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 11)
Date:	15 January 2019 23:14:59
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Dear Kay, K-J

Please find attached the 11th instalment of documents.

Best regards,
Dr Dominika Chalder PIEMA
Environment and Consent Manager

[redacted]

Environmental Management UK | Wind Power
5 Howick Place | London | SW1P 1WG

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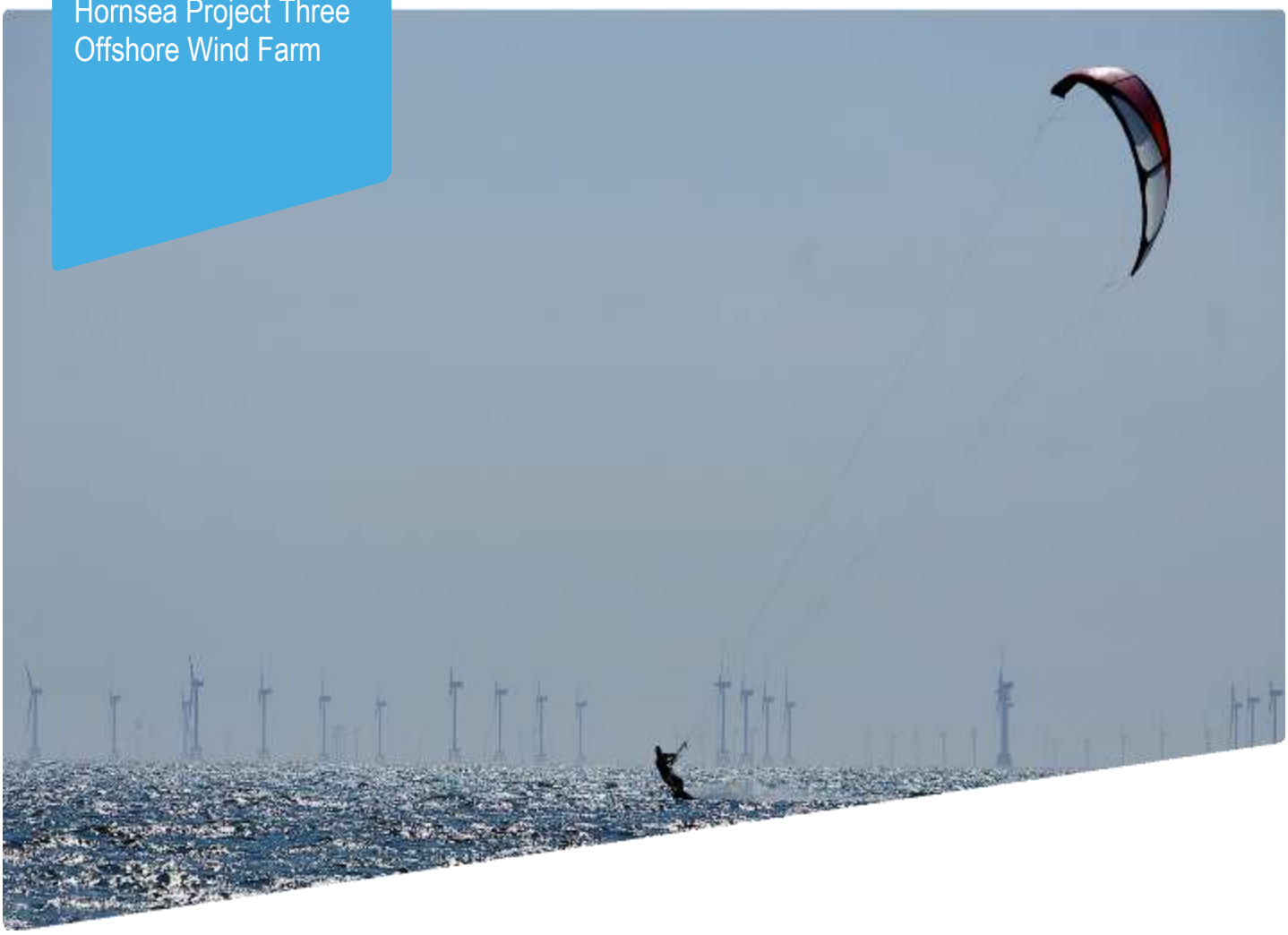

Hornsea Project Three

Offshore Wind Farm

Appendix 44 to Deadline 4 submission – Detailed response to the ExA Q2.2.68 - Porpoise return times summary table

Date: 15th January 2019

Hornsea 3
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5 Howick Place,

London, SW1P 1WG

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

Table of Contents

1. Porpoise return times summary table

Introduction

1.1 This Appendix provides a summary of the return time of porpoises to sites of offshore wind farm construction after the end of pile driving activity in support of the Applicants response to the Ex.A Question 2.2.68. Also provided is detail on the scale and duration of each wind farm project. Only projects that did not use noise reduction mitigation are included.

Site	# turbines	Duration of pile driving activity	Harbour porpoise 'return time'	Any other observations
Beatrice (Graham et al. 2018)	84 jacket foundations (336 pile installations)	9 months	12 hours reducing to 6 hours later in piling period	There was a reduction in response over the period of pile driving – both in terms of spatial extent of response and return time
Horns Rev II (Brandt et al. 2011)	91 monopile foundations	7 months	24-72 hours at 2.5 km from piling	The duration of response was less than this at distances beyond 2.5 km
Gemini (Brasseur et al. 2015, Nabe-Nielsen et al. 2018)	158 monopile foundations	4 months (2 vessels operating simultaneously	6-10 hours	
Egmond an Zee (Scheidat et al. 2011)	36 monopile foundations	4 months	No monitoring during or immediately after construction	Porpoise encounter rates increased during operation relative to baseline (pre-construction) and were significantly higher inside the wind farm than in reference areas outside
BARD Offshore I (Brandt et al. 2018)	81 monopile foundations	Intermittent over 3 years	16 hours	

2. References

Brandt, M. J., A.-C. Dragon, A. Diederichs, M. A. Bellmann, V. Wahl, W. Piper, J. Nabe-Nielsen, and G. Nehls. 2018. Disturbance of harbour porpoises during construction of the first seven offshore wind farms in Germany. Marine Ecology Progress Series 596:213-232.

Brasseur, S., R. Kirkwood, and G. Aarts. 2015. Seal monitoring and evaluation for the Seal monitoring and evaluation for the Seal monitoring and evaluation for the Seal monitoring and evaluation for the Gemini offshore windfarm: construction - 2015 report. Wageningen University & Research Report C004/18.

Nabe-Nielsen, J., F. van Beest, V. Grimm, R. Sibly, J. Teilmann, and P. M. Thompson. 2018. Predicting the impacts of anthropogenic disturbances on marine populations. Conservation Letters e12563.

Scheidat, M., J. Tougaard, S. Brasseur, J. Carstensen, T. van Polanen Petel, J. Teilmann, and P. Reijnders. 2011. Harbour porpoises (Phocoena phocoena) and wind farms: a case study in the Dutch North Sea. Environmental Research Letters 6:1-10.