From:	Dominika Phillips
To:	Hornsea Project Three; KJ Johansson; Kay Sully
Cc:	Andrew Guyton; Stuart Livesey
Subject:	Hornsea Project Three (UK) Ltd response to Deadline 4 (Part 7)
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Dear Kay, K-J

Please find attached the 7th instalment of documents.

Best regards,
Dr Dominika Chalder PIEMA
Environment and Consent Manager

[redacted]

Environmental Management UK | Wind Power
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Appendix 31 to Deadline 4 submission – List of Aviation Assumptions

Date: 15th January 2019

Hornsea 3
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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2019.

Table of Contents

1. Acronyms

Acronyms	Description
AEO	All Engines Operative
ARA	Airborne Radar Approach
CAT	Commercial Air Transport
EASA	European Aviation Safety Agency
FAF	Final Approach Fix
IMC	Instrument Meteorological Conditions
MAP	Missed Approach Point
OEI	One Engine Inoperative
SAR	Search and Rescue
VFR	Visual Flight Rules
VMC	Visual Meteorological conditions

2. List of Agreed Aviation Assumptions

2.1 The Applicant and Spirit Energy met on the December 17th 2018 to progress discussion on Spirit Energy's concerns in regard to helicopter operations. An action from the meeting was to produce a table of the assumptions that have been used by both parties to underpin the aviation assessments. The purpose of this exercise is to ensures that the assumptions that have been used are based on the same regulations, or in the event there are differences, the same criteria has been applied. It also enables common ground to be found in the assessments outlines the table with agreed aviation assumptions.

2.2 This table, in draft form as completed by the Applicant, awaits input from Spirit Energy

		AGREEMENT	
Item no.	Statement	Hornsea Three	Spirit Energy
Shuttle flights			
1	In Class G airspace when flying between offshore locations where the overwater sector is less than 10nm, VFR flight may be conducted when the limits are at, or better than, the following: 2 pilots: Day 300 ft cloudbase 2 km visibility; Night 500 ft cloudbase 5 km visibility. **(EASA SPA.HOFO.130)**. Operators might chose to impose higher limits but SPA HOFO.130 is the legal minimum. As the distance between J6A platform and Chiswick platform is 9.9 nm these limits would apply.	Agreed	

		AGREEMENT	
2	It is agreed that ARA can be flown to one platform and then proceed in VMC to another as per the **AMC 1 SPA.HOFO.125** GENERAL (a) Before commencing the final approach, the pilot-in-command/commander should ensure that a clear path exists on the radar screen for the final and missed approach segments. If lateral clearance from any obstacle will be less than 1 nm, the pilot-in-command/commander should: (1) approach to a nearby target structure and thereafter proceed visually to the destination structure;	Agreed	
ARA requirements			
3	It is agreed that an ARA can be flown in a flexible manner with an Intermediate Fix at 6nm, Final Approach Fix at 4 nm (**EASA GM1 SPA.HOFO.125 (a) General).**	Agreed	
4	It is agreed that only the final section of an ARA from the Final Approach Fix (FAF) needs be flown substantially into wind. The FAF is at a distance of 4 NM **(EASA GM1 SPA.HOFO.125 (a)(3)).**	Agreed	
5	It is agreed that the final approach path (from the FAF) can be flown out of wind where the drift angle does not cause increased workload. **((EASA GM1 SPA.HOFO.125 (a)(3)).**	Agreed	
En route descent			
6	It is agreed that an "En-route Descent" approach – IMC to level by 500 ft is acceptable. This requires a cloudbase of 600 ft and visibility of 4km by day. **CAT.OP.MPA.247**	Agreed	
7	It is accepted than an en-route descent is often a safer option than "standard" ARA when the weather permits as it allows more flexibility during the approach.	Agreed	
Evacuation procedures			

		AGREEMENT	
8	Evacuation procedures: in the event of a hydrocarbon release or fire on the NUI, vessels, not helicopters, would be required to evacuate any personnel. SAR helicopters would not be limited by CAT weather limits due to SAR autopilot modes and more flexible limits/regulations.	Agreed	
MAP and OEI			
9	It is permitted under **AMC 1 SPA.HOFO.125 (e)** that pilots haven the option to move MAP from 0.75 to 1 or 1.5 nm to provide more room to fly a Missed Approach. **AMC 1 SPA.HOFO.125 (e)**states that the decision range (MAP) should not be less than 0.75, i.e. more is permitted	Agreed	
10	It is agreed that a Missed Approach can be flown with a turn left or right turn. The MAP and any offset beyond 1.5nm will take account of the obstacle environment.	Agreed	
11	The MAP distance can be increased and/or a secondary turn can be made after the initial go-around when safely established in the climb, so 5 nm beyond the platform is not required (or standard) to do a Missed Approach;	Agreed	
12	It is agreed that OEI can be flown along same route as an AEO go-around. The position of the MAP and go-around will take account of aircraft performance and the obstacle environment.	Agreed	
13	It is agreed that flights turn 10 degrees at 1.5 nm and then 30 degrees at MAP point **(Fig 1 to GM1 SPA.HOFO.125).**	Agreed	
14	It is agreed that a second turn can be made once established in the climb and check list complete.	Agreed	
Take off			

		AGREEMENT	
15	It is agreed that the initial take-off will be into wind but account will be taken of the proximity of the turbines. It is understood that take of will be in VMC (>300ft cloud base and >2 km visibility **EASA SPA.HOFO.130)** It is understood that in the unlikely event of engine failure at take off (<5 x 10-8) then a stabilised turn away from the turbines can be made. **AMC 1CAT.POL.H.305(b) Engine Reliability Statistics (b).** Note that the AW139 used by Spirit Energy has a much lower failure rate and so the overall probability will be lower.	Agreed	

3. References

All citation's are sourced from EASA Commission Regulation (EU) No 965/2012 on air operations and related EASA Decisions (AMC, GM and CS-FTL.1) Consolidated version downloaded 2 January 2019 from [https://www.easa.europa.eu/sites/default/files/dfu/Air%20OPS%20965-2012_Rev.11_July%202018.pdf].