Offshore Petroleum Regulator
for Environment & Decommissioning

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Department for Energy Security & Net Zero

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[redacted]

THE OFFSHORE OIL AND GAS EXPLORATION, PRODUCTION, UNLOADING AND STORAGE (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2020

NOTICE UNDER REGULATION 12(1)

Northern Endurance Partnership Development

The Offshore Petroleum Regulator for Environment and Decommissioning ("OPRED") acting on behalf of the Secretary of State for Energy Security and Net Zero ("the Secretary of State") is currently considering the Environmental Statement ("ES") and the representations received from the public consultation process in relation to the above project. BP Exploration Operating Company Limited is hereby required to provide further information in relation to the following:

1. Section 2.2.3.1 – Consideration of Alternatives - Please provide further detail on the assessment undertaken to decide between using a supply line and using supply vessels to deliver nitrogen for water washing. What was considered when reaching the decision?
2. Section 2.2.4.1 – Consideration of Alternatives - 'The location of the monitoring well is such that, if sufficient monitoring information can be obtained from the five injection wells, it may subsequently be used to serve a dual purpose with both pressure monitoring and CO_2 injection.' – if it is the case that the monitoring well is used as an injector how will this alter the project in terms of monitoring, field life, further seabed disturbance?
3. Section 3.2.1.1 – Project Description - The ES highlights the risk of the surface break-out of drilling fluids during the pipeline landfall Horizontal Directional Drilling process, where the drilling fluid makes its way to the surface and pools. Please provide an impact assessment of any potential break-out. What contingencies are in place should break-out occur?
4. Section 3.2.3.2 – Project Description - Please provide an assessment of the impact of boulder removal with the SCAR plough for both pipelines. This technique will impact upon the designated features of the Holderness Inshore MCZ and the Holderness Offshore MCZ.

Have other options for boulder relocation been considered? A grab rather than a plough would prevent boulders being left in linear heaps for example. Any alternative methods should be considered within the assessment.

5. Section 3.2.8.2 – Project Description - Please clarify what is the total length of trenching required to lay the infield flowlines?
6. Section 3.2.9 and Table 9-2 - Project Description – Installation of cables within the pipeline trenches would potentially reduce seabed disturbance. Will effort be made to install the cables within the pipeline and flowline trenches? What would prevent this from occurring?
7. Section 3.4.4 – Project Description - It is stated that there is a low probability of point source displacement of store formation water at the Bunter outcrop. What is the probability of formation water being displaced from a single point and what would be the impact if this was to occur?
8. Section 3.4.7 – Project Description – Please confirm that the landers used for monitoring will be over trawlable and fishing friendly.
9. Section 5.5 – EIA Methodology - Fugitive emissions and emissions from wireline work have been scoped out due to the low volumes involved. Please provide an estimation of the volumes of CO2 which could be emitted through these processes?
10. Section 6.4.1.3 – Seabed Disturbance - Please confirm whether rock dump will be required for rig stabilisation purposes.
11. Comment 6.4.2.1.2 – Seabed Disturbance - Please provide some further detail on how the areas of reefs formed from *Sabellaria spinulosa* were defined as a biogenic reef and thus an Annex 1 habitat and how the reefs were defined as ‘low’, ‘medium’ or ‘high’. The same comment applies to the Rocky reef habitat.
12. Comment 6.4.2.1.2 – Seabed Disturbance - Ocean quahogs – ‘Individuals in the path of trenching activity or anchor abrasion may be killed, although mortality is not expected to be total.’ – please clarify what is meant here.
13. Section 6.4.2.1.2 – Seabed Disturbance - Peat and Clay Outcrops were discounted due to insufficient evidence to classify any stations within these categories. Please provide further details of this assessment including a potential area of impact on these habitats.
14. Section 6 - Seabed Disturbance - is given as an impact for the SSIV on the Teesside pipeline. Will additional deposits be required to counter the scour? Please clarify and provide an assessment of this additional seabed disturbance if necessary.
15. Section 6.4.2.2.6 - Page 6-50 – Seabed Disturbance - ‘However, effort will be made to reduce the extent of seabed sweeping where possible, to minimise impacts.’ – how will this reduction be achieved? Please expand upon this point.
16. Section 9.8.2.2.4 – Physical Presence - The disturbance assessment for red throated divers is based on one vessel and the density of red throated divers at landfall. Please revisit this assessment, taking into account differing densities of red throated divers and the total number of vessels that will be present.
17. Section 6.9 – MCZ Assessment - The seabed impact created by any anchors laid from pipelay vessels or Jackup Barges used for potential landfall solutions and the abrasion created by the anchor chain on the seabed should be assessed against the Conservation Objectives of the Holderness Inshore MCZ – please consider this within the MCZ assessment.
18. Section 6.9.1.1.2 – MCZ Assessment - Temporary impacts on MCZ site features have been scoped out of the assessment. Whilst temporary impacts were not considered to be significant at the scale of seabed habitats and benthos across the

wider environment, the requirements for the MCZs are to assess effects against specific site conservation objectives. All activities and their associated pressures need to be assessed for each feature to ensure the assessment is complete.

19. Section 6.9.1.2.1 – MCZ Assessment - Please provide further clarification on why the option of surface-lay has been chosen for the section of the Humber pipeline crossing the Holderness Offshore MCZ rather than trench and burial.
20. Section 6.9.1.5.4 – MCZ Assessment - It should be noted that the conservation objectives for the sedimentary broad-scale habitats (Subtidal coarse sediment, Subtidal sand and Subtidal mixed sediments) in Holderness Offshore MCZ for 'extent and distribution' and 'structure and function' are to 'recover' not to 'maintain' as stated on page 6-104 (part B) of the ES. The conservation objectives for the species Ocean quahog are 'recover' for 'extent and distribution', 'structure and function' and 'supporting processes'. This signifies that these designated features of the site are in unfavourable condition. Please provide an updated MCZ Assessment to reflect this and this time including other industries such as renewables and interconnector cables when considering the cumulative impacts.
21. Section 6.9.1.5.4.1 – MCZ Assessment - Please provide an explanation for the worst case rock dump of the pipeline being given as 5% within the Holderness Offshore MCZ. How has this figure been derived?
22. Section 6.9.2.2 – Special Protection Areas -The Teesmouth and Cleveland Coast SPA is also designated for 'water bird assemblage' please provide a consideration of the impact on this feature.
23. Table 6-20 – MCZ Assessment - Although surveys on the Humber pipeline route did not identify evidence of adult ocean quahog, it is a protected feature of the Holderness Offshore MCZ site and an assessment of the impact on the feature and supporting habitat should be provided.
24. Section 7.5.1.1.1 – Underwater Sound - Seals are discounted from the assessment of disturbance from piling operations due to low densities at the Endurance Store, however. common seal is a feature of the Teesmouth and Cleveland Coast SSSI and in the Tees Estuary there is breeding population of harbour seals. Please consider whether seals may be impacted by the trestle piling as part of nearshore HDD operations.
25. Section 8.4.2.1 – Cuttings modelling – 'The modelled discharge occurred over 1.1 days.' – please confirm that this is representative of the discharges that will occur from drilling?
26. Section 8.4.4 – Formation Water Displacement - What is the total worst case total volume of formation water that may be displaced at the outcrop over the life of the project.
27. Section 8.4.4.7 – Formation Water Displacement – It is stated that metals will be retained within the sediment due to cation exchange. Have BP assessed how this will differ across the outcrop and will areas with less sediment cover lead to greater seepage of metals? Does the area have sufficient sediment depth, organic and clay components for this process to occur before the formation water reaches the water column?
28. Section 8.9.3 – Formation Water Displacement – 'Additionally, as evidenced by the findings of the benthic surveys in the area, the benthos at the Bunter Sandstone Outcrop is unaffected by the presence of elevated sediment concentrations of the various metals.' – will the concentrations increase as a result of the formation water displacement? Is it anticipated this will affect benthic populations?

29. Section 4.3.7 and 8.4.4.2 – Formation Water Displacement – What is the anticipated salinity of the fluids within the upper 140 m of displaced formation water and is it expected that the salinity will exceed the toxicological threshold of 36,750 ppm given in Section 8.4.4.5?

    Were samples taken from borehole results from a depth of <140 metres?
30. Section 8.4.4.5 – Formation Water Displacement – It appears the modelling has been undertaken with the seepage being modelled evenly across the 700,000 m2 – is this the case? Please provide clarity as to why it is considered to be a realistic scenario and give further explanation of the assumptions made in the model? Please clarify how the impact may differ if the point source is varied.
31. Section 9.4.3 and 3.2.4 – Physical Presence – 'A final decision on the type of vessel which will be utilised to lay the pipelines has not been made, but it may be a vessel which will require anchoring.' It was confirmed that seabed disturbance and snagging risk would be reduced by using a DP vessel to lay the pipelines. What will the decision on which vessel type is used be based on?
32. Section 9.6.4 – Physical Presence - Only disturbance associated with offshore wind farm vessel movements are considered in the cumulative assessment, not the presence of the infrastructure. Please provide justification for scoping out the presence of the infrastructure or provide an updated assessment.
33. Section 10.6.2.2 – Brine Leakage from Legacy Well - 'Some minor corrosion could occur and over centuries this could lead to perforation of the 13 3/8" casing local to the Bunter Sandstone Formation.' – what would be the result of this occurring? Could this have consequences on the CO2 stored within the reservoir? Please provide further information on the probability of this happening, timelines involved and the potential impact.
34. Section 10.6.3 – Brine Leakage from Legacy Well - What assumptions have been made in the impact assessment for brine leakage from a legacy well? E.g. volumes released, rate of release, salinity, point of release. Please clarify.
35. Table 10-17 – Is this table correct? The headings are both 'pH reductions greater than 0.1. Please clarify.
36. Section 11.5 - Local Air Quality – this section has not taken into account the siting of pipelay vessels or barges nearshore and the potential impact of this on local air quality. Please clarify.
37. Section 6.9.1 – MCZ Assessment - The area of impact to the Holderness Inshore MCZ has been calculated using a calculation of the area lost as a result of rock dump. Will there be further permanent habitat loss due to trenching, excavation, anchors and anchor chain abrasion? Please clarify and revise this figure if necessary.
38. Section 6 – Seabed Disturbance - The route of the proposed Humber pipelines is located within one kilometre of the Tolmount to Easington pipeline, which was installed using similar techniques as proposed within the ES. Mitigation measures used at Tolmount are mentioned on page 6-47. Please clarify if there is any information on the effectiveness of these mitigation measures. Has monitoring at Tolmount been carried out and does it provide further clarity on lasting impacts of the construction and habitat recovery?
39. Section 6.9.1 – MCZ Assessment - Infralittoral sand and muddy sand is a designated feature of the Holderness Inshore MCZ. The MCZ assessment has screened out intertidal muddy sand despite the cable trench route passing through this feature. Please revisit this impact assessment to include the impact to intertidal muddy sand.

40. MCZ Assessment - Conclusions within the MCZ Assessments should be based upon the loss of area of each habitat available within the MCZ, not only on a percentage of impact/loss across the whole of the site. Please revisit the assessments and provide an estimate of the loss of each feature within the MCZs.
41. Seabed Disturbance - The proposed Teesside pipeline will pass through significant areas of rocky reef, Sabellaria reefs and coarse / mixed sediments along the nearshore sections. Has micro-siting been considered for the avoidance of sensitive species and habitats? Please provide details if it has and justification if micro-siting is judged to not be possible.
42. 3.58 km2 of new hard substrate, including rock protection, concrete mattressing and permanent structures on the seabed (surface-laid pipeline and SSIV) will represent 'highly localised changes to the seabed habitat, where sandy and mixed sediment types are overlain with hard substratum'. This is later assessed as having minor / no significance, despite habitats being described as having high sensitivity on pages 6-27 and 6-28. Please revisit this assessment.
43. Trenching and boulder clearing has been classified as a temporary impact – these should be classified as permanent impacts as the boulders will be removed from the trenched area and left in a linear heap. Please reclassify and revisit the impact assessment to fully assess the lasting effects of trenching and excavation on the Holderness Inshore MCZ. Have any mitigations been considered?

    Depressions in sediment from jack-up legs and anchoring may be infilled over time, but a time period has not been defined. Please provide an assessment of the recovery of the topography and biotopes.
44. Section 6.9.2.2 - Please address the following points on the assessment of impacts on SPAs
    a. It is stated that the works at Coatham Dunes are outside of the breeding range for the Teesmouth and Cleveland Coast SPA. In fact, little tern may forage outside the marine SPA, within the boundaries set by Woodward et al., (2019). Please reconsider the potential impact on little tern.
    (Woodward, I., Thaxter, C.B., Owen, E. and Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. [Online]. Available at: http://www.marinedataexchange.co.uk/ [Accessed July 2020].)
    b. The SPA is also sensitive to activities associated with abrasion to the seabed, smothering and suspended solids. The birds are sensitive to visual disturbance, light and noise disturbance caused by human activity. Please reconsider the assessment, taking these aspects into account.
    c. Please also note that going underneath a designated site, does not mean there will not be any impacts to the designated site. For example, issues from the surface break-out of drilling fluids during the pipeline landfall Horizontal Directional Drilling (HDD) process may occur. Please consider this potential.
45. Landers – monitoring landers are discussed as being placed at the outcrop area every 6-10 years in Section 2.2.4.3 and then in 6.9.2.1.2 it is stated there 'might' be a lander installed at the outcrop area. Please clarify and expand upon the intentions for monitoring at the Bunter outcrop.

    How has the 6-10 year frequency been decided and what could influence whether the frequency will be six years or ten years? What options for monitoring seepage at the outcrop are available in between times when the lander will be situated there.

45. Please address the following points related to possible archaeological interest:
    a. Please confirm that a Written Scheme of Investigation and a reporting system for unexpected discoveries of possible archaeological interest will be produced and followed.
    b. Will positioning of installations and equipment required to facilitate HDD for example take into consideration any know features of archaeological interest.
    c. Appendix C - “6.5.2 Issue: Seabed disturbance. Mitigation or management action: A Protocol for Archaeological Discoveries (PAD) will be put in place for the Development during installation/construction activities.” Please confirm that this will be in place prior to construction to allow for discoveries during surveys.

Your response will be reviewed, and consideration given as to whether the information provided ought to be made public because the information is directly relevant to reaching a conclusion on whether the project is likely to have a significant effect on the environment. If so, OPRED will notify BP Exploration Operating Company Limited under Regulation 12(3), and BP Exploration Operating Company Limited will have to take further steps to publish information and make provision for further public consultation under Regulations 12(5) to 12(9).

OPRED looks forward to receiving your response so that we can progress our consideration of the ES.

Yours sincerely

[redacted]

Environmental Manager
The Offshore Petroleum Regulator for Environment and Decommissioning
For and on behalf of the Secretary of State for Energy Security and Net Zero

Offshore Petroleum Regulator
for Environment & Decommissioning