Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Environmental Statement

Volume 3

Appendix 16.2 - Helicopter Access Study

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Dudgeon and Sheringham Wind Farm Extensions

Helicopter Access Report

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Presented to	Equinor New Energy Limited
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Revision Number	Date	Summary of Change
00	13th September 2021	Initial Draft
01	20th October 2021	Added Appendix A

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Abbreviations Table

Abbreviation	Definition
°	Degrees Magnetic
°C	Degrees Celsius
AW139	AgustaWestland 139
ARA	Airborne Radar Approach
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAT	Commercial Air Transport
DEP	Dudgeon Extension Project
ft	Foot
GPS	Global Positioning System
IMC	Instrument Meteorological Conditions
ISAR	Integrated Search and Rescue
kt	Knot
m	Metre
MAP	Missed Approach Point
MDH	Minimum Descent Height
MGN	Marine Guidance Notice
nm	Nautical Mile
NOGEPA	Nederlands Olie en Gas Exploratie en Productie Associatie
NUI	Normally Unmanned Installation
OEI	One Engine Inoperative
Radar	Radio Detection and Ranging
SAR	Search and Rescue
SEP	Sheringham Extension Project
SPA HOFO	Specific Approval for Helicopter Offshore Operations
TEMPSC	Totally Enclosed Motor Propelled Survival Craft
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

1 Executive Summary

1. This report assesses the impact that the Sheringham and Dudgeon Extension Project wind farms (hereafter referred to as 'SEP' and 'DEP' respectively) will have on helicopter access to adjacent gas platforms and wells.

1.1 Regulations

2. Commercial Air Transport (CAT) Regulations have been applied to identify the current helicopter access available without any nearby wind farms. The access is then updated to take account of SEP and DEP. The report applies a worse case assumption that the wind turbines are built up to the proposed boundaries.

1.2 Meteorological Data

3. Eighteen months of meteorological data from the West Sole A Platform, from 15 January 2020 to 16 July 2021, were used for the study. This is a relatively short period for an analysis of this type, but the full year of data for 2020 was similar to larger datasets, where typically 90% of the daylight conditions permitted a visual approach.

4. 92.3% of the daylight conditions of the 2020 data were Visual Meteorological Conditions (VMC); therefore, 7.7% were Instrument Meteorological Conditions (IMC). Of the 7.7% IMC, the conditions were outside flying limits for 4.6% of the time, and so only 3.1% of the day IMC conditions were usable for a helicopter Airborne Radar (Radio Detection and Ranging) Approach (ARA). The day access figures for 2021 were lower, with Day VMC access of 85.0%, but only 6 ½ months of 2021 data was available, with two poor months of weather affecting the average monthly access.

1.3 Analysis

5. Six locations were assessed. The Waveney and Blythe Normally Unmanned Installations (NUIs) and the Elgood Well would have minimal access, even under VMC, if wind turbines were built up to the proposed boundaries. These installations would have full daylight VMC access if an obstacle-free circle of at least 1 nautical mile (nm) was provided around each site. It should be noted that the Blythe Platform may already have some Day VMC restrictions in place due to the proximity of the Dudgeon wind farm. IMC access for these sites was not assessed, as the closest wind turbines would have to be more than 2 ½nm away before IMC operations become feasible. Furthermore, IMC and night access to the Blythe Platform is currently impractical due to the Dudgeon wind farm.

6. The Lancelot and Excalibur platforms and the Durango Well would have full daylight VMC access as they are located further from SEP and DEP. IMC access was assessed for these sites. The Excalibur Platform had the most combined Day VMC

& IMC access of 94.1%, against the maximum flyable conditions of 95.4% of daylight conditions.

7. Vantage POB data on flights to the Waveney, Lancelot and Excalibur Platforms showed that the actual impact of DEP would be small. The Waveney Platforms had two flights effected in 2020, out of 72, and one in 2021 out of 67. The Lancelot Platform had zero effected in 2020, and 3 out of 84 in 2021. The Excalibur had zero flights effected in 2020, and 2 in 2021 out of 140.

1.4 Safety Considerations

8. The Search and Rescue (SAR) helicopters operated on behalf of the Maritime and Coastguard Agency (MCA) are not constrained by CAT meteorological limits. SEP and DEP will be compliant with Marine Guidance Notice (MGN) 654, and so SAR access to installation adjacent to the wind farms will still be available. SAR helicopters will be tasked for major incidents and accidents, rather than CAT helicopters. Therefore, any reduction in CAT helicopter access will result in a logistic impact on the installation operator, rather than a safety impact.

2 Introduction

9. This report was produced as part of the Applicant's obligations under Civil Aviation Publication (CAP) 764 (Civil Aviation Authority (CAA), 2016), where the operator of any offshore helicopter destination within 9nm of a wind farm must be consulted at the planning stage of a wind farm.

10. The location of SEP and DEP will impose operational restrictions on the nearby gas platforms. These restrictions could adversely impact on the ability to fly routine crew change flights to support NUIs, drilling rigs and other vessels working over well heads. In this report any restrictions are identified and quantified.

2.1 Background

11. The methodology used to assess the operational impact has been accepted by helicopter operators and oil and gas operators on previous projects. Eighteen months of meteorological data from the West Sole A platform were supplied by Perenco for analysis; from 15 January 2020 to 16 July 2021.

2.2 Commercial Air Transport Regulations

12. CAT flights, such as crew change flights to gas platforms, are regulated under the following requirements.

2.2.1 Offshore Approval

13. Offshore operations are regulated under Specific Approval for Helicopter Offshore Operations (SPA HOFO) (CAA, 2018):

14. "Offshore operation" means a helicopter operation that has a substantial proportion of any flight conducted over open sea areas to or from an offshore location. An offshore operation includes, but is not limited to, a helicopter flight for the purpose of:

- *Support of offshore oil, gas and mineral exploration, production, storage and transport;*
- *Support of offshore wind turbines and other renewable-energy sources; or*
- *Support of ships including sea pilot transfer.*

2.2.2 Meteorological Limits

15. The limitations presented within this section, based on CAT Regulations, have been applied to the West Sole Platform data to identify when SEP and DEP will affect helicopter access to the infrastructure presented in Table 3.1.

2.2.3 En-Route Descent

16. An en-route descent, where a helicopter may descend from IMC into VMC, and so make a visual approach to the platform, is permitted when:

- **Day** – cloud base ≥600 feet (ft) and visibility ≥4,000 metres (m).
- **Night** – cloud base ≥1,200ft and visibility ≥5,000m.

2.2.4 Instrument Meteorological Conditions

17. IMC conditions are assumed to exist when the weather limits are below those for flight under VMC.

2.2.5 Airborne Radar Approach

18. An ARA is flown to a platform when the weather conditions are below the VMC limits. The minima for an ARA are:

- A descent to a Minimum Descent Height (MDH) of 200ft by day or 300ft by night (or deck height plus 50ft if higher); and
- A Missed Approach Point (MAP) no closer than 0.75nm (1,390m) from the installation; this distance is based on the limitations of Radar in mapping mode and how it is displayed to the crew.

19. As the helicopter has to be below cloud and in sight of the installation before proceeding visually beyond the MAP, in practical terms this results in the following minimum weather conditions:

- Day – cloud base ≥300ft and visibility ≥1390m
- Night – cloud base ≥400ft and visibility ≥1390m

2.2.5.1 ARA Profile

20. The ARA profile is shown in Figure 2.1 and Figure 2.2. The helicopter's Radar is used as the primary means of navigation and obstacle avoidance, supported by Global Positioning System (GPS).

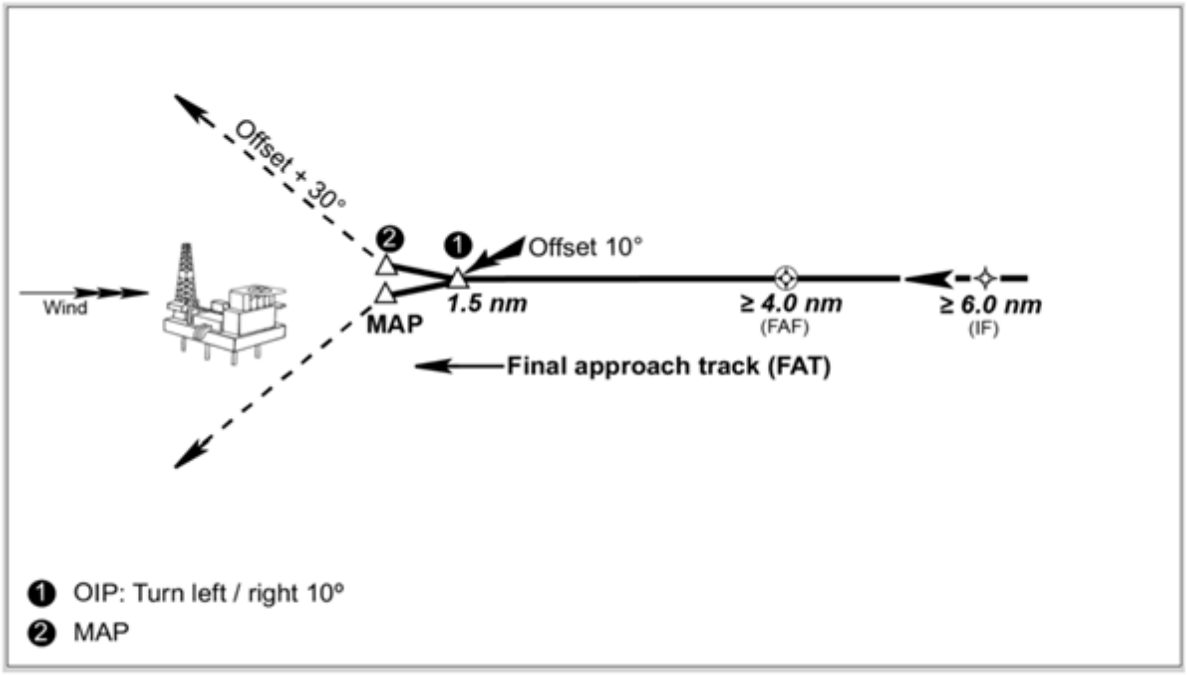


Figure 2.1: ARA Horizontal Profile

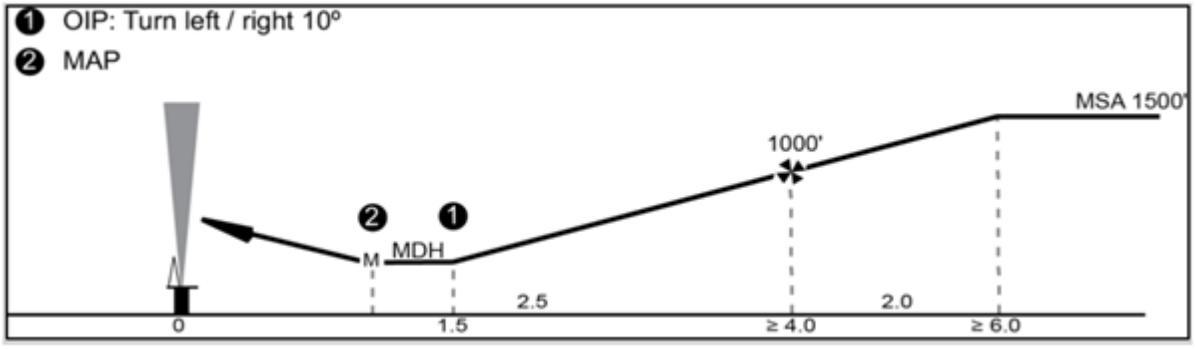


Figure 2.2: ARA Vertical Profile

2.2.6 No-Fly Conditions

21. Any of the following conditions would result in flights being cancelled, or being unable to land at an offshore installation:

- Sea state (significant wave height) ≥6m;
- Wind speed ≥60 knots (kt); this is a general limit, but it should be noted that some NUIs have values as low as 30kt due to reduced deck friction;
- Inability to land from an ARA – cloud base <200ft by day or <300ft at night or visibility <1,390m;
- Forecast triggered lightning;
- For a helicopter lacking an approval for flight in icing conditions, icing conditions occurring at 500ft by day and 1,000ft at night are assessed.

22. It is noted that icing conditions are defined as an air temperature below 0 degrees Celsius (°C), with an inflight visibility of less than 1,000m and visible moisture present.

23. Sea state and forecasts of triggered lightning are not recorded in the West Sole data, and so the actual percentage of no-fly conditions is likely to be slightly higher than calculated.

3 Methodology

24. This assessment has applied the CAT weather limits, as a series of filters, to the meteorological data provided in order to understand the potential operational impact on the gas infrastructure within 9nm of SEP and DEP. This Report will initially explain the methodology used and then apply the output to each of the installations within 9nm of SEP and DEP.

25. The assessment is focused on identifying any reduced access when operating under CAT Regulations, but access under SAR Regulations is also considered.

3.1 Assumptions

26. The following assumptions were used:

- As the exact locations and height of the turbines is not yet known, it is assumed that the boundaries of SEP and DEP form a solid wall of turbines, and they are >1,000ft high;
- For an ARA, an approach arc clear of obstacles out to 9nm is required. This will allow a circling approach to a Final Approach Fix at 6nm;
- When the wind is 20kt or less, an approach up to 30° out of wind may be made. This will result in an angle of drift of no more than 10°.

3.2 Infrastructure Assessed

27. The infrastructure assessed is shown in Table 3.1.

Table 3.1: Details of Assessed Infrastructure

Installation	Operator	Type	Distance to Boundary of DE	Details
Waveney	Perenco	NUI	500m	Daylight only
Elgood	IOG	Subsea Well	500m	May have a rig or DSV working over the well. These might need helicopter access.
Blythe	IOG	NUI	0.5nm	Day & Night
Lancelot	Perenco	NUI	2.7nm	Day & Night

Installation	Operator	Type	Distance to Boundary of DE	Details
Durango	Perenco	Subsea Well	3.8nm	May have a rig or DSV working over the well. These might need helicopter access.
Excalibur	Perenco	NUI	6.1nm	Day & Night

N.B. The NW Hewett and Anglia West wells are assumed to be decommissioned by 2023 and will not be included in this assessment.

3.3 Meteorological Data Provided

28. The meteorological data provided was from the West Sole A Platform. The data had been sampled at 10-minute intervals between 15 January 2020 and 16 July 2021, resulting in 78,790 samples in total. For an analysis of this type, 18 months of data is a short period, and so there is a risk that the data does not represent the true long term helicopter access availability. However, the data for 2020 does show similar Day VMC availability to other studies using larger datasets, namely approximately 90% of Day VMC access.

3.3.1 Meteorological Parameters

29. The following parameters were used:

- Timestamp – year/month/day/hour/minute/second
- Visibility – m
- Cloud base – ft
- Wind direction (10-minute average) – °
- Wind speed (10-minute peak) – kt
- Air temperature - °C

3.3.2 Data Anomalies

30. It was noted that there were a large number of blank cells in the visibility data between 30th March 2020 and 11th April 2020. A gap in the data of this sort is typical of an unserviceable sensor. To verify if the blank cells were due to a sensor problem and not extremely poor visibility, two other parameters were checked: firstly, the difference between the ambient temperature and dew point were compared, as a small difference can indicate cloud/fog, i.e. very poor visibility; secondly, the cloud base was considered. During the dropout period of the visibility data, there were samples where the dew point was within 0.5°C of the air temperature, indicating the likelihood of poor visibility, so an additional parameter

was added to the filter to record IMC conditions if the dew point to air temperature difference was less than 0.5°C. As this modification identified IMC conditions when there is a blank visibility cell, empty cells were filled with “not a number” NaN. The filter was already set to record IMC if the cloud base was below regulatory minimums, so no further change to the cloud base assessment was required.

3.4 Meteorological Analysis

31. The meteorological limits, defined in the Regulations and shown in Sections 2.2.3 – 2.2.5, were applied as a series of filters to the data. The filters identified when the conditions were:

- Day VMC
- Night VMC
- Day IMC
- Night IMC
- No-fly, when the conditions were below offshore limits and so an ARA could not be flown.

32. The data was then summarised in a series of tables and graphs to identify if and when CAT flights might have reduced access.

4 Operational Restrictions

33. This section will use the methodology described in Section 3 and apply it to the operational helicopter environment. Following this, Section 4 will identify any restrictions on helicopter access specific to the facilities shown in Table 3.1.

4.1 Approach Limitations

34. Applying the meteorological limits described in Section 2.2.3 – 2.2.5 to the meteorological data provides the percentage of occasions when each approach type is permitted or required. The Dudgeon wind farm is already operational, and so where relevant, it will be included in the installation specific helicopter access assessment. In particular, the Blythe Platform will already have restricted helicopter access.

35. Table 4.1 shows the percentage of Day and Night VMC access, i.e. when an en-route descent into visual conditions can be made, and a visual approach and take-off to/from a platform is available.

Table 4.1: Day and Night VMC Access

	2020	2021	Remarks
1. Day VMC	92.3%	85.0%	2021 consists of only 6.5 months of data
2. Night VMC	92.0%	86.0%	2021 consists of only 6.5 months of data

36. Previous analysis using larger meteorological data sets for the Southern North Sea show that Day and Night VMC conditions tend to exist for approximately 90% of the time, which is similar to the 2020 data. Also, historically no-fly conditions, when sea state is included, tend to exist for approximately 5% of the time. The 2021 VMC access percentage is lower than the historic norm for the area, as the 6 ½ months of data provided had two periods of poor weather; February and July, with most of the 16 days recorded in July having poor visibility and/or low cloud. It was noted that the periods of reduced VMC access in 2021 corresponded to periods when the meteorological conditions were also below CAT limits, i.e. a flight could not take place. Table 4.2 shows the percentage of each month of data when IMC conditions occurred, followed by the percentage when the conditions were below CAT limits (no-fly conditions). Subtracting the latter from the former shows the true CAT IMC access.

Table 4.2: Available CAT IMC Access

Day 2020			
	% IMC Day	**% No-Fly day**	**Available CAT IMC Access**
Jan	8.5%	5.4%	3.1%
Feb	6.5%	2.2%	4.3%
Mar	1.2%	0.0%	1.2%
Apr	2.4%	0.0%	2.4%
May	0.8%	0.5%	0.3%
Jun	19.9%	10.6%	9.3%
Jul	1.6%	0.1%	1.5%
Aug	16.3%	12.4%	3.9%
Sep	4.0%	3.1%	0.9%
Oct	9.3%	7.6%	1.7%
Nov	15.6%	12.3%	3.3%
Dec	7.0%	2.2%	4.8%
Day Average 2020	**7.7%**	**4.6%**	**3.1%**
Day 2021			
Jan	8.4%	6.8%	1.6%
Feb	20.5%	18.0%	2.5%
Mar	16.5%	11.8%	4.7%
Apr	4.6%	0.9%	3.7%
May	12.0%	8.6%	3.4%
Jun	6.4%	1.1%	5.3%
Jul	54.3%	44.4%	9.9%
Day Average 2021	**15.0%**	**10.6%**	**4.4%**
Night 2020			
	% IMC Night	**% No-Fly Night**	**Available CAT IMC Access**
Jan	12.9%	8.7%	4.2
Feb	1.9%	0.6%	1.3%
Mar	0.3%	0.0%	0.3%
Apr	0.1%	0.0%	0.1%
May	1.3%	0.0%	1.3%
Jun	18.2%	11.5%	6.7
Jul	4.1%	0.1%	4.0
Aug	21.2%	17.1%	4.1
Sep	3.6%	1.4%	2.2%
Oct	9.1%	7.1%	2.0
Nov	14.3%	12.6%	1.7

	% IMC Night	% No-Fly Night	Available CAT IMC Access
Dec	10.6%	8.2%	2.4
Night Average 2020	**8.0%**	**5.7%**	**2.3**
Night 2021			
Jan	6.8%	6.2%	0.6
Feb	21.8%	19.9%	1.9
Mar	12.5%	10.8%	1.7
Apr	7.6%	4.2%	3.4
May	12.8%	11.6%	1.2
Jun	6.1%	5.0%	1.1
Jul	55.2%	53.6%	1.6
Night Average 2021	**14.0%**	**12.3%**	**1.7**

37. Although Table 4.1 shows that Day VMC access was only available for 85.0% of the first 6 ½ months of 2021, Table 4.2 shows that IMC CAT access would only add an additional 4.4% availability (and 3.1% in 2020). Therefore, if nearby obstructions, such as a wind farm, prevented IMC approaches or take-offs, it is often the case that the actual helicopter access lost is not as large as initially assumed.

4.2 Wind Data

38. The wind sectors for an approach and take-off, under all conditions (VMC and IMC), are shown in Figure 4.1. The chart shows all the recorded wind data segmented into 10° sectors. It shows that the prevailing wind direction varied between the two years, which is one explanation for the difference in the 2020 and 2021 access figures.

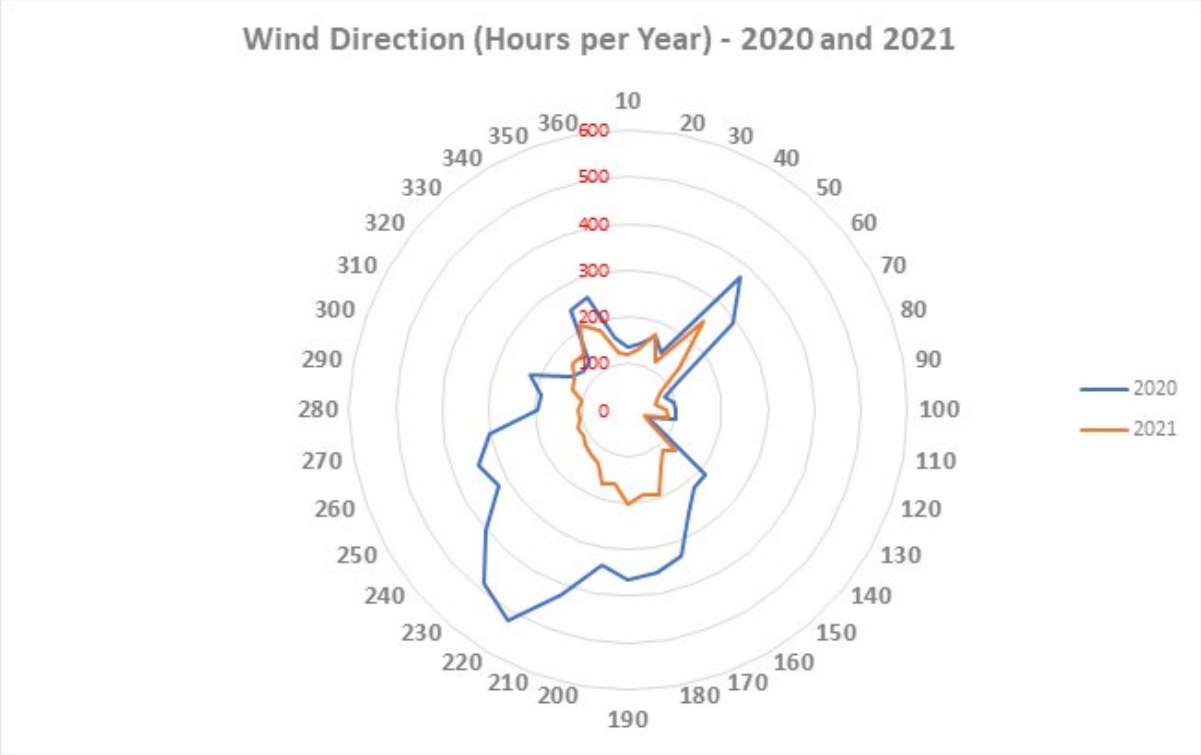


Figure 4.1: Wind Direction in Hours Per Year for 2020 and 2021

39. Figure 4.2 identifies the wind direction and the hours per year when the daylight meteorological conditions are IMC; Figure 4.3 then repeats the process for night. Finally, Figure 4.4 repeats the daylight conditions shown in Figure 4.2, but with no-fly conditions removed.

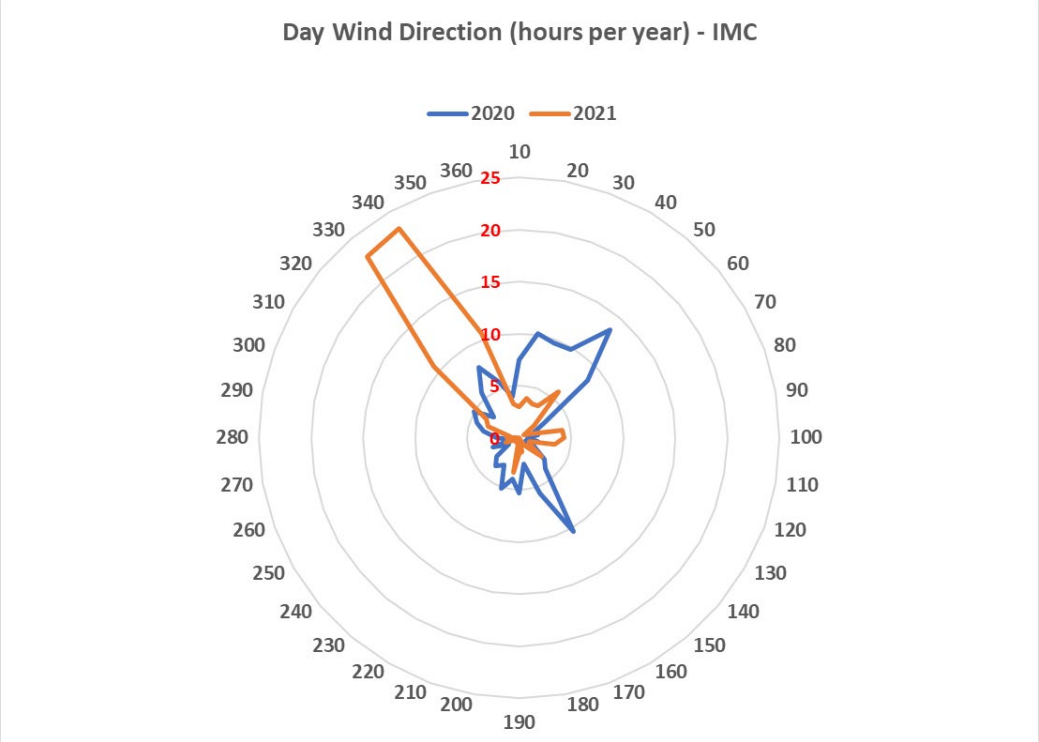


Figure 4.2: Wind Direction for Daylight Hours Per Year When IMC

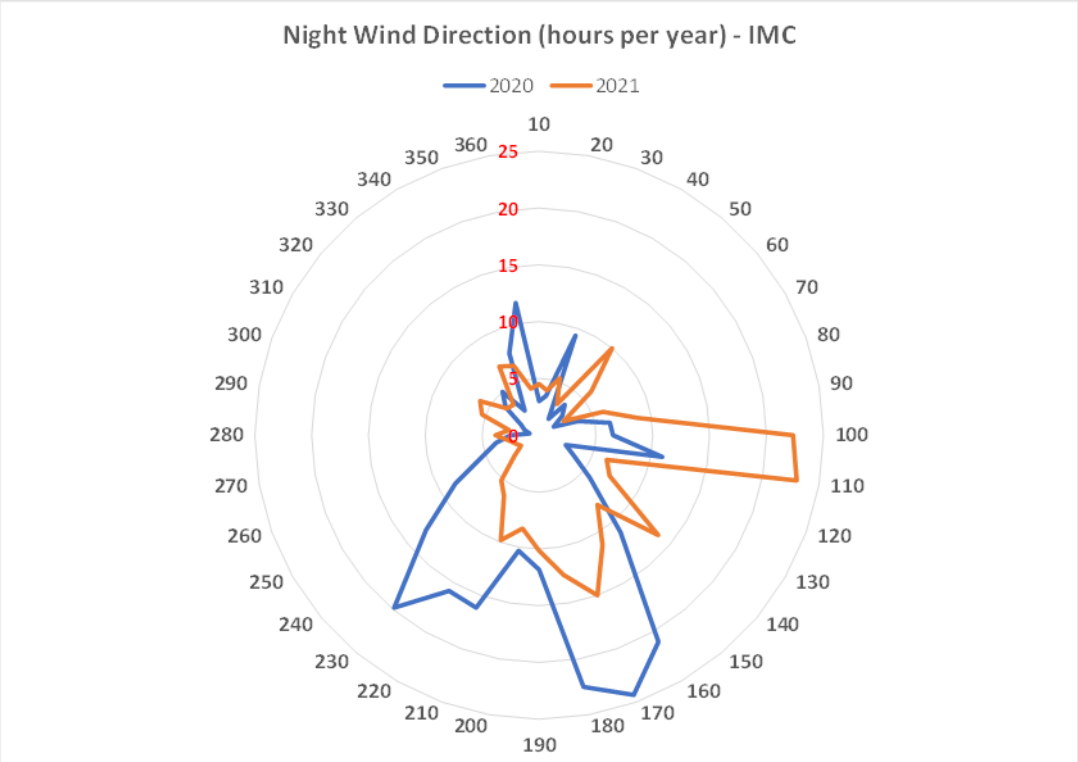


Figure 4.3: Wind Direction for Night Hours Per Year When IMC

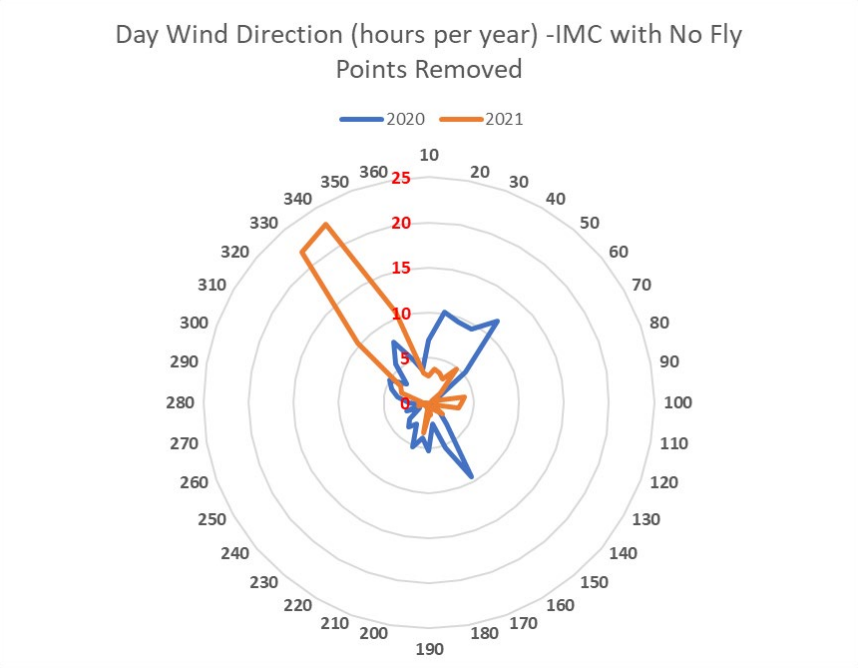


Figure 4.4: Wind Direction Daylight Hours Per Year When IMC Minus No-Fly Points

40. As the majority of planned flights to NUIs take place by day, the direction and frequency of IMC conditions shown in Figure 4.2 and Figure 4.4 are the most relevant.

5 Emergency Conditions

41. The methodology used so far in this Report addresses helicopter access under CAT Regulations. Emergency down manning of any installation, critical Medivacs and SAR are not constrained by CAT Regulations as these flights are generally flown by the Coastguard SAR aircraft operating under CAP 999 (CAA, 2014). The Coastguard helicopters are operated as State Aircraft under National Regulations and are not constrained by the higher weather limits in CAT Regulations. Also, commercial SAR can be flown with some alleviations from CAT Regulations. Such SAR arrangements have existed in the United Kingdom, Norway and the Netherlands for decades and include SAR coverage provided by the Integrated Search and Rescue (ISAR) Consortium in Aberdeen (formerly Jigsaw Aviation), SAR helicopters based in the Ekofisk Field, and SAR helicopters under contract to Nederlands Olie en Gas Exploratie en Productie Associatie (NOGEPA), the Dutch equivalent of Oil & Gas UK.

42. CAP 999 defines the SAR operating minima as:

    Operating minima for the dispatch and continuation of a SAR operational flight are at the discretion of the aircraft commander. However, he is to consider the urgency of the task, crew and aircraft capability and the requirement to recover the aircraft safely.

43. Due to the SAR autopilot modes and enhanced sensors fitted to the Coastguard SAR helicopters, a shorter distance is required to enter the field and manoeuvre to land on platforms, even in poor weather. SEP and DEP will be designed in accordance with MGN 654, which permits helicopter SAR operations within a turbine array, and so SAR access will also be available to platforms adjacent to the wind farms.

44. Furthermore, in the event of an emergency on the platform resulting in an explosion, fire or release of hydrocarbons, helicopters will be unable to land and so other means of escape, such as Totally Enclosed Motor Propelled Survival Craft (TEMPSC) and/or Seascape systems will be required. Although helicopters are usually the preferred means of down manning an installation, they cannot be the primary means of down manning in all cases.

45. In summary, although a reduction in helicopter access under CAT Regulations will impose a logistic restriction on a gas installation, it will not result in a reduced level of safety, as SAR helicopters will still be able to access an installation.

6 Infrastructure Specific Access

46. This section will now identify any additional access restrictions imposed by the presence of SEP and DEP on the infrastructure shown in Table 3.1.

47. Figure 6.1 shows the proposed boundaries of SEP and DEP and the locations of the adjacent gas infrastructure.

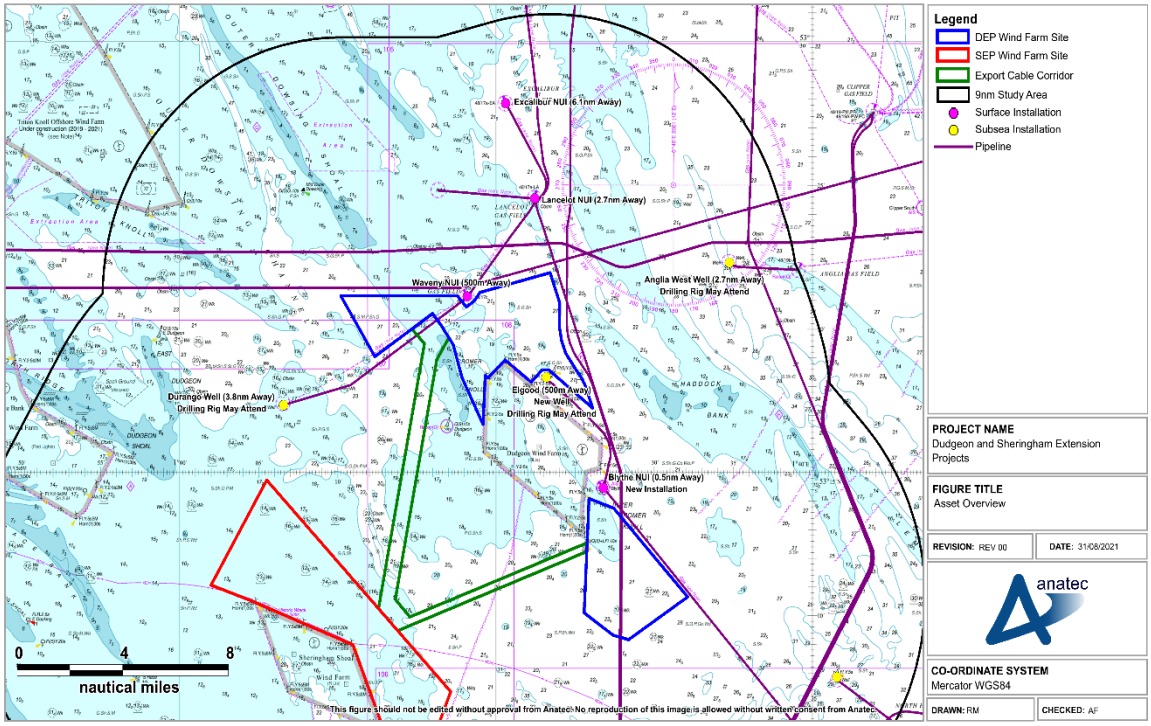


Figure 6.1: SEP and DEP Asset Overview

48. Due to performance and handling requirements, helicopters will normally approach to land and take-off facing into the prevailing wind. Approaching with a slight crosswind when at a safe speed is acceptable, but at speeds below 50kts the helicopter should be orientated into wind. The requirement to approach and depart a platform into wind results in restrictions if either is obstructed by obstacles, such as a wind turbine.

49. Another factor which must be considered is the take-off distance required in the event of an engine failure during take-off, known as a One Engine Inoperative (OEI) take-off. Under VMC a distance of approximately 1nm to the closest object is sufficient to climb to 500ft and then turn away from obstacles whilst continuing the climb. Under IMC, the climb will be continued to 1,000ft before turning. Additionally, in IMC a 1nm buffer between the flight path and any obstacle must be included, and so the total distance required will be larger, typically greater than 2.5nm for current types, such as the AgustaWestland 139 (AW139) helicopter.

6.1 Waveney Platform

50. The Waveney NUI has a 16.01m D value helideck with a T Value of 5.3 tonnes. Currently, the largest helicopter approved for Waveney is the AW139, which can land and depart at 6.8 tonnes under a type-specific alleviation. The platform is approved for daylight operations only, and so only daylight data will be considered. Details of the platform are shown in Figure 6.2.

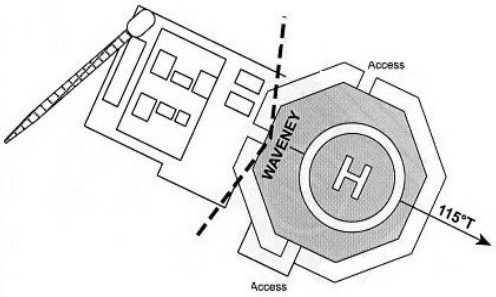
		HELIDECK INFORMATION PLATE			
HELIDECK Elev **103ft**	VAR **0**	POSITION **N53 21.20 E001 18.30**	EGRE **Waveney**		
HEIGHT OF INSTALLATION: **135** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **129.880**	NDB **Nil**	Issue Date **23 Apr 2020**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **No**			Operating Company **Perenco**		Issued By **Helideck Certification Agency**
HELIDECK D value: **16.01** P/R/H Category: **F** Max Weight: **5.3** Circle & H Lights: **Yes**					
					
Wind (T°)	**Kts**	**Limitation /Comment**			
		▪ NUI ▪ Daylight Operations only - Circle and "H" lights not fitted ▪ Table 1 (T) if overflight of either access unavoidable on take-off ▪ Cleared for AW139 (6.8t)			
		Non Compliance			
5:1		NE and SW access			
Misc		TD/PM & H Lights not fitted No automatic fire-fighting facilities Gull Scat fitted (Bird scaring system - irregular loud noises)			

Figure 6.2: Waveney Platform Information Plate

51. The Waveney platform is an NUI, but occasional access will be required for maintenance. In addition, access might be required for a drilling rig working over the platform, or a diving support vessel. The Waveney platform is located 500m from the proposed boundary of DEP.

6.1.1 Flight Under Visual Flight Conditions

52. Except in calm wind of below 10kt when an approach and take-off on an east-west axis can take place, all other conditions will result in either the approach or take-off directions being impaired by DEP, as the boundary covers more than 180° of the available approach and take-off arcs.

53. Table 4.1 identified that 92.3% of 2020 and 85.0% of 2021 were Day VMC. However, for 2020, the only complete year of data, only 14.6% of the daylight conditions were VMC with a 10-minute windspeed of 10kt or less. So, if wind turbines were built up to the boundary, within 500m of the platform, then CAT helicopters would be unable to access the platform for 85.4% of daylight conditions.

54. If an obstacle free circle of circa 1nm could be provided, then approaches and take-off under Day VMC conditions could be conducted safely. That would increase the daylight access from approximately 14.6% to 92.3% (2020) of day conditions. The Waveney Platform is approved for day-only operations, but a drilling rig or DSV working at that location might have a night-certified helideck. Additional distance would be required for Night VMC approaches, as operators' procedures require night approaches to be stabilised into wind at several miles from the landing point, even under VMC. Therefore, even with a night-certified helideck, CAT daylight-only operations will be possible.

6.1.2 Flight Under Instrument Flight Conditions

55. In order to increase the helicopter access under IMC, then sufficient space would have to be provided for approaches and take-off. The minimum requirement is for at least 2.5nm clear of obstacles for take-off (9nm for an approach), so IMC access is not considered further.

6.2 Elgood Sub-Sea Well

56. The Elgood Sub-Sea Well is located 500m from the proposed boundary of DEP. It is also adjacent to the Dudgeon wind farm, with the closest wind turbine approximately 1,000m away. It is probable that a drilling rig or diving support vessel will occasionally work at the location.

6.2.1 Flight Under Visual Flight Conditions

57. Due to the location of the Well and the boundary of Dudgeon wind farm and DEP, even under calm VMC conditions access will be severely limited, as the boundaries effectively circle the well, except for an access corridor running north-west/south-

east. In order for safe VMC helicopter operations to take place, the corridor will need to be sufficiently wide for a helicopter to turn, as well as sufficient space allowed to turn beyond the well area and make an approach to the site on a south-easterly heading when the wind is from the south-east. It is reasonable to assume that some helicopter operators will decline to fly to the site unless the distance to the nearest wind turbine is increased beyond 500m.

58. If wind turbines were built up to the boundary of DEP, it is unlikely that CAT helicopter operators would fly to the location, due to the distance to the boundary and the restricted approach corridor. Therefore, an alternative means of accessing a rig or vessel would be required, such as a walk-to-work vessel.

59. If an obstacle free circle of circa 1nm around the well, and in corridor between the two windfarms, could be provided, then approaches and take-off under Day VMC conditions could be conducted safely. That would increase the daylight access from zero to 92.3%.

6.2.2 Flight Under Instrument Flight and Night Conditions

60. It is assumed that flight operations in the vicinity of the Elgood Well will be infrequent and so potential options to allow flight under Night VMC and IMC are not considered further.

6.3 Blythe Platform

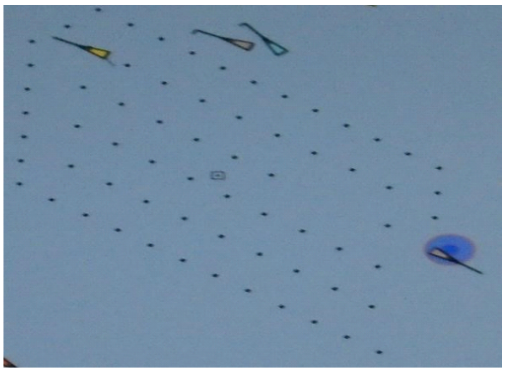
61. The Blythe NUI has a 17.2m D value helideck with a T Value of 6.8 tonnes. Details of the platform are shown in Figure 6.3. The Blythe platform is an NUI, but occasional access will be required for maintenance. In addition, access might be required for a drilling rig working over the platform, or a diving support vessel. The Blythe platform is located 0.5nm from the proposed boundary of DEP to the south and 3nm to the north. It is also 0.6nm from the closest wind turbine in the current Dudgeon wind farm, which already restricts Night VMC and IMC operations.

HELIDECK INFORMATION PLATE

HELIDECK Elev 114 ft	VAR Check	POSITION N53 14.6 E001 26.8	EGBY Blythe		
HEIGHT OF INSTALLATION: HIGHEST OBSTACLE WITHIN 5NM:		TBC Windfarm	VHF 133.580	NDB 356- BLY	Issue Dat Jun 20
FUELLING INSTALLATION: EQUIPMENT:		No STARTING No	Operating Company		Issued I Helide Certificat Agenc
HELIDECK D value: P/R/H Category: Max Weight: Circle & H Lights:		17.2 F 6.8 Yes	ODE		







Wind (T°)	Kts	Limitation /Comment
		NUI monopod • Table 1(T) if overflight of 5:1 falling infringements unavoidable • Automated DIFFS
		Non Compliance
	5:1	East access and vent boom West access and roof of generator housing
	Misc	Wind farm to west of platform (running SW to North). Nearest turbines approx 800m NW

Figure 6.3: Blythe Platform Information Plate

6.3.1 Flight Under Day Visual Flight Conditions

62. Currently the Dudgeon wind farm has three wind turbines within 1nm of the Platform and so limits the approach and take-off distances to less than 1nm on an arc from 250° clockwise to 350°. It is probable that helicopter operators have already put Day VMC limitations in place due to the current Dudgeon wind farm, although these limitations are not in the public domain.

63. Due to DEP, except under calm wind conditions, Day VMC operations would be restricted with a wind from 140° clockwise to 230°, due to the lack of a sufficient take-off distance to the boundary, and 320° clockwise to 050° for the approach. These restrictions could include operating at a reduced weight/payload or placing limits on the wind conditions. If an obstacle free arc of circa 1nm could be provided from DEP, then approaches and take-off under Day VMC conditions could be conducted safely and not result in any additional limits above those already in place due to the Dudgeon wind farm. Additional distance would be required for Night VMC approaches, as operators' procedures require night approaches to be stabilised into wind at several miles from the landing point, even under VMC.

64. With a sufficient obstacle free distance from DEP, Day VMC access will be approximately 92.3% (2020) minus any restrictions already in place due to the current Dudgeon wind farm.

6.3.2 Flight Under Instrument Flight and Night Conditions

65. Currently an IMC approach is restricted by the Dudgeon wind farm when the wind is from 020° clockwise to 180°. Take-offs into IMC are restricted with a wind from 200° clockwise to 360°. DEP will prevent an IMC approach with a wind from 320° clockwise to 060°. Take-offs into IMC will be restricted when the wind is from 140° clockwise to 240°. Some of the obstructed arcs caused by the two windfarms overlap.

66. As well as CAT Day VMC access already being impaired by the presence of the Dudgeon wind farm, Night VMC and IMC are also impaired to such an extent that they are impractical. Although providing additional obstacles, DEP does not introduce a significant additional reduction in IMC or Night VMC access, as they were already unfeasible.

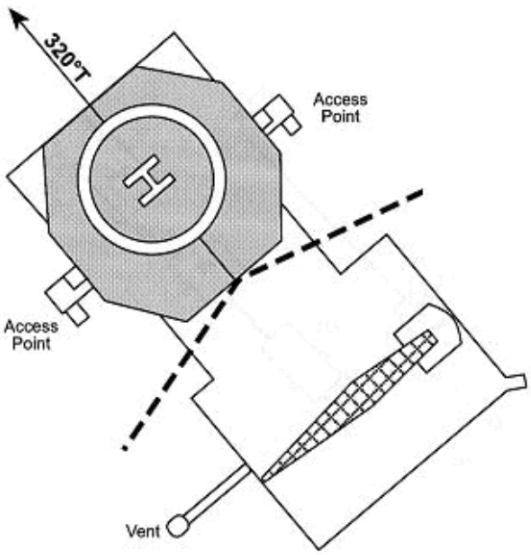
6.4 Lancelot Platform

67. The Lancelot NUI has a 17.5m D value helideck with a T Value of 5.3 tonnes. Details of the platform are shown in Figure 6.4: Lancelot Platform Information Plate. Currently, the largest helicopter approved for Lancelot is the AW139, which can land and depart at 6.8 tonnes under a type-specific alleviation. The Lancelot platform is an NUI, but occasional access will be required for maintenance. In addition, access might be required for a drilling rig working over the platform, or a

diving support vessel. The Lancelot platform is located 2.7nm from the proposed boundary of DEP to the south.

HELIDECK INFORMATION PLATE

HELIDECK Elev 120 ft	VAR 0	POSITION N53 24.6 E001 22.5	EGLE **Lancelot**		
HEIGHT OF INSTALLATION: 133ft HIGHEST OBSTACLE WITHIN 5NM: Check			VHF 129.880	NDB not fitted	Issue Date July 2021
FUELLING INSTALLATION: No STARTING EQUIPMENT: No			Operating Company **Perenco UK ltd**		Issued By **Helideck Certification Agency**
Norway 1.25D - 'D' = 17.5m HELIDECK D value: 17.5 P/R/H Category: F Max Weight: 5.3					



Wind (T°)	Kts	Limitation /Comment
		• NUI • Table 1 (T) if overflight of 5:1 items unavoidable • Cleared for AW 139 (6.8t)
		Non Compliance
	5:1	East and west access
	Misc	No automatic fire-fighting facilities

Figure 6.4: Lancelot Platform Information Plate

6.4.1 Flight Under Visual Flight Conditions

68. For VMC operations, the distance of 2.7nm is sufficient for unconstrained day VMC operations.

6.4.2 Flight Under Instrument Flight Conditions

69. Table 6.1 identifies the hours per month during 2020 when the meteorological conditions require an IMC approach, and the conditions are above the no-fly limits. Assuming that 2.7nm is a sufficient distance for an OEI take-off on current types, such as the AW139, only the approach direction will be constrained by the wind farm to the south. Constrained ARA approach directions are from 150° clockwise to 250°. As helicopters will approach into wind, the wind directions which will require an approach from the 150° clockwise to 250° arc will be winds from the reciprocal directions of 330° clockwise to 070°. The wind directions of 330° clockwise to 070° are highlighted in Table 6.1.

70. The cells which are not highlighted, i.e. when IMC approaches and take-offs are permitted, amount to 71.5 hours in 2020, or 48.2% of the IMC conditions. Therefore, the total access in 2020 would have been 92.3% (VMC) plus 1.5% (48.2% of (Table 4.2) 3.1% IMC access) =93.8%.

Table 6.1: Hours per Month When IMC Minus No-Fly Conditions Exist

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
10	0.0	0.0	0.0	0.8	0.7	4.2	1.0	0.3	0.0	0.0	0.0	0.0	7.0
20	0.0	0.0	0.0	2.3	0.5	3.7	0.8	2.8	0.0	0.0	0.0	0.0	10.2
30	0.0	0.0	0.0	2.2	0.0	4.7	0.0	2.7	0.0	0.0	0.0	0.0	9.5
40	0.0	0.0	0.0	1.2	0.0	4.7	0.5	3.2	0.0	0.0	0.0	0.0	9.5
50	0.0	0.0	0.0	0.7	0.0	7.2	1.7	1.0	0.0	0.0	0.2	1.2	11.8
60	0.0	0.0	0.0	0.2	0.0	2.7	0.3	0.0	0.0	0.0	0.2	2.0	5.3
70	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2
80	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.2	0.0	0.0	1.0
90	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2	0.2	0.0	0.8
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
110	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.2	0.0	0.0	0.3	0.0	0.8
120	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3
130	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.5
140	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5
150	0.0	1.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	3.0
160	0.0	3.7	0.7	0.5	0.0	0.2	0.0	1.2	0.0	1.0	1.3	1.0	9.5
170	0.0	1.7	0.3	0.2	0.0	0.5	0.0	0.3	0.0	1.0	0.5	0.8	5.3
180	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.2	0.7	0.2	0.5	2.3
190	0.0	1.3	0.8	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.2	1.5	5.3
200	1.0	1.3	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.2	0.5	4.0
210	1.3	1.0	0.0	0.0	0.0	0.2	0.0	0.7	0.0	0.0	1.2	0.8	5.2

220	1.0	1.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0	2.7
230	0.0	1.5	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.2	0.2	1.2	3.5
240	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.7	2.8
250	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.2
260	0.5	0.5	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	1.0	2.7
270	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.7
280	0.2	0.0	0.3	0.0	0.0	0.3	0.3	0.0	0.0	0.7	0.2	0.2	2.2
290	0.2	0.2	0.5	0.0	0.0	0.7	1.3	0.2	0.0	0.3	0.2	0.0	3.5
300	0.0	0.0	0.2	0.0	0.0	0.5	1.5	1.3	0.0	0.5	0.2	0.2	4.3
310	0.2	0.0	0.3	0.0	0.0	1.8	0.2	1.8	0.3	0.3	0.0	0.0	5.0
320	0.2	0.0	0.0	0.0	0.0	2.3	0.0	0.2	0.5	0.0	0.0	0.0	3.2
330	0.0	0.0	0.5	0.0	0.0	3.0	0.0	1.3	0.0	0.0	0.8	0.0	5.7
340	0.0	0.0	0.2	0.0	0.2	6.3	0.0	0.5	0.2	0.0	0.5	0.0	7.8
350	0.0	0.0	0.0	0.0	0.2	2.5	0.2	0.2	1.8	0.0	0.0	0.2	5.0
360	0.0	0.0	0.0	0.5	0.2	2.7	0.0	0.0	0.0	0.0	0.3	0.0	3.7

6.5 Durango Sub-Sea Well

71. The Durango Sub-Sea Well is 3.8nm from the proposed boundary of DEP. It is probable that a drilling rig or diving support vessel will occasionally work at the location.

6.5.1 Flight Under Visual Flight Conditions

72. For VMC operations, the distance of 3.8nm is sufficient for unconstrained day VMC operations to a rig or vessel working over the well.

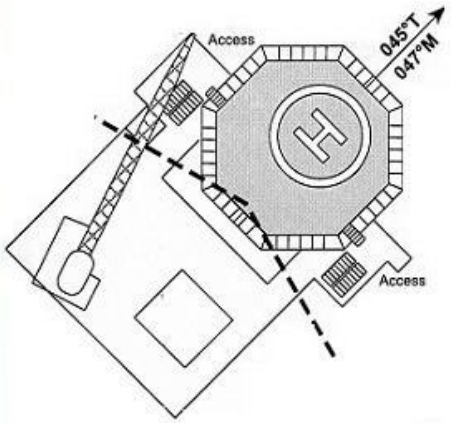
6.5.2 Flight Under Instrument Conditions

73. It is assumed that any flying operations in the vicinity of the Durango Well will be infrequent, therefore IMC options are not considered further.

6.6 Excalibur Platform

74. The Excalibur NUI has a 17.5m D value helideck with a T Value of 5.3 tonnes. Details of the platform are shown in Figure 6.5. Currently, the largest helicopter approved for Lancelot is the AW139, which can land and depart at 6.8 tonnes under a type-specific alleviation. The Excalibur platform is an NUI, but occasional access will be required for maintenance. In addition, access might be required for a drilling rig working over the platform, or a diving support vessel. The Excalibur platform is located 6.1nm north of the proposed boundary of DEP.

HELIDECK INFORMATION PLATE					
HELIDECK Elev **120ft**	VAR **0**	POSITION **N53 27.55 E001 20.4**	EGEX **Excalibur**		
HEIGHT OF INSTALLATION: **141ft** HIGHEST OBSTACLE WITHIN 5NM: **Check**			VHF **129.880**	NDB **No**	Issue Date **12 Oct 2020**
FUELLING INSTALLATION: **No** STARTING EQUIPMENT: **No**			Operating Company **Perenco**		Issued By **Helideck Certification Agency**
HELIDECK D value: **17.5** P/R/H Category: F Max Weight: **5.3** Circle & H Lights: Yes					



Wind (T°)	Kts	Limitation /Comment
		▪ NUI ▪ Table 1(T) if overflight of 5:1 items unavoidable
		Non Compliance

5:1	NW and SE access points
Misc	Cleared for AW 139 (6.8t)

Figure 6.5: Excalibur Platform Information Plate

6.6.1 Flight Under Visual Flight Conditions

75. For VMC operations, the distance of 6.1nm is sufficient for unconstrained Day and Night VMC operations.

6.6.2 Flight Under Instrument Flight Conditions

76. Table 6.2 identifies the hours per month during 2020 when the meteorological conditions require an IMC approach, and the conditions are above the no-fly limits. A distance of 6.1nm from the closest wind turbine results in no IMC take-off constraints. Constrained ARA approach directions are from 160° to 230°. As helicopters will approach into wind, the wind directions which will require an approach from the 160° clockwise to 230° arc will be winds from the reciprocal directions of 340° clockwise to 050°. The wind directions of 340° clockwise to 050° are highlighted in Table 6.1.The cells which are not highlighted, i.e. when IMC approaches and take-offs are permitted, amount to 83.7hours in 2020, or 56.5% of IMC. The total access in 2020 would have been 92.3% (VMC) plus 1.8% (56.5% of (Table 4.2) 3.1% IMC access) = 94.1%.

Table 6.2: 2020 – Hours per Month When IMC Minus No-Fly Conditions Exist

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	0.0	0.0	0.0	0.8	0.7	4.2	1.0	0.3	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	2.3	0.5	3.7	0.8	2.8	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	2.2	0.0	4.7	0.0	2.7	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	1.2	0.0	4.7	0.5	3.2	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.7	0.0	7.2	1.7	1.0	0.0	0.0	0.2	1.2
60	0.0	0.0	0.0	0.2	0.0	2.7	0.3	0.0	0.0	0.0	0.2	2.0
70	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.2
80	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.2	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2	0.2	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
110	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.2	0.0	0.0	0.3	0.0
120	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0
140	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
150	0.0	1.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0
160	0.0	3.7	0.7	0.5	0.0	0.2	0.0	1.2	0.0	1.0	1.3	1.0

170	0.0	1.7	0.3	0.2	0.0	0.5	0.0	0.3	0.0	1.0	0.5	0.8
180	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.2	0.7	0.2	0.5
190	0.0	1.3	0.8	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.2	1.5
200	1.0	1.3	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.5	0.2	0.5
210	1.3	1.0	0.0	0.0	0.0	0.2	0.0	0.7	0.0	0.0	1.2	0.8
220	1.0	1.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0
230	0.0	1.5	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.2	0.2	1.2
240	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.7
250	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3
260	0.5	0.5	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	1.0
270	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0
280	0.2	0.0	0.3	0.0	0.0	0.3	0.3	0.0	0.0	0.7	0.2	0.2
290	0.2	0.2	0.5	0.0	0.0	0.7	1.3	0.2	0.0	0.3	0.2	0.0
300	0.0	0.0	0.2	0.0	0.0	0.5	1.5	1.3	0.0	0.5	0.2	0.2
310	0.2	0.0	0.3	0.0	0.0	1.8	0.2	1.8	0.3	0.3	0.0	0.0
320	0.2	0.0	0.0	0.0	0.0	2.3	0.0	0.2	0.5	0.0	0.0	0.0
330	0.0	0.0	0.5	0.0	0.0	3.0	0.0	1.3	0.0	0.0	0.8	0.0
340	0.0	0.0	0.2	0.0	0.2	6.3	0.0	0.5	0.2	0.0	0.5	0.0
350	0.0	0.0	0.0	0.0	0.2	2.5	0.2	0.2	1.8	0.0	0.0	0.2
360	0.0	0.0	0.0	0.5	0.2	2.7	0.0	0.0	0.0	0.0	0.3	0.0

7 References

CAA (2016). CAP 764 Policy and Guidelines on Wind Turbines. Sixth Edition. Gatwick: CAA.

CAA (2014). CAP 999 Helicopter Search and Rescue (SAR) in the UK National Approval Guidance. Second Edition. Gatwick: CAA.

CAA (2018). *Guidance for Specific Approval for Helicopter Offshore Operations (SPA.HOFO)*. Gatwick: CAA.

Appendix A – Analysis of Vantage Data

Introduction

77. Helicopter flights, along with passengers and freight carried, are recorded in the Vantage POB System[1]. Flight data for the Waveney, Lancelot and Excalibur Platforms was supplied by Perenco, covering the same time period as the meteorological data analysed in the main body of this report. This allowed an analysis to be conducted to identify the constraints which would have been imposed if the DEP had been built at the time of those flights, in particular the number of flights which would have been lost.

Table A.1: Number of Helicopter Flights

Destination	2020	2021
Waveney Platform	72	67
Lancelot Platform	40	84
Excalibur Platform	151	140

Waveney Platform

78. For a description of the Waveney Platform see section 6.1. It is certified for day only operations. If an obstacle free circle of 1nm was available between the platform and the closest WTG, then day VMC approaches and take-offs would be possible.

79. In 2020, flight operations on two days would have been restricted.

- 27/10/20 there were two flights, the first landing at 08:08 to drop personnel and a second at 15:34 to extract personnel. The conditions turned from VMC to IMC at 13:50, so the second flight would have to be brought forward, limiting the working time on the platform.
- 29/10/20 there were also two flights. The flight landed under VMC at 07:58 and a second flight occurred at 15:22. The conditions turned from VMC to IMC at 14:50, so the second flight would have to be brought forward, limiting the working time on the platform.

80. In 2021, there was one occasion on the 23/2/2021 where a flight landed at 09:24 under IMC conditions. However, until 08:40 the conditions were below IMC limits and so an approach would not have been successful anyway. The conditions improved to VMC at 09:40 and so the landing would only have been delayed by 16 minutes.

[1] [redacted]

81. In summary, there were two flights out of 72 in 2020 where the DEP would have restricted operations, requiring early extraction of personnel. In 2021, there was one flight where a slight delay would have been required.

Lancelot Platform

82. For a description of the Lancelot Platform see section 6.4. It is certified for day and night operations. It is situated 2.7nm from the boundary to the DEP. It is assumed that 2.7nm is sufficient for a take-off at night or in IMC, and so only approach constraints need to be considered. Constrained ARA approach directions are from 150° clockwise to 250°. As helicopters will approach into wind, the wind directions which will require an approach from the 150° clockwise to 250° arc will be winds from the reciprocal directions of 330° clockwise to 070°. Some helicopter operators might require more than 2.7nm at night for a stabilised visual approach, so night approaches will be considered in the same manner as an IMC approach.

83. In 2020 there were no occasions when an IMC, or night approach, was flown and the wind direction would have restricted the approach.

84. In 2021 there were two occasions when an ARA would have been constrained.

- 19/4/2021 the first of two flights landed at 08:28 in IMC when the approach would have been restricted by DEP. The later flight at 19:33 was under VMC. The conditions did not become VMC until 18:40 and so a day of work is likely to have been lost.
- 20/4/2021 the first of two flights landed at 08:28 in IMC when the approach would have been restricted by DEP. The conditions became VMC at 08:40 and so only a short delay would have occurred. The second flight at 19:23 was under VMC.

85. In 2021 there were three occasions when night approaches might have been constrained if some operators require more than 2.7nm for a stabilised night approach and the wind is blowing from the 330° to 070° arc. In these cases the flights could have been brought forward to Day VMC, but would have resulted in lost working time.

- 24/1/2021 the second flight landed at 19:26 under Night VMC with a wind direction of 030°. This flight could have been brought forward to 16:50 and conducted under Day VMC.
- 15/3/2021 the second flight landed at 19:26 under Night VMC conditions with a wind direction of 350°. If the operator required more than 2.7nm for a night approach, then the flight could have been brought forward to 18:30 and conducted under Day VMC.
- 16/3/2021 the second of 2 flights landed at 20:46 with a wind direction of 340°, i.e. at the edge of the restricted approach arc. This flight could have been brought forward to 18:30 under Day VMC.

86. In summary, there is likely to have been one day of work lost (19/4/2021) and one daytime flight suffering a short delay (20/4/2021). There were three occasions when a night extraction of personnel might have to be brought forward to daylight (24/1/2021, 15/3/2021 and 16/3/2021).

Excalibur Platform

87. A description of the Excalibur Platform is shown in section 6.6. A distance of 6.1nm from the Excalibur Platform to the closest WTG results in no IMC take-off, or night approach, constraints. Constrained ARA approach directions are from 160° to 230°. As helicopters will approach into wind, the wind directions which will require an approach from the 160° clockwise to 230° arc will be winds from the reciprocal directions of 340° clockwise to 050°.

88. In 2020 there were no occasions when IMC approaches would have been constrained.

89. In 2021 there were two days when IMC approaches were constrained.

- 2/3/2021 there were two flights in total, with the first landing under IMC. The second flight at 14:47 under IMC with a wind of 050°. It is likely that this day would have been lost, as the wind was from between 340° clockwise to 050° for a large proportion of the day and the overall conditions were marginal anyway.
- 19/4/2021 There were four flights, all conducted under IMC. The last three flights had the wind from 340° clockwise to 050°. It is likely that this day of operations would have been lost.

90. In summary, there would have been no restriction on operations in 2020 due to DEP. In 2021 it is likely that two days of operations (2/3/2021 and 19/4/2021) would have been lost.

Summary

91. When flights to a platform are delayed by weather, such as the 23/2/2021 to the Waveney, the platform operator and the helicopter operator would have a choice of delaying the take-off or departing on time and holding near the installation until the conditions cleared. In practical terms, it usually depends on how predictable the weather improvement is and how long the workers will need on the platform. If the helicopter has to hold for a short period near the platform until the weather improves, then some additional cost would be incurred due to the additional flying required. If the take-off is delayed, then the helicopter would not be airborne for any additional time and no additional cost would be incurred.

92. Table A.2 shows the number of helicopter flights effected per platform per year.

Table A.2: Number of Helicopter Flights Effected

Destination	2020	2021
Waveney Platform	2	1
Lancelot Platform	0	3 or 6[Note]
Excalibur Platform	0	2

Note: If an operator requires more than 2.7 for a Night VMC stabilised approach.