



Notice to Mariners

Pentland Floating Offshore Wind SEAWATCH LiDAR Buoy

189802-NtM-002(01) | 25 February 2022

Final



Document Control

Document Information

Project Title	Pentland Floating Offshore Wind SEAWATCH LiDAR Buoy
Document Title	Notice to Mariners
Fugro Project No.	189802
Fugro Document No.	189802-NtM-002(01)
Issue Number	002
Issue Status	Final

Revision History

Revision	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
00	22 Feb. 22	For Review	First Issue	LF	VC	
01	25 Feb. 22	Final	Approved by client	LF	Client	Client

Project Team

Initials	Name	Role
LF	Lars Fogelin	Project Manager
AB	Arve Berg	Project Director
VC	Veronique Cochin	Operations Manager

Contents

Document Control	ii
Document Information	ii
Revision History	ii
Project Team	ii
Contents	iii
Tables in the Main Text	iii
Figures in the Main Text	iii
1. Introduction	4
2. Area of Operations	5
3. Offshore Metrocean Measurements	6
3.1 The Equipment	6
3.2 The temporary marker buoy	7
4. Immediate Contacts	9
5. Survey Vessels	9
6. Distribution List	10

Tables in the Main Text

Table 1: SWLB deployment coordinates	5
Figure 2.1: SWLB licenced position	5
Figure 3.1: Equipment dimensions (left), example deployment (right)	6
Table 2: SWLB light flash sequence	6
Table 4: Contact persons	9
Table 5: Vessel details Green Isle	9
Table 6: Distribution list for this NtM	10

Figures in the Main Text

Figure 2.1: SWLB licenced position	5
Figure 3.1: Equipment dimensions (left), example deployment (right)	6

1. Introduction

Mariners are advised that Fugro are planning a service of a SeaWatch LiDAR Buoy (SWLB); this is a sea state measurement instrument (referred to as 'the equipment'). The buoy location is within the UK Sector of the North Sea off the north coast of Scotland, as shown in the coordinates in Table 1.

The service is planned to take place as soon as the weather allows.

The equipment was deployed the 26th of August 2021 and is planned to be measuring for a one-year period.

The buoy main power is from methanol fuel cells and a re-fuelling was planned after 9 months, i.e., in May 2022. However, the fuel lines have been blocked for an unknown reason and the fuel delivery stopped already in January. A service of the buoy has been planned since then but have not been possible due to weather.

There is a backup power supply of Lithium batteries that is providing power to selected met ocean measuring instruments in addition to the navigation aids (light and AIS). The backup power supply is estimated to last until the 14th of March with the current power consumption.

If the weather will not allow a recovery of the buoy before the back up power batteries are drained, a new notice will be sent out to inform that the buoy is missing light and AIS.

The buoy is planned to be recovered and towed onshore for service while replaced with a temporary buoy with light, marking the mooring left on site. See section 3.2 for more information on the marker buoy.

The equipment is to be recovered and deployed by a single vessel. Deployment will take one day on site, 3 days service onshore and one day re-deployment on site. Re-deployment immediate after service is dependent on weather and vessel availability.

The original buoy and temporary marker buoy will be moored through a combination of steel chains, rope and rubber cord to approximately 2250 kg anchor weight at the seabed.

2. Area of Operations

The equipment is located within 250 m of the licenced position, provided in Table 1 and Figure 2.1.

Table 1: SWLB deployment coordinates

Name	Latitude [WGS84]	Longitude [WGS84]	Depth [m]
Pentland Firth SWLB	58° 39.1675' N	003° 52.2809' W	86
Deployed Position	58° 39.1681' N	003° 52.2681' W	86

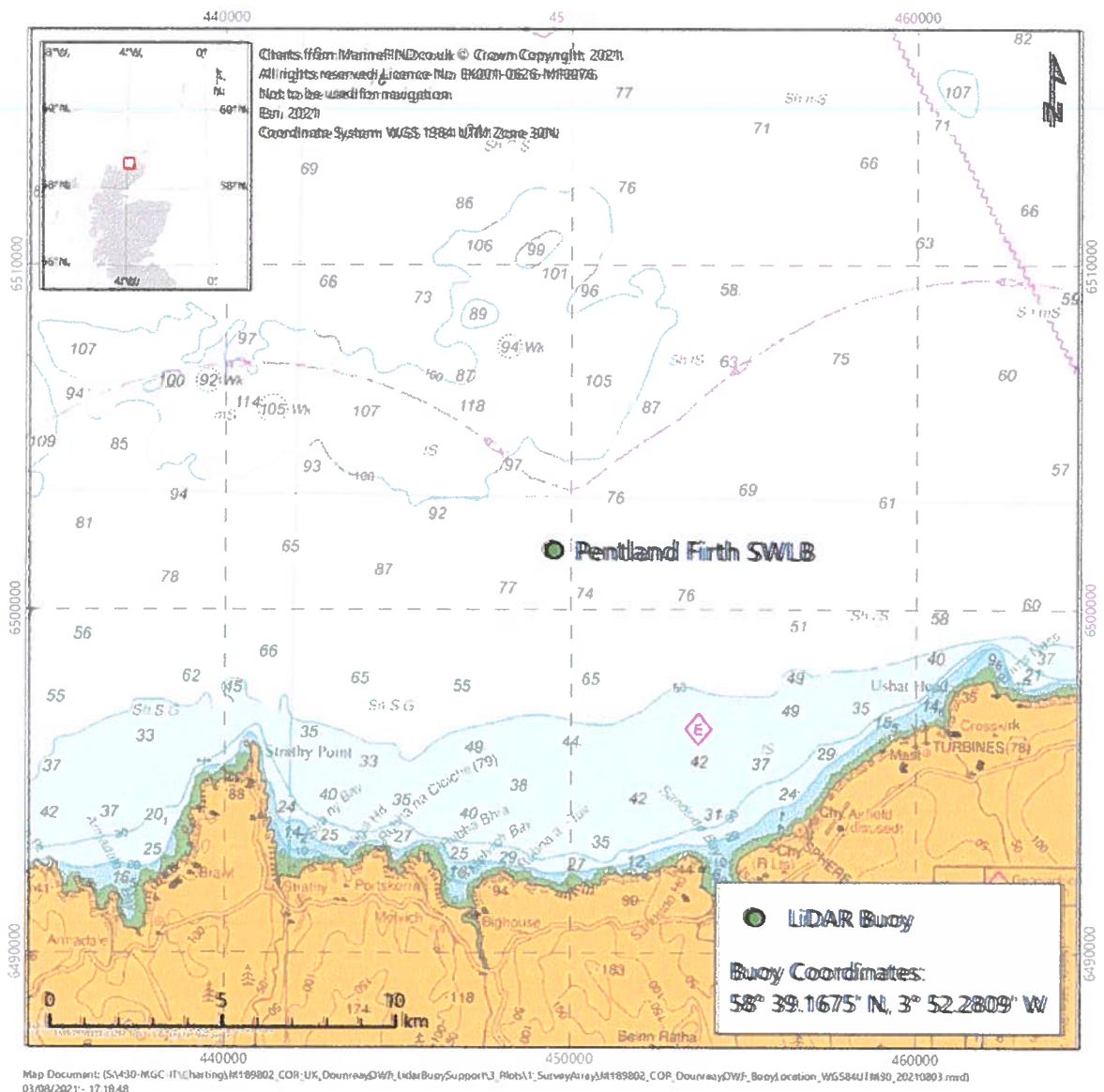


Figure 2.1: SWLB licenced position

3. Offshore Metocean Measurements

3.1 The Equipment

The equipment is an integrated Seawatch Wavescan buoy and ZX 300M LiDAR; the purpose of the equipment is to collect oceanographic and meteorological data using a single platform. The equipment is supplied and charged by an onboard power system which uses methanol fuel cells and solar panels to recharge onboard lead acid batteries.

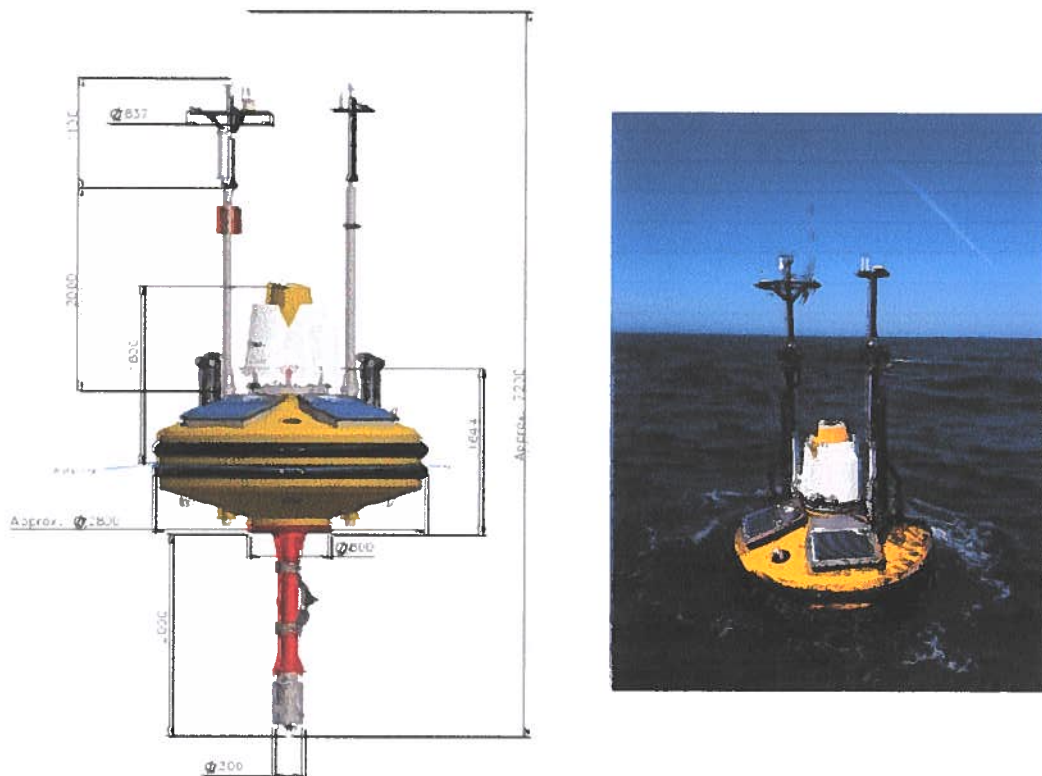


Figure 3.1: Equipment dimensions (left), example deployment (right)

In order to minimise the risk to other sea users, the measures listed below have been adopted for this deployment:

The equipment is equipped with a F1 (5) Y 20 s light with 4-5 nautical mile range; the light is mounted at the top of one of the masts, approximately 4 m above sea level. The flash sequence for this light is detailed in Table 2.

Table 2: SWLB light flash sequence

Flash Code	On [s]	Off [s]	On [s]	Off [s]	On [s]	Off [s]	On [s]	Off [s]	On [s]	Off [s]
FL (5) 20 S	0.8	1.2	0.8	1.2	0.8	1.2	0.8	1.2	0.8	11.2

Additional risk reduction measures include the use of passive radar reflectors to make the buoy more visible on vessel radars, Automatic Information Systems (AIS) to broadcast the buoy position to marine AIS platforms, Global Positioning Systems (GPS) position monitoring of the buoy at 30-minute intervals and an independent GPS tracker used for backup position monitoring of the equipment in the event of primary GPS failure.

Table 3: AIS MMSI number

MMSI number	992571102
-------------	-----------

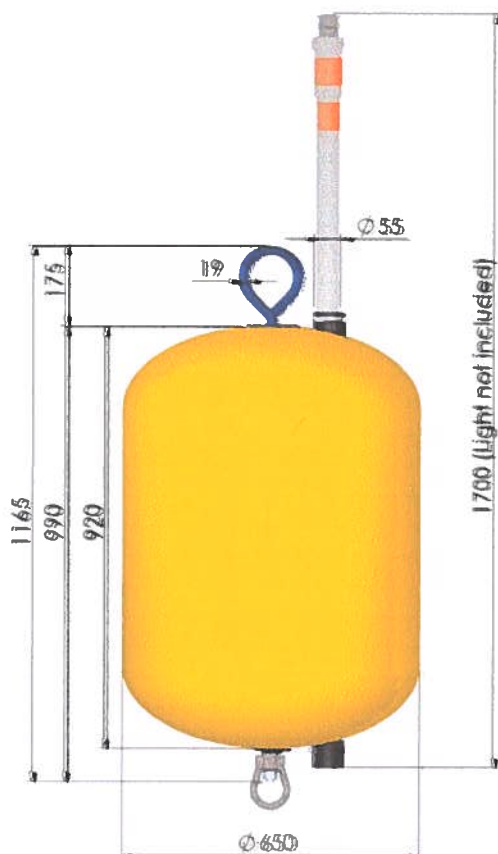
The equipment is moored using a single point mooring. The mooring design allows for free movement of the buoy over a radius that is approximately equal to the water depth. The anchor weight used to moor the equipment is approximately 2000 kg weight in water and comprised of large diameter scrap chain.

It should be noted that some elements of the mooring float just below the sea surface. To avoid the risk of entanglement, vessels should allow a minimum 200 m clearance from the surface buoy.

3.2 The temporary marker buoy

The temporary marker buoy is a LB250 from the producer Polyform AS, equipped with a high intensity LED light, Tron ML-200. See specifications below.

Product information



Article number	LB250
Diameter	650 mm
Total length of steel rod	1065 mm
Rod diameter	19 mm
Weight (nominal)	25 kg
Weight w. Jotron MF1014	31 kg
Gross volume	250 L
Recommended max load	140 kg

Technical information

Buoy body material description	
Material	ULPE
Hardness, shore D	57
Tensile strength	17,5 MPa
Ultimate Elongation	650%
Recommended min temp.	-25°C
Recommended max temp.	40°C
Temp. not to be exceeded	50°C
Specific gravity	0,94

Foam core material description	
Material	EPS
Density	25 Kg/m ³
Compressive strength	50 kPa

SPECIFICATIONS/TYPES:	Tron ML-100	Tron ML-200	Tron ML-300
Material housing	ABS	Aluminium	ABS
Material lens	Lexan	Lexan	Lexan
Light system	LED (white, yellow or red)	LED (white, yellow or red)	LED (white, yellow or red)
Light intensity (Red LED 5-Cd only)	5- or 15-Cd (Candela)	5- or 15-Cd	5- or 15-Cd
Surface range	2 or 3 NM (nautical miles)	2 or 3 NM	2 or 3 NM
Waterproof	Down to 500 meters	Down to 100 meters	IP-68: 5m/1hour
Operation time @ 0-degrees C*			
Current drain approx.			
Activation switch	Magnet/reed and daylight sensor	On/Off by daylight sensor only	On/Off by daylight sensor only
Flash rate	25 flash/min	25 flash/min or On/Off 2s	25 flash/min or On/Off 2s or fixed
Software programming	Flash rate, intensity, sync, daylight switch	Flash rate, intensity, sync, daylight switch	Flash rate, intensity, sync, daylight switch
Power/battery type	4.5 VDC, 3 x Alkaline D-size battery cells	4.5 VDC special battery pack	10-27 VDC external power
Lens colour	White	White	White
LED colour standard	White or yellow	White or yellow	White or yellow
LED colour option	Red	Red	Red
Dimensions approx.	Length: 335 mm / Ø: 100 mm	Length: 1615 mm / Ø: 70/50 mm	Length: 155 mm / Ø: 100 mm
Fixing option	Flotation Jotron part no. X-98885	Various fixations	Rigid mounting

4. Immediate Contacts

Enquiries regarding the contents of this Notice to Mariners or any other matters should be directed to the persons outlined in Table 4.

Table 4: Contact persons

Role	Name	Contact Details
Fugro Project Manager	Lars Fogelin	+47 9241 0056 lfogelin@fugro.com
Fugro Project Director	Arve Berg	+47 9139 4172 a.berg@fugro.com
Operations Manager Fugro GB Marine Ltd	Veronique Cochin	+44 7557 152682 v.cochin@fugro.com
Project delivery Manager Fugro GB Marine Ltd	Richard Liptrot	+44 7917 188732 r.liptrot@fugro.com
COP Package Manager	Qamar Hass. Malik	+45 2231 61 02 qhm@newpowerpartners.com
COP Package Manager	Mark Finch	+44 7478 745480 mff@cop.dk

5. Survey Vessels

Pending availability, the vessel outlined below is currently the option for the deployment of the equipment. If the vessel is not available, an alternative will be sourced and an updated NtM issued.

Table 5: Vessel details Green Isle

Vessel	Green Isle
Vessel type	Multicat
Operator	Green Marine (UK) Ltd
Call sign	2IAV3
IMO	9707962
	

6. Distribution List

This NtM has been distributed to the following parties.

Table 6: Distribution list for this NtM

Distribution List
thurso@mfi.org.uk
wick@mfi.org.uk
longhope@mfi.org.uk
harbour@scrabster.co.uk
office@wickharbour.co.uk
FO.scrabster@gov.scot
offshore.energy@ukho.gov.uk
navigationsafety@mca.gov.uk
kingfisher@seafish.co.uk
NavWarnings@UKHO.gov.uk
moccontroller@hmcg.gov.uk
ghm@newpowerpartners.com
chris@qresmarineuk.com
mfi@cop.dk