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Sent: 08 February 2019 21:06
To: KJ Johansson; Kay Sully; Hornsea Project Three
Cc: Andrew Guyton; Stuart Livesey
Subject: Hornsea Project Three (UK) Ltd response to Deadline 6 (Part1)

Dear Kay, K-J

We are pleased to enclose Ørsted Hornsea Project Three (UK) Ltd (“the Applicant”) response to Deadline 6, Friday 8th Feb 2019. These documents have been prepared by the Applicant and have been produced in response to the Examining Authority’s (ExA) letter of 9 October 2018 (“the Rule 8 letter”).

These documents are being issued over a series of emails, each email containing a pdf file or files. The **last** email to be issued by the Applicant will contain a supporting file tracking sheet – to help the ExA ensure that it has received each email transmission.

Please acknowledge safe receipt of these documents.

If we can be of any assistance in that regard, please do not hesitate to contact myself or Andrew Guyton.

Best regards,
Dr Dominika Chalder PIEMA
Environment and Consent Manager



Environmental Management UK| Wind Power
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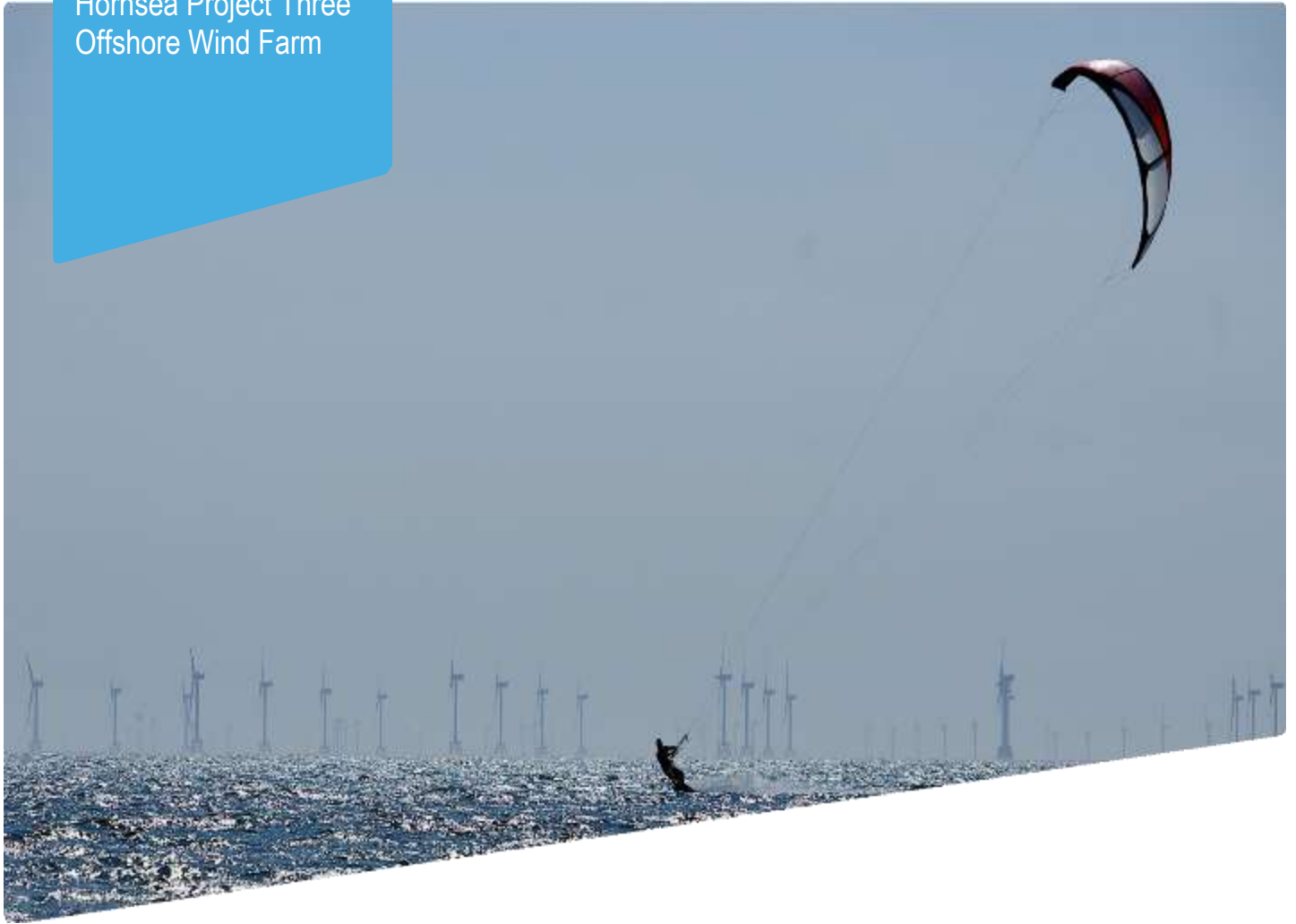
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Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three Offshore Wind Farm

Commentary on progress made with Spirit Energy at Deadline 6

Date: 8th February 2019

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Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2019.

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1. Introduction

- 1.1 The Applicant has considered Spirit Energy’s submission at Deadline 5 and recognises that the issues remain largely as previously presented at Deadline 4. As such, other than providing clarification on Spirit Energy’s submission, the Applicant has not provided a further detailed response, but instead provides a commentary on the actions agreed and progress made in regard to reaching agreement on Spirit Energy’s remaining issues in regard to helicopter operations, radar and shipping and navigation.
- 1.2 The Applicant met with Spirit Energy on 17 December 2018 (Q2.5.14 of The Applicants response to the ExA second written questions at Deadline 4; REP5-008) in order to work towards resolving Spirit Energy’s issues in regard to helicopter operations. Upon convening the meeting, Spirit Energy requested no meeting minutes were to be prepared. A list of actions however was compiled at the meeting, which are presented in Table 2.1 below. All actions were agreed by both parties by email on 3 January 2019 with the exception of item 7b which is explained below. The ‘Status’ column provides the Ex.A with the current status for each agreed action at Deadline 6.

2. Actions in regard to helicopter operations, radar and shipping and navigation

Table 2.1: List of aviation actions as a result of the Applicants meeting with Spirit Energy

No.	Topic	Purpose	Action	Actions Party	Date	Status
1	Aviation Assumptions	To demonstrate sources of Aviation Assumptions	Applicant to tabulate and RPS (on behalf of the Applicant) and AviateQ (on behalf of Spirit Energy) to complete a table of EASA and IOGP requirements for IMC operations	Osprey (on behalf of the Applicant)/ AviateQ (on behalf of Spirit Energy)	08.01.2019	The Applicant submitted a table of agreed EASA assumptions used to inform the assessments to Spirit Energy on 3 January, 2019 via email.
2	Meteorological data	Refine the number of days that flights are potentially restricted due to IMC.	Tabulate all assumptions used to define IMC conditions (The Applicant to provide first draft – AviateQ (on behalf of Spirit Energy) to add their values).	Osprey (on behalf of the Applicant)/ AviateQ (on behalf of Spirit Energy)	04.01.2019	The Applicant submitted a table of assumptions used by Osprey to inform the assessment in the Environmental Statement to Spirit Energy on 5 January 2019 via email. No response or table of assumptions used has been provided by Spirit Energy.

No.	Topic	Purpose	Action	Actions Party	Date	Status
3	Number of flight days	Refine the number of days that flights are potentially restricted due to wind direction.	Provide wind data used to inform prevailing winds and frequency of wind.	RPS (on behalf of the Applicant)	Complete with additional action	The wind data used by the Applicant to inform the assessments was sent to Spirit Energy on 2 January 2019 via email. Since Spirit Energy provided data from the J6-A platform, the Applicant agreed to run analysis on Spirit Energy's data, once assumptions agreed.
4	Take off	Understand take off restrictions from Chiswick	Undertake an assessment of unobstructed airspace required for take offs under IMC and OEI.	Osprey (on behalf of the Applicant)	07.01.19	The Applicant has considered this action further and does not see that any further assessments are required to be undertaken. The Applicant considers this to be an agenda item for the meeting with the helicopter operator at 7a below.
5	Turbulence	To understand if there are risks associated with proximity due to turbulence	Discuss with the author of the Liverpool study what further research applicable to a large offshore array has been done in this area.	Mark Prior (Anatec) (on behalf of the Applicant)	08.01.19	<p>The Applicant has obtained assurance on this matter (as submitted at Q2.5.15 of the Applicants response at Deadline 5; REP5-008) from their internal aviation experts with direct experience of flying within and around wind farms.</p> <p>The Applicant is also progressing discussions with a leading academic on this subject (the author of the study undertaken by Liverpool University and the CAA (the Liverpool study) who has agreed to provide an update on research in this regard. It is the Applicant's intention to provide further assurance to Spirit Energy following this meeting in the form of a briefing note.</p>

No.	Topic	Purpose	Action	Actions Party	Date	Status
6	Aviation information for Safety Case	To understand the concerns in regard to aviation risk raised by Spirit Energy		Spirit to confirm		Spirit Energy asked the Applicant which sections were required. The Applicant requested the sections covering Emergency Evacuation and PFEER17, by email on 5 January 2019. Spirit Energy have provided high level information but not the relevant sections of their safety case on the above, to date.
7a	Aviation Assumptions	To understand the present level of restrictions at the Chiswick and Grove platforms	Spirit to provide information on fire protection equipment at each NUI and any consequent flight restrictions	Spirit Energy		Spirit Energy have provided a status of current flight restrictions at their response to the ExA.
7b	Aviation Assumptions	Requirement to test the assumptions made by the Applicant in regard to approaches to platforms, with the helicopter operators	Agreement on approach not reached	The Applicant / Spirit Energy		See status below.

Table 2.2: List of actions in relation to shipping and navigation as a result of the applicants meeting with Spirit Energy

	Topic	Purpose	Action	Actions Party	Date	Status
8	Radar	To understand whether Hornsea three will reduce the ability of the radar system used at the J6A platform to detect vessels.	Using the information provided at Deadline 3 (not yet seen at time of meeting) compare assessment done in Volume 5, Annex 8.1: Aviation, Military and Communication Technical Report of the Environmental Statement (APP-113) with the new information provided.	University of Manchester. Spirit Energy to provide details (e.g. horizontal beam width) to confirm J6A Radar equipment specifications and operating procedures.	07.01.2019	The Applicant has requested further technical information which was received by email. The Applicant has progressed with a comparative assessment as detailed at Q2.5.21 of the Applicants response at Deadline 5 (REP5-008) and has requested a visit to the Radar operator by email 21 January 2019. Spirit Energy responded on 6 February 2019, with contact details for the Applicant's Radar specialist to follow up and coordinate a meeting with Spirit Energy's Radar vendor. This is being progressed.
9	Searoom			Spirit to provide standby vessel situation.		
10	Searoom			Anatec to provide vessel tracks of rig going into Chiswick		

- 2.1 The Applicant notes that at Action 7B there is disagreement between the Applicant and Spirit Energy in regard to what was agreed at the meeting (see Spirit response at Deadline 5; REP5-028) and in regard to what is the best approach to achieve the desired outcome.
- 2.2 The Applicant has advised alternative flight paths can be and are routinely flown, within the regulations, to platforms with in the North Sea other than a straight in ARA. The agreed objective of Action 7B is to test this assumption and the Applicant agreed to consult with the helicopter operator, CHC, who flies to these platforms.

- 2.3 The Applicant has advised that in addition, there are alternative flight paths that can be developed, within the regulations, to enable a greater degree of flexibility when conducting a straight in ARA (such as that used at the Beatrice platform) that will enable a greater number of ARA flights to be flown to the Chiswick and Grove platforms. The Applicant agreed to test this assumption with the helicopter operator, CHC, who flies to these platforms.
- 2.4 The Applicant notes that Spirit Energy wish to test these assumptions against the wider helicopter industry and consider this an industry wide issue rather than an issue applicable to the Chiswick and Grove platforms.
- 2.5 The Applicant notes that Spirit Energy have drafted a letter to the helicopter operators which aims to set out the assumptions under discussion.
- 2.6 The Applicant has raised an objection to Spirit Energy in regard to this approach (email to Spirit Energy on 29 January 2019). The Applicant considers the letter posed by Spirit Energy is constrained to asking leading questions to operators without providing a facilitated means of discussing what is now, and what can be flown to these particular platforms. Given the importance of the issue under discussion the letter falls short of providing the appropriate, focussed, engagement and clarification, to ensure both parties' concerns are equitably addressed.
- 2.7 The Applicant considers that the issue is one that should be, and can be, dealt with on a case by case basis, (as has been done previously for the Beatrice Platform, for example) and that consultation should therefore progress with the particular helicopter operator that flies at the present time to this platform. The Applicant welcomes a broader industry discussion around offshore wind farm and oil and gas platform proximity issues and is committed to progressing such debate. This may for example be progressed through a forum such as HeliOffshore who now have a wind farm working group. The Applicant is not of the opinion however that such an approach is appropriate to inform the planning process for Hornsea Three. The Applicant is however willing to meet with the wider helicopter industry at a workshop that is specific to Hornsea Three, on the understanding that there is the potential that the helicopter operator contracted to fly to the Chiswick and Grove platforms in the future may change.
- 2.8 The Applicant set out what it considers to be an appropriate engagement process with relevant stakeholders to Spirit Energy. This is outlined below:

- A meeting with Spirit Energy's current helicopter contractor, CHC. This should be prioritised, as they are best placed to inform on current helicopter approaches to those Spirit Energy Assets which are located in the vicinity of Hornsea Three, namely the Chiswick, Grove and J6-A platforms. Hornsea Three has contacted CHC who have expressed an interest in meeting the parties, and having received initial availability from Spirit Energy. The Applicant has requested confirmation of possible meeting dates from Spirit Energy as included in the email sent to Spirit Energy on 25 January 2019.
- The Applicant acknowledges that Spirit Energy's helicopter operator may change in the future and agrees that engagement with other helicopter operators makes practical sense. To this end, the Applicant proposed to host an aviation workshop (further to the Aviation workshop conducted at PEIR stage) with helicopter operators, with a focus on helicopter approaches to offshore platforms. Although as noted, the Applicant considers a meeting with the current operator (CHC) as the primary means of progressing this issue.
- The Applicant will agree a list of invitees with Spirit Energy, provide a detailed agenda and will prioritise coordination of the workshop.

2.9 The Applicant received an email from Spirit Energy on the 5 January 2019, agreeing that the Applicant's Radar specialist could meet with Spirit Energy's Radar vendor and operator. Spirit Energy also stated that it is their intention to provide assumptions for agreement to the Applicant which will form the basis of the met-ocean data analysis.

3. Further Comments

3.1 In regard to Spirit Energy's comment on Paragraph 1.5.1.6 (Ex.A Question 2.5.13; REP5-028) on EN-3 provisions and the application of ALARP, the Applicant wishes to state that it is not in breach of the EN-3 provisions. as claimed by Spirit Energy.

3.2 The Applicant maintains that Volume 2, Chapter 8: Aviation, Military and Communication of the Environment Statement (APP-113) has considered the effect on helicopter operations in regard to EN-1 part 5.4, EN-3 part 2.6, and CAP 764 and it is the Applicant's case that these policies do not impose an "additional test" on the Applicant to undertake an "ALARP assessment" as asserted by Spirit Energy (see the Applicants response to Ex.A Q2.5.13 at Deadline 4).

3.3 Section 8.11, Volume 2, Chapter 8: Aviation, Military and Communication of the Environment Statement presents an assessment of whether the project results in a change to the ability to carry out operations safely, and has taken consideration of EN-3, paragraphs 2.6.183 and 2.6.184, in that no unacceptable risk has been introduced by Hornsea Three.

3.4 The ordinary meaning of paragraph 2.6.183 of EN-3 as stated (Applicants response to Ex.A Q2.5.13 at Deadline 4) is that there is an expectation that the Applicant should minimise negative impacts and reduce risks to as low as reasonably practicable, which it has satisfied through the assessments in the Environmental Statement, as amplified by evidence the Applicant has submitted to the Examination and which has been explained in regard to Spirit Energy's operations (Applicants response to ExA Q2.5.13 at Deadline 4).

- 3.5 The Applicant makes the case that under the current EIA regulations and national planning policy EN-1 and EN-3 for aviation assessments there is no requirement for the Applicant to carry out an additional ALARP assessment on a Safety Case operated by Spirit Energy.
- 3.6 An ALARP assessment is an economic consideration (consideration of ALARP as defined by HSE (2018) involving weighing a risk against the resource, time and money needed to control it). Therefore, it is not a judgement that the Applicant is able to make on a document owned by Spirit Energy.
- 3.7 The consideration of ALARP is a requirement under the UK Safety Case regulations and it is the responsibility of the operator to demonstrate ALARP for each of their platforms. The operator has the mechanism through consultation provided for in the EIA regulations to inform the Environmental Statement of the outcome of their consideration of ALARP.
- 3.8 The Hornsea Three Environmental impact Assessment methodology used is described in Volume 1, Chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement (APP-060) satisfies the requirements of the EIA regulations. The methodology evaluates and interprets the likely impacts, and subsequent effects, of the development on a range of physical, biological and human receptors. The overall significance of an effect is determined by correlating the magnitude of the impact alongside the sensitivity of receptor.
- 3.9 The method provides a tool for planners to understand the effect of the project on the external environment and to ensure that where there are significant effects from the project these can be mitigated to a level that is no longer significant. The method looks from the perspective of the project outwards to external receptors.
- 3.10 The method assesses the maximum effect that could be anticipated and seeks to ensure by the application of mitigation to a level that is reasonably practical, that this maximum effect is below a threshold of significance. For the human topics the threshold of what is significant is consulted on.
- 3.11 The Safety Case provides a tool for the operator and regulator to understand the potential internal and external factors which will increase risks to their operations and to provide a means of demonstrating that these risks are being managed as well as they can (to ALARP). The method looks inwards to the project. The method can apply ALARP as it considers existing parameters as its starting basis and is established in the commercial context of the business.

- 3.12 In regard to Spirit Energy's statement that *'the ES acknowledges the development of wind turbines within the "aviation zone" [Figure 7.10 of ES Annex 8.1] leads to a reduction in the available days on which helicopters may access Spirit Energy's assets; and that this reduction necessarily changes (by an increase in risk) the currently approved ALARP thresholds for Spirit Energy's assets and activities, and so, by definition, the change cannot be ALARP'*. The Applicant states that there is no such definition as an "aviation zone", nor is an aviation zone mentioned in the Environmental Statement. The Applicant also advises that having had no site of the Safety Case, the Applicant cannot acknowledge whether there is a change to the currently approved ALARP threshold as the Applicant has not been provided with information as to what that is. Moreover, the Safety Case is not a fixed document as ALARP is tested whenever significant changes are made to the platform (for example the recent fitting of aviation lighting at the Grove platform). The Applicant cannot assess against an undisclosed and changing ALARP threshold. The Applicant acknowledges an operational effect and not a change in safety risk. This is also confirmed by Spirit Energy in regard to flights, at this submission *'(It is important to distinguish between risk during flights and risks to personnel on installations that rely upon the availability of flights to minimise risks. Spirit Energy will only permit flights to take place when it is safe to do so. The risk to personnel during a flight would therefore remain ALARP. The effect of the windfarm would be to reduce the occasions on which such safe flights could be conducted.'* The Applicant has responded in regard to platform evacuation (see the Applicants response to Ex.A Q2.5.13 at Deadline 4). Evacuation by helicopter cannot be the primary means of escape as it is not available in the very cases when you need to escape from a platform, hydrocarbon release, fire or even loss of structural integrity. PFEER 17 requires ERRVs for evacuation and so the Safety Case (not seen by the Applicant) cannot be fully reliant on helicopter access.
- 3.13 In the event of an emergency which does not involve fire or a hydrocarbon release, CAT helicopter can be used, and if weather conditions deteriorate the MCA SAR helicopters can recover the personnel as SAR helicopters have lower weather limits.
- 3.14 If there is not an emergency, but the weather changes such that personnel are left on the NUI they will be subject to minor discomfort, but their safety is not at risk as HSE regulations require a safe refuge to be provided.
- 3.15 In regard to Spirit Energy's response under "Current Envisaged Measures" *the Applicant's proposed mitigation measures in relation to the acknowledged constraints to air space and flights are unilateral changes to orthodox CAA authorised operational procedures*. The Applicant submits that this is not correct and that in the first instance standard approaches can be flown such as en route descents and shuttle flights, both common and current practise in the North Sea (see paragraph 1.5.16 and 1.5.17 of the Applicants response to the ExA further Written questions at Deadline 4 (REP4-012)).
- 3.16 The Applicant has advised that in addition, there are alternative flight paths that can be developed, within the regulations, to enable a greater degree of flexibility when conducting a straight in ARA (such as that used at the Beatrice platform) and this will be tested with the helicopter operators (see paragraph 2.3 of this submission).

- 3.17 In regard to Spirit Energy's further comment on the Applicants response to Ex.A at Q2.5.14 the Applicant submits that the proposed flights put forward by the Applicant are based on EASA regulations and are not "*unilaterally proposed practices*" as stated by Spirit Energy (see paragraph 3.15 of this submission).
- 3.18 In regard to Spirit Energy's use of IOGP AMG, the Applicant notes that Spirit Energy selectively quote from this guidance and have chosen not to quote IOGP AMG limits which are below EASA limits (for example shuttling flight visibility criteria). The Applicant recognises that IOGP AMG is industry guidance but its purpose is primarily to do with contract management and does not provide guidance on such topics under consideration as ARA. The Applicant also reiterates (Applicants response to Ex.A further written questions paragraph 1.5.1.14 at Deadline 4 (REP4-012)) that this guidance has no legal basis and that it is the EASA regulations that should be consistently applied.
- In regard to Spirit Energy's statement that "the use of these revised helicopter procedures such as en-route descent and shuttle flights would in itself still have a significant impact upon helicopter operations to Spirit Energy's assets", the Applicant submits that these are not revised procedures, and that by Spirit Energy's own submission in-field flights to the Chiswick and Grove platforms are the routine method of access to these platforms (Paragraph 6.6 of Spirit Energy Written Representation submitted at Deadline 1; REP1-041) and as such shuttling is most likely to be the preferred current method of approach (paragraph 1.5.1.22 Applicants response to the Ex.A Further written questions at Deadline 4 (REP4-012)) it follows that the continued use of such flights cannot result in a significant impact to current operations.
- 3.19 In response to Spirit Energy's further comment on the Applicant's response to Ex.A Q2.5.11 (drifting vessels and allision) the Applicant re-iterates that the Oil Companies International Marine Forum (OCIMF) study found drift speeds varied with wind speed, averaging 3% of the wind speed, and generally bounded between 2% and 10%. Drift speeds of several knots would therefore not be typical or average. The Applicant agrees that 4 knots and above are "within the range which should be considered as worst case scenarios". Such speeds would only be possible in very strong winds. Tidal streams in this part of the North Sea are much weaker and could act with or against the wind. Their net effect is expected to be neutral.
- The Applicant notes that marine operations within the wind farm will be subject to strict weather controls. These will limit the wind speed (and wave heights) that vessels can work, which in turn will limit the potential drift speeds should a vessel lose power. Therefore, it is highly unlikely 4 knots will be experienced in practice. It is noted that the Applicant can put procedures in place in the event of bad weather being forecast, that vessels consider the proximity of Spirit Energy assets in their waiting on weather procedures.
- 3.20 The Applicant notes Spirit Energy's position on the Hazard Workshop and would like to make clear that the objective of the meeting was clearly conveyed, which was to identify a comprehensive list of hazards associated with Hornsea Three. At that time Spirit Energy were in agreement with the impacts being assessed and the methodology being used.