned studies from the Government marine science experts CEFAS to examine the environmental effects of not fitting an AFD system. Work carried by CEFAS concluded that the removal of the AFD system would have a negligible impact on the fish populations and wider marine ecosystem.

This followed several years of in-depth studies into whether such technology could be installed and reliably maintained for the lifetime of the station. These studies were conducted by offshore engineering and safety consultancy companies who were highly experienced in such work.

Working with these specialist consultants, we have concluded that:

- AFD systems at Hinkley Point C would have to be installed close to the 4 intake heads that are seabed mounted approximately 3km offshore. Engineering studies concluded that the underwater systems would have to be serviced by use of divers working largely by feel operating from anchored support vessels over lengthy periods of time each year. We concluded that this would present major challenges over the 60 year operating life (due to the size of system, the tidal range, very limited periods for safe working near slack water, almost total lack of underwater visibility, the need to anchor vessels very close to safety critical infrastructure and the changeable weather and sea conditions).
- These maintenance challenges would be accompanied by staff and contractor safety risks that are unacceptable– this is a harsh, offshore environment and health and safety is paramount. Risks to people cannot be justified for a system which will have little benefit.
- There are no examples of AFD systems operating in this sort of environment anywhere in the world so it is difficult for anyone to say with any certainty how the system components will fare. This is a conclusion reached by Hinkley Point C and by the Environment Agency (Nuclear Power Station Cooling Waters: Evidence on 3 Aspects (SC170021/R1), 2019) – Sections 3.1.3 – 3.1.6.

It is important to note that Fish Guidance Systems (FGS), as one of the primary suppliers of AFD equipment in the world, is a commercial organisation and a one-time supplier of advice to the HPC project. The company does not offer marine engineering design and accompanying safety assessments services, which we have contracted independent professional consultants to provide. FGS are not qualified to advise on the safety matters which informed the basis (alongside environmental grounds) for our decision not to fit AFDs at HPC.

FGS have not worked on the HPC project for many years now and it therefore seems unreasonable for them to suggest that they could solve all of the technical challenges identified by such a large and complex offshore installation when larger international firms have been unable to do so.

Furthermore, as one of the few suppliers of AFDs, FGS should not in our view be considered an independent expert with regard to the whether it is necessary, viable or safe to fit an AFD at Hinkley Point C.

3. If the request for material change to remove the AFD is rejected how do EDF propose to move forwards? Will they return to discussions regarding AFD technology or will they consider altering the design of the plant to one of a closed circuit open-air cooling system, or some other alternative?

We have not taken the decision to appeal lightly but are confident that our case is strong in environmental terms, based on the research carried out by CEFAS. If there were any viable and legally robust options which could be pursued as an alternative to appealing, then we would be pursuing them currently. Should the appeal be unsuccessful we will consider other options carefully at that time.

4. What consideration has there been given to mitigate against barotrauma?

Barotrauma is the potential injury to some species of fish caused by the change in pressure that they experience between abstraction at the power station intakes and subsequent recovery from the fine filtration systems into the Fish Recovery and Return (FRR) system.

Rapid changes in pressure are potentially damaging for fish that maintain the volume of their swimbladders, because the air expands or contracts rapidly potentially causing damage to the swimbladder. Within the fish species possessing a swimbladder, a distinction can be made between those with a ducted connection between the swimbladder and the external water (known as physostomes), and those with a sealed swimbladder, whose volume can only be modulated slowly by vascular gas exchange (physoclists). This limitation makes physoclists vulnerable to rapid pressure reductions; a halving of pressure for example causing a doubling of gas volume (Boyle's law) and associated expansion of the swimbladder potentially causing tissue to rupture dependent upon how adapted the species is to pressure change.

Accordingly, not all fish species suffer from pressure change injuries after abstraction in cooling water intakes. Pelagic species, such as herring and sprat, do not gain any appreciable benefit from FRR systems as these species experience significant scale loss when they are impinged on the filtration screens and as a result have low survival rates. Epibenthic species such flatfish (e.g. plaice and sole) have a vestigial swimbladder and do not show signs of pressure damage. Eel have a swimbladder that vents to the gut and are tolerant of pressure change and so are also not affected. Gadoids (e.g. cod and whiting) are the species potentially most affected by pressure change, but not all gadoids are equally affected.

To mitigate against barotrauma HPC is providing specially designed LVSE intake heads. These LVSE intake heads have been engineered to reduce fish abstraction. Where fish have entered the system and are affected by barotrauma, the design of the FRR will minimise exacerbating the effects of the barotrauma on the fish by reducing the physical stresses to which they are exposed. The Environment Agency provides no specific criteria or recommendations for the design and effects of the intake tunnels (or shafts) in their guidelines for the design of FRR systems. However, HPC has designed the FRR to return fish to the sea safely and reduce impact on the fish as they travel through the system. The design of the HPC FRR system has been agreed with the Environment Agency, NRW, and Natural England, and has been approved by the Marine Management Organisation.

5. How will chlorination be used through the intake system, and what are the potential impacts of this on the marine ecosystem?

Although the HPC environmental permit allows for biofouling control through dosing of seawater inside of the cooling water system with sodium hypochlorite, it is envisaged that this will not be required at Hinkley Point C.

Operating experience from both Hinkley Point A and Hinkley Point B show that biofouling of seawater systems has not been a problem over the combined operating lifetime of nearly 60 years. The high levels of inorganic suspended solids, the subsequent low underwater light levels and lack of primary production severely limit the opportunities for the growth of biofouling organisms (e.g. mussels) in the cooling water systems at Hinkley Point.

It was decided to apply for permission to apply biofouling control as a contingency measure should it be required in the future (due to a substantial change in the marine environment at Hinkley Point. This would have to take the form of a considerable reduction in suspended sediment levels). The modelling submitted to and assessed by the Environment Agency in the 2011 environmental permit application show that there are no adverse impacts associated with the discharge of Total Residual Oxidants (TRO).

It should be noted that the design of HPC only contains an allowance in the civil structures for chlorination plant to be fitted retrospectively, if needed. If biofouling control were to be required in the future, a further environmental assessment would be performed and agreed with the Environment Agency.

6. Can you explain what level of consultation has taken place with stakeholders in Wales as regards impacts to fisheries, changes to the requirement of the AFD and disposal of sediment?

All statutory requirements have been taken regarding consultation with the Welsh authorities.

With reference to the change to the obligation to install an AFD, a DCO Change pre-application consultation was held in the spring and early summer of 2019. As part of that consultation exercise, information on AFD was made available on the HPC website (<https://www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c/about/acoustic-fish-deterrent>).

Hard copies of the consultation information were provided to Cardiff Council, Vale of Glamorgan Council and Newport City Council; a copy of the consultation material was also placed in Cardiff Central Library. Notices on the consultation were also printed in the South Wales Echo, the South Wales Evening Post and the Western Daily Press on the 4th and 11th April 2019. Notices were also placed in the Angling Times and Fishing news. The consultation leaflet was translated into Welsh.

In addition, Hinkley Point C has been updating key stakeholders, including members of the Senedd, Welsh MPs and local authorities. In addition, we have used social media channels and our website to encourage public engagement.

All environmental permit applications are made to the Environment Agency in England. Natural Resources Wales is a Statutory Consultee on relevant environmental permit applications and will have been given the opportunity (by the Environment Agency) to review and comment on all such applications (this was carried out by EA Wales and Countryside Council for Wales prior to creation of NRW). All planning applications (e.g. DCO) follow a similar consultation route.

With reference to disposal of dredged sediment no application has yet been made for a new disposal licence. Once a licence application has been made to NRW it will be subject to a full public consultation as was the previous disposal licence. Natural Resources Wales completed a six-week public consultation on the proposed sampling and testing plan for sediment.

Additional question to EDF based on answers received on 15 October 2020

1. Could you explain how the Fish Recovery and Return System works with consideration of the Low Velocity Intake (LVI) and Acoustic Fish Deterrent (AFD). Is it the case the effectiveness of the LVI becomes less if not used in conjunction with the AFD? What is the criteria for “Low Velocity”?

If there is no operational experience of the additional benefits that an AFD would offer, why was it considered to be needed through the original HRA?

2. AFD producer Fish Guidance Systems have announced that the recent developments in technology mean there is no reason why an AFD should be removed from the Environment Agency’s permit requirements. Along with many other knowledgeable organisations, such as Devon and Severn Inshore Fisheries and Conservation Authority (IFCA) there is strong concern regarding the detrimental impact that this would have on the sensitive fish assemblage and wider marine ecosystem. Therefore, can you explain how you have come to the conclusion that it is better to remove this stipulation?

If the in-depth studies were showing that the technology wouldn’t be suitable, why hasn’t another solution been found, as there is still a need to deflect species away from the system?

3. If the request for a material change to remove the AFD is rejected, how do EDF propose to move forwards? Will they return to discussions regarding AFD technology or will they consider altering the design of the plant to one of a closed-circuit open-air cooling system, or some other alternative?

When asked what considerations have been given to mitigate against barotrauma the first three paragraphs of your response are identical to that provided by Cefas – Could you please explain this?

If permission was granted and then post-construction monitoring revealed unacceptable impacts on the interest features of the Special Area of Conservation or the populations of other fish in the Severn Estuary, would EDF be prepared to take HPC out of service for a period of time during the period when an alternative cooling system was put in place?

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Simone Rossi
Chief Executive Officer
EDF

2 November 2020

Dear Simone Rossi

HINKLEY POINT C STAKEHOLDER REFERENCE GROUP

Thank you for facilitating the attendance of your colleagues to the above meeting on 19 October 2020. The Group found the discussions valuable and were grateful for your time.

There are a few follow up queries which the Group would welcome clarification on. Grateful if these could be supplied by 9 November 2020 to the Hinkley secretariat (hinkleygroup@gov.wales).

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

cc Alexander Gray
Chris Fayers
Peter Bryant
Ross Pettigrew
Gordon Bell
hinkleygroup@gov.wales

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

Additional question to EDF based on answers received on 15th October 2020

1. Could you explain how the Fish Recovery and Return System works with consideration of the Low Velocity Intake (LVI) and Acoustic Fish Deterrent (AFD). Is it the case the effectiveness of the LVI becomes less if not used in conjunction with the AFD? What is the criteria for "Low Velocity"?

Please note a full response to how the Fish Recovery and Return System works was provided in our previous submission dated 14th October 2020 (See attached for ease of reference).

1a. If there is no operational experience of the additional benefits that an AFD would offer, why was it considered to be needed through the original HRA?

In the lead up to submission of the permit, licence and DCO application submissions for Hinkley Point C, the Environment Agency brought out guidance (Evidence Report SC 070015/SR3 – Cooling Water Options for the New Generation of Nuclear Power Stations in the UK, 2010), which advised that AFD systems should be considered best practice.

Given the stage of the project and the applications at the time, it was not feasible for EDF to develop a detailed design for an AFD, or assess their effectiveness and operational viability in the conditions experienced in the Severn Estuary.

However, we committed to fit an AFD given the expectations set up by the new guidance, on the assumption that it was required and that we would, post-consent, be able to design an appropriate AFD. It was on this basis that the fitting of an AFD was assumed in the original HRA.

2. AFD producer Fish Guidance Systems have announced that the recent developments in technology mean there is no reason why an AFD should be removed from the Environment Agency's permit requirements. Along with many other knowledgeable organisations, such as Devon and Severn Inshore Fisheries and Conservation Authority (IFCA) there is strong concern regarding the detrimental impact that this would have on the sensitive fish assemblage and wider marine ecosystem. Therefore, can you explain how you have come to the conclusion that it is better to remove this stipulation?

Please note a full response regarding the feedback from Fish Guidance Systems was provided in our previous submission dated 14th October 2020 (See attached for ease of reference).

2.a If the in-depth studies were showing that the technology wouldn't be suitable, why hasn't another solution been found, as there is still a need to deflect species away from the system?

The work we have carried out with CEFAS concludes that there is not a need to deflect these species in order to protect site integrity.

A wide array of different options were considered when designing an AFD system for HPC. The option taken forward to full assessment was considered to be the most effective. Any other option would be less effective than the fully assessed option but would still present the same engineering, maintenance and safety challenges.

3. If the request for a material change to remove the AFD is rejected, how do EDF propose to move forwards? Will they return to discussions regarding AFD technology or will they consider altering the design of the plant to one of a closed-circuit open-air cooling system, or some other alternative?

Please note a full response regarding the outcome of any future material change request was provided in our previous submission dated 14th October 2020 (See attached for ease of reference).

3a. When asked what considerations have been given to mitigate against barotrauma the first three paragraphs of your response are identical to that provided by Cefas – could you please explain this?

In responding to your questions, we thought it would add more clarity to ask CEFAS, as the Government's fisheries experts, to provide an explanation of barotrauma.

3b. If permission was granted and then post-construction monitoring revealed unacceptable impacts on the interest features of the Special Area of Conservation or the populations of other fish in the Severn Estuary, would EDF be prepared to take HPC out of service for a period of time during the period when an alternative cooling system was put in place?

We are confident in our conclusions and in the work that has been carried out by CEFAS, as the UK authority on fisheries.

In the unlikely event that monitoring shows that there are significant deviations from our modelling, we would consider an appropriate response in consultation with the appropriate stakeholders.

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Tim Green
Interim Chief Executive Officer
Cefas

30 September 2020

Dear Tim Green

HINKLEY POINT C STAKEHOLDER REFERENCE GROUP

The Hinkley Point C Stakeholder Reference Group, appointed by the First Minister Mark Drakeford MS, would like to invite EDF to attend the Group's next meeting on 19 October. The Group is interested in any implications the Hinkley Point C project may have on the people and environment of Wales, and the Group recognises Cefas' critical role in a number of aspects of the project. The Group is also inviting EDF to attend the meeting, and we would be happy for EDF and Cefas to attend jointly. I attach a list of questions that Members of the Group wish to ask during the meeting.

The Group members and Terms of Reference can be found at <https://gov.wales/hinkley-point-c-stakeholder-reference-group>.

I would be grateful if you could confirm the details of Cefas' representative(s) with the Group's secretariat by Monday 5 October, via email to hinkleygroup@gov.wales. The secretariat will arrange access to the meeting via MS teams and confirm timings.

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

cc Kins Leonard
Jemma Lonsdale
hinkleygroup@gov.wales

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>



BUDDSODDWR | INVESTORS
MEWN POBL | IN PEOPLE



Jane Davidson
Chair, Hinkley Point C Stakeholder Reference Group
Welsh Government
Cathays Park
Cardiff
CF10 3NQ

7 October 2020

Dear Jane Davidson

HINKLEY POINT C STAKEHOLDER REFERENCE GROUP

Further to my letter dated 2 October 2020 acknowledging your request for Cefas to participate in the Hinkley Point C Stakeholder Reference Group meeting on 19 October, please see the following:

I reiterate that, in our view, Cefas does not have a direct remit with respect to the Group's areas of interest, although our work clearly informs the remits and interests of both Natural Resources Wales (NRW) and EdF respectively.

We have subsequently discussed your request (separately) with NRW and EdF and can confirm that Cefas will participate, on their behalf, in the planned meeting to assist you in your work. To enable this please can you provide invitations for: Kins Leonard (kins.leonard@cefas.co.uk), David Carlin (david.carlin@cefas.co.uk), Brian Robinson (brian.robinson@cefas.co.uk) and Siân Limpenny (sian.limpenny@cefas.co.uk).

Due to the nature of our engagement on this matter working with both NRW and EDF, Cefas request that correspondence and questions from the Group only be directed via the Group secretariat. Unfortunately, we will not be able to respond to any correspondence from individual members which has not been provided through the secretariat.

Yours sincerely



Tim Green
Chief Executive

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244



Additional question to CEFAS based on answers received on 15 October 2020

1) In response to the following question from the SRG:

What evidence is available for the claim that 'hot particles' are present in the sediment and would these be detected by gamma spectroscopy?

CEFAS included in their reply that:

By the nature of their origin, hot particles found in the environment are a cluster of various sizes, composition and contain high levels of specific activities of alpha- beta- and gamma-emitting radionuclides.

Follow-up question:

Concerns have been raised that gamma spectroscopy might not identify 'hot particles'. Given that CEFAS state that 'Monitoring for hot particles (widely known to be present around Sellafield), and the assessment of their contamination, is routinely undertaken on and around the west Cumbrian coastline.' Have any 'hot particles' ever been identified in the Sellafield area that only include alpha and beta emitting radionuclides that may then be missed by screening with gamma spectroscopy?

2) In response to the following question from the SRG:

What pathways are considered in the dose assessment methodology used by CEFAS?

CEFAS included in their reply that:

For the general public, the exposure pathways considered are ingestion of seafood caught in the vicinity of the disposal site, external exposure to radionuclides deposited on the shore, inadvertent ingestion of beach sediment, inhalation of resuspended beach sediment and inhalation of sea spray

Follow-up question:

For the inhalation pathways (beach sediment and sea spray), what was the assumed occupancy rate for the reference person? Particular concern has been expressed about the potential for the inhalation of radionuclides from beach sediments and sea spray by residents living near the coast.

3) In response to the following question from the SRG:

To what degree are action levels set in comparison to predicted effect levels?

CEFAS included in their reply to the previous question from the SRG that:

The nationally accepted Action Levels for the UK (commonly termed Cefas Action Levels due to Cefas involvement in developing them) have a lower (Cefas Action

Level 1 (AL1)) and an upper (Cefas Action Level 2 (AL2)) limit. AL2 (the upper action level) is based on likely biological effects of the individual contaminants...

Follow-up question:

How do AL1 and AL2 relate numerically to the likely biological effects for individual contaminants? For example: does AL2 equal the level at which effects are likely and AL1 a stated fraction of AL2? Or are both AL1 and AL2 levels below the level at which effects are likely?

1. The Group has been told of concerns that Cefas, by working as both the Governmental Advisory Body and having direct private contracts with EDF, may have a conflict of interest. The NRW pre-application advice to EDF states that "Cefas adhere to strict procedures which limits contact between colleagues working on such projects". Could you please elaborate on what these procedures are, how are they enforced and how does Cefas ensure there is no risk of bias towards the consultancy side?

Can Cefas, the independent advisory body, clarify whether they will be providing advice to the UK Government regarding the inquiry into the removal of the AFD?

2. As there is evidence of marine mammals, most notably Porpoises that breed at the mouth of the Bristol Channel, has the impact of marine dredging on marine mammals been considered in terms of prey resource, disturbance through noise pollution, and impingement?

Has there been any assessment of sprat population within the Bristol Channel and Severn Estuary as the response precludes data from the Bristol Channel Approaches which is a much larger system and isn't really comparable to the complexities of the fisheries within the inner Bristol Channel and Severn Estuary?

Have the fisheries assessments considered that there are smaller, geographically distinct populations of fish species within the inner Bristol Channel and Severn Estuary, such as Herring?

Has the expectation that cetaceans will not be impinged considered that the estuary is used as a nursery ground and therefore some individuals will be juveniles and calves?

3. As the Governmental Advisor on fisheries, what advice would Cefas give regarding the serious concerns raised by Devon and Severn IFCA, regarding the evidence base used for stock assessments provided, uncertainty around the Low Velocity Side Entry System and the request for the removal of the AFD?

The use of ICES Stock Boundaries to assess fisheries within the Severn Estuary is considered by a number of stakeholders to be inappropriate due to considerable scientific evidence for complex meta-population structures within the estuary. Have other methods been used for assessment to reflect this?

What are the 20 fish species that have been assessed this way? Why only 20 species?

Over what period of years of impingement data at HPB are you using to quantify fish stocks that cannot be measured quantitatively? Can you provide the monitoring protocol used for this time series and identify any changes in a) that protocol and b) providers of this monitoring that have been made during that period?

Given that Cefas is not qualified in defining acceptable limits of damage to European sites and the policy implications of such definitions, can you define what you mean by the term 'negligible' when describing impacts on the interest features of the Special Area of Conservation (SAC)? In particular, can you identify what you have done to identify those areas of European case law that substantiate, or do not support, your threshold of impact on the interest features of the SAC?

4. Could Cefas explain barotrauma and why the precautionary approach is being suggested as the best option for this?

There is a mention of the "fish's acclimation depth" and how this affects the "risk of pressure-related injury". Could you please clarify how the risk is then altered during different states of the tide – for example, is the risk much greater for those fish entrapped during a high tide?

Some of the content within your response is identical to content provided by EDF in their response – could you please explain this?

5. As the Fish Recovery and Return System at HPC is a theoretical system – i.e. one that does not exist elsewhere - are you confident that its impacts have been modelled with, and without the AFD, and how this would impact fish populations within the Severn?

The design that achieved regulatory approval included an AFD, and there has been no approval for one without. Please could the question be answered as regards modelling and the estimated differences in impact for the system with the AFD, and without.

Could you please clarify the statement regarding the expected performance of the FRR system as it suggests that expectations are based on a system that is not comparable?

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Tim Green
Interim Chief Executive Officer
Cefas

2 November 2020

Dear Tim Green

HINKLEY POINT C STAKEHOLDER REFERENCE GROUP

Thank you for facilitating the attendance of your colleagues to the above meeting on 19 October 2020. The Group found the discussions valuable and were grateful for your time.

There are a few follow up queries which the Group would welcome clarification on. Grateful if these could be supplied by 9 November 2020 to the Hinkley secretariat (hinkleygroup@gov.wales).

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

cc Kins Leonard
Jemma Lonsdale
David Carlin
Brian Robinson
Sian Limpenny
hinkleygroup@gov.wales

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>



Centre for Environment
Fisheries & Aquaculture
Science



Jane Davidson
Chair, Hinkley Point C Stakeholder Reference Group
Welsh Government
Cathays Park
Cardiff
CF10 3NQ

13th November 2020

Dear Jane Davidson

ADDITIONAL QUESTIONS RAISED IN LETTER DATED 2 NOVEMBER 2020

I write in response to the follow-up questions sent to Cefas on the 2 November. I am pleased to enclose a detailed response (Annex 1) to the specific questions raised with Cefas.

For transparency, the comments provided in Annex 1 have also been shared with both Natural Resources Wales and EDF Energy.

Yours sincerely

Tim Green
Chief Executive

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244



Additional question to CEFAS based on answers provided on 15 October 2020

Cefas response dated: 13 November 2020

1) In response to the following question from the SRG:

What evidence is available for the claim that 'hot particles' are present in the sediment and would these be detected by gamma spectroscopy?

CEFAS included in their reply that:

By the nature of their origin, hot particles found in the environment are a cluster of various sizes, composition and contain high levels of specific activities of alpha- beta- and gamma-emitting radionuclides.

Follow-up question:

Concerns have been raised that gamma spectroscopy might not identify 'hot particles'. Given that CEFAS state that 'Monitoring for hot particles (widely known to be present around Sellafield), and the assessment of their contamination, is routinely undertaken on and around the west Cumbrian coastline.' Have any 'hot particles' ever been identified in the Sellafield area that only include alpha and beta emitting radionuclides that may then be missed by screening with gamma spectroscopy?

Response to follow-up question:

No 'hot particles' have been identified in the Sellafield area that only include alpha and beta emitting radionuclides.

In order to further characterise 'hot particles', the finds are subject to further detailed laboratory analysis, following their removal from the west Cumbrian coastline beaches. 'Hot particles' are classified as alpha-rich particles and beta-rich particles. Detailed laboratory analysis has shown that alpha-rich particles contain americium-241 which emits alpha-radiation and gamma radiation. Likewise, beta-rich particles contain caesium-137 which emits both beta and gamma radiation.

In summary the only identified 'hot particle' would be picked up by gamma spectroscopy.

2) In response to the following question from the SRG:

What pathways are considered in the dose assessment methodology used by CEFAS?

CEFAS included in their reply that:

For the general public, the exposure pathways considered are ingestion of seafood caught in the vicinity of the disposal site, external exposure to radionuclides deposited on the shore, inadvertent ingestion of beach sediment, inhalation of resuspended beach sediment and inhalation of sea spray

Follow-up question:

For the inhalation pathways (beach sediment and sea spray), what was the assumed occupancy rate for the reference person? Particular concern has been expressed about the potential for the inhalation of radionuclides from beach sediments and sea spray by residents living near the coast.

Response to follow-up question:

Parameters (habits data) used in the calculation of individual doses to members of the public are provided in Table 4 of the report “Dose assessments in relation to disposal at sea under the London Convention 1972: judging de minimis radioactivity” (McCubbin & Vivian, 2006).

<https://www.cefas.co.uk/publications/environment/rl0506.pdf>

The values related to time spent on the shore are:

- Time of exposure for members of the public on the shore - 1600 hours per annum
- Inhalation rate of sea spray - 8400 m³ per annum
- Ingestion rate of beach sediment - 5 x 10⁻⁶ kg per hour

3) In response to the following question from the SRG:

To what degree are action levels set in comparison to predicted effect levels?

CEFAS included in their reply to the previous question from the SRG that:

The nationally accepted Action Levels for the UK (commonly termed Cefas Action Levels due to Cefas involvement in developing them) have a lower (Cefas Action Level 1 (AL1)) and an upper (Cefas Action Level 2 (AL2)) limit. AL2 (the upper action level) is based on likely biological effects of the individual contaminants...

Follow-up question:

How do AL1 and AL2 relate numerically to the likely biological effects for individual contaminants? For example: does AL2 equal the level at which effects are likely and AL1 a stated fraction of AL2? Or are both AL1 and AL2 levels below the level at which effects are likely?

Response:

The AL1 equates to background concentrations that exist in the environment which was based on sediment chemistry taken from around the coast and aims to ensure no further adverse biological effects will occur from the material disposal. AL2 equates to concentrations known to cause biological effects.

For trace metals, these are largely based on ecotoxicological datasets from the US.

For Tributyltin (TBT), Action Levels for TBT in dredged material has been completed using both chemical data from the (Dumping At Sea) DAS database (the database that contained all chemical analysis data for dredge sediment) and Ecotoxicological data derived from the peer reviewed literature. Action Level 1 for TBT represents the concentration at which primary anthropogenic impact can be detected.

The value was taken from chemical data only. Action Level 2 was set in line with current ecotoxicological data applied to the current DAS dataset.

For polycyclic aromatic hydrocarbons (PAH), the Action Level 1 values proposed by the UK have been set so as to trigger further study in a proportion of the samples analysed. The corresponding Action Levels 1 are thought to be relatively strict but this is considered to be justified under the precautionary approach. Current research is directed towards the use of sediment bioassays to assess toxicity directly, although as previously explained it is not standard to ask applicants to do so under the current Marine Licensing regime. The limited knowledge of sediment PAH toxicity has precluded the derivation of Action Level 2.

However, in absence of a defined AL2 for PAHs, Cefas utilise the Gorham-Test method; an effects-range approach which considers the sum total of a number of the low molecular weight (LMW) PAH analytes which are seen as acutely toxic and a selection of the high molecular weight (HMW) PAHs analytes considered more long term acting (i.e. carcinogenic) which are compared for each sample in relation to two effects-ranges.

Total values of the LMW PAHS and total values of the HMW PAHS are calculated and then compared to threshold values. If a total value (for either LMW or HMW selection of PAHs) does not exceed the effects-range low (ERL), the indication is that the sediment in the sample can be considered low risk. If a total value exceeds the effects-range median (ERM) for either the LMW or the HMW total values, it can be considered higher risk, with more likelihood of harm occurring.

The approach to the derivation of polycyclic biphenyls (PCB) action levels has relied heavily on the toxicological data from the US and Canada since there is a significant lack of UK focused bioassay data which have included UK marine species.

1. The Group has been told of concerns that Cefas, by working as both the Governmental Advisory Body and having direct private contracts with EDF, may have a conflict of interest. The NRW pre-application advice to EDF states that "Cefas adhere to strict procedures which limits contact between colleagues working on such projects". Could you please elaborate on what these procedures are, how are they enforced and how does Cefas ensure there is no risk of bias towards the consultancy side?

Response:

As described at the SRG session on 19th October, the only area we (Cefas) recognise there to be a potential perception for conflict of interest to exist is in relation to advice sought by NRW from Cefas on the application to dispose of dredge material from Hinkley in Welsh waters. Cefas have neither been asked nor advised NRW or other Welsh authorities in relation to aspects of EDF's activities at Hinkley Point. Cefas have no independent responsibilities with regard to regulatory or policy matters in Wales.

As described at the session of the SRG on 19th October 2020, Cefas are retained by EDF Energy to provide ongoing scientific input to their work. This is a commercial arrangement between Cefas and EDF. Similarly, Cefas are retained by NRW to provide

scientific evidence and advice to inform marine licensing decisions made by NRW. This is a commercial arrangement between Cefas and NRW.

Cefas provided the following written advice to the SRG in advance of its sitting on 19th October which addresses how perceived conflicts of interest are managed. It is important, in our view, that this is restated to ensure appropriate context is provided for the SRG's additional questions.

Cefas, is an executive agency of Defra (Department for Environment, Food and Rural Affairs). The model for Executive Agencies of UK Government departments is to seek activity with other Government Departments, Overseas Governments or Industry which enable any spare capacity of its skills, expertise and capability to be used, thus enabling the overall cost to the tax payer to be lower. Cefas became an Executive Agency in 1997.

Cefas has no policy or regulatory remit (with the exception of devolved responsibility in the Fish Health Inspectorate based from our Weymouth laboratory). Its purpose is to provide Defra and its wider customers with impartial scientific data, evidence, research outputs and advice. In all cases, it is for Cefas' customers to choose how, when and if to use the outputs Cefas has been commissioned to provide. Much of Cefas outputs are peer reviewed or subject to wider scientific scrutiny including a quinquennial review of Cefas science quality.

Cefas has worked with NRW since its inception providing advice, at NRW's request, on marine licencing matters. Cefas also work with the Welsh Government on a range of matters including marine planning.

In 2007, Cefas were engaged by British Energy to work on the UK programme of new nuclear builds, providing marine science expertise, research and data. This engagement was subject to approval by Cefas' parent Department, Defra. Cefas has subsequently continued to work on NNB programmes, including working with NNB GenCo (HPC Ltd), the developer of the Hinkley Point C Power Station.

Throughout Cefas' relationship with NNB developers, the programme of work has been subject to strong internal mechanisms including "ring fencing" of colleagues to work on the programme and enhanced data protection. With the exception of radiological advice (see below), advisors working on the NNB programmes do not provide scientific advice on related matters to NRW or vice versa. Similarly, internal project management and governance of the relationships respectively with NRW and NNB developers have always been maintained separately within Cefas.

The potential for actual or perceived conflicts of interest are actively reviewed internally within Cefas and externally with relevant customers. In the instance of Hinkley Point C Power Station, the area in which a perceived conflict of interest could exist is very narrow, being confined only to advice sought by NRW of Cefas on licences for disposal of dredged material from Hinkley Point in Welsh

Waters. NRW have accepted that the work Cefas has provided to date for both EDF and NRW, specifically in relation to Hinkley Point C dredging activities which require a Welsh Marine Licensing consideration, does not constitute an actual conflict of interest. As such NRW continue to seek advice from Cefas on licensing matters for which they are responsible, associated with Hinkley Point C.

As identified above in regard to radiological advice Dr Kinson Leonard, Head of Radiological Protection at Cefas provides ad-hoc expert advice on radiological matters, on request to a range of national and international organisations including the Welsh Government, NRW, Defra, BEIS, FSA, EA, SEPA, NIEA, FSS, IAEA, NEA, and the Cefas Nuclear Programme. Dr Leonard is an internationally respected scientist in the field of Radiological Protection. He has authored reports that detail the analytical methods and results of radiological testing of samples taken from Hinkley Point C dredge areas. The methods and results are put into context and level of risk using international best standards and guidance (IAEA, 2003; McCubbin and Vivian, 2006).

Dr Leonard's impartiality in providing scientific advice is well demonstrated over many years including as principle author of the annually produced report series "Radioactivity in Food and the Environment (RIFE). [http://www.cefas.defra.gov.uk/publications-and-data/scientific-series/radioactivity-in-food-and-the-environment-\(rife\).aspx](http://www.cefas.defra.gov.uk/publications-and-data/scientific-series/radioactivity-in-food-and-the-environment-(rife).aspx), as Vice Chair of OSPAR's Radioactive Substances Committee (with the ultimate goal to assess OSPAR's Strategy for the protection of the marine environment in the North-East Atlantic), as a member of the Editorial Board of the journal "Journal of Radiological Protection" and as an author of over 90 peer reviewed publications related to on environmental radioactivity:

<http://scholar.google.co.uk/citations?user=reHYqm4AAAAJ&hl=en&cstart=80&pagesize=20>.

In addition, he was awarded an Honorary Fellowship (F.Inst.P) by the Institute of Physics for his contribution to Radiological Protection in 2004.

In specifically addressing the additional points raised by the SRG, we offer the following:

1. What are the procedures?

Staff allocation to a particular project task or deliverable is subject to the combination of project need (timing and required knowledge, skills and experience) and the availability of staff who fit the profile. Colleagues who routinely provide Regulatory advice to UK regulators are, through training and experience, alive to the concept of Conflict of Interest (CoI) and the need to avoid either the perception of, or an actual CoI, in the work that they undertake on behalf of Cefas.

Since we have been advising EDF and its prior owners for more than a decade, it is well understood by our cohort of Regulatory advisors that advising both the client and the regulator on a common question should be avoided. Where any uncertainty exists, Cefas management will discuss with UK regulators the situation (as we did with NRW re: the dredge disposal application) and they will decide whether to accept our Regulatory advice or not, or alternatively Cefas may decide to decline the commercial work.

2. How are they enforced?

Cefas have very few commercial relationships advising clients on matters that also relate to our work on Regulatory consents or licences. Currently (and for many years) the only work areas that could give rise to Col has been in the areas of nuclear new build and offshore wind. Because of the very few instances of potential for concern regarding Col, we are able to deal with project issues and any associated risks on a case by case basis, to be assured that we are not operating in a manner that gives rise to the possibility of Col.

3. How does Cefas ensure there is no risk of bias towards the consultancy side?

Cefas operates on a project by project basis and each is delivered on the basis of the agreed scope of work together with the funding available for delivery. To be successful and effective as an organisation, it is imperative that our science, evidence and advice is independent, impartial and when scrutinised through peer or other review is demonstrably “good” science.

It is not in our interests to bias our science outputs toward any particular audience and this is the case for our consultancy work as it is any other. It is, therefore, inherently in our interests to maintain our standards and in doing so our reputation.

Can Cefas, the independent advisory body, clarify whether they will be providing advice to the UK Government regarding the inquiry into the removal of the AFD?

Response:

Cefas have no responsibilities or arrangements to provide advice with regard to this matter. As such Cefas has not and will not be advising UK regulators.

2. As there is evidence of marine mammals, most notably Porpoises that breed at the mouth of the Bristol Channel, has the impact of marine dredging on marine mammals been considered in terms of prey resource, disturbance through noise pollution, and impingement?

Response previously provided.

Has there been any assessment of sprat population within the Bristol Channel and Severn Estuary as the response precludes data from the Bristol Channel Approaches which is a much larger system and isn't really comparable to the complexities of the fisheries within the inner Bristol Channel and Severn Estuary?

Have the fisheries assessments considered that there are smaller, geographically distinct populations of fish species within the inner Bristol Channel and Severn Estuary, such as Herring?

Response:

Yes, local assessments have been also undertaken on the different fish populations found off Hinkley Point. These show no significant effects in all cases including on sprat or herring. The predicted effects of HPC abstraction losses would be lower than they are currently for sprat, herring, twaite and allis shad. i.e. there will be no increase in local fish mortality for these species when HPC becomes operational with the mitigations previously described.

Has the expectation that cetaceans will not be impinged considered that the estuary is used as a nursery ground and therefore some individuals will be juveniles and calves?

Response:

Yes. EDF advise that abstraction of marine mammals into the cooling water (CW) systems at any of their power stations in the UK is an extremely rare event. Very occasionally an individual seal has entered the cooling water systems at some stations, but marine mammals cannot progress beyond the station forebay and therefore cannot be impinged on the fine filtration systems. Once in the forebay seals have either swum back out to sea again (they can easily cope with the water velocities in the tunnels) or an individual that lingered in the forebay has been caught and returned safely to sea.

Marine mammals have much higher swimming speeds than those encountered at the intakes and could easily avoid abstraction and even if individuals were small enough to pass through the intake bars and chose to enter the intake heads they could easily swim out again if they so wished. (The design of the HPC LVSE heads with intake surfaces orthogonal to the tidal current flow reduces the risk of abstraction for all fish and marine mammals compared with traditional omnidirectional intake heads). At Hinkley Point EDF advise that there are no records of porpoise of any size entering the CW system which is as would be expected given their swimming abilities.

No likely significant effect on the conservation objectives for marine mammals are predicted.

3. As the Governmental Advisor on fisheries, what advice would Cefas give regarding the serious concerns raised by Devon and Severn IFCA, regarding the evidence base used for stock assessments provided, uncertainty around the Low Velocity Side Entry System and the request for the removal of the AFD?

Response:

Our advice on the predicted effects of HPC are contained within the comprehensive evidence documents that EDF has submitted for the HPC WDA permit variation. These documents cover the evidence base, the performance of the LVSE intakes, uncertainty analyses, multiple methods of assessment (including local assessments)

and provide assessments with and without impingement mitigations. These documents are based upon the most up to date science and an extensive evidence base.

The use of ICES Stock Boundaries to assess fisheries within the Severn Estuary is considered by a number of stakeholders to be inappropriate due to considerable scientific evidence for complex meta-population structures within the estuary. Have other methods been used for assessment to reflect this?

Response:

Our previous response stated:

“If the HPC losses are assessed as any other fishing activity would be assessed, the predicted effects of HPC on fish populations are negligible. Using an alternative local effects analysis, the effects on local populations have also been assessed as negligible. Indeed for 10 out the 20 assessed fish species including the protected eel, twaite and allis shad, sea and river lamprey the effects of HPC would be substantially lower than they are now.

Under both analyses the effects on fish at Hinkley Point are predicted to be insignificant and have no effect on the integrity of the populations or their long-term sustainability. To put the losses in context they are orders of magnitude less than for commercial fishing, or in some cases than even unwanted fish discards.”

Using internationally recognised methodologies and stock areas we have assessed the effects of HPC on fish populations in the same manner as the much larger effects of fishing would be assessed.

However, we have also conducted completely separate assessments of effects on local populations found near to Hinkley point that do not rely on ICES stock areas. In all cases we have determined that when HPC is operational there will either be no additional effects on fish or that any additional effects would be negligible. In all cases we have concluded that there would be no adverse effects on site integrity.

For information of the SRG, in the related Sizewell C DCO assessment we have also used ICES stock areas in the assessment of power station effects on fish. The Marine Management Organisation stated in their relevant representations: “*The MMO conclude that the use of ICES stock areas for commercial fish species represents the current best scientific evidence available*”.

What are the 20 fish species that have been assessed this way? Why only 20 species?

Response:

It is necessary to assess the effects of HPC on the fish assemblage and each of the HRA designated species. In the past 30+ years a total of 92 fish species have been found in the area off Hinkley Point, however most of these species occur infrequently in very low numbers and are not present in sufficient numbers to play an important role in the functioning of the ecosystem. Taking a functional approach considering

energy flows in the ecosystem, only species that represented more than 1% of the assemblage numbers would be selected. However, this would exclude assessment of the important protected species which are present in much lower numbers.

For the purposes of the HPC impingement assessment, taxa were therefore considered to be important if they met at least one of the following criteria:

- **Socio-economic value**: Species that contribute to the first 95 % of the first sale value of commercially landed finfish in the area off Hinkley Point and contribute to the first 95 % of total impingement abundance. Socio-economic value was calculated using data supplied by the Marine Management Organisation (MMO) and presented in BEEMS Technical Report TR071. **Four taxa (sole, cod, bass and thornback ray). Note: Bass and thornback ray were added post grant of DCO due to the locally important recreational fisheries for both species and the recent international decline in the bass population.**
- **Conservation importance**: The "S41 Priority Species" spreadsheet provided by Natural England (<http://publications.naturalengland.org.uk/publication/4958719460769792>) was used to assess the conservation status of the fishes recorded in Bridgwater Bay. This spreadsheet was based on the legislation in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. It is worth noting that measures in place to provide protection for the named species apply to the adult stock rather than the eggs or larvae, and focus on halting the decline of the spawning stock biomass mainly *via* restriction on exploiting recruited species. **13 taxa (allis shad, twaite shad, European eel, herring, Atlantic cod, whiting, blue whiting, plaice, sole, salmon, sea trout, river lamprey, sea lamprey).**

Note that this list of 13 conservation species contains two taxa which were not detected in the Comprehensive Impingement Monitoring Programme (CIMP) impingement sampling and only rarely during the Routine Impingement Monitoring Programme (RIMP) programme: sea trout (one fish in 37 years) and Atlantic salmon (nine fish in 37 years). Due to their migratory behaviour, neither of these species would be expected to be impinged in any significant numbers at HPB and even less likely at HPC. The predicted impingement numbers in the assessment from the CIMP dataset are therefore zero for both species. Similarly, the numbers of allis shad and river lamprey caught at Hinkley Point (two individuals of each species in the 1-year CIMP programme and zero allis shad and nine river lampreys in the 37-year RIMP programme) were so low that they can be discounted as being part of the fish community vulnerable to impingement at Hinkley Point. However, as these species are all HRA designated species a precautionary assessment was provided to put these rare impingement events into a population context using the available data from the CIMP or RIMP datasets.

- Ecological importance: Abundant species that play a key trophic role within the ecosystem. From the HPB CIMP impingement data the four most abundant fish species at HPB were sprat (*Sprattus sprattus*), whiting (*Merlangius merlangus*), Dover sole (*Solea solea*) and cod (*Gadus morhua*) These four species accounted for 88% of the measured annual fish impingement numbers. Three additional species were included to ensure that the assessment included those species which constituted 95% of the measured impingement (thin lipped grey mullet, flounder, five-bearded rockling). Sand Goby was also added to the list due to its importance as a prey species for many piscivorous fish and its high abundance in many years. Finally, the brown shrimp *Crangon crangon* was added to the list due to its importance in the Bridgwater Bay foodweb. **Nine taxa (sprat, whiting, sole, cod, thin lipped grey mullet, flounder, five-bearded rockling, sand goby and the brown shrimp).**

These criteria produced the list of 20 fish species plus brown shrimp. It was agreed with stakeholders that these species are representative of the fish assemblage at Hinkley Point because:

- a. they represent 98.3% of the total fish impingement numbers during the CIMP programme;
- b. they contain all of the conservation species listed as HRA interest features;
- c. they contain examples from all functional guilds with the exception of freshwater species which, as would be expected, are rarely found at Hinkley Point;
- d. they contain examples from all feeding guilds and habitat groups; and
- e. they contain all of the indicator species found at Hinkley Point that are assessed in the WFD “fish” biological quality element in transitional waters.

The list contains 6 additional species that were not assessed in the HPC Environmental Statement (ES), WFD and shadow HRA (bass, thornback ray, mullet, flounder, five-bearded rockling and sand goby).

Over what period of years of impingement data at HPB are you using to quantify fish stocks that cannot be measured quantitatively? Can you provide the monitoring protocol used for this time series and identify any changes in a) that protocol and b) providers of this monitoring that have been made during that period?

Response:

37 years data from the Routine Impingement Monitoring Programme (RIMP) conducted at HPB since 1981 using the same protocol and contractor. See Henderson and Holmes 1989.J. Fish. Biol. 34, 409-416.

Given that Cefas is not qualified in defining acceptable limits of damage to European sites and the policy implications of such definitions, can you define what you mean by the term ‘negligible’ when describing impacts on the interest features of the Special Area of Conservation (SAC)? In particular, can you identify what you have done to

identify those areas of European case law that substantiate, or do not support, your threshold of impact on the interest features of the SAC?

Response:

As stated previously, Cefas has no regulatory role in the HPC assessment and acts as marine evidence advisor to EDF Energy. Under the Habitats Regulations the Competent Authority (as defined in the Regulations) undertakes an Appropriate Assessment where Likely Significant Effects cannot be scoped out using evidence provided by the developer and as advised by stakeholders in what is sometimes called a shadow HRA.

Whilst Cefas is not the 'Competent Authority' at Hinkley Point, Cefas staff are expert in assessing and undertaking assessments under the Habitats Regulations, in particular in determining what evidence needs to be provided to meet the needs of the Appropriate Assessment and in assessing effects against the specific conservation objectives for a site in accordance with current case law.

Quantitative thresholds for what constitutes an adverse effect to site integrity are not defined for fish in the SAC in the associated conservation objectives. For the Hinkley Point Assessment Cefas was requested to provide the fish evidence base, the HRA assessment was produced by another contractor using our evidence base. To avoid duplication, we therefore deliberately avoided using the language of an HRA assessment. Where we used the term negligible, the effects have been assessed based upon internationally accepted fisheries science best practice and associated ecological theory and are based upon ensuring no effect on the year to year sustainability of the assemblage and the individual Annex II species. In practice, our use of negligible in the HPC assessment would equate to no adverse effects on the conservation objectives of the site due to HPC i.e. no adverse effects on site integrity

Our local assessment predicts no increase in effects when HPC becomes operational for the Annex II species river and sea lamprey, allis shad and twaite shad and, as described in our previous response, an ecologically negligible increase in effect for the rarely impinged sea trout and salmon that would have no adverse effect on the sustainability of those species.

The SAC conservation objectives do not provide any thresholds to aid with the assessment of the fish assemblage. HPB monitoring evidence clearly shows the dynamic nature of the fish assemblage and how it has evolved with time in response to wide area anthropogenic change. However, whilst relative fish abundances have changed with time, the assemblage itself has been relatively stable and resilient. There has been no trend in the number of species caught per year (but some of the species in that list have changed over time) and number of species at each functional level has remained stable with abundances increasing for many of the most abundant species.

We have considered functional ecology by ensuring that our selection of species for assessment included examples from all functional guilds (with the exception of freshwater species which are not found at Hinkley Point), all feeding guilds and habitat groups, all of the indicator species assessed in the WFD fish biological quality element and the key prey species at the base of the food chain. In all cases we either determined no additional effect when HPC becomes operational or a negligible effect that would have no effect on the sustainability of each species. Our assessments have concluded that there would be very small local effects on fish abundance within the modelled tidal extent of the intake abstraction with negligible impact beyond that very localised effect. In all cases we also found no significant effects on local HRA designated bird and marine mammal species that rely on fish prey.

We have concluded no adverse effects on the assemblage nor the listed Annex II species and consider that this conclusion is fully supported by the evidence and is precautionary.

4. Could Cefas explain barotrauma and why the precautionary approach is being suggested as the best option for this?

Response previously provided.

There is a mention of the “fish’s acclimation depth” and how this affects the “risk of pressure-related injury”. Could you please clarify how the risk is then altered during different states of the tide – for example, is the risk much greater for those fish entrapped during a high tide?

Response:

The risk of barotrauma for those demersal species susceptible to pressure change damage is proportional to differential pressure between that at the intake depth and that at the forebay. That pressure change would be highest at high tide and lowest at low tide. At high tide many fish species would be feeding on the Bridgwater Bay mudflats and therefore impingement risk at Hinkley Point is lowest at high tide and highest at low tide when fish have been forced into deeper water by the falling tide. In terms of overall scale of impact this is not considered to be an important consideration.

Some of the content within your response is identical to content provided by EDF in their response – could you please explain this?

Response:

As EDF’s advisor on such marine environment matters we drafted both responses as the questions in the 2 sections were essentially identical. As we have stated previously, for transparency we have shared our responses with EDF.

5. As the Fish Recovery and Return System at HPC is a theoretical system – i.e. one that does not exist elsewhere - are you confident that its impacts have been modelled with, and without the AFD, and how this would impact fish populations within the Severn?

The design that achieved regulatory approval included an AFD, and there has been no approval for one without. Please could the question be answered as regards modelling and the estimated differences in impact for the system with the AFD, and without.

Could you please clarify the statement regarding the expected performance of the FRR system as it suggests that expectations are based on a system that is not comparable?

Response:

We have previously responded to the comment about the theoretical status of the FRR system. The performance figures that we have used are conservative based upon measurements made on a much earlier system. Better performance was achieved at the modified trash return system at Sizewell B. The HPC system is a more advanced design that Regulators have agreed complies with current regulatory guidelines for the design of FRR systems. In addition, in our assessments we have provided calculations for HPC with and without the various levels of mitigation so that the relative impacts and associated effects can clearly be understood.

The design of the FRR system that achieved regulatory approval at Hinkley Point did not cover the design of the AFD system and contained no design assumptions or reliance on the availability of an AFD system at HPC.

After inspection of the HPC system design it is clear that the performance of the HPC FRR system will not be affected by not fitting an AFD. The FRR system is dimensioned to handle much larger numbers of fish than those predicted at Hinkley Point as would be expected to ensure maximum fish survival and also the continuous operation of the station without unplanned outages which would adversely affect electricity consumers.

Annex 1. Cefas' response to questions raised by the Hinkley Point C Expert Stakeholder Reference Group

15 October 2020

Cefas is pleased to respond to the questions from the Welsh First Minister's Hinkley Point C Expert Stakeholder Reference Group (SRG) and offers the Group its full support.

This document provides Cefas' consolidated responses to the specific questions raised by the SRG which we hope will provide a useful basis for discussion at the planned meeting on 19 October 2020. . In addition to the SRG, and to ensure full transparency, the document has been shared with Natural Resources Wales and EDF Energy (NNB GenCo (HPC Ltd)).

Authors in Cefas who have provided these responses are as follows:

- David Carlin, Science Director
- Brian Robinson, Nuclear Programme Director (leading the advisory contract for EDF Energy)
- Kins Leonard, Head of Radiological Protection
- Jemma Lonsdale, Senior Scientist – Marine Regulation

Upon reflection, there have been two instances where Cefas considered the order in which the questions were asked might usefully be modified. These instances are clearly highlighted against the respective question.

- 1. The Group has been told of concerns that Cefas, by working as both the Governmental Advisory Body and having direct private contracts with EDF, may have a conflict of interest. The NRW pre-application advice to EDF states that “*Cefas adhere to strict procedures which limits contact between colleagues working on such projects*”. Could you please elaborate on what these procedures are, how are they enforced and how does Cefas ensure there is no risk of bias towards the consultancy side?**

It is more helpful in providing context to provide a response to this question first.

David Carlin will cover this question during the meeting.

Cefas, is an executive agency of Defra (Department for Environment, Food and Rural Affairs). The model for Executive Agencies of UK Government departments is to seek activity with other Government Departments, Overseas Governments or Industry which enable any spare capacity of its skills, expertise and capability to be used, thus enabling the overall cost to the tax payer to be lower. Cefas became an Executive Agency in 1997.

Cefas has no policy or regulatory remit (with the exception of devolved responsibility in the Fish Health Inspectorate based from our Weymouth laboratory). Its purpose is to provide Defra and its wider customers with impartial scientific data, evidence, research outputs and advice. In all cases, it is for Cefas' customers to choose how, when and if to use the outputs Cefas has been commissioned to provide. Much of Cefas outputs are peer reviewed or subject to wider scientific scrutiny including a quinquennial review of Cefas science quality.

Cefas has worked with NRW since its inception providing advice, at NRW's request, on marine licencing matters. Cefas also work with the Welsh Government on a range of matters including marine planning.

In 2007, Cefas were engaged by British Energy to work on the UK programme of new nuclear builds, providing marine science expertise, research and data. This engagement was subject to approval by Cefas' parent Department, Defra. Cefas has subsequently continued to work on NNB programmes, including working with NNB GenCo (HPC Ltd), the developer of the Hinkley Point C Power Station.

Throughout Cefas' relationship with NNB developers, the programme of work has been subject to strong internal mechanisms including "ring fencing" of colleagues to work on the programme and enhanced data protection. With the exception of radiological advice (see below), advisors working on the NNB programmes do not provide scientific advice on related matters to NRW or vice versa. Similarly, internal project management and governance of the relationships respectively with NRW and NNB developers have always been maintained separately within Cefas.

The potential for actual or perceived conflicts of interest are actively reviewed internally within Cefas and externally with relevant customers. In the instance of Hinkley Point C Power Station, the area in which a perceived conflict of interest could exist is very narrow, being confined only to advice sought by NRW of Cefas on licences for disposal of dredged material from Hinkley Point in Welsh Waters. NRW have accepted that the work Cefas has provided to date for both EDF and NRW, specifically in relation to Hinkley Point C dredging activities which require a Welsh Marine Licensing consideration, does not constitute an actual conflict of interest. As such NRW continue to seek advice from Cefas on licensing matters for which they are responsible, associated with Hinkley Point C.

As identified above in regard to radiological advice Dr Kinson Leonard, Head of Radiological Protection at Cefas provides ad-hoc expert advice on radiological matters, on request to a range of national and international organisations including the Welsh Government, NRW, Defra, BEIS, FSA, EA, SEPA, NIEA, FSS, IAEA, NEA, and the Cefas Nuclear Programme. Dr Leonard is an internationally respected scientist in the field of Radiological Protection. He has authored reports that detail the analytical methods and results of radiological testing of samples taken from Hinkley Point C dredge areas. The methods and results are put into context and level of risk using international best standards and guidance (IAEA, 2003; McCubbin and Vivian, 2006).

Dr Leonard's impartiality in providing scientific advice is well demonstrated over many years including as principle author of the annually produced report series "Radioactivity in Food and the Environment (RIFE). [http://www.cefes.defra.gov.uk/publications-and-data/scientific-series/radioactivity-in-food-and-the-environment-\(rife\).aspx](http://www.cefes.defra.gov.uk/publications-and-data/scientific-series/radioactivity-in-food-and-the-environment-(rife).aspx), as Vice Chair of OSPAR's Radioactive Substances Committee (with the ultimate goal to assess OSPAR's Strategy for the protection of the marine environment in the North-East Atlantic), as a member of the Editorial Board of the journal "Journal of Radiological Protection" and as an author of over 90 peer reviewed publications related to on environmental radioactivity:

<http://scholar.google.co.uk/citations?user=reHYqm4AAAAJ&hl=en&cstart=80&pagesize=20>.

In addition, he was awarded an Honorary Fellowship (F.Inst.P) by the Institute of Physics for his contribution to Radiological Protection in 2004.

2. As there is evidence of marine mammals, most notably porpoises who breed at the mouth of the Bristol Channel, using the estuary as far as the Parrett, has the impact (of marine dredging?) on marine mammals been considered in terms of prey resource, disturbance through noise pollution, and impingement?

Brian Robinson will cover this question during the meeting.

As part of the baseline surveys used to inform the DCO application for HPC, long duration acoustic surveys using fixed arrays of underwater monitoring devices were deployed to measure the spatial and seasonal distribution of harbour porpoise which are present within the construction zone for HPC underwater infrastructure.

Effects of Underwater noise

For HPC EDF has been required to assess the effects of underwater noise from activities which could generate high levels of impulsive noise which are known to have potentially damaging effects on cetaceans (in particular harbour porpoise):

- the construction of the HPC temporary aggregates jetty which involved the insertion of piles into the seabed; and
- the clearance of unexploded ordnance during the construction of the HPC intakes/outfalls

EDF's dredging activities at Hinkley Point are regulated via Marine Licences that have been issued by the Marine Management Organisation and as part of that process EDF was not required to assess the underwater noise effects of dredging on cetaceans. Dredging activities emit sounds that are continuous in nature and comparatively low in frequency and intensity. Because of the nature of the underwater noise and the short duration of dredging events such activities produce low environmental impacts in terms of instantaneous or cumulative exposure that did not give rise to regulatory concern compared with impulsive noise sources such as that from piling.

Prey of harbour porpoise

The effects of cooling water abstraction on the prey of harbour porpoise has been assessed for HPC. Sprat is a small pelagic species that is the most abundant species at Hinkley Point (at nearly 50% of the impingement numbers) and it is predated on by many species in the estuary including harbour porpoise. In October 2014 the biomass of the sprat population in the Bristol Channel Approaches (that migrates in and out of the Bristol Channel in November – January) was assessed at 57,200 t by Cefas as part an internationally coordinated programme (PELTIC survey) or approximately 25 billion fish; predominantly juveniles. Annual impingement at HPC (with the planned impingement mitigation measures of low velocity side entry intake heads) was estimated at 744,000 million fish at that time i.e. 0.003% of the number of fish in the population in the Bristol Channel Approaches.

The ecological effect of such impingement levels was assessed as negligible given, for example, the measured natural variability in sprat numbers in the Bristol Channel approaches of 560% between 2013 and 2015 to which predators are already adapted. Due to their abundance sprat are major source of prey for local piscivorous fish and for harbour porpoise. To put the annual HPC sprat impingement losses into context it is equivalent to the annual dietary requirement of between 1 and 6 harbour porpoises based upon reported dietary requirements of 750 – 3250g fish per day.

Impingement

Impingement effects on fish have been assessed (e.g. see above). Cetaceans are not expected to be impinged at HPC due to the use of protective bars in front of the intake surfaces.

- 3. As the Governmental Advisory on fisheries, what advice would Cefas give regarding the serious concerns raised by another English governmental body, Devon and Severn IFCA (who adaptively manage the fisheries of the Severn Estuary and Bristol Channel on the English side), regarding the evidence base used for stock assessments provided, uncertainty around the Low Velocity Side Entry System and the request for removal of the AFD?**

Brian Robinson will cover this question during the meeting.

Cefas was established in 1902 and is an international leader in marine and freshwater science. We provide an extensive range of independent advisory, research and monitoring services to Government, to overseas administrations, international bodies and to a range of commercial clients working on strategic infrastructure projects. We provide the role of chief fisheries science advisor to Defra and play an active role in the International Council for the Exploration of the Sea (ICES), the leading centre of fisheries science in the North Atlantic region. Many of our fisheries scientists are international experts in their fields and chair ICES fish stock assessment working groups and have provided senior science management roles in ICES including roles such as vice president, chief scientist and members of advisory committees that formulate advice for Governments. For Hinkley Point C we have provided evidence led scientific assessments on the effect of the power station on fish populations since 2008 and in particular we have worked with the developer's engineering team to help to design out environmental impacts as far as possible. We do not provide any fisheries advice to Government or regulatory bodies on the effects of HPC on fish populations. Our work for the HPC developer is open and transparent and we have provided our raw data and analyses to regulators so that they can independently review our assessments. A summary of our assessment approach for the effects of HPC (without an AFD fitted) on fish populations is provided below but in summary we have advised that if the HPC losses are assessed as any other fishing activity would be assessed, the predicted effects of HPC on fish populations are negligible. Using an alternative local effects analysis, the effects on local populations are also assessed as negligible. Indeed for 10 out of the 20 assessed fish species including the protected eel, twaite and allis shad, sea and river lamprey the effects of HPC would be substantially lower than they are now.

The abstraction of fish by HPC is analogous to commercial fishing, albeit at a much lower level of impact. It is therefore appropriate that the effects on fish are assessed using internationally accepted fisheries science methods. Fish stocks in the Northeast Atlantic are managed partly through the EU Common Fisheries Policy (CFP), whose objective is to maintain or rebuild fish stocks to levels that can produce their maximum sustainable yield (MSY). The International Council for the Exploration of the Sea (ICES) advises public authorities with competence for marine management including the European Commission (EC).

ICES' advice is produced through a process which is set up to ensure that the advice is based on the best available science and data, is considered legitimate by both authorities and stakeholders and is relevant and operational in relation to the policy in question.

The basis for the advice is the compilation of relevant data and analysis by experts in the field, normally through an expert group which includes core researchers in the field. This analysis is peer reviewed by scientists who have not been involved in the expert group and have no direct interest in the matter.

To support the stock by stock management system, ICES provides advice on fishing opportunities and stock status for individual stocks including estimates of Spawning Stock Biomass (SSB). To undertake their stock assessments ICES' scientists have identified biological stock areas that describe the distribution of a stock. These may be different from the areas defined by the EU, for example, for the management of fishing quotas and technical measures. Identification of appropriate stock boundaries has been a central theme of ICES' coordinated effort since its formation in 1902 and major advances in understanding have, and continue to be, made.

ICES stock assessments are conducted on the basis of the precautionary principle and the central theme is that fisheries should be managed such that stocks can be sustainably harvested on a year to year basis indefinitely.

In its assessment of the potential effects of HPC on fish populations, and as would be expected of us, Cefas has strictly followed the evidence, using up to date science and evidence together with fisheries science methodologies that are proportionate to the scale of effect. Our approach has been peer reviewed by leading ICES scientists who have not been involved in the assessments and found to be both evidence based and sound. A quantitative effects assessment found that the effects of HPC, without an Acoustic Fish deterrent (AFD) system fitted, on 20 representative fish species at Hinkley Point (including all of the Habitats Regulation/ Ramsar designated fish species) was negligible. The assessment methodologies employed align with up to date fisheries science but are admittedly complex for non-specialists. The results are also best estimates and do have associated uncertainty around the central predictions. Our fish assessment report has quantified these uncertainties but the conclusion of negligible effects remains.

As part of the Habitats Regulation Assessment, it is necessary to assess the effects of HPC on the local fish assemblage in the Special Area of Conservation (SAC). Consultees have expressed concern that the local fish assemblage (i.e. those in the SAC) may have their own dynamics that are significantly different from the population in the accepted ICES stock definitions. It should be noted that 11 of the 20 fish species in the HPC fish assessment referred to above already involve a local population assessment. An alternative assessment has been prepared to consider local effects that does not involve the complexities and associated uncertainties of the full assessment methodology.

The first step of this method was to consider whether there would be any increase in effects to fish when HPC is commissioned. In addition to the embedded impingement mitigations fitted to HPC (LVSE intake heads, FRR system) an important additional mitigation is that Hinkley Point B will cease operation before HPC becomes operational. A straight forward analysis shows that once HPC is operational and with only LVSE heads fitted (and using conservative assumptions about the performance of such heads) , local fish losses would be substantially lower than the case now for sprat, herring, twaite and allis shad. i.e. when HPC becomes operational there will no increase in local fish mortality for these species. Including the effects of the HPC FRR, fish losses would be lower than they are now for 10 species including for the migratory species eels, sea lamprey and river lamprey.

For many populations stock assessment scientists do not have the information to perform a fully quantitative assessment but there are well proven techniques to substantially manage such data poor populations. A frequently employed technique is to make use of trends in fishery catch data and to set fishing mortality so that it does not cause a year to year decline in fish populations. I.e. fishing mortality is then fully sustainable and approximates to the maximum sustainable yield.

The data to do such an analysis already exists at Hinkley Point from the 37-year time series of HPB impingement data. The trend in impingement numbers have been compared before and after the closure of Hinkley Point A (HPA) in 2000 which had an abstraction of 44 cumecs with no impingement mitigation measures fitted. If the local fish assemblage was sensitive to a change in 44 cumecs this would show up in the impingement trends. In fact, no such change is found for any species. I.e. the local assemblage is not sensitive to an additional 44 cumecs of impingement pressure. This is exactly what would have been predicted from the full fish assessment for HPC where the effect of an abstraction of 44 cumecs or 30% more than the existing HPB would be predicted to be negligible for all species and therefore no effect would have been expected to be seen in the impingement data.

The only caveats to this analysis are for sea trout and salmon where there have been so few fish abstracted by HPB that it is not possible to undertake a statistically valid trend analysis.

Sea trout

Sea trout impingement at Hinkley Point is exceptionally rare with only 1 fish caught during the 37-year impingement monitoring record at HPB and none caught during the high intensity impingement measurement campaign in 2009. This is to be expected given that the evidence from tracking studies is that sea trout preferentially migrate in surface waters in the main channel of an estuary. The location and design of the HPC intakes would mean that sea trout impingement would be expected to be even rarer at HPC. An indicative quantitative assessment was undertaken by scaling up the one fish caught to HPC and the effects on the local population were predicted to negligible.

Salmon

Only 3 adult fish have been caught in the 37-year HPB impingement monitoring programme. These adults were kelts (adults returning to sea after spawning i.e. after making their contribution to the future SSB). Only 2-5% of salmon survive spawning to

return to sea in poor condition and it is not known whether they successfully breed again. There were an additional 6 juvenile fish (parr and smolts) but in any quantitative assessment the inclusion of these juvenile fish would have a negligible effect due to the scaling to the number of adults (via a natural mortality calculation) and it is only the 3 adults that are relevant to the stock effect calculation.

The last adult salmon caught at HPB was in 2002. Using a questionable and highly precautionary extrapolation of the data from 2002 and earlier, the predicted annual losses of salmon due to HPC are between 0.8 to 1.4 adult salmon per year. Such losses were assessed as negligible and no matter how the assessment parameters are altered the prediction for the number of fish lost remains very low. Even assessing the losses against the adult spawning population could be considered to be questionable because as the fish have already spawned and are in poor condition, they could reasonably be expected to have a low probability of successfully spawning again.

Conclusions

If the HPC losses are assessed as any other fishing activity would be assessed, the predicted effects of HPC on fish populations are negligible. Using an alternative local effects analysis, the effects on local populations are also assessed as negligible. Indeed for 10 out of the 20 assessed fish species including the protected eel, twaite and allis shad, sea and river lamprey the effects of HPC would be substantially lower than they are now.

Under both analyses the effects on fish at Hinkley Point are predicted to be insignificant and have no effect on the integrity of the populations or their long term sustainability. To put the losses in context they are orders of magnitude less than for commercial fishing, or in some cases than even unwanted fish discards.

4. Could Cefas explain barotrauma and why the precautionary approach is being suggested as the best option for this?

Brian Robinson will cover this question during the meeting.

Barotrauma is the potential injury to some species of fish caused by the change in pressure that they experience between abstraction at the power station intakes and subsequent recovery from the fine filtration systems into the Fish Recovery and Return (FRR) system. Rapid changes in pressure are potentially damaging for fish that maintain the volume of their swimbladders, because the air expands (or contracts) rapidly (normally more quickly than the fish can compensate) potentially causing damage, or even rupturing, of the swimbladder. Within the fish species possessing a swimbladder, a distinction can be made between those with a ducted connection between the swimbladder and the external water (known as physostomes), and those with a sealed swimbladder, whose volume can only be modulated slowly by vascular gas exchange (physoclists). This limitation makes physoclists vulnerable to rapid pressure reductions; a halving of pressure for example causing a doubling of gas volume (Boyle's law) and associated expansion of the swimbladder potentially causing tissue to rupture dependent upon how adapted the species is to pressure change.

Accordingly, not all fish species suffer from pressure change injuries after abstraction in cooling water intakes. Pelagic species, such as herring and sprat, do not gain any appreciable benefit from FRR systems as these species experience significant scale loss

when they are impinged on the filtration screens and as a result have low survival rates. Epibenthic species such flatfish (e.g. plaice and sole) have a vestigial swimbladder and do not show signs of pressure damage. Eel, have a swimbladder that vents to the gut and are tolerant of pressure change and so are also not affected. Gadoids (e.g. cod and whiting) are the species potentially most affected by pressure change, but not all gadoids are equally affected.

The effect of descending a tunnel from the seabed mounted intakes is to increase the hydrostatic pressure. This causes the swimbladder to compress and is not injurious. Rising back to the starting depth at the onshore end of the tunnel simply restores the swimbladder volume and again should not lead to injury (Physoclist species do not have time to adjust the swimbladder pressure during transit). The risk of pressure-related injury is therefore related to differences between the original acclimation pressure of the fish (based on the depth from which they were drawn into the intake) and atmospheric pressure as fish are lifted from the water by the fine screens. As an example, if the fish's acclimation depth was 10 m (1 bar pressure due to water + 1 bar atmospheric = 2 bar absolute), bringing the fish to atmospheric pressure (1 bar absolute) would halve the pressure and double the swimbladder gas volume under perfect elasticity, but since swimbladders are not perfectly elastic there is a risk of rupture for physoclists. Hence the depth of the tunnel per se is not considered to affect barotrauma risk.

The Environment Agency provides no specific criteria or recommendations for the design and effects of the intake tunnels (or shafts) in their guidelines for the design of FRR systems. However, during their scrutiny of the HPC FRR design, detailed discussions took place to ensure that the system was optimised to maximise fish survival. Environment Agency guidance provides precautionary survival rates for fish collected from drum or band screens based at studies at power stations including Sizewell B and Le Blayais (Gironde Estuary, France). Both stations have offshore intakes with deep tunnels and the recorded survival include any effects related to pressure change. Estimates of post-impingement survival in the Hinkley C FRR system are based on these figures (e.g. 50% for cod and whiting) and, therefore, already take into account pressure-related effects in the tunnels and forebay on fish survival.

It is not possible to mitigate for this effect other than by incorporating technology to reduce fish abstraction. At Hinkley Point C this is provided by the use of LVSE intakes.

5. As the Fish Recovery and Return System at HPC is a theoretical system – i.e. one that does not exist elsewhere - are you confident that its impacts have been modelled with, and without the AFD, and how this would impact fish populations within the Severn?

Brian Robinson will cover this question during the meeting.

As part of its post DCO legal obligations EDF was required to agree the design of the HPC FRR system to discharge DCO requirement CW1 (Paragraph 1) and Marine Licence Condition 5.2.31. These obligations have been met and the design has achieved regulatory approval.

The HPC FRR system has been engineered in close consultation with the Environment Agency to fully meet their guidelines for such systems. The design of the cooling water system for each station is indeed unique but there are an exacting set of requirements that developers have to meet to achieve regulatory approval for the design which have been selected to ensure maximum survival of impinged fish based upon operational experience at conventional and nuclear power stations. These criteria are not theoretical and have been evolved over more than 30 years of industry experience in the UK, Europe and the USA.

The expected performance of the FRR system has been taken from Environment Agency guidance which is in turn based upon fish survival measurements at operational power stations. These figures are largely based upon results achieved at SZB where an early example of an FRR system was fitted. In reality this system was a trash return system that had design enhancements to improve the survival of juvenile sole at Sizewell. This was the first attempt at producing an FRR system in the UK and was not comparable to the design measures that have been incorporated in HPC. The fish survival rates achieved at SZB were greater than those used in the precautionary EA guidelines. The performance of the HPC FRR system is independent of other impingement mitigation measures in that the system has been designed to function as predicted under all environmental conditions expected at Hinkley Point.

General point: The cooling water predictions are critical to the impacts in the Bristol Channel and Severn Estuary on the hydro-ecology, water quality and fish migratory pathways, as a result of the relatively large volume of water being circulated through the intake-outlet, with our understanding of the typical flow-through discharge and temperature rises being 125 m³/s and 12°C respectively. These are significant values and our general questions would relate to the modelling concerns outlined below:

Brian Robinson will cover this group of questions during the meeting.

The HPC cooling water discharge produces will produce thermal and chemical plumes which were evaluated in detail in a series of technical reports that were presented to Hinkley Point Marine Technical Forum (MTF) which consisted of regulators, statutory nature conservation bodies and other stakeholders prior to and during the HPC DCO examination period and Water Discharge Activity (WDA) permit consultation. Welsh interests on the MTF at that time were covered by the Environment Agency Wales and the Countryside Council for Wales (CCW). The proposed HPC discharges were found to have no significant effects on the marine environment and were permitted in 2013 under an operational WDA permit by the Environment Agency.

(i) What was the resolution of the vertical grid size in the region of the outfall (particularly the surface layer)? How was the outfall modelled in the Delft 3-D model? Was grid dependency checked (in the vertical plane)? 8 vertical layers does not seem sufficient to me for a study of this significance.

Eight vertical layers were used in the Delft 3D model with each layer representing a fixed proportion of the local water depth (i.e. sigma coordinate approach). The layer thickness was increased towards the bed, providing the maximum resolution in the surface layers, which

contain the majority of the buoyant thermal plume. The percentage thickness for the eight layers from the surface to the bed were 2%, 3%, 5%, 7%, 10%, 15%, 23% and 35%, respectively.” As the model is using a sigma coordinate system, the vertical grid size will vary with the state of the tide but remains a fixed proportion of the water column. At the Hinkley Point C outfall the model surface layer thickness was approximately 0.2m at mean sea level.

Plume modelling at Hinkley Point followed a modelling strategy which was agreed with the Environment Agency. Two models were set up using different modelling software (Delft-3D and GETM) by different modelling organisations and each model was subject to extensive validation from a hydrodynamic and thermal perspective. Particular attention was paid to thermal validation which was undertaken by comparison with measurements from the adjacent HPB power station thermal plume and from in situ oceanographic survey data. Both models reproduced the HPB thermal plume well but after a detailed intercomparison, the results of which were agreed with the Environment Agency, the GETM model was selected for the final HPC assessments on the basis of the accuracy of the validation results.

The GETM model used 15 equidistant layers, again using a sigma coordinate approach. At the Hinkley Point C outfall the model surface layer thickness was approximately 0.7m at mean sea level. Whilst vertical resolution is important for the vertical dispersion of heat, what is more important is the initial mixing conditions. Near field modelling using the CORMIX mixing zone modelling software (as recommended by the Environment Agency) was used to demonstrate the suitability of the GETM initial mixing conditions.

(ii) Can you give some general details of the GETM model? This model is new to me.

The General Estuarine Transport Model (GETM) is 3D baroclinic hydrodynamic model which is a primitive-equation, fully baroclinic, hydrostatic, free-surface ocean model using general vertical coordinates (Burchard and Bolding, 2002). Full details of the software and its implementation can be found at www.getm.eu. The turbulence model used is the $k - \epsilon$, which is used via implementation of the GOTM (General Ocean Turbulence Model, see www.gotm.net) into GETM, solving the vertical mixing for every layer in water column, e.g. processes such as the logarithmic law of the wall, turbulence suppression by stratification, wind mixing and entrainment. This modelling software has been extensively used to represent shelf seas and coastal regional models (Purkiani et al., 2015; Staneva et al., 2016; Pätsch et al., 2017). It has also been extensively used for large scale infrastructure projects in Europe including HPC and the proposed Sizewell C nuclear power stations. The model is in the public domain and has an active development group. It was designed to operate on very large computing clusters such that the computationally demanding models such as that required for HPC could be run in practical elapsed times

Burchard, H., Bolding, K., 2002. GETM , A General Estuarine Transport Model : Scientific Documentation.

Pätsch, J., Burchard, H., Dieterich, C., Gräwe, U., Gröger, M., Mathis, M., Kapitza, H., Bersch, M., Moll, A., Pohlmann, T., Su, J., Ho-Hagemann, H.T.M., Schulz, A., Elizalde, A., Eden, C., 2017. An evaluation of the North Sea circulation in global and regional models relevant for ecosystem simulations. *Ocean Model.* 116, 70–95. doi:10.1016/J.OCEMOD.2017.06.005

Purkiani, K., Becherer, J., Flöser, G., Gräwe, U., Mohrholz, V., Schuttelaars, H.M., Burchard, H., 2015. Numerical analysis of stratification and destratification processes in a tidally energetic inlet with an ebb tidal delta. *J. Geophys. Res. Ocean.* 120, 225–243. doi:10.1002/2014JC010325

Staneva, J., Wahle, K., Günther, H., Stanev, E., 2016. Coupling of wave and circulation models in coastal–ocean predicting systems: a case study for the German Bight. *Ocean Sci.* 12, 797–806. doi:10.5194/os-12-797-2016

(iii) Can you give more details on the heat transfer source/sink term and how irradiance, ambient air temperatures and wind effects etc. were included in the source/sink term?

GETM utilises a full heat flux model and as such requires atmospheric data to drive the momentum and heat exchange at the air-sea interface. Meteorological forcing has been provided from the European Centre for Medium-Range Weather Forecasts (ECMWF) atmospheric reanalysis product. For meteorological forcing, data has been extracted at hourly frequency, at a resolution of 0.25 degrees, i.e. the meteorological forcing is spatially and temporally varying. Variables provided for forcing here include air pressure, dew-point temperature, temperature at 2m above the sea level, air pressure, total cloud cover and the eastward and northward wind components at 10m elevation. This enables surface heat fluxes to be calculated, as well as the impact of wind stress on ocean currents.

(iv) Were sensitivity tests undertaken for the kinetic decay rates used in the TRO studies (page 57)? The k_2 value of 0.013 s⁻¹ equates to a T50 value of 53 s according to my calculations. This means that the Cl level decays by 50% in less than a minute!

Most coastal power stations require continuous dosing of the abstracted seawater to prevent the growth of marine organisms within the power station's cooling water systems. However, chlorination is not required at Hinkley Point due to the prevailing environmental conditions which are unfavourable to the growth of biofouling organisms. There are, therefore, no plans to use chlorination at HPC unless the environmental conditions change substantially from what they are currently.

Studies were nevertheless undertaken to assess what the marine environmental effects of chlorination would be if it were applied in future. Chlorination produces short lived bromine based chemicals that are assessed as levels of total residual oxidants (TROs). TROs have a short half-life in the marine environment. After dosing there is an initial rapid decay of TRO (instantaneous chlorine demand) followed by a slower exponential decay. The instantaneous chlorine demand occurs at a similar rate despite changing initial doses of chlorine. Upon dilution there are additional demand reactions that enhance the rate of TRO decrease above that expected by simple dilution alone. The suspended solids concentration of the water reduces both the demand and decay of TRO.

The decay dynamics of chlorinated seawater from Hinkley Point were assessed in series of laboratory studies whereby the decay constants were derived by fitting a model to experimental data of TRO decay. The model includes the effect of demand, decay and dilution. Multiple initial dosing conditions were tested along with the effect of turbidity.

The quoted k_2 value is but one of the decay constants, the units of k_2 are misquoted in the question ($k_2 = 0.013 \text{ s}^{-1} (\text{mg l}^{-1})^{-2}$) and apparently it has been assumed that the process is 1st order decay. The model includes the effect of demand, decay and dilution. At concentrations around 1-2mg/l the T50 calculation gives broadly correct timescales for the demand part of the process. The T50 calculation applied is only valid for 1st order decay, which is not what is implemented in the demand part of the model. The model implements a higher order rate law to take account of the weaker demand behaviour (and slower decreases in concentration) observed at the lower concentrations more representative of those at point of discharge. Furthermore, this relates to the clear water samples. The half-life of these conditions is 784 seconds or approximately 13 minutes. However, for the HPC TRO plume modelling assessment, the values derived for the turbid conditions were taken forward as these better represent the background conditions at Hinkley Point.

(v) The predicted DO levels along much of the Welsh coast are typically only 6 mg/l (page 76). This figure worries me and is only just about the accepted survival level of 5 mg/l for most estuarine fish species.

Thermal plume predictions indicate that temperature elevations of above 1°C only occur in close proximity to the English coast in the vicinity of Hinkley Point with negligible effect in Welsh waters. As elevated temperature reduces the capacity of seawater to hold oxygen the influence of the thermal discharge on dissolved oxygen was calculated using the annual GETM simulations to determine the temperature field and to derive the dissolved oxygen levels. The regulatory limits, as shown in Table 36, refer to the 95 percentile; use of the maximum values in our assessments is therefore precautionary and can be used to allow for interannual variability. The plots shown on page 76 represent the annual maximum temperature which represents a single hour of a full year. The measured background dissolved oxygen in the Severn Estuary is much higher than shown in these plots. These plots shown that under these precautionary conditions, the thermal plume does not impact the Welsh coast either directly or due to its influence on dissolved oxygen levels.

- 6. The Group heard from members of the campaign group Geiger Bay at its meeting on 21 September. The Group would welcome Cefas' view on the questions and claims posed by Geiger Bay. Cefas should be aware that the Group has also asked for further information and evidence from Geiger Bay in relation to its statements**

Why was alpha spectrometry not carried out on these samples?

Kins Leonard will cover this question during the meeting.

In relation to the Geiger Bay set of questions, it is more helpful to respond to this question first. It is important to appreciate the overall methodology adopted to undertake radiological assessments for dredging applications.

In summary, in the initial screening stage, alpha spectrometry is not carried because Pu alpha values are conservatively estimated from measured values of the alpha- and gamma-emitting radionuclide, Am-241. Alpha spectrometry would be used to refine the assessment, if *de minimis* criteria was not met during the initial screening stage.

The IAEA-TECDOC guidelines (Determining the suitability of materials for disposal at sea) describe a generic procedure (and a stepwise evaluation) for calculating individual and collective doses that could arise resulting from the disposal of sediment at sea. In the UK, the IAEA guidance methodology to assess whether materials may be disposed at sea in the context of the London Convention 1972 was fully adopted using the following peer review of the published procedure:” D. McCubbin and C.M.G. Vivian (2006). <https://www.cefas.co.uk/publications/environment/rl0506.pdf>

This Cefas report fully adheres to the IAEA guidelines (and the stepwise evaluation) and provides methodology and assumptions to assess individual and collective doses to dredge operators and the public.

The simplistic methodology of the initial step is not designed to provide a realistic assessment; instead, it is a screening tool that provides conservative (pessimistic) dose estimates to determine whether these are significantly lower than the *de minimis* criteria (i.e. below specified dose limits). All potential gamma-emitting radionuclides (both naturally occurring and artificial) in a sample, in the energy range (i.e. 60 keV to 2 MeV), are simultaneously scanned to identify and determine their activity concentrations.

For the purposes of the initial radiological assessment, only selected gamma-emitting radionuclides (both naturally occurring and artificial) are reported. This includes those radionuclides that are positively detected, or those that are reported below the detection limit (< value) but may contribute to dose at the limit of detection. In the subsequent assessment, < values are included as “positive values”, thereby providing an overestimate of the resultant doses.

Am-241 (an alpha- and gamma-emitter) is found in the environment (from various sources) and formed in situ by the decay of Pu-241. Am-241 data are included in the assessment using measured values and are also used to derive estimates for other alpha- and beta- emitters (Pu-238, Pu-239,240 and Pu-241). Values estimated by gamma spectroscopy for plutonium radionuclides are likely to be an overestimate as most samples measured for Am-241 are reported as < values.

If, following the initial step of assessment, *de minimis* criteria was not met, then further steps of evaluation would be undertaken to provide a more realistic estimation of the doses. This would include the more expensive and time-consuming analysis of Pu (alpha) and Am-241 by alpha spectrometry. The radiological assessment would then be repeated using all measured data, to determine if the sediment is suitable to be dredged and dumped.

Geiger Bay stated:

- **CRIIRAD found Am-241 etc. in mud of the river Parrett; possible increased radioactivity in marine life after Hinkley jetty works disturbed the sediments (RIFE data – TDJ study).**

Is there any evidence for the above claim by Geiger Bay?

Kins Leonard will cover this question during the meeting.

In summary, taking the analytical results provided by CRIIRAD at face value, there is no evidence of significantly higher levels of radioactivity than those already reported elsewhere, and these levels would not result in any radiological exposure to human health nor harm the environment. The interpretation of environmental results by CRIIRAD does not appear to have considered the results in context of natural environmental variability and in context of those levels reported elsewhere in UK waters.

CRIIRAD is a French NGO which undertakes in the analysis of radioactivity in the environment and is one of the approved laboratories by Nuclear Safety Authority (ASN) in France. The CRIIRAD report N° 18-32 “Radiological analysis of sediments from the River Parrett close to the Hinkley Point power stations” was undertaken in response to concerns raised by the Stop Hinkley group.

Although the report provides the context of the work, analytical procedures, the results from 6 sediment samples (for K-40 and other naturally occurring radionuclides, and artificial radionuclides, Cs-137 and Am-241) and interpretation of the results, it would also be expected (as a matter of standard procedure) to include full disclosure of the laboratories analytical accreditation status (ISO 17025 or similar) in the report. No alpha-emitting radionuclides were measured on the sediments by alpha spectrometry. Since there is no mention on the status of CRIIRAD’s analytical accreditation in the report, ANS were contacted directly by email (per. com., 2020) to establish whether CRIIRAD has accreditation to ISO 17025 or similar. The reply from ANS (per. com., 2020) was that they had checked CRIIRAD’s website (most of this is in French) and “they do not seem to have any proper accreditation”.

CRIIRAD report N° 18-32 indicates the positive detection of Am-241 in all 6 sediment samples. The report also states the activities are higher in samples 1 and 2 close to the mouth of the River Parrett (maximum 1.15 ± 0.29 Bq/kg (dry)). The maximum positive value of Am-241 is unsurprising. Data from RIFE (quoted in CRIIRAD report) is given as less than 1.2 Bq/kg (dry) at the equivalent location (and similar to levels determined for other years of RIFE monitoring). CRIIRAD and RIFE values are similar in magnitude and small in terms of the resultant dose exposure (well below legal limits). The positive values reported is simply a function of the extended gamma counting duration (as quoted in the CRIIRAD report).

CRIIRAD claim that Am-241 is a very radiotoxic alpha-emitter. Whilst this is true, the CRIIRAD comment is not in context with environmental levels observed at Hinkley Point and/or with that of levels determined at other locations around the UK. For example, levels of Am-241 in sediment samples reported in RIFE regularly exceed 1000 Bq/kg (dry) at coastline locations near to Sellafield. The resultant doses from intakes of sediment and water at Sellafield (also reported in RIFE) are typically less than 0.005 mSv and well below legal limits (of 1 mSv).

CRIIRAD claim that that Am-241 levels are higher in samples close to the mouth of the River Parrett. This comment is also unsurprising. Levels of radioactivity observed in the environment are dependent upon many natural parameters that are not related to site operations nor the primary source. These natural parameters include water transport by tidal advection, scavenging by particulate, particulate size, particulate composition, remobilisation of surface (and sub-surface) sediment, etc. Any of these (or a combination of these parameters) could be responsible for the observation. Furthermore, the results of K-40 in the CRIIRAD report are indicative of higher concentrations in sediments with smaller particle sizes, nearer to the River Parrot. The CRIIRAD results support the view that the trends of artificial radionuclide data

(albeit not varying significantly in magnitude between sampling sites and being at very low concentrations) are more likely to have resulted from naturally variability of the environment (i.e. from inherent natural particle sizes occurring at each of the sampling sites).

Correspondence from TDJ claimed that, following the initial dredging operation from the Hinkley jetty works, radioactivity (Am-241) had increased from the disturbed sediments (and in biota). It was suggested that evidence of this was available from results reported in the most recent RIFE report (RIFE 24). The numerical value of Am-241 reported in RIFE 24 (2018) is marginally higher (but still of no radiological significance) than that in 2017 (reported as 2.0 Bq/kg (dry)) for the River Parrot sediment sample in 2018. The equivalent value in 2017 was 0.92 Bq/kg (dry). Both these results are reported as below the detection limit in both reporting years and show no effects from dredging operations. All other Am-241 results in sediments around Hinkley Point are also reported as below the detection limit in both reporting years. Similarly, no unusual results were observed in biota samples between RIFE 2017 and RIFE 2018. The analytical results provided by the CRIIRAD report N° 18-32 are consistent with those of RIFE reported values and are very low.

Geiger Bay stated:

- **Cefas' study of the 2009 bore-hole samples was too crude to show peak radioactivity layers and failed to look for 'hot' particles (spectroscopy is incapable of detecting micron-sized hot particles).**
- **'Hot' particles ingested and inhaled are "internal emitters" and deliver alpha-radiation at a cell level, a concentrated hazard quite different from "external" or whole-body gamma rays; it is not valid to view this type of exposure in terms of average doses.**

Why were samples only taken from the surface and near the bottom of sampled cores analysed for radionuclide content in 2009 and from the surface only in 2017?

Kins Leonard will cover this question during the meeting.

In summary, there is no scientific evidence to suggest that concentrations of artificial radionuclides are present in significant quantities at depth around Hinkley Point. Naturally occurring radionuclides continued to be the largest contributor to doses (giving significantly higher dose contributions than those from measured/estimated for artificial radionuclides). Concentrations with depth were as expected in the 2009 survey.

In 2009 Cefas undertook a routine analytical contract on behalf of an external client (who was working for EDF at Hinkley Point), based on several sediment samples and for a specified analytical method (gamma spectroscopy only). No radiological assessment (for the purpose of a dredging application) was requested or carried out by Cefas as part of the analytical contract. In anticipation of a dredging application, Cefas recommended to the customer that both surface and bottom sediment samples be taken to ensure any subsequent radiological assessment was more robust. The client took both surface and bottom sediment samples at this time.

Based upon expert knowledge on the sources, environmental concentrations and behaviour of artificial radionuclides in sediment around the UK, gathered from decades of monitoring data, the normal procedure for radiological assessment of dredged sediments is to take

surface samples only. The exception to this is in the vicinity of Sellafield (NE Irish Sea), where sub-surface peaks of artificial radionuclides are known to exist and are potentially radiologically significant. The recommendation to take bottom samples was primarily because naturally occurring radionuclides are known to be the largest contributor to doses (giving significantly higher dose contributions than those from measured/estimated for artificial radionuclides). Secondly, it was also considered prudent to assess the potential effect of the long distant transport of radionuclides from the elevated discharges in the 1970's from Sellafield's reprocessing plant. Sellafield discharges were many orders of magnitude greater in comparison to power station discharges (such as Hinkley Point).

All analytical results in 2009 were as expected (both in surface and bottom sediments) and these were typical of those observed and reported (in RIFE) over decades of routine monitoring around Hinkley Point. No significant enhancement of naturally occurring radionuclide was observed in bottom sediments and any differences between surface and bottom were not radiologically significant. Artificial radionuclides were mostly below the levels of detection (or very close) and of no radiological significance, indicating minimal influence from Sellafield. As undertaken for other previous dredging assessments (outside the Irish Sea), there was no scientific evidence of significantly elevated levels of radioactivity to suggest the requirement for sub-surface samples in 2017.

The radiological assessment report produced by Cefas in 2018 (on the 2009 data) was a consequence of Cefas volunteering to undertake a *de minimis* radiological assessment report (discussed during a meeting of the Petitions Committee at the Welsh Assembly in January 2018) and a further request from NRW to confirm the assessment outcome was consistent with the assessment carried out in 2017 (i.e. with and without samples at depth). The total doses to individual members of the crew and public were 5.6 $\mu\text{Sv}/\text{year}$ and 1.9 $\mu\text{Sv}/\text{year}$ in 2009, and 5.8 $\mu\text{Sv}/\text{year}$ and 1.9 $\mu\text{Sv}/\text{year}$ in 2017. There was no significant difference in the radionuclide contributions to dose and, in both assessments, naturally occurring radionuclides continued to be the largest contributor to doses (giving significantly higher dose contributions than those from measured/estimated for artificial radionuclides).

Cefas also agreed (during the meeting of the Petitions Committee (and on behalf of NWR) that for any future dredging applications at Hinkley Point, Cefas would recommend to EDF (or their sub-contractors) that some core samples should be selected for the analysis of Pu -238, Pu-239+240 by alpha spectrometry (including bottom and near sub-surface samples). This would enable a direct comparison of estimated plutonium concentrations (as in the stepwise evaluation of the IAEA guidance for *de minimis*) with the measured values of alpha-emitting plutonium concentrations values in separate radiological assessments. This approach would also provide additional public assurance of the IAEA adopted methodology.

Again, in terms of interpreting analytical results in sediment in an environmental context, a comparison to the dredging application at Hinkley Point can be made with that of a previous dredging application for Whitehaven Harbour (near Sellafield) in 2004, together with typical concentrations routinely monitored in the north-east Irish Sea (reported in RIFE). Am-241 concentrations measured in surface sediments around Sellafield are in the region of 1000 Bq/kg (dry). Near sub-surface Am-241 concentrations in the order of 2000 Bq/kg (dry). It is widely known (from the scientific literature) that a sub-surface maximum is present due elevated discharges from Sellafield in the 1970's. The resultant dose value for individual members of the public was determined to be within the *de minimis* criteria at Whitehaven Harbour.

What evidence is available for the claim that ‘hot particles’ are present in the sediment and would these be detected by gamma spectroscopy?

Kins Leonard will cover this question during the meeting.

In summary, gamma spectroscopy is the accepted method for detecting hot particles in the environment. But unlike at Sellafield, hot particles have not been identified around the Hinkley Point coastline over many years of routine monitoring of sediments. Given the magnitude of hot particles found and removed from Sellafield beaches, and the advice given by PHE, it seems unlikely that that any health risks exist from pathways relating to hot particles around Hinkley Point.

It has been suggested that significant “hot particles” are present at Hinkley Point and these are detrimental to health via the ingestion pathway. The view of large numbers of hot particles, containing significant levels of plutonium alpha, is contrary to that observed from environmental measurements over several decades from annual routine monitoring (openly published in RIFE reports and its predecessors). <https://www.gov.uk/government/publications/radioactivity-in-food-and-the-environment-rife-reports>

IAEA-TECDOC-1663 (2011) “Radioactive particles in the Environment: Sources, Particle Characterization and Analytical Techniques” provides an overview of all the techniques which could be applied for characterization of hot particles (including by gamma spectrometry and CR-39). IAEA-TECDOC-1663 states that gamma spectrometry has always been the basic technique for investigating radioactive particles (hot particles). By the nature of their origin, hot particles found in the environment are a cluster of various sizes, composition and contain high levels of specific activities of alpha- beta- and gamma-emitting radionuclides.

Monitoring for hot particles (widely known to be present around Sellafield), and the assessment of their contamination, is routinely undertaken on and around the west Cumbrian coastline. Hot particles are identified by gamma spectroscopy (145 particles were removed in 2018). Further information on the methodology is given in RIFE reports. Furthermore, Public Health England (PHE) have also assessed the impact from these hot particles at Sellafield. PHE concluded that the overall health risks from hot particles to beach users are very low and significantly lower than other risks people accept when using the beaches. PHE advice remained that no special precautionary actions were required to limit access to or use of the beaches near Sellafield and the health risks from exposure pathways from radioactive particles in the vicinity of the Sellafield are very low.

What pathways are considered in the dose assessment methodology used by CEFAS?

Kins Leonard will cover this question during the meeting.

Although external exposure from sediment is assessed as the primary pathway for members of the ship's crew, internal exposure is also assessed as a potential exposure pathway. This includes that from inadvertent ingestion of sediments and inhalation of particles resuspended from the surface of the sediments. For the general public, the exposure pathways considered are ingestion of seafood caught in the vicinity of the disposal site, external exposure to radionuclides deposited on the shore, inadvertent ingestion of beach sediment, inhalation of resuspended beach sediment and inhalation of sea spray.

Geiger Bay stated:

- - **Alpha emitting hot particles are detected from tracks in CR-39 plastic (used in radon detectors). This technique found many uranium particles in the engine air filter of a car driven exclusively in the vicinity of Hinkley Point. Cefas rejected its use to screen mud samples, as its power to determine the elemental composition is limited when such particles. may include a mix of nuclides. This matters little for assessing the hazard of the alpha emission in the human body.**

Geiger Bay claim that Cefas rejected the use of CR-39 plastic as a means of detector possible 'hot particles' in sediment samples. Is this the case and what reasoning was given?

Kins Leonard will cover this question during the meeting.

Cefas have always accepted the fact that the CR-39 method can be used to screen for alpha-emitting radionuclides and directly identify the size and activity of hot particles in sediment samples. In determining the potential for the presence of hot particles in sediments, Cefas adopts the basic technique of gamma spectrometry in the first-tier assessment of the stepwise evaluation (from IAEA guidance) to determine *de minimis* criteria.

Geiger Bay stated:

- **Small alpha-emitting particles are more hazardous by mass than larger ones, which tend to kill the cell rather than cause survivable genetic mutations. This mechanism operating at cell level can explain the health damage resulting from large numbers of relatively insoluble uranium particles discharged to the atmosphere (from Hiroshima and Chernobyl to use of depleted-uranium weapons). The ECRR model disagrees with the ICRP's gamma-ray damage model by several powers of 10 because of the way it accounts for micro-particles. Would the Stakeholder group evaluate the evidence submitted and agree that a precautionary approach requires the hazard to be evaluated by both ECRR and ICRP approaches?**

In terms of the dose assessment carried out for dredging and disposal of sediment earlier by Cefas for members of the ship's crew and the public, can Cefas comment on the relevance of the statement by Geiger Bay?

Kins Leonard will cover this question during the meeting.

The International Commission on Radiological Protection (ICRP) is an independent, international, non-governmental organization, with the mission to provide recommendations

and guidance on radiological protection concerning ionising radiation. The ICRP community has more than 250 globally recognised experts in radiological protection science, policy, and practice from more than 30 countries. The European Committee on Radiation Risk (ECRR) is an informal committee. ECRR is not a formal scientific advisory committee to the European Commission nor to the European Parliament.

In the UK (and in all other European member states), legal radiation dose limits are based on recommendations made by the ICRP which are consistent with the Basic Safety Standards, established through European Council Directives, the most recent one being the Basic Safety Standards Directive 2013 or “BSSD 13”.

Cefas does not have sufficient expertise in a field of epidemiology to comment on the relevance of the statement by Geiger Bay. In the UK, the responsible authority for understanding and dealing with the health effects of exposure to ionising radiation is Public Health England.

Geiger Bay stated

- **Toxicity testing, relating to the special Severn Estuary Ecology. OSPAR-IMO guidance specifies bio-toxicity including enhancements due to bioconcentration, as well as the simple chemical toxicity assessed by Cefas to come above their ‘Action Level 1’. Full toxicity testing should be covered in NRW’s EIA-scoping.**

David Carlin will cover this question during the meeting.

OSPAR Guidelines for the Management of Dredged Material at Sea (Agreement 2014-06) state that “The Action List is used as a screening mechanism for assessing properties and constituents of dredged material with a set of criteria for specific substances. It should be used for dredged material management decisions, including the identification and development of source control measures. The criteria should reflect experience gained relating to the potential effects on human health or the marine environment”.

In the UK there are nationally adopted Actions Levels, commonly referred to as Cefas Action levels 1 and 2 (AL1 and AL2). These levels are defined for most sediment contaminants which are likely to pose a risk from dredge and disposal activities. Although developed by Cefas on behalf of Defra, these are adopted nationally and are not Cefas specific. Toxicity testing is only required if the potential risk of contamination cannot be reasonably screened out on the basis of the chemical action levels and physical parameters (e.g. particle size). This is a routine and established process over the whole of the UK with hundreds of dredge applications processed by the MMO/NRW conforming to this process.

Cefas are only aware of a single case in the UK where sediment toxicity testing has been used for a sediment contaminant survey which had reported chemistry results in exceedance of AL2. There are no known cases where toxicity testing has been required for sediment to be dredged or disposed where all testing showed levels below AL2.

There is a well-established process for determining the acceptability of sediment for disposal with chemistry results between AL1 and AL2. The advice is based on the review of historic

records in the wider area and records of disposals at the intended disposal site (i.e. to determine if the chemistry results show a significant deviation from typically levels in the area). Toxicity testing would only be recommended where the risk of harm (i.e. toxic effects) cannot be reasonably screened out on the basis of chemical and physical testing. With a full suite of sediment dredge chemistry and physical analysis considerable confidence can be placed on the action level screening.

This approach is in line with the international OSPAR Guidance (2014-06) which Cefas follows which states that this is an option, as per para 6.8 “If the potential impacts of the dredge material to be deposited cannot be adequately assessed on the basis of the chemical and physical characterisation and available biological information, biological testing may be conducted”. And in the IMO Waste Assessment Guidelines (2014) which states “Biological data represents the third possible line of evidence. . . “

Do Cefas action levels for organic and heavy metal contaminants take into account potential bioaccumulation effects in food webs and potential cumulative effects of multiple contaminants?

David Carlin will cover this question during the meeting.

The nationally accepted Action Levels for the UK (commonly termed Cefas Action Levels due to Cefas involvement in developing them) have a lower (Cefas Action Level 1(AL1)) and an upper (Cefas Action Level 2 (AL2)) limit. AL2 (the upper action level) is based on likely biological effects of the individual contaminants, based on the evidence at the time they were derived.

Cefas do consider how these contaminants bioaccumulate (i.e. PCB's in animals' fatty tissues) and how persistent they are (i.e. TBT is known to breakdown over time and Metals stay forever etc) and this is included in our advice based on the expertise in-house, together with the results of the analysis. Monitoring of disposal sites undertaken by Cefas in English and previously in Welsh waters also takes into consideration the potential impacts on biota and fish which we can extrapolate. Therefore, the ALs are only one line of evidence when assessing dredge material and disposal options.

Are site specific action levels employed that take in to account any particularly sensitive species or ecosystem that may be affected by the disposal of sediment (for example in the case of the Severn Estuary)? To what degree are action levels set in comparison to predicted effect levels?

David Carlin will cover this question during the meeting.

There are no site-specific action levels at present which consider any particular sensitive species or ecosystem. As above, specific testing through ecotoxicology can be carried out to determine the toxicity of the chemical compositions on the receptors but this is not standard practice in the UK and would only be recommended where the risk of harm cannot reasonably be screened out.



Centre for Environment
Fisheries & Aquaculture
Science



Jane Davidson
Chair, Hinkley Point C Stakeholder Reference Group
Welsh Government
Cathays Park
Cardiff
CF10 3NQ

17 December 2020

Dear Jane

Priority Areas

I am writing in response to our meeting on 20 November, with John Howell and Dan Butler, where we discussed the objectives of the Hinkley Point C Stakeholder Reference Group and you sought my views on your priority review area on 'The independence of agencies in the development process'. Without any specific questions to respond to I provide here some high-level points I feel may have some relevance to your considerations regarding Cefas.

Cefas' remit within UK Government, amongst other things, is to provide independent and objective science, evidence, and advice to all our funding partners and customers, whether they be within or outside of Government. It is important therefore, that not only are our science activities professional and independent, but that they are also seen to be so. Given our remit is to operate beyond the scope of our Government advisory role, it is important that we carefully review all our wider activities to manage any potential or actual conflicts of interest that may arise.

As a public sector organisation, our strategic aim is to prioritise the provision of science, evidence, and advice to UK Government bodies (including Devolved Administrations), and in doing so, actively avoid creating "potential" or "actual" conflicts of interest. Where historic wider commitments exist, such as our work for EDF Energy, if further potential conflict issues are to arise, we proactively raise them with UK Government partners at the earliest opportunity. This process ensures openness and transparency and in the Hinkley Point example, both Natural Resources Wales (NRW) and Welsh Government (WG) have a clear visibility of such new issues and in doing so can assess their confidence in the independence of Cefas inputs or take mitigating actions.

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefasc.co.uk | +44 (0) 1502 562244





In practice, and in line with this strategic focus on work within Government, we have very few cases where perceived or actual Conflict of Interest is a consideration. Where issues are identified, they are typically considered under our internal guidance by our project teams, senior managers and our relevant funding partners or customers.

Regarding the history of our nuclear new build work which we discussed in our meeting; this work commenced in 2007 when we were engaged by British Energy plc to undertake some initial feasibility studies for new nuclear stations in the UK. Since then, the work has transformed into provision of the marine evidence base for Hinkley Point C and other sites where EDF is a shareholder. To avoid the perception of conflicts of interest in English waters, we have agreed with the MMO that we will not provide them with any regulatory advice on these projects and, as a result, they have engaged external consultancy support in the limited instances where Cefas advice would create the possibility for a perceived conflict of interest. We do not provide any advice to other English or Welsh authorities on these projects with the one exception relating to the disposal of dredged material from construction activities at Hinkley Point C to the Cardiff disposal site where, as discussed previously, we have provided advice to NRW and EDF.

To ensure an agreed correct treatment of this circumstance, we have proactively reported to NRW that there could be a perceived conflict of interest relating to this advice on dredged material assessment. Consequently, it was agreed that we would maintain reasonable management separation of each advisory team and that NRW would maintain their procedure of publishing all evidence and advice used for decision making. This included one technical exception where, due to the scarcity of the required radiological expertise, the provision of such specialist evidence and advice had to be provided to both parties by a single expert, Dr Leonard at the time (evidence and advice on the non-radiological content of the dredged material is provided by separate experts). However, we have been, and continue to be, open to operating to alternative arrangements, such as those we apply to our advice to MMO where we jointly agreed that Cefas do not provide any advice on Hinkley Point C. It is important to note, however, that NRW have been very clear that the present arrangements Cefas have in place to advise them on the disposal of dredged material originating from Hinkley Point are acceptable and transparent, which suggests that they do not believe there to be a conflict.

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefasc.co.uk | +44 (0) 1502 562244





To conclude, we take seriously the need to identify and report perceived or actual conflicts of interest so that we can agree and implement mitigation or avoidance measures agreed with our partners. Our core purpose, and the bulk of all our work, is in support of UK Government bodies and the Devolved Administrations meaning wider activities are not, and should not be expected to become, a sizeable element of our total work. Given these, I do not see the benefit in a proposal for a corporate body separation of our activities between Government and non-Government sectors. I anticipate that such changes could add organisational costs without materially avoiding the perceived or actual conflicts of interest that would come with a single owner. Having said this, we always remain open to updated or additional management measures, as deemed necessary by either WG or NRW, in relation to the work we undertake on their behalf. This, with the single aim of providing the necessary assurance that our science inputs can be relied upon to be both independent and objective.

If you have any other questions then please do not hesitate to contact me to discuss further.

I wish you and your colleagues season's greetings and the very best for 2021.

Yours sincerely,



Tim Green
Chief Executive

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefass.co.uk | +44 (0) 1502 562244



Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Adrienne Kelbie CBE
Chief Executive
Office for Nuclear Regulation
contact@onr.gov.uk

17 November 2020

Dear Ms Kelbie

The First Minister of Wales, Mark Drakeford MS, has appointed an expert group to provide the Welsh Government with advice on the implications to Wales of the Hinkley Point C nuclear power plant. I attach the membership, terms of reference and agreed ways of working for your information. The Group was established in July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process, from organisations with responsibilities for permitting and licensing the development activities, and from various stakeholders in the construction and maintenance of Hinkley Point C.

The research and evidence we have gathered so far has enabled the Group to identify priority areas on which we expect provide the First Minister with advice in due course. One of our emerging priorities is to fully understand emergency planning requirements and processes, and it is in relation to this matter that the Group is seeking your expertise and views.

A full understanding of emergency planning consideration is vitally important for our Group because of the proximity of Hinkley to populated areas of south Wales. Two local authority areas are partly within a 30km Outline Planning Zone of Hinkley – namely Cardiff Council and the Vale of Glamorgan County Council. A further three authorities – Caerphilly, Newport and Rhondda Cynon Taf – are partly within 43km of Hinkley – a distance identified in the EDF Power Station Consequences Report (2019) in which precautionary measures may be needed in the event of an emergency. The combined population of these five local authorities is well over a million people, representing around one third of the population of Wales.

The Group understands that, in the UK, it is the responsibility of the operator to carry out initial assessment of the required detailed emergency planning zone (DEPZ) using The Radiation (Emergency Preparedness and Public Information) Regulations (REPPiR). It then falls to the

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

responsible local authority to develop an off-site emergency plan. We understand that the Office for Nuclear Regulation can provide further recommendations as required to the operator or the local authority.

Our Group's primary concerns are with the Outline Planning Zones (OPZ) and other extended zones currently under development for Somerset County Council's off-site emergency plan for Hinkley Point B, and when developing a such a plan for Hinkley Point B and C. Under REPP19, the predetermined OPZ in the UK for civilian nuclear power plants and decommissioning nuclear power plants with a presence of irradiated fuels is 30 km, which as noted above extends into parts of south Wales. The off-site emergency plan for Hinkley Point A and B developed under REPP01 and published by Somerset County Council in 2012 includes an extended release scenario zone of 15 km from the perimeter of the DEPZ and a further zone of 15 km for Food/Water Restrictions, which again reaches into south Wales.

Given the implications of being in relatively close proximity to a nuclear power station, we are eager to ensure all relevant authorities in south Wales are notified and consulted appropriately; resourced to carry out their emergency planning duties; and are routinely reviewing and monitoring the appropriateness of their plans and procedures. To assist us with these aims, we would be very grateful for the ONR's views on the following questions:

- 1) What requirements are in place to ensure the Welsh Government, relevant local authorities, local resilience fora and emergency services are informed of, and consulted on, off-site emergency plans for Hinkley Point B and when developing such a plan for Hinkley Point B and C?
- 2) What requirements are placed on those above named organisations in relation to preparing and maintaining plans or procedures relating to potential emergencies at Hinkley Point B and Hinkley Point C? What are the timescales for the production of any such plans or procedures?
- 3) What support or advice has the ONR provided to the responsible local authority, Somerset County Council, in relation to its off-site emergency plan for Hinkley Point B?
- 4) What support or advice has the ONR provided to EDF on the preparation of Power Station Consequences Reports for Hinkley Point B and Hinkley Point C?
- 5) Does the ONR have a view on the effectiveness of the scrutiny process for off-site emergency plans? For example, does the ONR think plans should be subject to formal examination and sign-off procedures?
- 6) Not specifically in relation to Hinkley, does the ONR have a view on whether relevant authorities and services dedicate appropriate time and resources into training for nuclear emergencies and into raising awareness of potential emergencies with local populations, to ensure plans and procedures can be implemented effectively should the need arise?

The group's next meeting is scheduled for 21 December. To enable members to digest and consider your response in advance of the meeting I would be very grateful for a response to our questions by Monday 14 December.

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Adrienne Kelbie CBE
Chief Executive
Office for Nuclear Regulation
contact@onr.gov.uk

17 November 2020

Dear Ms Kelbie

The First Minister of Wales, Mark Drakeford MS, has appointed an expert group to provide the Welsh Government with advice on the implications to Wales of the Hinkley Point C nuclear power plant. I attach the membership, terms of reference and agreed ways of working for your information. The Group was established in July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process, from organisations with responsibilities for permitting and licensing the development activities, and from various stakeholders in the construction and maintenance of Hinkley Point C.

The research and evidence we have gathered so far has enabled the Group to identify priority areas on which we expect provide the First Minister with advice in due course. One of our emerging priorities is to fully understand emergency planning requirements and processes, and it is in relation to this matter that the Group is seeking your expertise and views.

A full understanding of emergency planning consideration is vitally important for our Group because of the proximity of Hinkley to populated areas of south Wales. Two local authority areas are partly within a 30km Outline Planning Zone of Hinkley – namely Cardiff Council and the Vale of Glamorgan County Council. A further three authorities – Caerphilly, Newport and Rhondda Cynon Taf – are partly within 43km of Hinkley – a distance identified in the EDF Power Station Consequences Report (2019) in which precautionary measures may be needed in the event of an emergency. The combined population of these five local authorities is well over a million people, representing around one third of the population of Wales.

The Group understands that, in the UK, it is the responsibility of the operator to carry out initial assessment of the required detailed emergency planning zone (DEPZ) using The Radiation (Emergency Preparedness and Public Information) Regulations (REPPiR). It then falls to the

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

responsible local authority to develop an off-site emergency plan. We understand that the Office for Nuclear Regulation can provide further recommendations as required to the operator or the local authority.

Our Group's primary concerns are with the Outline Planning Zones (OPZ) and other extended zones currently under development for Somerset County Council's off-site emergency plan for Hinkley Point B, and when developing a such a plan for Hinkley Point B and C. Under REPP19, the predetermined OPZ in the UK for civilian nuclear power plants and decommissioning nuclear power plants with a presence of irradiated fuels is 30 km, which as noted above extends into parts of south Wales. The off-site emergency plan for Hinkley Point A and B developed under REPP01 and published by Somerset County Council in 2012 includes an extended release scenario zone of 15 km from the perimeter of the DEPZ and a further zone of 15 km for Food/Water Restrictions, which again reaches into south Wales.

Given the implications of being in relatively close proximity to a nuclear power station, we are eager to ensure all relevant authorities in south Wales are notified and consulted appropriately; resourced to carry out their emergency planning duties; and are routinely reviewing and monitoring the appropriateness of their plans and procedures. To assist us with these aims, we would be very grateful for the ONR's views on the following questions:

- 1) What requirements are in place to ensure the Welsh Government, relevant local authorities, local resilience fora and emergency services are informed of, and consulted on, off-site emergency plans for Hinkley Point B and when developing such a plan for Hinkley Point B and C?
- 2) What requirements are placed on those above named organisations in relation to preparing and maintaining plans or procedures relating to potential emergencies at Hinkley Point B and Hinkley Point C? What are the timescales for the production of any such plans or procedures?
- 3) What support or advice has the ONR provided to the responsible local authority, Somerset County Council, in relation to its off-site emergency plan for Hinkley Point B?
- 4) What support or advice has the ONR provided to EDF on the preparation of Power Station Consequences Reports for Hinkley Point B and Hinkley Point C?
- 5) Does the ONR have a view on the effectiveness of the scrutiny process for off-site emergency plans? For example, does the ONR think plans should be subject to formal examination and sign-off procedures?
- 6) Not specifically in relation to Hinkley, does the ONR have a view on whether relevant authorities and services dedicate appropriate time and resources into training for nuclear emergencies and into raising awareness of potential emergencies with local populations, to ensure plans and procedures can be implemented effectively should the need arise?

The group's next meeting is scheduled for 21 December. To enable members to digest and consider your response in advance of the meeting I would be very grateful for a response to our questions by Monday 14 December.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', with a long horizontal flourish extending to the right.

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

14 December 2020

Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS

Contact@onr.gov.uk

Unique ref: 2020/299919

Dear Ms Davidson

HPGE202011146 – Hinkley Point C / Emergency Planning

Thank you for your letter to our Chief Executive, Adrienne Kelbie, received on 17 November 2020, I have been asked to reply as ONR's Head of Policy. We are grateful to you for sharing information about the Stakeholder Reference Group and hope our responses to your specific questions below will help inform your advice to ministers on any implications of Hinkley Point C (HPC) on Wales.

As you are aware, the Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPP19) came into force in May 2019. These regulations aim to establish a framework for the protection of members of the public and workers from and in the event of radiation emergencies that originate from premises. The REPP19 regulations replaced the REPP19 2001 regulations and brought in a number of new requirements and responsibilities.

Of relevance, REPP19 brought in the new requirement to consider *all* emergencies, including those that may not have been considered within the design of the installation. These events correspond to the likelihood of occurrence of less than 1 in 20 000 within a 5-year period. It is for the operator to identify these extremely low likelihood events which could plausibly cause a radiation emergency as part of a Hazard Evaluation (which analyses all potential events or combinations of events that could lead to a radiation emergency). The operator must then carry out a Consequence Assessment of all these events and produce a Consequences Report which it must send to the lead local authority (local authority in which the premises are situated).

Should an operator of a site identify the possibility of an extremely low likelihood event, the site is required to have an Outline Planning Zone (OPZ), which was a new concept introduced by the 2019 regulations. The extent of any OPZ is defined within Schedule 5 of the REPP19 regulations and is according to the nature of the site. (Schedule 5 is relevant to civil sites only). As you have identified, the OPZ for Hinkley Point B (as for any other operating nuclear power plant) is 30km.

The lead local authority is then required under REPP19 to produce an off-site emergency plan which contains the arrangements necessary to mitigate and respond to the emergency. This plan must include both detailed and outline planning. (NB the operator is required to produce an on-site plan which dovetails with the off-site arrangements).

This background information above hopefully provides some context for the responses that we have provided below to your specific questions. In addition, and noting your particular interest in emergency arrangements you may find our website pages helpful; [ONR - Emergency preparedness and response](http://www.onr.org.uk/emergency-preparedness-and-response)¹. We would also refer you to Somerset County Council's [website](https://www.somerset.gov.uk/social-care-and-health/radiation-emergencies/)² on which the [Hinkley Point B Power Station Consequences Report](https://wwwmedia.somerset.gov.uk/wp-content/uploads/2019/10/Hinkley-Point-B-Power-Station-Consequences-Report.pdf)³ is published in addition to other local information. We would be happy to provide further information or indeed speak with you directly if the group would find that useful.

In relation to your specific question please see below.

1) What requirements are in place to ensure the Welsh Government, relevant local authorities, local resilience fora and emergency services are informed of, and consulted on, off-site emergency plans for Hinkley Point B and when developing such a plan for Hinkley Point B and C?

Our Response:

REPP19 places a duty on the lead local authority, in this case, Somerset County Council, in preparing or reviewing an off-site emergency plan, to consult a range of organisations including *such other persons, bodies or authorities as the local authority considers appropriate. [reg 11(5)]*. The guidance further specifies that the local authority must ensure that *all individuals or organisations identified in regulation 11(5) and anyone else with a role in delivering the off-site emergency plan are made aware of the proposals and its contents*. This is detailed in paragraph 352 in [The Radiation \(Emergency Preparedness and Public Information\) Regulations Approved Code of Practice and guidance \(REPP19 ACOP and guidance\)](#)⁴.

As your letter refers, REPP19 defines two levels of emergency planning; detailed and outline planning:

- Detailed emergency planning should incorporate the strategic, tactical and operational arrangements necessary to implement required protective action without undue delay (within a few hours) to mitigate the potential impact of radiation emergencies.
- Outline planning is carried out to support decision-making in the event that detailed plans are not sufficient to respond to events not considered in the design. Outline planning is only required at the strategic level and should identify where additional resources could be obtained from, and how decisions on protective action would be made.

REPP19 guidance proposes that an off-site emergency plan describes the: decision points; escalation routes; and crucial information/ intelligence sources that allow implementation of these response capabilities. Written plans set out what emergency responders will do in broad terms and response capabilities do not need to be in place, maintained and ready for immediate deployment for outline planning. This is detailed in paragraph 760 in the REPP19 ACOP and guidance.

¹ <http://www.onr.org.uk/emergency-arrangements.htm>

² <https://www.somerset.gov.uk/social-care-and-health/radiation-emergencies/>

³ <https://wwwmedia.somerset.gov.uk/wp-content/uploads/2019/10/Hinkley-Point-B-Power-Station-Consequences-Report.pdf>

⁴ <http://www.onr.org.uk/documents/2020/repp19-2019-acop.pdf>

In relation to the Hinkley site, Somerset County Council is therefore required to identify within the Hinkley off-site emergency plan those outline planning aspects set out above that are relevant to that particular site/area. Somerset County Council will then need to identify which organisations they should consult, to produce and review plans. Although REPP19 does not explicitly state that neighbouring authorities that have jurisdiction within the outline planning zone should be consulted, in this case, it would be reasonable to expect Somerset County Council to consult any other authority should there be the possibility that those authorities may be required to undertake any actions in an emergency, or should there be a possibility that their population is affected, even if the likelihood of the event was extremely low likelihood.

2) What requirements are placed on those above named organisations in relation to preparing and maintaining plans or procedures relating to potential emergencies at Hinkley Point B and Hinkley Point C? What are the timescales for the production of any such plans or procedures?

Our Response:

As per the response to question 1, it is for the lead local authority, in this case Somerset County Council to prepare and maintain the off-site emergency plan and to identify and consult relevant organisations on its content. The lead local authority must produce an off-site emergency plan within eight months of being sent a Consequences Report and the operator cannot start working with ionising radiation before the off-site emergency plan is put into effect.

Furthermore, the REPP19 ACOP proposes that the lead local authority should *ensure that the plan can be put into effect without delay when required by ensuring that prior information has been supplied in accordance with regulation 21 and by seeking confirmation, so far as reasonably practicable, from responding organisations that: (i) the necessary information, instruction and training has been provided and the necessary equipment for restricting exposure has been made available, in accordance with regulation 11(6); and (ii) any other underpinning capabilities required to implement the plan are in place and readily available.* This is detailed in paragraph 334 of the REPP19 ACOP and guidance.

The breadth of the consultation (in terms of which organisations), and the assurance that Somerset County Council seek from relevant responding organisations will depend on the planning specified in the Hinkley off-site emergency plan. As there is currently no radiological hazard at Hinkley Point C (HPC) the current off-site emergency plan is based on the radiological hazard at Hinkley Point B (HPB). The off-site emergency covers a Detailed Emergency Planning Zone of roughly 3.5km and a 30km Outline Planning Zone. From bringing fuel onto the site (in approximately 2025) and ahead of active commissioning and routine operations, the local authority will need to produce an updated off-site emergency plan accounting for the consequences report which will be prepared by HPC to inform the development of the off-site emergency plan.

3) What support or advice has the ONR provided to the responsible local authority, Somerset County Council, in relation to its off-site emergency plan for Hinkley Point B?

Our Response:

In January 2020, ONR wrote⁵ to all the lead local authorities with nuclear sites in their jurisdiction clarifying various roles and responsibilities under REPP19. The letter stated that although ONR no longer had a statutory role in the determination process for detailed emergency planning zones, we remained committed to assisting local authorities in navigating the revised processes required by the regulation during the implementation period. The letter went on to describe how we would sample some of the assessments to provide us with an overview of how operators and local authorities are following the new processes and fulfilling their new statutory responsibilities. The letter also made it clear that ONR is not required to, and would not be performing a formal assessment of, or approving the individual DEPZs. Similarly, under either the previous or the 2019 regulations, ONR is not required to review or approve off-site emergency plans.

With regard to Somerset County Council, since May 2019 when REPP19 came into force, we have had the following relevant interactions:

- Our representatives have had a number of bilateral teleconferences with the emergency planning representatives to seek assurance of the development and publication of the revised Hinkley off-site emergency plan and public information, in accordance with the revised requirements for REPP19. We provided some comments on the draft public information in July 2020. The HPB off-site emergency plan is one of 26 operating sites that require an emergency plan. REPP19 does not place any duty on ONR to review or approve emergency plans, however we intend to review all the off-site emergency plans including the HPB off-site emergency plan in the coming months to ascertain the level of compliance. Furthermore, if we do identify any shortfalls in the plans, these will be relayed to the relevant local authority and a way to rectify the issue or issues will be agreed.
- We had planned an inspection of Somerset County Council's emergency arrangements under REPP19 in March 2020 which was postponed due to Covid-19. This inspection is now planned for 2021. Inspections have a wider scope than reviewing the emergency plan (document) and may seek evidence to support compliance in, for example; the availability and maintenance of facilities/equipment, governance arrangements, training scope and records, risk management etc.

4) What support or advice has the ONR provided to EDF on the preparation of Power Station Consequences Reports for Hinkley Point B and Hinkley Point C?**Our Response:**

We engaged with all operators including EDF during the REPP19 ACOP consultation period to ensure that the transition towards the full implementation of the regulations were progressing satisfactorily. We also carried out an internal assessment of the Consequences Report against the requirements of REPP19 to gauge compliance.

⁵ <http://www.onr.org.uk/consultations/2019/reppir-2019/reppir-2019-implementation-period-letter.pdf>

Furthermore, we assessed a sample of Hazard Evaluation and Consequence Assessments (on which the Consequence Report is based) over the nuclear sites that it regulates. This sampling exercise included one EDF power reactor site, which was not HPB, but was representative of all the power reactors, as the faults that can lead to a radiation emergency will be very similar for all of them.

HPC will be required to produce a Consequences Report (based on Hazard Evaluation and Consequence Assessment) and the off-site emergency plan may need to be updated to reflect that report before any work with ionising radiation is carried out for the first time on the site. In addition, we will require HPC to develop emergency arrangements under their Licence Condition prior to bringing fuel on to the site, before active commissioning and routine operations.

5) Does the ONR have a view on the effectiveness of the scrutiny process for off-site emergency plans? For example, does the ONR think plans should be subject to formal examination and sign-off procedures?

Our Response:

We would expect the production and approval of the document to be subject to Quality Assurance arrangements, which we would expect to be in accordance with the Council's or the Local Resilience Forum's usual governance arrangements. Where there is a significant change to the plan, off-site plans should undergo a consultation period where those who need to comment are afforded the opportunity. REPP19 Regulation 11(5) lists the organisations that would need to be consulted on production or revision of the off-site plan, these are:

- (a) the operator of the premises to which the plan relates;
- (b) Category 1 responders in whose area in which the premises to which the emergency plan relates is situated;
- (c) Category 2 responders (where appropriate) in whose area in which the premises to which the emergency plan relates is situated;
- (d) each health authority in the vicinity of the premises to which the plan relates (if that health authority is not a Category 1 responder);
- (e) the relevant Environment Agency;
- (f) Public Health England;
- (g) in addition to Public Health England, if the premises to which the emergency plan relates is in— (i) Wales, Public Health Wales, and (ii) Scotland, Health Protection Scotland; and
- (h) such other persons, bodies or authorities as the local authority considers appropriate.

ONR has no part in the approval process but we are provided with a copy of published plans for our own information and regulatory oversight. During an inspection of the local authorities arrangements, we would often look to check that there is appropriate consultation and collaboration.

6) Not specifically in relation to Hinkley, does the ONR have a view on whether relevant authorities and services dedicate appropriate time and resources into training for nuclear emergencies and into raising awareness of potential emergencies with local populations, to ensure plans and procedures can be implemented effectively should the need arise?

Our Response:

Local Authorities are required to send out prior information to the public who reside or work within the DEPZ. This information must contain specific actions that members of the public should take in an emergency e.g. to close windows and doors, shelter and where to find out more information.

The local authority is also required to make available the extent of the OPZ to the public, for example by publishing a map showing the boundary of the zone on their website. However, as the planning for the OPZ is at the strategic level, it is not appropriate to pre-identify any specific protective actions for members of the public within the OPZ. This advice would be provided in the unlikely event of an emergency with consequences that extend to the OPZ. However, under the banner of strategic planning, we may expect a lead local authority to be in contact other local authorities or organisations, for example those with jurisdiction in the DEPZ or OPZ, that could be required to carry out any actions in an emergency, such as passing on information to their population. The extent of the interaction may simply inform them of any potential arrangements (even high-level plans) that they may need to put in place.

We have previously scrutinised the training arrangements for off-site nuclear emergencies as well as the provision information to members of the public within Detailed Emergency Planning zones (DEPZs); these are both requirements under REPIR (both under 2001 and 2019 legislation). Of those local authorities inspected, some areas for improvement were identified in some aspects of the training and these were reported back to the local authorities.

Lead (nuclear) local authorities and relevant emergency responders regularly engage at the national level to share good practice and raise issues, specifically at the Local Authorities Nuclear Working Group (LANWG), the Blue Lights Working Group (BLWG) and the Lessons Learned Working Group (LLWG). We attend these groups to provide feedback and to gain oversight of the common issues.

To date, we have not identified any significant shortfalls in compliance with the regulations in the areas identified in your question, although we have been made aware of pressures on local authority and emergency responder resource in some areas made worst by Brexit planning and the Covid-19 response. As a result, we have offered assistance and guidance to assist local authorities continue to achieve compliance under the existing pressures.

We hope you find this information helpful.

Yours sincerely

Rachel Grant
Head of Policy

CC: Adrienne Kelbie, Chief Executive

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Adrienne Kelbie CBE
Chief Executive
Office for Nuclear Regulation
contact@onr.gov.uk

19 January 2021

Dear Ms Kelbie

I wrote to you on 17 November to seek the ONR's views on emergency planning requirements for nuclear power stations, and have since received a very helpful response from Rachel Grant, Head of Policy. The Group would like to place on record our thanks to the ONR for your assistance and support for the Group's work.

In the course of our enquiries, we have learnt that the International Atomic Energy Agency conducted an integrated regulatory review service of the UK's nuclear energy sector in October 2019. Our Group is interested to know whether this review made any recommendations pertaining to the ONR's statutory or non-statutory responsibilities, and if so, whether those recommendations have been accepted?

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

2 February 2021

Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS

Contact@onr.gov.uk

Unique ref: 2021/9322

Dear Ms Davidson

HPGE202101160 - Implications of IAEA review

Thank you for your letter of 19 January 2021 with regards to the International Atomic Energy Agency's (IAEA) Integrated Regulatory Review Service (IRRS) mission to the UK in 2019. We are pleased that you found our previous reply on wider emergency planning matters helpful.

As you say, in October 2019 at the request of the UK Government, an international team of senior safety experts conducted an IRRS peer review mission to evaluate the UK's regulatory framework for nuclear and radiation safety against the IAEA's safety standards. This included interviews and interactions with 16 UK regulatory bodies and governmental departments, including ONR.

In keeping with the approach of IRRS peer reviews, the mission team published its report which identified areas of good practice and provided recommendations and suggestions for both government and regulators, including ONR to enhance the UK's safety framework. All of these were accepted as detailed in the Government response and we have already developed an action plan to address the findings relevant to ONR from the mission. Some will take several years to address, where solutions require time to develop, or where they relate to multiple regulators. We will also provide the government with technical advice for its co-ordinated response to the IAEA findings.

The links provided below are to the IAEA IRRS 2019: Mission Report (the list of recommendations can be found at page 136) and the UK Government's response to the report. Both documents are available on the Department for Business, Energy and Industrial Strategy website.

- [Integrated Regulatory Review Service \(IRRS\): 2019 mission report](#)¹
- [Integrated Regulatory Review Service \(IRRS\): 2019 mission report - government response](#)²

¹ [Integrated Regulatory Review Service \(IRRS\) to the United Kingdom of Great Britain and Northern Ireland: report 2020 \(publishing.service.gov.uk\)](#)

² [Nuclear and radiological safety: review of the UK framework 2019 - government response to the IRRS report \(publishing.service.gov.uk\)](#)

I hope this answers your query but if there are any specific areas of interest please let me know.

Yours sincerely

Rachel Grant
Head of Policy

CC: Adrienne Kelbie, Chief Executive

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Sir James Bevan
Chief Executive
Environment Agency
james.bevan@environment-agency.gov.uk

26 November 2020

Dear Sir James

The First Minister of Wales, Mark Drakeford MS, has appointed an expert group to provide the Welsh Government with advice on the implications to Wales of the Hinkley Point C nuclear power plant. I attach the membership, terms of reference and agreed ways of working for your information. The Group was established in July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process, from organisations with responsibilities for permitting and licensing the development activities, and from various stakeholders in the construction and maintenance of Hinkley Point C.

The research and evidence we have gathered so far has enabled the Group to identify priority areas on which we expect provide the First Minister with advice in due course. Our advice to the First Minister will be entirely based on evidence. The issues are:

- The status and use of marine disposal grounds in the Severn Estuary for dredged material, including from Hinkley Point C;
- Examining the resilience of the Severn Estuary marine ecosystem;
- Emergency and contingency planning;
- The use of legal powers held by the Welsh Government and its agencies;
- Cross-border relations and arrangements;
- The independence of agencies in the development process.

The Group has identified a number of areas in which the views of the Environment Agency are critical to our understanding of the issues. The next meeting of the Group is on the morning of Monday 21 December, conducted remotely over MS Teams. We would like to invite the Agency to attend part of that meeting in order to help the Group understand your role in the development consenting process, and how you are discharging your responsibilities relating to the protection and enhancement of the environment in the context of Hinkley Point C. I would be grateful if details of the Agency's representatives at the meeting could be sent to the Group's Secretariat by email to hinkleygroup@gov.wales so that necessary arrangements can be made.

The Group has identified a number of issues on which it would welcome the Agency's views, and I have set these out in an Annex. We would be happy to receive written responses to these questions, by Wednesday 16 December, to enable a fully informed discussion with representatives of the Agency at the meeting.

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Hinkley Point C Group: Questions and areas of discussion with the Environment Agency

1. Could you explain the Agency's main ongoing roles and responsibilities in regard to the development of Hinkley Point C (HPC)?
2. The original Habitats Regulations Assessment (HRA) process deemed it appropriate for there to be three fish mitigation measures – Fish Recovery and Return System, Low Velocity Side Entry, Acoustic Fish Deterrent (AFD) – to be in place at HPC in order to reduce the impact upon the fish stocks of the Severn Estuary. Please could you explain how the Agency understood that these measures worked together to achieve that objective?
3. A number of stakeholders have suggested to the Group that an AFD within the Severn Estuary would not have worked and should not have been considered as a solution for this dynamic estuarine environment. Could you please explain why it was originally deemed necessary at the design stage and whether there are alternative technologies that would be suitable, if an AFD is not used?
4. As part of EDF's request to remove the requirement for the AFD, we understand the Agency carried out a new HRA. Could you please describe the process and what outcomes were found during each stage (if permitted to do so)?
5. How often does the Agency meet with EDF in relation to HPC, and have any meetings been held since EDF sought a variation to the Environmental Permit?
6. Have EDF or Cefas requested information from the Agency in relation to the HRA or any other aspect of the application to vary the Environmental Permit, since making the application?
7. EDF have now appealed to the Planning Inspectorate for an amendment to their environmental permit. Can the Agency share with the group any detail of its submission to the Inspectorate?
8. Can you share, or summarise, any legal advice you have received on the approach you have taken to the HRA? Have submissions or evidence presented by EDF and/or Cefas contradicted any advice you have received?
9. How has the Agency communicated with and ensured co-operation with Natural Resources Wales on matters of cross-border concern or interest?

Jane Davidson

15.12.2020

Llywodsaeth Cymru Welsh Government

Parc Cathays

Caerdydd

CF10 3NQ

Dear Jane,

Hinkley Point C Stakeholder Reference Group

Thank you for your invitation to the meeting of the above on 21 December 2020 in your letter dated 26 November 2020 addressed to Sir James Bevan.

I confirm that I will be representing the Environment Agency at the meeting and have been in correspondence by email with your staff about the arrangements.

You also invited answers to a set of questions in advance. Our responses to these are attached at the Annex. I hope you find these helpful.

I look forward to meeting you and the group on the 21st.

Yours sincerely,



Dr Jo Nettleton FSRP

Deputy Director: Radioactive Substances and Installations Regulation

Annex:

1. *Could you explain the Agency's main ongoing roles and responsibilities in regard to the development of Hinkley Point C (HPC)?*

The Environment Agency regulates the environmental permits that HPC holds such as a Water Discharge Activity (WDA) permit for construction and four for operation covering the Radioactive Substances activities, the stand-alone Water Discharge Activity, the Sewage Treatment Plant and Combustion plant. We are also currently determining an application for an environmental permit to regulate air emissions from onsite generators. HPC is also seeking further permit variations of some of these permits and we provide advice and guidance in the pre-application phase as well as determining permit applications. We also provide general pollution prevention advice to the Company to help them minimise their impact on the environment.

Our Radioactive Substances Regulation (RSR) team also permits the mobile radioactive sources used by HPC's contractors in construction operations. The great majority of our RSR work is focused on assessing development of the operators' designs and arrangements to ensure environmental compliance and performance when operating.

We are also a statutory consultee for planning applications submitted by the Company for HPC and its Associated Development sites such as Combrich Wharf, which will handle large and heavy deliveries for HPC by sea.

2. *The original Habitats Regulations Assessment (HRA) process deemed it appropriate for there to be three fish mitigation measures – Fish Recovery and Return System, Low Velocity Side Entry, Acoustic Fish Deterrent (AFD) – to be in place at HPC in order to reduce the impact upon the fish stocks of the Severn Estuary. Please could you explain how the Agency understood that these measures worked together to achieve that objective?*

As summarised in our Statement of Case Appendix CD Ref EA22 (TB006 and references therein), Environment Agency guidance indicates that large direct-cooled power stations in estuarine and coastal waters need a combination of mitigation measures working together to provide fish protection. This guidance is based on and supported by a number of British Energy Estuarine and Marine Studies (BEEMS) and other technical reports. The Low Velocity Side Entry (LVSE) intake heads need to work in combination with a behavioural cue (such as from an AFD) in order to deter the more fragile hearing-specialist fish species that are not likely to survive the journey through the fish recovery and return (FRR) system.

The three mitigation measures proposed in the original permit application and Habitats Regulatory Assessment (HRA) were advocated as they would complement each other in reducing the impact of the cooling water system at HPC. The AFD would produce avoidance behaviour in fish as they approached the intake heads so they could attempt to swim away. The LVSE design would reduce the velocity of water as it is drawn into the intake heads, aiming to allow those fish who had detected the behavioural cue to swim away. The FRR system would then return a proportion of the fish that did still get drawn in back to the Severn Estuary alive and survivable.

However it is important to remember that:

- the AFD will only deter those species with the ability to detect it (e.g. those that 'hear' the sound it emits);
- the LVSE will only allow those species and individuals with the swimming ability to swim away and those species with the ability to detect it in the first place. Due to the low visibility within the Severn Estuary the only behavioural cue would have been from the AFD system. Therefore the removal of the behavioural cue afforded by the AFD system greatly reduces the benefit of the LVSE as a mitigation measure for those hearing species;
- the FRR system will only return a proportion of the fish abstracted in a survivable state. For the more fragile species this will provide little to no mitigation as the majority, if not all, will not survive; and
- that the fragile species that will not survive the FRR are largely those that do have the ability to detect the AFD (e.g. loose scaled, hearing species).

3. A number of stakeholders have suggested to the Group that an AFD within the Severn Estuary would not have worked and should not have been considered as a solution for this dynamic estuarine environment. Could you please explain why it was originally deemed necessary at the design stage and whether there are alternative technologies that would be suitable, if an AFD is not used?

The use of an AFD was proposed by NNBSGenCo in their application for an environmental permit for turbine condenser cooling water and process discharges from Hinkley Point C. Including AFD at the cooling water inlets is consistent with the use of Best Available Techniques (BAT) to minimise the impacts of discharges. The use of BAT to minimise the impact of discharges is an expectation of the current Nuclear National Policy Statement (EN6). We accepted this proposal from NNBSGenCo with the expectation that the company would have assured itself that deployment of this technology would be possible prior to proposing it in its application. We included in our permit a requirement to demonstrate that the AFD is working as part of commissioning of the station.

An exploration of alternatives would only be undertaken in the first step of the derogation process (HRA stage 3). The application did not progress this far because a forced 'deemed refusal' and appeal were triggered before the Environment Agency had completed HRA Stage 2. We have since completed our HRA Stage 2 assessment so that the outcome could be used to inform the appeal.

4. As part of EDF's request to remove the requirement for the AFD, we understand the Agency carried out a new HRA. Could you please describe the process and what outcomes were found during each stage (if permitted to do so)?

Stage 1: screening for likely significant effects

The variation to remove the AFD resulted in an automatic progression to Stage 2 as the application is to remove a mitigation measure that allowed a conclusion of no adverse effect on site integrity when the WDA permit was originally determined.

The inclusion of the FRR system was also screened as requiring an appropriate assessment in line with case law, due to the presence of mitigation measures to reduce the impingement of fish (LVSE intake heads)

Stage 2: appropriate assessment

The appropriate assessment for the proposed removal of the AFD followed the methodologies as set out in our statement of case. For the FRR system discharge we referred to our Water Framework Directive (WFD) assessment and review of their FRR system discharge assessment.

We did not use any thresholds of effect, but determined whether we could conclude, beyond scientific doubt, that there would not be an adverse effect on site integrity on a site-by-site and feature-by-feature basis.

We were **unable to conclude, beyond scientific doubt, no adverse effect** alone on site integrity for:

- twaite shad (River Severn / Môr Hafren SAC, River Wye / Afon Gwy SAC and River Usk / Afon Wysg SAC)
- allis shad (River Wye / Afon Gwy SAC)
- Atlantic salmon (River Wye / Afon Gwy SAC, River Usk / Afon Wysg SAC)
- migratory fish assemblage (River Severn / Môr Hafren SAC and Ramsar) due to impacts on twaite shad, allis shad, Atlantic salmon and European eel
- assemblage of fish (>100 species) (River Severn / Môr Hafren SAC and Ramsar) due to impacts on fish assemblage species including: Atlantic cod; whiting; Atlantic herring; European sea bass). An inability to conclude no adverse effect on the impact of several species which form part of the assemblage of fish meant that we couldn't conclude no adverse effect on site integrity for the fish assemblage.

As a result of our assessment we were **able to conclude no adverse effect** alone on site integrity on:

- all relevant sites included in our assessment of the FRR discharge (which are distinct from the intake effects identified above).
- all relevant sites designated for marine mammals and piscivorous birds
- Severn Estuary / Môr Hafren SPA
- more distant Welsh SACs with relevant Annex II species (*Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd European Marine Site, River Tywi/Afon Tywi SAC and Pembrokeshire Marine/ Sir Benfro Forol SAC, Cleddau River / Afonydd Cleddau SAC*)

5. How often does the Agency meet with EDF in relation to HPC, and have any meetings been held since EDF sought a variation to the Environmental Permit?

See answer to 6.

6. Have EDF or Cefas requested information from the Agency in relation to the HRA or any other aspect of the application to vary the Environmental Permit, since making the application?

The Environment Agency has undertaken extensive pre-application and post application engagement with EDF.

Once an application has been received, engagement with an applicant is generally limited to updates on progress, in order to preserve the fairness and integrity of the decision-making process. In the present case, the Environment Agency engaged with EDF regularly (generally on fortnightly teleconferences) to inform them on the assessment progress and on projected timescales for the determination and to allow the company opportunity to clarify their understanding of specific technical points. This enhanced engagement was carefully controlled to ensure that the integrity of our permitting processes were not compromised.

The Environment Agency also engaged with EDF under the Habitats Directive process to raise at an early stage our interim HRA conclusions, providing more detailed information on the determination assessment to ensure they understood the grounds these conclusions were based on. Through this process EDF requested to see further information and calculations to fully understand our assessment approach. These were provided in the form of a series of detailed technical briefs that were produced as part of the permit determination (TB000 to TB020).

A history of the AFD and timeline containing a chronology of the engagement between the Environment Agency and EDF was produced and submitted to the Planning Inspectorate for the Appeal process (Appeal Document – EA8). A summary of our assessment approach and the most prevalent Technical Briefs have also been submitted under the appeal process (Appeal Documents – EA19-EA31).

Along with technical engagement, the Environment Agency has met with the company on a recurring basis through a formally arranged escalation route designed to allow issues emerging at a technical level to be unlocked at a senior management level as needs arise.

The commercial arm of Cefas are acting as consultants to EDF and we have interfaced with Cefas, through the company, on a frequent basis during pre-application and determination.

7. EDF have now appealed to the Planning Inspectorate for an amendment to their environmental permit. Can the Agency share with the group any detail of its submission to the Inspectorate?

The Environment Agency's Statement of Case has now been submitted to the Planning Inspectorate and is publicly available on our Public Register and our Citizens Space website (Appeal Document – Environment Agency Statement of Case (final) – 171120) here:

<https://consult.environment-agency.gov.uk/psc/ta5-1ud-nnb-generation-company-hpc-limited-2/>

In summary, our HRA demonstrates that it has not been possible to conclude no adverse effect on the integrity of the Severn Estuary SAC and Ramsar, the River Wye SAC and River Usk SAC due to the potential effects of operating HPC without an AFD (Appeal Document – EA7).

Accordingly, it is not possible to grant the WDA Permit variation, unless a derogation is successfully sought under Article 6(4) of the Habitats Directive and regulations 64 and 68 of the Conservation of Habitats and Species Regulations 2017.

8. Can you share, or summarise, any legal advice you have received on the approach you have taken to the HRA? Have submissions or evidence presented by EDF and/or Cefas contradicted any advice you have received?

Yes, our legal position is set out in our Statement of Case, paragraphs 17-30. There is a difference of view from the evidence presented as to whether or not the test of no adverse effect on integrity has been met and our view is that evidence presented by EDF does not alter our judgement that we cannot conclude no adverse effect from the removal of the AFD.

9. How has the Agency communicated with and ensured co-operation with Natural Resources Wales on matters of cross-border concern or interest?

The Environment Agency has had positive regular engagement with NRW, both formally and informally, to aid the development of its HRA, during pre-application and permit determination. Several technical meetings and HRA specific meetings were held to discuss the Environment Agency's over-arching technical assessment and HRA approach, to ensure it would provide a robust appropriate assessment under the Habitats Regulations.

NRW was able to inform the scope of the HRA, and provided advice on reaching conclusions against the conservation objectives for the qualifying features of the relevant SAC, SPA and Ramsar sites.

NRW was consulted on the draft HRA report and the Environment Agency updated it having regard to their comments (this feedback has been provided as part of the appeal: Appeal Documents –EA18).

We have responded as a consultee to NRW's consultation on NNB GenCo's sampling plan which is a prerequisite for the proposed disposal of sediment arising from dredging activities in the Bristol Channel. Additionally, we have provided NRW's Marine Licensing team with significant technical support relating to historical discharges of radioactivity into the Bristol Channel and measurement of radioactivity in the environment.

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Dr Jo Nettleton
Deputy Director Radioactive Substances and Installations Regulation
Environment Agency

C/o louise.notman@environment-agency.gov.uk

19 January 2021

Dear Dr Nettleton,

On behalf of the Hinkley Point C Stakeholder Reference Group, thank you very much for attending our meeting on 21 December. We found the information and views you shared with us, both in your note and during the meeting, very interesting and they will undoubtedly be very useful as we develop our advice to the First Minister on the implications to Wales of the Hinkley Point C development.

A number of additional issues were raised by our members during the meeting which you kindly agreed to address or provide additional information. These are:

- Details of all applications by EDF for a variation of permit, currently under consideration or previously considered by Environment Agency.
- In relation to the appeal to vary the environmental permit, a summary of the courses of action available to the Planning Inspectorate, and the implications to the project and the Environment Agency of each course.
- The published outputs from stakeholder fora, including concerns in relation to public health.
- Any additional information held by the Environment Agency on the use of Cardiff Grounds, including cumulative impacts.
- Any role played by the Environment Agency, in support of Natural Resources Wales, in the review of the sampling strategy and results for sediment dredging and disposal from Hinkley to the Cardiff Grounds.

Since we met in December, EDF has announced it is applying to the Marine Maritime Organisation for permission to deposit mud at the Portishead disposal area. Should this application be successful it could have implications for EDF's long standing intention to deposit mud at the Cardiff Grounds. Could you set out what role, if any, the Agency has in this application, for instance will the Agency be consulted by the MMO? Furthermore, any

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

background information on the Portishead disposal area the Agency is able to share with the Group, including for example its history as a disposal area, its capacity and its previous and current users, would be extremely useful.

Finally, the Group has recently been made aware of research led by Prof. Dr. Robert Boes at ETH Zurich into *Electrified fish guidance and protection structures for safe downstream fish passage at water intakes*. The European newsletter of the International Association for Hydro-Environment Engineering and Research (IAHR) recently contained an article on the emerging research and the Group thought it may be of interest to you, in case you were not already aware of it.

Thank you again for your support.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', with a stylized, cursive script.

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

creating a better place
for people and wildlife



Dr Jo Nettleton
Lutra House
Dodd Way; of Seedlee Road
Walton Summit; Bamber Bridge
Preston
PR5 8BX
18.02.2021

Jane Davidson
Llywodsaeth Cymru Welsh Government
Parc Cathays
Caerdydd
CF10 3NQ

Dear Jane,

Hinkley Point C Stakeholder Reference Group

Thank you for recent letter regarding additional questions the group raised during the December meeting. We have pleasure in responding to these as set in the Annexes 1 and 2 below.

I hope this provides the information you require, but please do let me know if you would like further detail.

Yours sincerely,

A handwritten signature in black ink, appearing to be "J. Nettleton", written over a horizontal line.

Dr Jo Nettleton FSRP
Deputy Director: Radioactive Substances and Installations Regulation

Annex 1

Q1. Details of all applications by EDF for a variation of permit, currently under consideration or previously considered by Environment Agency.

In relation to Hinkley Point C only, we have summarised this response in Annex 2, attached to this response.

Q2. In relation to the appeal to vary the environmental permit, a summary of the courses of action available to the Planning Inspectorate, and the implications to the project and the Environment Agency of each course.

PINS lead the appeal process and their decision on the permit variation is final.

If the appeal is dismissed by PINS the original permit conditions set by the Environment Agency would still stand and the operator would need to install the AFD.

If PINS decide in the appellant's favour, the permit variation to remove the AFD will be granted. In this scenario PINS will direct us to grant the permit variation either with or without conditions. The original permit conditions granted by the Environment Agency would be modified and/or removed.

Before the appeal inquiry we would need to complete a draft permit with the AFD conditions removed and including any other conditions that we want PINS to consider when they are making their final decision on the outcome of the appeal.

Q3. The published outputs from stakeholder fora, including concerns in relation to public health.

Public health is not within the Environment Agency's remit. We would suggest that queries on public health are put to Public Health Wales who will be able to provide authoritative advice on the subject and a summary of any stakeholder concerns which have been raised thus far.

There are a number of formal stakeholder forums that we attend such as the Main Site Neighbour Forum and Community Forum. The Company instructs an independent organisation to chair these meetings and take minutes. Formal notes of these meetings would be held by EDF.

The Environment Agency's published material in relation to the application to remove the AFD is held on the Citizen Space portal and can be viewed here: : [TA5 1UD, NNB Generation Company \(HPC\) Limited, EPR/HP3228XT/V004: environmental permit consultation / appeal documentation - Environment Agency - Citizen Space \(environment-agency.gov.uk\)](https://www.environment-agency.gov.uk/citizen-space/TA5-1UD-NNB-Generation-Company-(HPC)-Limited-EPR/HP3228XT/V004-environmental-permit-consultation-appeal-documentation-Environment-Agency-Citizen-Space)

Q4. Any additional information held by the Environment Agency on the use of Cardiff Grounds, including cumulative impacts.

The Environment Agency does not hold information on the use of the Cardiff Grounds, we believe that NRW as the regulator for marine licensing in Wales would be the most appropriate organisation to comment. It may be the case that the Marine Management Organisation is able to provide records relating to the use of Cardiff Grounds that pre-date the formation of NRW.

Q5. Any role played by the Environment Agency, in support of Natural Resources Wales, in the review of the sampling strategy and results for sediment dredging and disposal from Hinkley to the Cardiff Grounds.

In addition to responding to NRW's consultation as a statutory consultee, we provided NRW with technical assistance and advice on how best to address some questions that a range of stakeholder groups had raised in its consultation on NNB GenCo's Sample Plan. These were broadly grouped as:

- Querying the validity of IAEA dose assessment methodologies, particularly with reference to sea to land transfer
- What consideration should be given to organically bound tritium – it was unclear whether this was with reference to tritiated oils or tritiated biomolecules from GE in Cardiff
- Questioning the validity of using gamma spectrometry to infer the presence of alpha emitters
- The assertion that certain radionuclide concentrations had increased in the vicinity of Hinkley Point. This is untrue, limits of detection had increased in recent years but not to the levels of historic maxima.

NRW then received letters from some stakeholders who were not satisfied with how their comments had been addressed in NRW's decision document, we also helped NRW address these subsequent concerns.

Annex 2

**Details of all applications by EDF for a variation of permit, currently under consideration or previously considered by Environment Agency
Operation Water Discharge Activity (OWDA) Permit**

Permit Reference	Date of Issue	
EPR/HP3228XT	13/03/2013	Permit issued to NNB for the discharge of trade effluent (comprising of cooling water and process effluent) and treated sewage effluent. The discharges will arise during the Hot Functional Testing (HFT) phase of commissioning and during the subsequent operation of the power station. The permitted activity is limited

		in scope to the discharge of non-radioactive liquid effluents.
EPR/HP3228XT/V002	03/12/2015	Variation to change company name where the company number has not changed.
EPR/HP3228XT/V003	13/02/2018	Variation to change company registered address where the company number has not changed.
EPR/HP3228XT/V004	15/02/2019 – Application submitted	Variation to amend or remove conditions requiring the design and operation of an Acoustic Fish Deterrent (AFD) system – Currently deemed refused and subject to appeal awaiting PINS Public Inquiry in June 2021.

Construction Water Discharge Activity Permit (CWDA)

Permit reference	Date of Issue	Detail of Variation
CWDA EPR/JP3122GM	29/02/2012	CWDA permit issued to NNB
CWDA EPR/JP3122GM/V002	28/11/2013	Revised proposals for EW-WMZ in response to PO1, 5, 6, and 8. Inclusion of drainage arising from WMZ6 via Outlet 11. Including of drainage arising from the construction of the seawall.
CWDA EPR/JP3122GM/V003	12/02/2015	Variation to increase the volume of concrete wash water discharged and add a new activity 'G' – discharge of trade effluent consisting of site drainage from WMZ 6 via Outlet 11.
CWDA EPR/JP3122GM/V004	03/12/2015	Variation to change company name where the company number has not changed.
CWDA EPR/JP3122GM/V005	15/03/2017	Variation to reduce the volume, impose load-based and concentration limits on Activity E – discharge for trade effluent consisting of pumped groundwater and incorporating new operating techniques OT9, OT10 & OT11.
CWDA EPR/JP3122GM/V006 (variation and consolidation)	Duly made 06/11/2017	Application to relocate the discharge point, amend the treatment requirements and reduce the volumes of the discharge of trade effluent consisting of pumped groundwater.

CWDA EPR/JP3122GM/V007 (variation and consolidation)	Duly made 06/11/2017	Application to include a new activity to discharge wastewater that will be generated during the construction of the heat sink tunnels.
EPR/JP3122GM/V007	20/03/2018	Varied and consolidated permit issued in modern condition format and amendment to registered address.
New variation EPR/JP3122GM/V008	Application received 2/2/2021	Variation to regularise site activities such as variation to include discharge of de-mineralised water used for hydro-testing, regularise site drainage activities (A, B & C) and change discharge volume and location for Activity F

Sewage Treatment Permit (HAJ)

Permit Reference	Date of Issue	Details of variation
HAJ EPR/XP3321GD	30/01/2019	Permit issued to NNB
HAJ EPR/XP3321GD/V002	08/08/2019	EA initiated variation to correct conditions to reflect applied UV dose only.
HAJ EPR/XP3321GD/V003	09/12/2019	EA initiated variation to include relevant UV condition and change method to measured applied does.
HAJ EPR/XP3321GD/V004	In process. Duly made ??/02/2021	Variation to change the National Grid reference and location of the UV treatment plant.

Concrete Crushing permit

Permit Reference	Date of Issue	Details of permit
EPR/HB3104CD	17/06/2020	Permit issued to NNB

Combustion Permit

Permit Reference	Date of Issue	Details of variation
EPR/ZP3238FH	13/03/2013 (determination date)	Permit issued to NNB

Radioactive Substances Activity Permit

Permit Reference	Date of Issue	Details of variation
EPR/ZP3690SY	13/03/2013	Permit issued to NNB
EPR/ZP3690SY V002	24/10/2016	The variation was initiated by the Environment Agency, to include updated specified radioactive waste types for transfer to other premises. This allowed for the transfer of aqueous waste to another site for treatment and discharge. The variation also updated the operator's company name, which was changed in 2015 from 'NNB Generation Company Limited' to 'NNB Generation Company (HPC) Limited'.
EPR/ZP3690SY V003	01/07/2019	This variation introduced conditions into the permit that require the operator to develop and maintain a Waste Management Plan (WMP) and a Site Wide Environmental Safety Case (SWESC), in line with the joint environment agencies' guidance document 'Management of radioactive waste from the decommissioning of nuclear sites: guidance on the requirements for release from radioactive substances regulation' (known as the GRR).

Industrial Emissions Directive (IED)

Permit Reference	Date of Issue	Details of permit
EPR/WP3200PJ	In determination	This permit application has been made to regulate the operation of the generators required on site for power supply.

New Authorisations – Groundwater abstraction permit

Permit Reference	Date of Issue	Details of permit
NPS/NA/001283/001284	In determination	This permit application has been made in relation to the groundwater abstraction occurring for the deep dewatering.

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Mat Mander
Acting Chief Officer
Devon and Severn IFCA
m.mander@devonandsevernifca.gov.uk

27 November 2020

Dear Mr Mander

The First Minister of Wales, Mark Drakeford MS, has appointed an expert group to provide the Welsh Government with advice on the implications to Wales of the Hinkley Point C nuclear power plant. I attach the membership, terms of reference and agreed ways of working for your information. The Group was established in July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process, from organisations with responsibilities for permitting and licensing the development activities, and from various stakeholders in the construction and maintenance of Hinkley Point C.

The research and evidence we have gathered so far has enabled the Group to identify priority areas on which we expect provide the First Minister with advice in due course. Our advice to the First Minister will be entirely based on evidence. The issues are:

- The status and use of marine disposal grounds in the Severn Estuary for dredged material, including from Hinkley Point C;
- Examining the resilience of the Severn Estuary marine ecosystem;
- Emergency and contingency planning;
- The use of legal powers held by the Welsh Government and its agencies;
- Cross-border relations and arrangements;
- The independence of agencies in the development process.

The Group has identified a number of areas in which the views of the Devon and Severn IFCA are critical to our understanding of the issues. The next meeting of the Group is on the morning of Monday 21 December, conducted remotely over MS Teams. We would like to invite the IFCA to attend part of that meeting in order to help the Group understand your role in the process, and your views on how the project is developing. I would be grateful if details of the IFCA's representatives at the meeting could be sent to the Group's Secretariat by email to hinkleygroup@gov.wales so that necessary arrangements can be made.

The Group has identified a number of issues on which it would welcome the IFCA's views, and I have set these out in an Annex. We would be happy to receive written responses to these questions, by Wednesday 16 December, to enable a fully informed discussion with your representatives at the meeting.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', written in a cursive style.

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Hinkley Point C Group: Questions and areas of discussion with the Devon & Severn Inshore Fisheries and Conservation Authority

1. Could you explain the general role and responsibilities of Devon and Severn IFCA, and any detailed role in relation to Hinkley Point C?
2. What fisheries management strategies do Devon and Severn IFCA employ to ensure sustainability?
3. Have Cefas consulted with Devon and Severn IFCA regarding current research, and fisheries evidence, as the Governmental Organisation responsible for management of the fisheries within the inner Bristol Channel and Severn Estuary?
4. Do Devon and Severn IFCA have any significant concerns in regard to the impacts of the direct water-cooling system proposed by EDF?
5. The assessments presented by Cefas use ICES stock levels and population data from the Bristol Channel Approaches. Does the IFCA support this method?
6. Cefas and EDF state that the impacts on fish stocks will be negligible in comparison to other fishing activities. Do you agree with this statement? What are the fishing activities operating within the Inner Bristol Channel/Severn Estuary area?

The questions outlined below were posed to Devon & Severn Inshore Fisheries and Conservation Authority by Welsh Government's Hinkley Point C Stakeholder Reference Group in a letter dated 27th November. The written responses have been provided on 16th December 2020, in advance of a [meeting](#) of the Hinkley Point C Stakeholder Reference Group to be held by Welsh Government on 21st December 2020.

1. *Could you explain the general role and responsibilities of Devon and Severn IFCA, and any detailed role in relation to Hinkley Point C?*

Devon and Severn Inshore Fisheries and Conservation Authority (D&S IFCA) is the statutory manager of sea fisheries from baselines out to six nautical miles or the median line with Wales. The District is and is defined in the Statutory Instrument (2010 No. 2212), and is shown schematically in Figure 1. The D&S IFCA has the largest of the ten separate IFCA districts (4522km²) and has two separate coastlines. The southern coastline bordering the English Channel stretches from Lyme Regis to the border between Devon and Cornwall. The northern coastline bordering the Severn Estuary and Bristol Channel stretches from Countisbury Cove as far as Maisemore Weir to Chepstow and includes Lundy Island. It also includes the River Avon through Bristol and all other rivers entering the sea within the District.

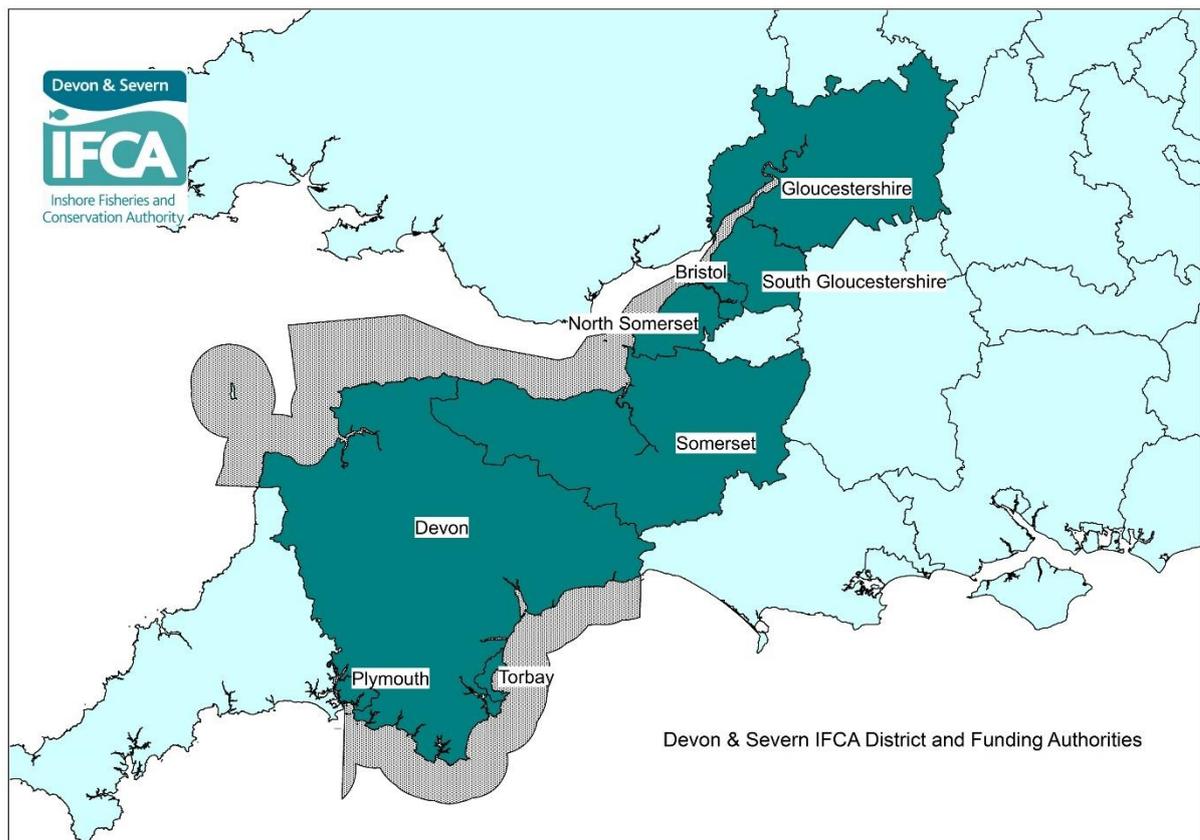


Figure 1. Marine areas under the jurisdiction of D&S IFCA extend from baselines to 6nm, or to the median line with Wales. Also shown are the eight local authorities that contribute funding to D&S IFCA.

The powers and duties of D&S IFCA are provided by the Marine and Coastal Access Act (2009) (MaCAA). The specific roles and activities of D&S IFCA are varied; the roles outlined in the remainder of this text are those that are directly relevant to D&S IFCA's involvement in matters relating to Hinkley Point C (HPC). Section 153 (Management of inshore fisheries) and Section 154 (Protection of marine conservation zones) of MaCAA underpin much of the work conducted by the Authority. Section 153 requires that D&S IFCA manage the exploitation of sea fisheries resources within its District, while Section 154 requires that D&S IFCA seeks to ensure that the conservation objectives of any MCZ in the district are furthered. This includes the Severn Estuary European Marine Site (EMS), in which parts of the HPC site are proposed to be located. D&S IFCA is both a Competent and Relevant Authority with regard to the Habitats Directive (1992; as amended)/ Conservation of Species and Habitats Regulations (2017; as amended). Sections 155–158 of MaCAA outline the powers to make byelaws for the District, which are used extensively by D&S IFCA to manage sea fisheries activities within the District, and the impacts of these activities on the marine environment.

Beyond the role of D&S IFCA in managing inshore fisheries, D&S IFCA's officers engage regularly with discussions regarding marine planning (for example, via input to consultations regarding the Marine Plans, Wales' National Marine Plan and the Welsh Government's Marine Planning Decision Maker's Group) and marine licencing (for example, as consultees for the Marine Management Organisation and Natural Resources Wales). In responding to such consultations, D&S IFCA must have regard to the impacts of proposals on fisheries, fish and their habitats, and impacts on protected areas including MCZs and EMSs.

With specific reference to HPC, D&S IFCA's officers have responded to MMO consultations on marine licence applications submitted by EDF/ NNB GenCo (hereafter EDF), responded to the Environment Agency consultation regarding EDF's proposal to remove the requirement for Acoustic Fish Deterrents at Hinkley Point C (July 2019) and have submitted a representation regarding EDF's recent appeal to the Secretary of State relating to the deemed refusal of a variation to permit number EPR/HP3228XT/V004 (October 2020). D&S IFCA's officers have been permitted to sit on the on the Marine Technical Forum for Hinkley Point C though do not have a statutory role within this group.

2. What fisheries management strategies do Devon and Severn IFCA employ to ensure sustainability?

Under Section 153 of the MaCAA, IFCA's must manage the exploitation of sea fisheries resources in their respective Districts, and seek to ensure that this exploitation is carried out sustainably, balancing the social and economic benefits of sea fisheries activities with the need to protect or enable recovery of the marine environment. Furthermore, under Section 154 of MaCAA, IFCA's must seek to ensure that the conservation objectives of any MCZ in the district are furthered, and nothing in Section 153 is to affect the performance of the duty imposed by this section. For clarity, in the above, "sea fisheries resources" means any animals or plants that habitually live in the sea, including

those that are cultivated in the sea, but not including salmon, trout, eels, lampreys, smelt and shad, or any other fish of a kind which migrates from fresh to salt water, or from salt to fresh water, in order to spawn, or any freshwater fish. Here, “eels”, “freshwater fish”, “salmon”, “smelt” and “trout” have the same meanings as in the Salmon and Freshwater Fisheries Act 1975. Whilst the management of these migratory species is not a direct responsibility of D&S IFCA, D&S IFCA may introduce management measures for sea fisheries resources that also provide benefit for the protection of these migratory species (e.g. prohibition of netting in estuaries).

D&S IFCA manages the sustainable exploitation of sea fisheries resources through a range of byelaws, including some inherited byelaws. D&S IFCA has the power to make byelaws in exercise of its powers under sections 155–157 of the MaCAA, and has been implementing a permit-based byelaw approach that is responsive to evidence gathering, and uses flexible permit conditions to define e.g. catch, gear, spatial and time restrictions. Permit conditions under these byelaws are reviewed every three years (or as other evidence demands), and the review is informed by consultation with stakeholders, scientific and survey data collected by D&S IFCA or other organisations, scientific advice provided by Cefas or other organisations, advice from SNCBs and by information from other relevant sources. The Permit Byelaws currently in place manage Mobile Fishing, Netting, Potting and Diving for scallops, crab and lobster. Permits issued apply to both commercial and recreational fishers who wish to undertake these fishing activities within the D&S IFCA’s District. A hybrid byelaw approach is being considered for Handworking activities (including, for example, bait digging, crab tiling and mussel collection), and is currently in development.

The Permit Byelaws and conditions therein were developed on the basis of thorough evidence gathering and consultation exercises, with a view to improving the sustainability of the managed fisheries and reduce impacts on the marine environment, particularly in relation to Marine Protected Areas (MPAs), such as EMSs and MCZs. The relatively rapid process for reviewing and modifying the flexible permit conditions allows for truly adaptive and responsive management. For example, the live wrasse fishery in Plymouth Sound is managed via conditions attached to Potting Permits, including a closed season, geographic restrictions on effort and the implementation of minimum and maximum conservation reference sizes (CRSs). Ongoing literature reviews and annual analysis of data collected from the fishery has enabled adaptive review of these conditions, including modification of the closed season to protect more spawning individuals, changes to the CRSs of corkwing to allow maintenance of local populations, and a prohibition on removal of rock cook wrasse, which the data suggest are sensitive to local fishing pressure.

Adaptive management is seen as a key tool for effectively implementing the Ecosystem Approach and is increasingly seen as an integral part of sustainable management. Adaptive management acknowledges the high levels of uncertainty in natural systems and the difficulties of making decisions based on this uncertainty. It provides a framework for a flexible and pragmatic approach to marine management, allowing sustainable development whilst adapting management and policies to respond to new information. In the case of either new evidence about the state of a fish stock (e.g. the discovery of finer population structure, or a decline in abundance) fishing effort can be reduced using a number of mechanisms. At a Common Fisheries Policy level this can

be slow, but with D&S IFCA's Permitting Byelaws, new measures can often be brought in to change management within a few months. However, if new information comes to light regarding the fish populations in the Severn Estuary, or if the cooling water intakes at HPC catch more fish than expected, or survival through the FRR is lower than expected, or climate change affects population dynamics in the estuary, there is currently no adaptive management measure that could be taken to reduce the impact of these intakes.

D&S IFCA's flexible permit-based byelaw approach has been successfully applied throughout the District, including in line with Defra's (2012) revised approach to the management of commercial fisheries in European Marine Sites (EMS). The objective of this revised approach is to ensure that all existing and potential commercial fishing activities are managed in accordance with Article 6 of the Habitats Directive. As Competent and Relevant Authorities, IFCA's have legal obligations to ensure that fishing activities which could adversely affect EMSs are managed in a manner that secures compliance with the requirements of Article 6 of the EU Habitats Directive. Fishing activities were classed as Red, Amber, Green or Blue risk according to the potential or actual impact of the gear type on the feature(s) for which a site was designated. Management was introduced by D&S IFCA to avoid harm for all red risk gear:feature interactions. For activities identified as Amber a site-level assessment was carried out to assess whether management of an activity is required to conserve site features and site integrity. Similar assessments were carried out for activities identified as Green risk if they were likely to have "in-combination effects" with other plans or projects.

Assessments were carried out in a manner consistent with the provisions of Article 6(3) of the Habitats Directive. Over 900 potential fishing gear-feature interactions were assessed in the Severn SAC and SPA alone. Appropriate management measures were implemented via the D&S IFCA's Permit Byelaws to ensure that fishing activities have no adverse effect on the integrity of the site(s). Examples of adaptive and reflexive management include the D&S IFCA's Netting Permit Byelaw, which includes detailed considerations and adaptations for Severn-specific requirements, and D&S IFCA's Mobile Fishing Permit Byelaw, which prohibits demersal fishing gear in certain MPAs in the District including the whole of the Severn Estuary EMS. Among other objectives, prevention of demersal fishing gear in the Severn Estuary EMS allows protection of the *Sabellaria* reef feature, the distribution of which is uncertain. An Angling Zone has also been established at Burnham, Berrow and Brean, to manage perceived conflict between different users of sea fisheries resources. D&S IFCA has also input to codes of conduct for recreational angling and bait digging established by the Association of Severn Estuary Relevant Authorities, which D&S IFCA currently chairs.

To further inform D&S IFCA's fulfilment of duties under MaCAA and the Habitats Directive, D&S IFCA continues to lead and participate in a variety of research programmes. For example, D&S IFCA co-funded and co-supervised a PhD student investigating the ecology, behaviour and distribution of bass in the South West, which will have important implications for the protection of bass nursery areas and wider understanding of bass movements and stock structure. D&S IFCA has also been involved in research to understand the distribution and habitat use of flatfish in the Severn Estuary, and the genetics and population structure of herring in the Bristol Channel. This research, in collaboration with local fishermen, demonstrates that discrete

populations of herring are spawning locally in the Bristol Channel, and suggests a level of stock structure that remains unaccounted for in stock assessments. D&S IFCA also hosts a Fisheries Research and Management Plan (FRMP) Officer, in collaboration with North Devon Biosphere, who is developing FRMPs for key fish species in the north of the D&S IFCA's District. The FRMPs provide an overview of the ecology of focal species and the fisheries that target them, and take an ecosystem approach to reviewing how management may be adapted to improve sustainability, and what research requirements need to be addressed to improve our understanding and future management. D&S IFCA's Senior Environment Officer also leads on the Severn Estuary Ecological Research Forum (SEERF). SEERF is a collection of researchers, NGOs and regulators with interests in the Severn, which meets twice per year to discuss and expand Severn-relevant ecological research, including projects that are enhancing our understanding of fish and habitats in the Severn, with a view to improving their management.

3. *Have Cefas consulted with Devon and Severn IFCA regarding current research, and fisheries evidence, as the Governmental Organisation responsible for management of the fisheries within the inner Bristol Channel and Severn Estuary?*

D&S IFCA has not received formal enquiries from Cefas regarding current research and fisheries evidence in the D&S IFCA's District (which covers the English side of the Severn Estuary EMS). Current and recent D&S IFCA staff (including the Chief Officer, Deputy Chief Officer and Senior Environment Officers) are not aware of any informal enquiries of this nature.

4. *Do Devon and Severn IFCA have any significant concerns in regard to the impacts of the direct water-cooling system proposed by EDF?*

D&S IFCA does not believe that direct cooling of new nuclear power stations should be considered Best Available Technique in any coastal or estuarine areas. In a review of best available technology in a US context, Henderson and Seaby (2000) argue that direct cooled power stations use such large volumes of water that there is no available suite of technologies that can be used to ensure that fish deaths and the impact on other aquatic life can be reduced to the levels that are achievable with less consumptive forms of closed-cycle cooling (Henderson and Seaby, 2000). There is a growing appreciation of – and evidence base for – the importance of early life-history stages of fish and the protection of their habitat, known as Essential Fish Habitat, which is present in the Severn Estuary and Inner Bristol Channel. D&S IFCA therefore believes that, in coastal and estuarine locations, there should be a move away from direct cooled new nuclear power stations towards closed circuit cooling.

Given that licences and consents have been granted that include direct cooling, D&S IFCA firmly believe that this should only proceed if appropriate mitigations are in place – these must include the Acoustic Fish Deterrent (AFD), alongside the Low Velocity Side Entry (LVSE) intake heads and Fish Recovery and Return (FRR) system. D&S IFCA has significant concerns regarding the use of the direct cooling system proposed by EDF if applied in the absence of these mitigations, particularly the AFD.

D&S IFCA's specific concerns are outlined in the D&S IFCA publications: '[D&S IFCA Response to the Environment Agency Consultation Regarding the EDF Energy Proposal to Remove the Requirement for Acoustic Fish Deterrents at Hinkley Point C](#)' and '[D&S IFCA's Representation on NNB Generation Company \(HPC\) Ltd Environmental Permit Appeal](#)'. These documents provide more complete reasoning and the evidence behind these concerns, and may be read in conjunction with the thorough evidence presented by the EA for the PINS appeal, which D&S IFCA supports. This evidence includes the EA's Statement of Case and the technical documents used to produce their updated Appropriate Assessment (<https://consult.environment-agency.gov.uk/psc/ta5-1ud-nnb-generation-company-hpc-limited-2/>). A summary of D&S IFCA's specific concerns has been provided below, but these and other concerns can be discussed as required.

There remain considerable uncertainties regarding the impact of direct cooling at HPC. First, D&S IFCA still has major concerns regarding the scaling from Hinkley Point B to Hinkley Point C, specifically the implications of moving the water intake 3.3km offshore. Secondly, there remains uncertainty as to how the LVSE intake heads will perform in reality. As the performance of the LVSE intake heads appears critical to the assessment of entrapment mortality the uncertainties should be acknowledged more clearly, and a precautionary approach adopted. In addition, no evidence has been produced to demonstrate that the LVSE intake heads will be effective in mitigating fish kill without application of the AFD; indeed, the documents referenced in the EA's Technical Brief TB006 ('Low Velocity Side Entry Intake Design; effect of intake intercept area') clearly state that the LVSE intake heads will need a behavioural cue to deter fish from entering. Third, the issue of barotrauma that results from fish passage through deeply buried intake tunnels (and subsequent fish mortality) does not appear to have been addressed.

D&S IFCA also has considerable concerns regarding the scale of the assessments presented by Cefas/EDF, particularly the use of ICES stock levels and population data from the Bristol Channel Approaches. These concerns are outlined in response to question 5.

Overall, increasing evidence (presented both by D&S IFCA and by the EA) demonstrates that, without the AFD, it would not be possible to conclude that the operation of the cooling water intakes would have no adverse effect on the integrity of designated sites (namely the Severn Estuary SAC and Ramsar, the River Wye SAC and River Usk SAC), in particular for the following features and sub-features (all of which are in unfavourable condition): fish assemblage (of 117 species), Twaite and Allis shad, Atlantic salmon, European eel and the migratory fish assemblage.

5. The assessments presented by Cefas use ICES stock levels and population data from the Bristol Channel Approaches. Does the IFCA support this method?

D&S IFCA is unable to support this method of assessment. The stock units considered relevant by the Cefas/EDF for HPC extend beyond the Severn SAC out to sea, by a factor of between 90 and 15,190 times the size of the SAC, depending on the species evaluated. The use of such large areas for an assessment of the impacts of HPC is not meaningful at the relevant scale (ie. the scale of the site whose integrity is under assessment). A more thorough account of the reasoning and evidence for the position taken by D&S IFCA are provided in the D&S IFCA publication '[D&S IFCA's](#)

[Representation on NNB Generation Company \(HPC\) Ltd Environmental Permit Appeal](#)', and also in the evidence provided by the EA for the PINS appeal, which D&S IFCA supports. This evidence includes the EA's Statement of Case and the technical documents used to produce their updated Appropriate Assessment (<https://consult.environment-agency.gov.uk/psc/ta5-1ud-nnb-generation-company-hpc-limited-2/>). A summary of some key points has been provided below, but these and other points can be discussed as required.

The stock units used by Cefas/EDF were developed for the management of stocks at a broad geographic scale, not for an estuarine EIA or HRA. D&S IFCA agree with the EA that the assessments must be at the scale of the designated site, since the test of no adverse effect is in relation to the integrity of the site. This is clear from case law and EU Commission guidance. The Cefas/EDF documents TR456 and SPP106 rely heavily on ICES stock units and the assertion that they are fit for the purpose of assessing populations of fish at a single site. The suggestion in SPP106 and elsewhere that 'fish stock identities are decided after critical review of all the scientific evidence and are subject to regular peer review when new evidence becomes available' is an oversimplification of the limitations of ICES management units and the processes and procedures used to change those boundaries.

In a recent paper (published in the ICES Journal of Marine Science) led by Lisa Kerr (a former Chair of the ICES Stock Identification Methods Working Group) the authors state that: *'depending on the geographic location, there may be political, legal, cultural, and social pressures that prevent revision of stock boundaries or adding complexity to stock assessments. For example, in Europe, sampling units and intensities are currently fixed by regulation through the relatively inflexible data collection framework (EU, 2008), which creates financial consequences for member states when sampling methodology is altered to accommodate a new stock area design.'* (Kerr et al., 2017).

Recent acoustic telemetry and genetic studies have revealed substantial structuring among marine fish populations, even among those that were thought to have little genetic differentiation. This is the case even in highly mobile species with wide geographic distributions and high dispersal potential. Inconsistency between population structure and spatial management units may result in overexploitation, with consequences ranging from loss of local genetic diversity to depletion or extinction of local populations. If local populations are managed as a single unit, extinction of populations may occur before analyses at the level of the single management unit could detect any declines (Frank and Brickman 2000; Allendorf et al., 2008).

Furthermore, reductions in genetic diversity resulting from overexploitation may preclude adaptations to changing environmental conditions (e.g. Reed and Frankham, 2003), while depletion or extinction of local populations may lead to ecosystem changes. Hence, failing to identify existing population structuring can lead to over-harvesting of one or more separate populations in a fishery (Hauser and Carvalho, 2008), potentially causing a collapse (Cadrin, 2020), as exemplified by the Atlantic cod (*Gadus morhua*) fisheries in Newfoundland (e.g. Hutchings and Myers, 1994).

Despite increased recognition of complex population structure and stock mixing, disparities between population structure and current management units have not been reconciled. Also, it is increasingly recognised that resolving differences in biological and

management units for fish stocks has two elements. Firstly, the question of spatial delineation of fish stocks and, second, the discovery of significant sub structuring within stocks, with spatial subunits having different ecological and/or demographic functions (Hidalgo et al. 2017). Even for pelagic fish with a high migration potential it has been shown that reproductive isolation can be maintained even in populations exhibiting substantial mixing during larval and adult life stages (Bekkevold et al. 2005). For some commercial species there is considerable evidence that there may be finer-scale population structuring that is extremely relevant to fish in the Bristol Channel and Severn Estuary. For many less commercially important (but potentially ecologically important species) there is likely to be even less information and more uncertainty about the stock identity or finer scale population dynamics.

Cefas/EDF state that many species show a genetically homogenous structure over the entirety of the stock areas used. However, it is widely recognised that very few individuals would have to mix across distinct populations to produce such a genetic structure, yet these few individuals would not be sufficient to maintain the population size or rescue local populations from extinction. Furthermore, “research efforts have demonstrated that marine fish with little population structure and essentially homogeneous genetic and phenotypic characteristics are the exception rather than the rule” (Kerr et al., 2017). Therefore, even the absence of significant genetic structuring is an insufficient basis for assuming that the HPC cooling intakes will not have an adverse effect on the fish assemblage.

In the context of the assessment by Cefas of the impacts of impingement by Hinkley Point C, the failure to consider the underlying population structure means that the current assessments may overestimate the geographical distribution of the relevant stock and the size of the relevant SSB. Even if the use of assessments at the scale of ICES stocks were feasible and acceptable, it is vital to note that nearby stocks of some key species (e.g. cod, herring and bass) are in poor health and are vulnerable to external stressors. For example, cod stocks in ICES divisions VIIe-k are well below biologically sustainable levels, and that ICES recognise that their spawning stock biomass has likely been overestimated. This, combined with the fine-scale genetic structuring in cod populations, suggests that a precautionary approach to cod is warranted. Indeed, “Failure to recognize this complexity of stock structure in past management plans is likely to have been a contributory factor to the overexploitation of cod stocks around the British Isles” (Neat et al., 2014). Similarly, the status of the Atlantic herring stock in the Bristol Channel is uncertain and unassessed, and D&S IFCA is involved in research that has demonstrated the existence – within the Bristol Channel – of multiple distinct spawning populations that are demographically and ecologically different, yet are geographically relatively close (e.g. Clovelly and Minehead). Furthermore, the nearby European seabass stocks have decreased reproductive capacity, and D&S IFCA research demonstrates a high degree of site fidelity and small-scale population movements in bass in the South West, which suggests that bass are vulnerable to external pressures and may be unlikely to ‘re-stock’ locally depleted populations from elsewhere.

D&S IFCA therefore fully support the EA’s review of the scale of the assessment used for each species based on the available evidence and a more precautionary approach to the delineation of stock boundaries in this context.

6. *Cefas and EDF state that the impacts on fish stocks will be negligible in comparison to other fishing activities. Do you agree with this statement? What are the fishing activities operating within the Inner Bristol Channel/Severn Estuary area?*

D&S IFCA disagrees strongly with this statement, and with the assessment used by Cefas/EDF to generate this conclusion. The scale of the assessment of the impacts of the cooling water intake system is inappropriate and, when rescaled to an appropriate geographical resolution, it is clear that the impacts on fish will be significant. Firstly, it is inappropriate to assess the impacts of the cooling water intakes relative to stocks at the scale of, for example, ICES stock levels (as outlined above). Secondly, it is inappropriate to assess the impacts of the cooling water intakes relative to fishing effort and landings at the scale presented in EDF/Cefas reports, particularly when this is not representative of the fishing activity that occurs in the Severn Estuary EMS or Inner Bristol Channel, or in the vicinity of the cooling water intakes. Fishing in this area is minimal, and not well-represented by assessments of landings into north Devon ports, or of fishing effort or fishing mortality at ICES stock levels.

The majority of fishing activity in the Bristol Channel region occurs in areas west of Lundy Island, with very little activity in English waters of the Central or Inner Bristol Channel. Fishing within the D&S IFCA's District (defined above) requires an appropriate Permit to be issued by D&S IFCA. D&S IFCA has issued approximately 50 current commercial fishing permits to around 40 individual vessels that are registered to ports in the north of the D&S IFCA's District, or in Cornwall or Wales. The majority of these permits are for netting or potting activities, with fewer than ten mobile fishing permits. In contrast, D&S IFCA has issued over 500 commercial fishing permits across the District as a whole. D&S IFCA has also issued approximately 100 recreational fishing permits to individuals with addresses in the north of the District, Cornwall or Wales, whereas D&S IFCA has issued over 1400 recreational fishing for the District overall. This begins to demonstrate the relatively low level of fishing that occurs in the north of the District.

In the north of the District, the fishers using pots tend to fish close inshore near the mainland or around Lundy, targeting crab, lobster and whelk, which are closely managed by D&S IFCA's permit conditions stipulating size limits and other catch criteria. Ray species comprise the majority (and greatest value) of 'whitefish' landings into North Devon ports, though other species are also targeted, including flatfish, cod, haddock and whiting. There is also a seasonal (summer) squid fishery. MMO-reported landings (of all species) to ports in the north of the District totalled 934 tonnes in 2019; by contrast, landings to ports in the south of the District totalled 24543 tonnes. It is also important to note that much of the fish landed in the north of the District will have been caught outside of the central Bristol Channel, and landings may be from visiting vessels and/or from activity outside of the D&S IFCA's District.

Fisheries in the Inner Bristol Channel and Severn Estuary area are very limited, in part due to the extreme tidal conditions. The activities known to be occurring are summarised below. There are also several management mechanisms in place, which are detailed in D&S IFCA's Byelaws, Permit Conditions and Annexes; a selection of management measures of direct relevance to the Severn Estuary and Inner Bristol Channel area are summarised here:

- Netting activity in the area is restricted by the **Netting Permit Byelaw**, which prohibits the use of nets in estuaries to the landward of estuary closing lines specified in the technical annex to the Byelaw. This applies to all nets except seine nets $\leq 20\text{m}$ in length (with maximum 20mm mesh size) used for the capture of sandeels, and applies to all estuaries in the area including the Parrett, Brue, Axe (Somerset) and Severn, where the Severn Estuary closing line is defined as a line between Flat Holm lighthouse (51°22.617'N 003°07.317'W) and a point south of Beach Road/ Sand Road Junction (51°22.552'N 002°57.724'W).
- The Netting Permit Byelaw also restricts netting in several coastal areas including near Lynmouth Bay, Dunster, Watchet, Doniford and Berrow Flats.
- An area known as the Burnham, Berrow and Brean Angling Zone is the subject of a voluntary closure to netting and longlining activity. This is to acknowledge the importance of the area to recreational sea anglers.
- The entire Severn Estuary SAC is closed to access by vessels using demersal mobile gear, under the **Mobile Fishing Permit Byelaw**.
- Potting activity in the area is restricted by the **Potting Permit Byelaw**, which prohibits the use of pots in estuaries to the landward of estuary closing lines specified in the technical annex to the Byelaw. This applies to all pots with an entrance equal to or less than 85 mm at its narrowest point except where the narrowest part of the entrance is fitted with a rigid ring that is the same width as the narrowest part of the entrance. This restriction applies to all estuaries in the area including the Parrett, Brue, Axe (Somerset) and Severn
- There are further geographical restrictions in place for other areas of the Bristol Channel, as outlined in the respective Byelaws, Permit Conditions and Annexes, available at <https://www.devonandsevernifca.gov.uk/Resource-library/E-Legislation-and-management-relevant-to-functions/Current-Permit-Byelaws-Permit-Conditions>

The remainder of this section summarises the fishing activity that is known to occur within the Severn Estuary EMS and inner Bristol Channel. No fish traps are thought to be used commercially within the EMS, though historic fish weirs are used with very low levels of effort just outside of the EMS (near Minehead), and small-scale recreational potting may occur: 12 permits for recreational potting have been issued to individuals resident in the Bristol to Bridgwater, though their target areas are unknown. Stake nets are also fished at Minehead. Only one small-scale commercial net fishery remains in the area (at Stolford), and the majority of (predominantly recreational) netting occurs between Minehead and Watchet (outside of the EMS), with very low recreational effort also known to occur near Weston-super-Mare. The netting fishery at Stolford is one of the best-documented in the Severn Estuary. This fishery has typically focused on brown shrimp using fixed fyke nets at the low water mark, though gill nets are also used. Only two fishers now prosecute this fishery, which is managed through collaboration between Natural England and D&S IFCA. Permit conditions affecting this fishery include geographical restriction and zonation, a maximum amount of net, avoidance of *Sabellaria* formations and the mandatory return of protected species (shad, lamprey, salmon, eel and sea trout) to the sea.

Two netting operations continue at Weston Super Mare, both on a small-scale recreational, part time and seasonal basis. The operators of both sets of nets have been interviewed as part of the D&S IFCA netting survey. The first set are small shrimp nets set over rocky ground to target shrimp and sprats during spring tides between September to January. The second set of nets are trammel nets, set further out onto the mud. These nets use 4 ¾ inch inner mesh to target mullet, bass and flatfish including sole. The nets are fished on neap tides and are highly weather dependent, as too much swell or wind results in a large amount of weed and debris being caught. A fisherman from Wales also uses nets in Weston Bay occasionally, on a part-time basis in the summer months. This fisher uses a total of 4 small surface gill nets and bottom-based trammel nets, which are accompanied while in use. This fisher's access to Weston is weather-dependent due to the journey across the estuary, and this individual makes 10-15 visits per year. A 'typical' catch would include bass, mullet, ray and sole, as well as plaice, flounder, smooth hound, herring and cod.

Fixed nets may be fished infrequently in the southern half of Sand Bay, up to around twice per year. Some drift netting still occurs in the Minehead area for herring, but this is some distance outside the Severn Estuary SAC & SPA and the netting activity tends to occur westwards from Minehead, away from the SAC. To D&S IFCA's knowledge only two fishermen operate a shrimp pushnet within or near to the EMS.

The use of longlines has occasionally been reported within the EMS, but this activity is thought to be very sporadic and low-level. There is no known commercial fishing by rod and line within the Severn Estuary EMS. Commercial rod and line boats operate out of Lynmouth. North and east of this only charter boats and private recreational sea angling boats operate from the English side of the Severn Estuary. For example, charter vessels for recreational sea angling operate from Minehead.

References

- Allendorf, F. W., England, P. R., Luikart, G., Ritchie, P. A. and Ryman, N. 2008. Genetic effects of harvest on wild animal populations. *Trends in Ecology and Evolution*, 23: 327–337.
- Bekkevold, D., Aandre, C., Dahlgren, T.G., Clausen, L.A.W., Torstenssen, E., Mosegaard, H., Carvalho, G.R., Christensen, T.B., Norlinder, E., and Ruzzante (2005). Environmental correlates of population differentiation in Atlantic herring. *Evolution*, 59: 2656-2668.
- Cadrin, S. X. 2020. Defining spatial structure for fishery stock assessment. *Fisheries Research*, 221: 105397.
- Frank, K.T. and Brickman, D. (2000) Allee effects and compensatory population dynamics within a stock complex. *Canadian Journal of Fisheries and Aquatic Sciences* 57, 513–517.
- Hauser, L. and Carvalho, G. R. 2008. Paradigm shifts in marine fisheries genetics: ugly hypotheses slain by beautiful facts. *Fish and Fisheries*, 9: 333–362.
- Henderson, P.A. and Seaby, R.M.H (2000) Technical Evaluation of US Environmental Protection Agency Proposed Cooling Water Intake Regulations for New Facilities, Pisces Conservation Ltd.

Hidalgo, M., Kaplan, D.M., Kerr, L.A., Watson, J.R., Paris, C.B. and Brownman, H.I. (2017). Advancing the link between ocean connectivity, ecological function and management challenges. *ICES Journal of Marine Science*, 74(6): 1702 – 1707.

Hutchings, J. A. and Myers, R. A. 1994. What can be learned from the collapse of a renewable resource? Atlantic cod, *Gadus morhua*, of Newfoundland and Labrador. *Canadian Journal of Fisheries and Aquatic Sciences*, 51: 2126–2146.

Kerr, L.A., Cadrin, S.X., and Hintzen, N.T. 2017. Lessons learned from practical approaches to reconcile mismatches between biological population structure and stock units of marine fish. *ICES Journal of Marine Science*, 74(6): 1708-1722.

Neat, F.C., Bendall, V., Berx, B., Wright, P.J., Ó Cuaig, M., Townhill, B., Schön, P.J., Lee, J. and Righton, D. 2014. Movement of Atlantic cod around the British Isles: implications for finer scale stock management. *Journal of Applied Ecology*, 51(6): 1564-1574.

Reed, D. H. and Frankham, R. 2003. Correlation between fitness and genetic diversity. *Conservation Biology*, 17: 230–237.

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Dr James Stewart Senior Environment Officer
Devon and Severn Inshore Fisheries and Conservation Authority

J.Stewart@devonandsevernifca.gov.uk

14 January 2021

Dear Dr Stewart,

On behalf of the Hinkley Point C Stakeholder Reference Group, thank you very much for attending our meeting on 21 December. We found the information and views you shared with us, both in your note and during the meeting, very interesting and they will undoubtedly be very useful as we develop our advice to the First Minister on the implications to Wales of the Hinkley Point C development.

During the meeting we asked for your views on specific technical features of the project, including the use of Archimedes screws to move fish. You indicated that you would be able to provide these in writing. Our second request is for a link to a report by Henderson & Seaby (2000) cited in your written response to the Group. I would be grateful if you could provide these via email to the Group's secretariat.

Thank you again for your assistance.

Yours sincerely

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

must not copy, distribute, or disseminate this e-mail or any enclosures to anyone other than the addressee without the express written permission of the Chief Officer of Devon & Severn IFCA or his Deputy.

If you receive this communication in error, please immediately return the message and / or telephone the above address.

The Devon & Severn IFCA is able to, and reserves the right to, monitor e-mail communications passing through its network.

Whilst every effort has been made to check for viruses in this e-mail and any attachments, the Devon & Severn IFCA does not warrant that it or they are free of viruses. If in any doubt then please ask for the hard copy.

Sganiwyd y neges hon am bob feirws hysbys wrth iddi adael Llywodraeth Cymru. Mae Llywodraeth Cymru yn cymryd o ddifrif yr angen i ddiogelu eich data. Os cysylltwch â Llywodraeth Cymru, mae ein [hysbysiad preifatrwydd](#) yn esbonio sut rydym yn defnyddio eich gwybodaeth a sut rydym yn diogelu eich preifatrwydd. Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn anfon ateb yn Gymraeg i ohebiaeth a dderbynnir yn Gymraeg ac ni fydd gohebu yn Gymraeg yn arwain at oedi. On leaving the Welsh Government this email was scanned for all known viruses. The Welsh Government takes the protection of your data seriously. If you contact the Welsh Government then our [Privacy Notice](#) explains how we use your information and the ways in which we protect your privacy. We welcome receiving correspondence in Welsh. Any correspondence received in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in responding.

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Kevin Gordon
Environment Appeals Administration
The Planning Inspectorate
3A Eagle Wing
Temple Quay House
2 The Square
Bristol
BS1 6PN
ETC@planninginspectorate.gov.uk

27 October 2020

Dear Mr Gordon

Re: NNB Generation Company (HPC) Limited, EPR/HP3228XT/V004: Environmental Permit Appeal

The First Minister of Wales, Rt Hon Mark Drakeford MS, established an expert advisory group (the Hinkley Point C Stakeholder Reference Group) earlier this year to provide his Government with advice on the implications of the Hinkley Point C development on the people and environment of Wales. I am writing to you in my capacity as Chair of the Group. The views expressed in this letter are of the Stakeholder Reference Group, not of the Welsh Government.

The Group has met four times since its creation this summer and at our latest meeting, on 19 October, we heard from representatives of EDF and Cefas. The Group sought information on a wide range of matters relating to the development, including the Acoustic Fish Deterrent (AFD) system and the Environmental Permit Appeal currently before the Planning Inspectorate. The Group would like to be clear that it does not wish to express a view on whether the Appeal should be allowed or dismissed. The purpose of this letter is to highlight issues which the Group believe to be pertinent to the Appeal, having heard directly from the appellant and their technical advisors at our most recent meeting.

The Hinkley Point C development has the potential to impact significantly on the people and environment of Wales. EDF were keen to highlight positive economic impacts, as a result of the many contracts awarded to Welsh businesses. The project's impacts on the environment are less clear, and the Group therefore believes that EDF, UK and Welsh Governments, relevant local authorities and environmental regulators in England and Wales have a duty to continue to ensure that the project adheres to the highest possible environmental standards.

The potential environmental impacts of the project on Wales are a consequence of the location of Hinkley on the Severn Estuary, which you will know is a dynamic tidal environment with the second greatest tidal range in the world. The project site is located in the same Severn Estuary/Môr Hafren Special Area of Conservation (EU Code UK001303) under the European Union's Habitats Directive (92/43/EEC) as the coastline of south east Wales, as well as parts of the marine environment situated within Welsh waters.

The Severn Estuary is one of the largest and most important mosaics of wetland habitat in Europe. The estuary and its tributary rivers support a wealth of wildlife and receives protection under domestic and European legislation. Its coastal habitats provide a home for tens of thousands of migratory waterbirds, around 100 species of fish, and large numbers of invertebrates. The estuary is also a vital migration route for migratory fish. It is our duty as a Group to make sure that the procedures for regulating the development of Hinkley Point C take appropriate account of the protection and enhancement of Wales' coastal and marine environments, and to highlight any threats to these environments.

The Group recognises the environmental considerations underpinning the Development Consent Order (DCO) granted by the Secretary of State to allow the development of Hinkley Point C. This DCO must provide the absolute baseline for environmental standards, mitigation measures and planning obligations associated with the project. The principle of developing to the approved specifications is fundamental to the UK planning and infrastructure consenting systems. Departures from agreed plans undermine the credibility of, and public trust in, those systems. This is especially the case for projects as significant as new nuclear power stations, where changes that may be considered minor on a project scale can have major implications on surrounding populations and ecosystems. The Group therefore asks that the Planning Inspector should assess and be fully satisfied that the appeal does not lessen or weaken the commitments expected of the Developer under the DCO.

At our recent meeting, the Group was not able to develop a comprehensive understanding of why EDF had chosen to submit an appeal and to interpret the Environment Agency's consideration of its application as a deemed refusal. We would be concerned should the appeal be made on the basis of cost and human health and safety, and not on the basis of any evidence that shows the AFD to be unnecessary from an environmental perspective. As the AFD is fundamentally a mechanism designed to help make the project's impact on the environment acceptable, it stands to reason that only environmental reasons could justify its removal from the approved scheme.

We understand the Environment Agency's position is that it had made a provisional conclusion that the removal of the AFD, without additional mitigation measures, would be unlikely to meet the requirements of the Habitats Regulations. We reiterate our view that retrospective changes to agreed consents that row back from agreed standards – or are perceived to weaken them - are inappropriate and unacceptable for projects such as Hinkley Point C. The Group has received papers outlining the potential harm that Hinkley Point C poses to fish stocks in the Severn Estuary, even with the AFD in place. The Group acknowledges that the DCO allows for losses to fish stocks, which will affect ecosystem in English and Welsh marine environments, but the Group would request that the detailed evidence of expert stakeholders in the field are given full consideration and due weight in the determination of this appeal.

In conclusion, the Group needs to be satisfied that our concerns about aspects of Hinkley Point C's environmental credentials will be thoroughly assessed through the statutory consenting and appeals processes. Our priority is to ensure potential impacts on the people and environment of Wales are given the consideration they warrant in each and every one of those processes, and in the future monitoring of the project's impacts.

Please do not hesitate to contact me should you wish for the Group to elaborate on our position.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', with a long horizontal flourish extending to the right.

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Pat Flaherty
Chief Executive, Somerset County Council

PFlaherty@somerset.gov.uk

19 January 2021

Dear Mr Flaherty

The First Minister of Wales, Mark Drakeford MS, has appointed an expert group to provide the Welsh Government with advice on the implications to Wales of the Hinkley Point C nuclear power plant. The Group was established last July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process, from organisations with responsibilities for permitting and licensing the development activities, and from various stakeholders in the construction and maintenance of Hinkley Point C.

The research and evidence we have gathered so far has enabled the Group to identify priority areas on which we expect provide the First Minister with advice, in the form of a report to be submitted in March. Our advice to the First Minister will be entirely based on evidence. The areas are:

- The resilience of the Severn Estuary marine ecosystem;
- Implications for Wales of the use of Cardiff Grounds marine disposal site for dredged material from Hinkley Point C
- Emergency and contingency planning;
- Cross-border relations and arrangements;

I am writing to you in relation to the emergency and contingency planning arrangements for Hinkley Point B and C, and to explore cross-border relations and arrangements in this area. There is significant political and public interest within Wales about the development of Hinkley Point C and it has become clear to us through our enquiries that emergency and contingency planning is one area of the development where it is widely assumed that there will be implications for Wales.

On that basis, the Group wrote to the Office for Nuclear Regulation in November seeking information on roles and responsibilities regarding emergency and contingency planning for

Parc Cathays, Caerdydd CF10 3NQ
Cathays Park, Cardiff CF10 3NQ
grwphinkley@llyw.cymru /
hinkleygroup@gov.wales
Gwefan • website:
<https://gov.wales/hinkley-point-c-stakeholder-reference-group>

Hinkley Point B and C. We were keen to understand in detail what are the requirements and expectations of risk management authorities in Wales, in terms of planning, training and response in the event of any accidental release from the operation of Hinkley Point B and C. We have also engaged with the Counsel General for Wales, as has expressed interest in this matter. I have attached the Group's correspondence with the ONR and the Counsel General for information.

The ONR letter confirms that Somerset County Council as the lead local authority will, in due course, be required under REPPiR 2019 to prepare and maintain an off-site emergency plan for Hinkley Point C. It also confirms the plans your authority has in place in relation to Hinkley Point B.

EDF's consequence report for Hinkley Point B identifies an Outline Planning Zone of 30km as per REPPiR 2019. In addition, EDF's consequence report states 'it is recommended that advice be issued within 24 hours to restrict consumption of leafy green vegetables, milk and water from open sources/rain water in all sectors of the Detailed Emergency Planning Zone and downwind of the site to a distance of 43km.' Both the Outline Planning Zone and a distance of 43km downwind in the prevailing wind direction will cover a large area of Wales.

The Group would be grateful for details of how your authority has involved risk management authorities and relevant statutory partnerships such as the Local Resilience Forum, for relevant areas in Wales in the development and operation of your off-site emergency plans for Hinkley Point B as previously drawn up under REPPiR 01 and during the current development under REPPiR 19. We would be interested to know, for example, whether risk management authorities in Wales were consulted and whether they responded to plans prepared by your authority.

We asked the ONR for their view on training and preparedness among risk management authorities for nuclear incidents and we would appreciate any insight you can offer on this matter in relation to the experience in managing the off-site emergency plan for Hinkley Point A and B. Finally, we appreciate fully that Hinkley Point C is not included in the development of the current off-site emergency plan for Hinkley Point B, but we would be interested in to learn of any additional plans to involve risk management authorities in Wales at the appropriate time.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', written in a cursive style.

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Jane Davidson
Chair
Hinkley Point C Stakeholder
Reference Group
Welsh Government
Cathays Park,
Cardiff
CF10 3NQ

Please ask for: Paula Hewitt

Email: prhewitt@somerset.gov.uk

Date: 2/3/2021

Dear Ms Davidson

Off-site emergency planning for Hinkley Point B Site

Thank you for your letter of 19th January regarding the emergency planning activities in respect of Hinkley Point B site under REPPiR 01 and REPPiR 19.

I confirm that Somerset County Council has responsibilities under the REPPiR regulations to maintain and update the off-site planning arrangements. These duties are discharged by the authority's Civil Contingencies Unit. During 2019/20, a significant amount of work was undertaken to redefine the detailed emergency planning zone and to produce an updated off-site plan in line with the REPPiR 19 regulations and guidance. Although there have been some slight adjustments to the boundaries of the detailed emergency planning zone immediate surrounding the site, there has been no alteration to the operation of the B site. REPPiR 19 introduced the concept of an outline planning zone but this was already partly covered within the previous Somerset off-site plan under extendibility.

From discussion with my lead planner, I note that there has been only limited dialogue in recent years between my planners and the relevant risk management authorities in Wales. This may be understandable given the length of time that REPPiR has been in existence and the maturity of the planning arrangements. But with the B site due to finish generation by July 2022 and with the C site due to come online subsequently, I think there may be value in increased contact between the risk management teams on either side of the Bristol Channel going forward.

Responses to your detailed questions are attached in the table below.
I hope this information meets your requirements but if you need any further details, please contact Russell Davies, Deputy Civil Contingencies Manager, and lead planner for the off-site plan (rndavies@somerset.gov.uk).

Yours sincerely



Paula Hewitt

**Deputy Chief Executive,
Lead Director for Economic and Community Infrastructure & Director of
Commissioning
Somerset County Council**

Question 1
<p><i>“The Group would be grateful for details of how your authority has involved risk management authorities and relevant statutory partnerships such as the Local Resilience Forum, for relevant areas in Wales in the development and operation of your off-site emergency plans for Hinkley Point B as previously drawn up under REPPiR 01 and during the current development under REPPiR 19.</i></p> <p><i>We would be interested to know, for example, whether risk management authorities in Wales were consulted and whether they responded to plans prepared by your authority.”</i></p>
Response
<p>1) Cardiff Council, Vale of Glamorgan Council, Rhondda Cynon Taf County Borough Council, Newport City Council, North Somerset Council and Devon County Council have been referenced in the off-site planning documents since the introduction of REPPiR 01 and are sent copies of the multi-agency off-site plan following plan updates. Somerset County Council is required to update the off-site plan on a three-year schedule.</p> <p>2) The most recent off-site plan update went live in August 2020 following the introduction of REPPiR 19 and the redetermination of the</p>

detailed emergency planning zone. Copies of the most recent plan have been sent to the authorities listed above with reference to the outline planning sections.

- 3) The Civil Contingencies Unit is finalising an update to the public information relating to off-site nuclear emergencies. In the near future, this information will be shared with all organisations mentioned in the off-site plan including those in the outline planning areas including the authorities listed above. Organisations will be asked to include the public facing information on their websites.

Question 2

"We asked the ONR for their view on training and preparedness among risk management authorities for nuclear incidents and we would appreciate any insight you can offer on this matter in relation to the experience in managing the off-site emergency plan for Hinkley Point A and B."

Response

- 1) REPPIR 01 and REPPIR 19 set out expectations for training, exercising and preparedness regarding the off-site arrangements.
- 2) Somerset County Council is required, with EDF to deliver a test of the off-site plan on a three-year cycle. The exercise scope and objectives are agreed in advance with ONR. ONR provide assessors to observe the tests and sign off the post -exercise reports and recommendations.
- 3) The most recent test of the off-site plan was Exercise Nighthawk held in June 2018. Because the focus of the exercise was the immediate area surrounding the site and not the wider outline planning area, we did not extend an invitation to the Devon or Welsh authorities on that occasion.
- 4) Representatives of risk management organisations in Wales would be very welcome to attend future Level 2 (off-site plan) exercises as observers. The next Level 2 exercise for Hinkley Point B will be Exercise Dorado. This will be a modular exercise to be held as workshops across two dates in July and September 2021.
- 5) SCC is also required to ensure that information is available to partner organisations that would have a role in the activation of the off-site plan. This is discharged in three ways:

- Circulation of the off-site plan
- Delivery of exercises to test the plan
- Delivery of briefing and awareness events in prior to exercises. Exact participants will vary with scope of the exercise.

The briefing event webinar for Exercise Dorado is scheduled for 9th June 2021 and representatives of the risk management organisations in Wales would be welcome to attend.

- 6) It should be noted that the call-out and alerting arrangements for an off-site nuclear emergency at Hinkley Point B would include the Welsh authorities. As set out in the off-site plan, notification would be via MHCLG to the Welsh Government for onward transmission to relevant local authorities and public bodies.

Question 3

“Finally, we appreciate fully that Hinkley Point C is not included in the development of the current off-site emergency plan for Hinkley Point B, but we would be interested in to learn of any additional plans to involve risk management authorities in Wales at the appropriate time.”

Response

- 1) Currently there is engagement between EDF Energy Nuclear New Build, local response organisations and local communities around the progress of the construction project. But you are correct that the C Site is not currently within the scope of the off-site plan.
- 2) We would look to OHR to give a notification and direction to Somerset County Council when the C Site is required to come within the scope of the off-site planning arrangements under REPP19. Somerset County Council will then carry out an update of the off-site plan to incorporate the C Site and will engage with organisations involved with the off-site plan. Our current planning assumption is that this will take place within the next 5 years.

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Trudi Wakelin
Director of Marine Licensing
Marine Management Organisation

trudi.wakelin@marinemanagement.org.uk

29 January 2021

Dear Ms Wakelin

The First Minister of Wales, Mark Drakeford MS, has appointed an expert group to provide the Welsh Government with advice on the implications to Wales of the Hinkley Point C nuclear power plant. The Group was established in July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process, from organisations with responsibilities for permitting and licensing the development activities, and from various stakeholders in the construction and maintenance of Hinkley Point C.

The research and evidence we have gathered so far has enabled the Group to identify priority areas on which we expect provide the First Minister with advice in due course. An important area of enquiry for the Group is the dredging of mud from Hinkley Point C and its disposal in the Severn Estuary. Our Group is interested to know what guidance the MMO provides on the sampling and analysis of sediments for radioactive substances in relation to applications for dredging and disposal licenses.

We are aware that EDF has recently applied to the MMO to dispose mud at Portishead marine disposal grounds. This application is in addition to a planned application to Natural Resources Wales to dispose in the Cardiff Grounds. We would welcome clarity from the MMO on the procedure for determining this application, including any public consultation opportunities and whether the MMO will be seeking advice from any statutory consultees or key stakeholders.

The Group has its next meeting scheduled for 9.00am on Monday 15 February. We would like to invite you to attend part of the meeting to discuss the issues outlined in this letter, and to further explore the MMO's roles and responsibilities. The Secretariat to the Group will be pleased to assist with arrangements.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', with a long horizontal flourish extending to the right.

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group

Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Hinkley Point C Stakeholder Reference Group



Llywodraeth Cymru
Welsh Government

Trudi Wakelin
Director of Marine Licensing
Marine Management Organisation

trudi.wakelin@marinemanagement.org.uk

29 January 2021

Dear Ms Wakelin

The First Minister of Wales, Mark Drakeford MS, has appointed an expert group to provide the Welsh Government with advice on the implications to Wales of the Hinkley Point C nuclear power plant. The Group was established in July and it meets on a monthly basis. The Group is currently gathering evidence from key agencies involved in the development process, from organisations with responsibilities for permitting and licensing the development activities, and from various stakeholders in the construction and maintenance of Hinkley Point C.

The research and evidence we have gathered so far has enabled the Group to identify priority areas on which we expect provide the First Minister with advice in due course. An important area of enquiry for the Group is the dredging of mud from Hinkley Point C and its disposal in the Severn Estuary. Our Group is interested to know what guidance the MMO provides on the sampling and analysis of sediments for radioactive substances in relation to applications for dredging and disposal licenses.

We are aware that EDF has recently applied to the MMO to dispose mud at Portishead marine disposal grounds. This application is in addition to a planned application to Natural Resources Wales to dispose in the Cardiff Grounds. We would welcome clarity from the MMO on the procedure for determining this application, including any public consultation opportunities and whether the MMO will be seeking advice from any statutory consultees or key stakeholders.

The Group has its next meeting scheduled for 9.00am on Monday 15 February. We would like to invite you to attend part of the meeting to discuss the issues outlined in this letter, and to further explore the MMO's roles and responsibilities. The Secretariat to the Group will be pleased to assist with arrangements.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jane Davidson', with a long horizontal flourish extending to the right.

Jane Davidson

Cadeirydd, Grŵp Cyfeirio Rhanddeiliaid Hinkley Point C
Chair, Hinkley Point C Stakeholder Reference Group



Marine Management Organisation

Marine Licensing
Lancaster House
Hampshire Court
Newcastle upon Tyne

T +44 (0)300 123 1032
F +44 (0)191 0376 2681
www.gov.uk/mmo

Jonni Tomos
Cadeirydd, Grŵp Cyfeirio
Rhanddeiliaid Hinkley Point C Chair,
Hinkley Point C Stakeholder Reference
Group

Jonni.Tomos@gov.wales
CC: HinkleyGroup@gov.wales

Our Reference:
DCO/2013/00023/PC/06

By email only

24 February 2020

Dear Jonni,

Marine Management Organisation (MMO) role in the dredging of mud from Hinkley Point C and its disposal in the River Severn

1.1 General

I am writing in response to your letter of 29 January 2021 in which you raised several queries regarding the role of dredging of mud from Hinkley Point C (HPC) and its disposal in the River Severn.

1) **What guidance does the MMO provide on the sampling and analysis of sediments for radioactive substances in relation to applications for dredging and disposal licenses.**

Under the existing licence for HPC (reference L/2013/00178/6) there is consent to dredge but there is no provision for disposal within waters for which the MMO have jurisdiction. This is because the Applicant had consent from Natural Resources Wales (NRW) under marine licence reference 12/45/MLv1 to dispose of material to Cardiff Disposal Ground (site LU110). That consent expired in March 2019, therefore the Applicant seeks permission under the current variation for the option to dispose of material to The Portishead Disposal Grounds in the Bristol Channel (site LU070).

On 29 July 2020 the MMO issued a marine licence to permit the Applicant to undertake a sediment sampling campaign at the location of the proposed cooling water infrastructure. This sample plan was developed in consultation with NRW to ensure that the samples would be suitable to inform an application for disposal in either Welsh or English waters. This sample plan included advice on the number of samples, location of samples, and requirements for testing as required under the OSPAR guidelines for the management of dredged material. Further information on this sample plan can be found on the public register quoting reference L/2020/00234.

The current variation includes details of the full analysis of these samples in support of the request to vary marine licence reference L/2013/00178/6.



This analysis will be reviewed as part of the MMO determination of the application, following consultation with all relevant stakeholders.

2) Please clarify the MMO on the procedure for determining this application, including any public consultation opportunities and whether the MMO will be seeking advice from any statutory consultees or key stakeholders

The MMO have directly consulted a wide range of both statutory consultees and key stakeholders. This includes, but not limited to, NRW, Natural England, Environment Agency, Inshore Fisheries and Conservation Authorities Historic England, the local Ports/Harbour masters, Marine Coastguard Agency, Trinity House, Public Health England. Generally, the MMO would also seek specialist advice from Centre for Environment, Fisheries and Aquaculture Science (CEFAS) on matters of disposal to sea, but because of a conflict of interest the MMO has to date sought additional expertise from ABPmer. We have also written directly to over 140 individuals / stakeholders that were identified as having previously engaged with HPC and NRW on the previous application to NRW for disposal to Cardiff disposal site.

The MMO has opened public consultation via our online Marine Case Management System (MCMS). We have also updated the 'selected cases' page on our website and made posts on our social media. The selected cases page can be accessed via the following link: <https://www.gov.uk/government/publications/hinkley-point-c-application-to-vary-the-marine-licence-ref-12013001786>

Additionally, the details of the application have been published in 2 newspapers for 2 consecutive weeks (details of the specific papers are forthcoming).

The MMO will review representations throughout the consultation period so that any issues can be addressed ahead of the consultation end date of 26 March 2021. It is intended that if any major issues are identified, there may be a series of meetings with the relevant parties in order to discuss further.

The MMO continue to engage with NRW on a regular basis throughout the consultation period.

Following the consultation end date MMO will proceed to make a determination on whether to grant the requested variation.

Yours sincerely,

Tracey Champney
Marine Licensing Case Manager

D +44 (0) 208 225 6664

E tracey.champney@marinemanagement.org.uk

