
From: [REDACTED]
Sent: Thursday, 24 June 2021 11:46 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Ext] RE: Request - Additional information - Investigation IVT 10524
Attachments: 200304 Daily Report LQC.pdf; 200318 Daily Report LQC.pdf

Hi [REDACTED]

Sorry for the delay but the rep from EPI has just come back to me and has confirmed as we thought – the black lines plotted on interim map 2 which indicate actual line kms data acquired on the survey do have full power source points only, no low power run in shots included.

Also, following our discussions in yesterday's meeting, [REDACTED] and I have been taking a look at sightings 53 and 72 which appear to be within BIA when plotted using the coordinates logged in the JNCC data sheet. Upon inspection we suspect that the positioning data is in error (not transferred to the JNCC sheet correctly. We come to this conclusion by looking at the timings of the shots with respect to entering and leaving the BIA and buffer zone.

Sighting 53 at 1626 (4/3/21)

Into buffer zone: 1242. Into BIA: 1409. Out of BIA:1617 Out of buffer: 1741

Sighting 72 at 1554 (18/3/21)

Into buffer zone: 1044. Into BIA: 1204. Out of BIA:1354 Out of buffer: 1516

In both cases the shots are occurring later in time after the vessel leaves both the BIA and also the buffer zone. In addition if we look at the daily report for sighting 53 we can see it plotted on the acquired line and not some distance after the start/end of line (hence not in buffer or BIA). Unfortunately the sighting 72 is not marked on the corresponding daily report in April.

Hope this helps.

Regards,

[REDACTED]

[REDACTED]
Sales Manager
Australasia
Schlumberger WesternGeco
[REDACTED]

Schlumberger-Private

From: [REDACTED]
Sent: Wednesday, June 23, 2021 4:47 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Ext] RE: Request - Additional information - Investigation IVT 10524

OFFICIAL

Hi [REDACTED]

Thank you for providing the information requested below (noting that map 2 is yet to be completed).

In relation to the interim map provided in lieu of map 2, can you please confirm that the black lines signify acquisition lines (and do not include soft starts).

Thank you

Kind regards

[REDACTED]

[REDACTED] | Environment Specialist

Offshore Projects and Seismic

Environment & Decommissioning

National Offshore Petroleum Safety and Environmental Management Authority

[REDACTED] W: nopsema.gov.au

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OFFICIAL

From: [REDACTED]

Sent: Tuesday, 22 June 2021 3:05 PM

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: [Ext] RE: Request - Additional information - Investigation IVT 10524

Thanks [REDACTED]

See you both tomorrow.

Regards,

[REDACTED]

[REDACTED]

Sales Manager

Australasia

Schlumberger WesternGeco

[REDACTED]

Schlumberger-Private

From: [REDACTED]

Sent: Tuesday, June 22, 2021 2:59 PM

To: [REDACTED]
Cc: [REDACTED]

Subject: RE: [Ext] RE: Request - Additional information - Investigation IVT 10524

OFFICIAL

Hi [REDACTED]

[REDACTED] and I will be attending and we will ensure we complete the pre-visit covid questionnaire

Thank you, your cooperation is much appreciated.

Regards
[REDACTED]

[REDACTED] | Environment Specialist

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From: [REDACTED]

Sent: Tuesday, 22 June 2021 2:50 PM

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: [Ext] RE: Request - Additional information - Investigation IVT 10524

Hi [REDACTED]

We will have the documents on disk ready for you at 3pm. I have booked a room for your visit so we can complete the paperwork required.

For map 2 we are still collecting the information and preparing the ground work this afternoon – we should have a clear timeline for you tomorrow when you visit. In the interim we will provide an alternative map as you request below.

Could you please let me know who will be coming over to our office and could you ask them to carry out the COVID pre-visit questionnaire? Link below.

online self-assessment form <https://forms.office.com/Pages/ResponsePage.aspx>

Thanks and regards,

[REDACTED]
[REDACTED]
Sales Manager
Australasia
Schlumberger WesternGeco
[REDACTED]

Schlumberger-Private

From: [REDACTED]
Sent: Tuesday, June 22, 2021 11:06 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: [Ext] RE: Request - Additional information - Investigation IVT 10524

OFFICIAL

Hi [REDACTED]

Thank you for clarifying that the majority of the requested documents will be available by COB tomorrow.

To enable NOPSEMA inspectors to review these documents, collect them and bring them back to the NOPSEMA office, would it be possible to have the documents ready by 3pm 23 June 2021? NOPSEMA inspectors will need to re-enter the premises under the warrant and formally collect the documents so you, [REDACTED] or another Schlumberger representative will need to be available.

In terms of map 2, have you got an update on the timeframe for the provision of this map? In the interim, information that shows where data acquisition actually took place, mapped overtop of the blue whale BIAs, would provide some information for us to consider while map 2 is being produced.

Regards
[REDACTED]

[REDACTED] | Environment Specialist
Offshore Projects and Seismic
Environment & Decommissioning
National Offshore Petroleum Safety and Environmental Management Authority
[REDACTED] | W: nopsema.gov.au
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OFFICIAL

From: [REDACTED]
Sent: Friday, 18 June 2021 4:22 PM

To: [REDACTED]
Cc: [REDACTED]

Subject: RE: Request - Additional information - Investigation IVT 10524

You don't often get email from [REDACTED]. [Learn why this is important](#)

Thanks for visiting our office yesterday. As requested, below are the indicative time lines:

- Map 1: Map and shape files can be provided for both item (a) and (b) by CoB Wednesday 23rd June 2021
- Map 2: Information will require a collation of coordinates with source energy produced (acquisition lines and soft start) from the P190 or sps files with all needed coordinates together with the observation/Nav logs. We are estimating a time line for completion of this work and come back to you.
- Other Information: Can be provided by CoB Wednesday 23rd June 2021

Have a good weekend.

Regards,

[REDACTED]

[REDACTED]

Asia Pacific

Schlumberger

Level 5, 10 Telethon Avenue, Perth WA 6000

[REDACTED]

From: [REDACTED]

Sent: Thursday, 17 June 2021 2:55 PM

To: [REDACTED]

Subject: RE: Request - Additional information - Investigation IVT 10524

Thanks [REDACTED]

We will get back to you tomorrow with an estimate of time needed to collate the needed information and also to produce the maps. [REDACTED] will be in touch as I will be out of office tomorrow.

Regards,

[REDACTED]

[REDACTED]

Sales Manager

Australasia

Schlumberger WesternGeco

[REDACTED]

Schlumberger-Private

From: [REDACTED]
Sent: Thursday, June 17, 2021 1:43 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: [Ext] Request - Additional information - Investigation IVT 10524

OFFICIAL

Dear [REDACTED]

Below is a request for additional documented information to support NOPSEMA's investigation of the Schlumberger Australia Pty Ltd (SLB) Otway Basin 2D Marine Seismic Survey.

NOPSEMA inspectors request that SLB responds by COB 18 June 2021 with an indication as to when the below the documentation will be ready for collection by NOPSEMA inspectors.

Maps

1. Please produce a map with:
 - a. Biologically important areas for blue whales used during the implementation of the survey
 - b. all the blue whale and un-identified whale sightings from MV No Limitation and Nordic Explorer showing:
 - i. sightings from different vessels (different shape for each)
 - ii. the corresponding sighting number
 - iii. Whether guns were on or off for each sighting (colour coded)
2. Please produce a map with:
 - a. Biologically important areas for blue whales used during the implementation of the survey
 - b. The seismic lines showing whether guns were on (this includes minimum power) or off. Please use different colours to signify all guns off; soft start (low power); full power.

Map format

Please provide the above maps in the following formats:

- PDF version of the maps
- The underlying shapefiles.

Other information

- January MV No Limitation MMO daily reports (Folder 3,4, g))
- Documented evidence of communication received on the Nordic Explorer from MV NO Limitation specific to sighting 65 on 31 March 2020 AND any mitigation action taken in response to the communication of sighting 65 from Nordic Explorer.
- Replacement form that includes the missing data from JNCC form – MV No limitation –column AE onwards (Folder 1, Appendix B. Seiche MMO / PAM Final Report)
- Clarification on the content and purpose of the p190 and p111 files in folder 8 (Folder 8 – Appendix K)
- Documented evidence that the new information relating to the higher than expected blue whale presence outside of the defined BIA was taken into account by SLB in determining whether (a) EP revision was required under Reg 17 or (b) an MOC was required to consider the need for additional or different controls.
- Clarification on what is signified by the thick blue lines and circles in daily logs for the Western Geco reports [folder from Seismic Operator Western Geco [2 a) Lead QC Daily).

Thank you

Kind regards



| Environment Specialist

Offshore Projects and Seismic

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National Offshore Petroleum Safety and Environmental Management Authority

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Schlumberger-Private

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04-Mar-20

Page 1

Client: WesternGeco MCG
Client Job No: 8013
Telephone: [REDACTED]
Attention: [REDACTED]
Email: [REDACTED]

Contractor: Seabird Exploration
Contractor Job No: 2019019
Telephone: [REDACTED]
Attention: [REDACTED]
Email: [REDACTED]

Vessel: Nordic Explorer
Telephone: [REDACTED]
Email: bridge.explorer@vestlandoffshore.no

Client Rep: [REDACTED]
Telephone: [REDACTED]
Email: epi_lqc_ne@epigroup.com

Julian Day: 64

Project Day: 51

Basic Project Details

2D config					
General Details					
Record length:	12000 ms	Sample rate:	2 ms	Shotpoint interval:	25 m
CoS to CNG:	102.4 m	Fold Coverage:	200		
Cable Details					
No of Cables:	1	Chans Per Cable:	800	Front Depth:	15 m
Tail Depth:	15 m	Length:	10000 m	Group interval:	12.5 m
Source Details					
No of Sources:	1	Total Volume:	4470 cu ins	Depth:	9 m
Pressure:	2000 PSI	Volume:	4470	Strings per source:	3
String Separation:	8 m	String length:	11 m		

Timing Periodic Category Totals (Nordic Explorer, 2D config)

Category	Code	Day	Week	Month	Project	% Percent
Acquisition	AC	23.150	40.667	70.717	593.233	48.467
Chargeable Standby	SB	0.850	7.333	21.000	362.600	29.624
DownTime	DT	0.000	0.000	4.283	59.383	4.852
Mobilisation	MB	0.000	0.000	0.000	99.233	8.107
Non-Chargeable StandBy	NC	0.000	0.000	0.000	109.550	8.950
Total		24.000	48.000	96.000	1224.000	100.000

Production Totals (Chgd km by Shotpoint) - Full Fold

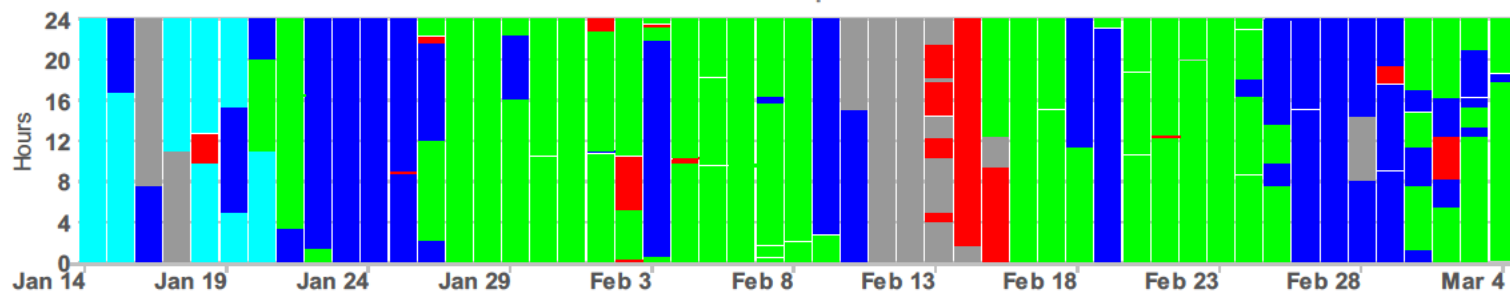
Charged km	Day	Week	Month	Project
Prime	128.225	232.925	395.425	3326.175
Infill	0.000	0.000	0.000	0.000
Prime, Reshoot	0.000	0.000	0.000	0.000
Combined	128.225	232.925	395.425	3326.175

Timing Diary (Nordic Explorer, 2D config)



Category	Code	Start	End	Duration
Production Prime	AC_PP	Wed 4. Mar 00:00	Wed 4. Mar 00:17	0.283
SOL Seq 58 Line:83 Block=Otway Basin FGSP=13548 FCSP=13548 Hdg=232.9° Prime EOL Seq 58 Line:83 Block=Otway Basin LGSP=13637 LCSP=13627 Incomplete EOL Feather=-3.5° EOL Water Depth=3429m				
Prime Line Change	AC_PLC	Wed 4. Mar 00:17	Wed 4. Mar 03:17	3.000
Nominal Prime line change.				
Production Prime	AC_PP	Wed 4. Mar 03:17	Wed 4. Mar 14:12	10.917
SOL Seq 59 Line:82 Block=Otway Basin FGSP=13381 FCSP=13371 Hdg=52.4° Prime EOL Seq 59 Line:82 Block=Otway Basin LGSP=9951 LCSP=9961 Complete SOL Feather=4.6° SOL Water Depth=3477m EOL Feather=-5.5° EOL Water Depth=1369m				
Prime Line Change	AC_PLC	Wed 4. Mar 14:12	Wed 4. Mar 17:42	3.500
Nominal Prime line change to line 0083P2-060 (part 2)				
Cetacean	SB_CT	Wed 4. Mar 17:42	Wed 4. Mar 18:33	0.850
Chargeable standby due to close proximity of whales and line not started as planned and has been delayed due to shut-down during soft start				
Production Prime	AC_PP	Wed 4. Mar 18:33	Wed 4. Mar 24:00	5.450
SOL Seq 60 Line:83 Block=Otway Basin FGSP=10596 FCSP=10604 Hdg=232.9° Prime MSP Seq 60 Line:83 Block=Otway Basin LGSP=12241 LCSP=12241 Midnight SOL Feather=-0.4° SOL Water Depth=1667m				

Timing Graph
Nordic Explorer



Production Listing (Chgd km by Shotpoint) - Full Fold

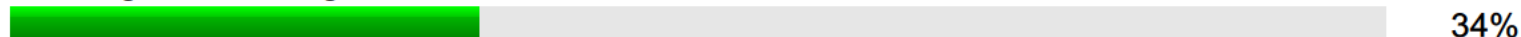
Seq	Line	Heading	FCSP	LCSP	Prod Type	Production	Ave Knots	Seq Status	Line Status
58	83	232.9	13548	13627	Prime	2.000	4.340	Complete	Incomplete
59	82	52.4	13371	9961	Prime	85.275	4.241	Complete	Complete
60	83	232.9	10604	12241	Prime	40.950	4.074	Part	Midnight
Total						128.225			

Average Production Speed (Nordic Explorer)

Report Average MPS	Report Average Knots	Project Average MPS	Project Average Knots
2.167	4.213	2.147	4.173

Survey Progress (Otway Basin)

Percentage of Prime Charged



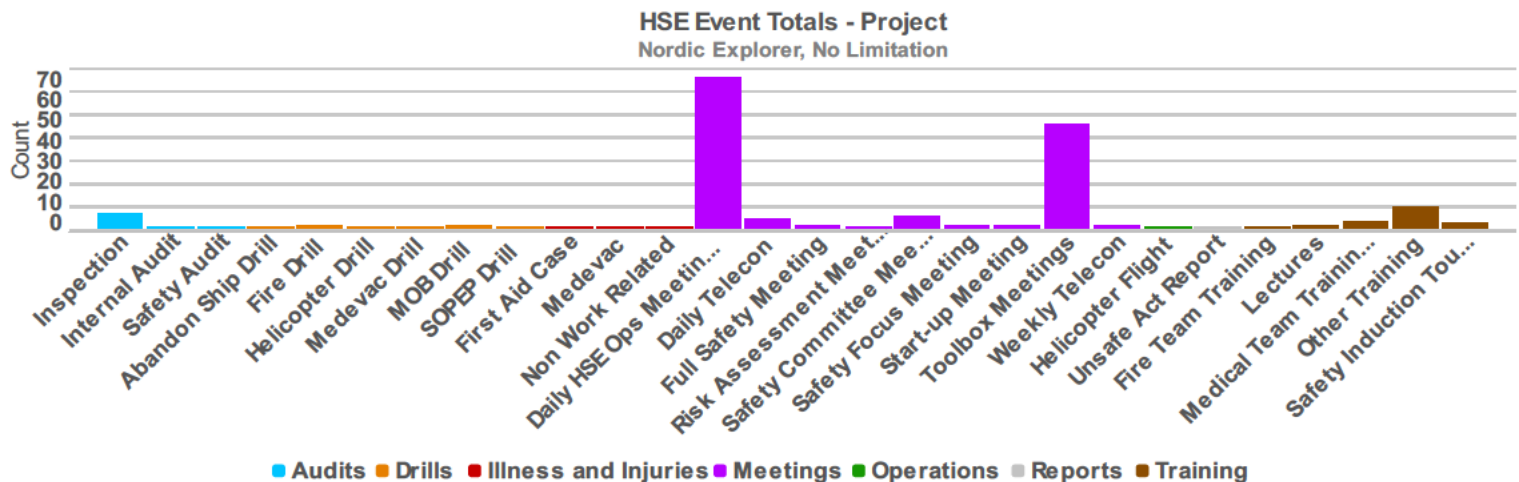
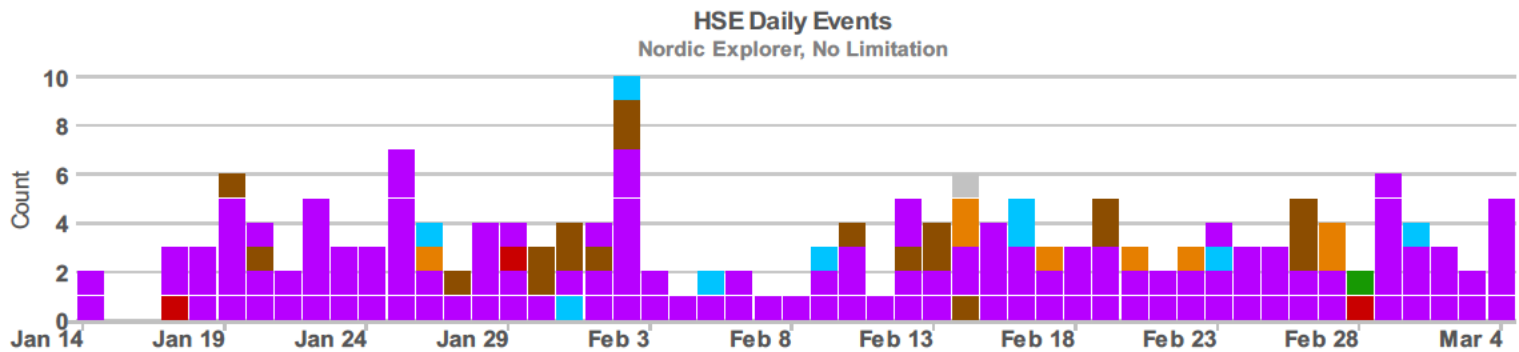
Percentages Charged	
Prime	34.317% of 9692.450 km (Sail Line)
Infill	0.000% of Charged Prime km (Sail Line)
	0.000% of Preplot km (Sail Line)

Average Daily Production	
Average Accepted Daily Prime and Infill Production	74.821 km
Average Charged Daily Prime and Infill Production	73.915 km

HSE Events Diary (Nordic Explorer, No Limitation)

Category	Code	Start	End
Daily HSE Ops Meeting	Mtgs_DOps	Wed 4. Mar 09:00	Wed 4. Mar 09:20
Daily HSE & Ops Meeting - Nordic			
Daily HSE Ops Meeting	Mtgs_DOps	Wed 4. Mar 10:00	Wed 4. Mar 10:10
HSE - Daily Ops radio call to No Limitation			
Safety Focus Meeting	Mtgs_SF	Wed 4. Mar 10:45	Wed 4. Mar 11:00
Hand Safety Awareness presentation and Corona Virus update			
Safety Focus Meeting	Mtgs_SF	Wed 4. Mar 12:45	Wed 4. Mar 13:00
Hand Safety Awareness presentation and Corona Virus update			

Daily Total Category	Code	Count
Toolbox Meetings	Mtgs_Tbox	1
04-Mar-20		
update on protocols from Lead MMO		

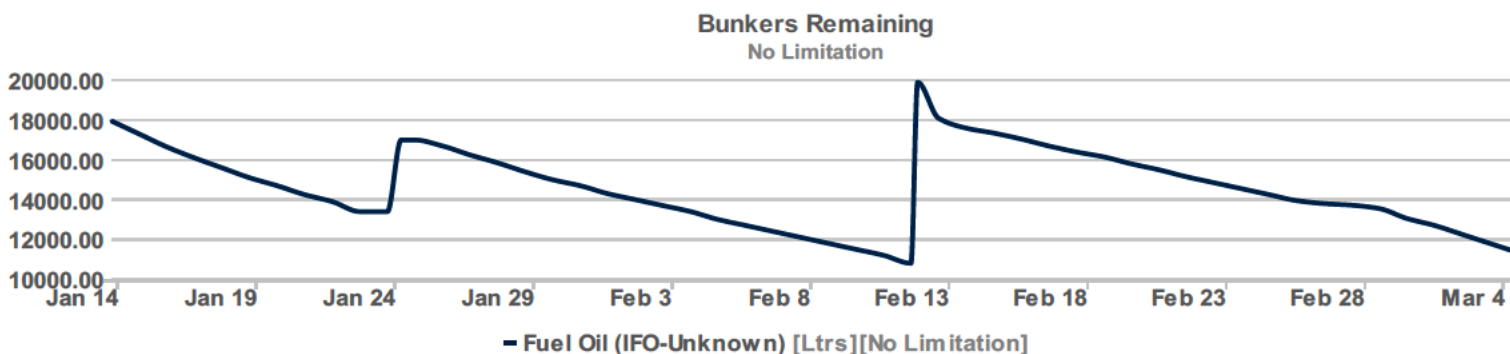
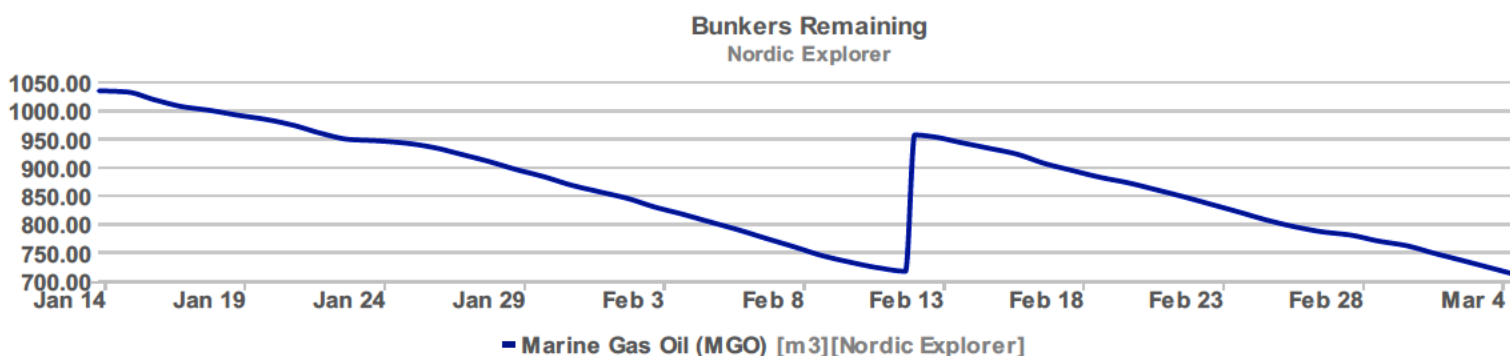
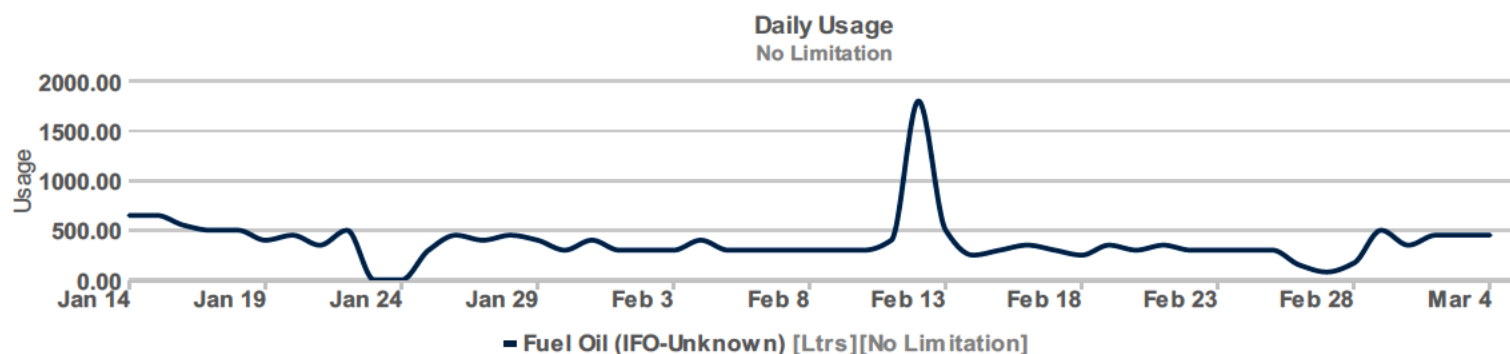
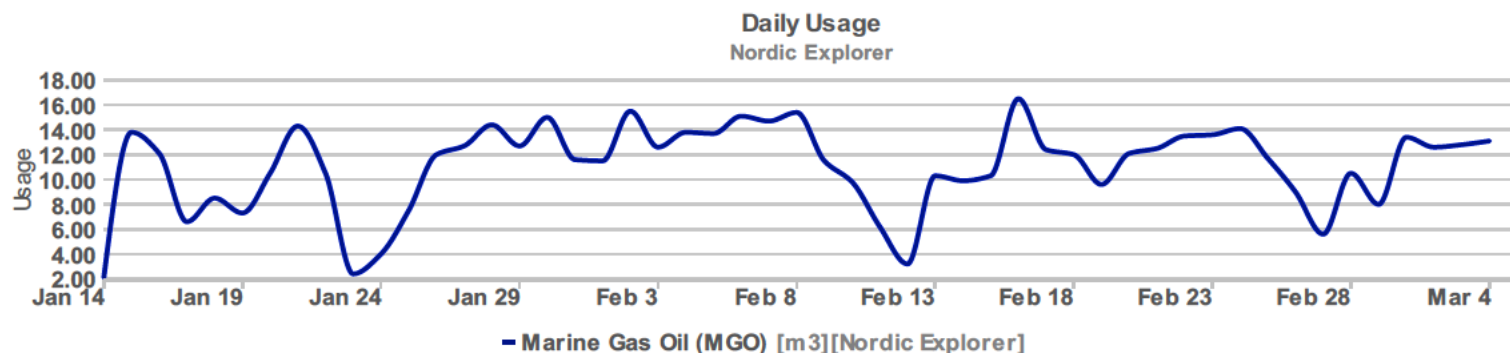


HSE Man Hours (Nordic Explorer, No Limitation)

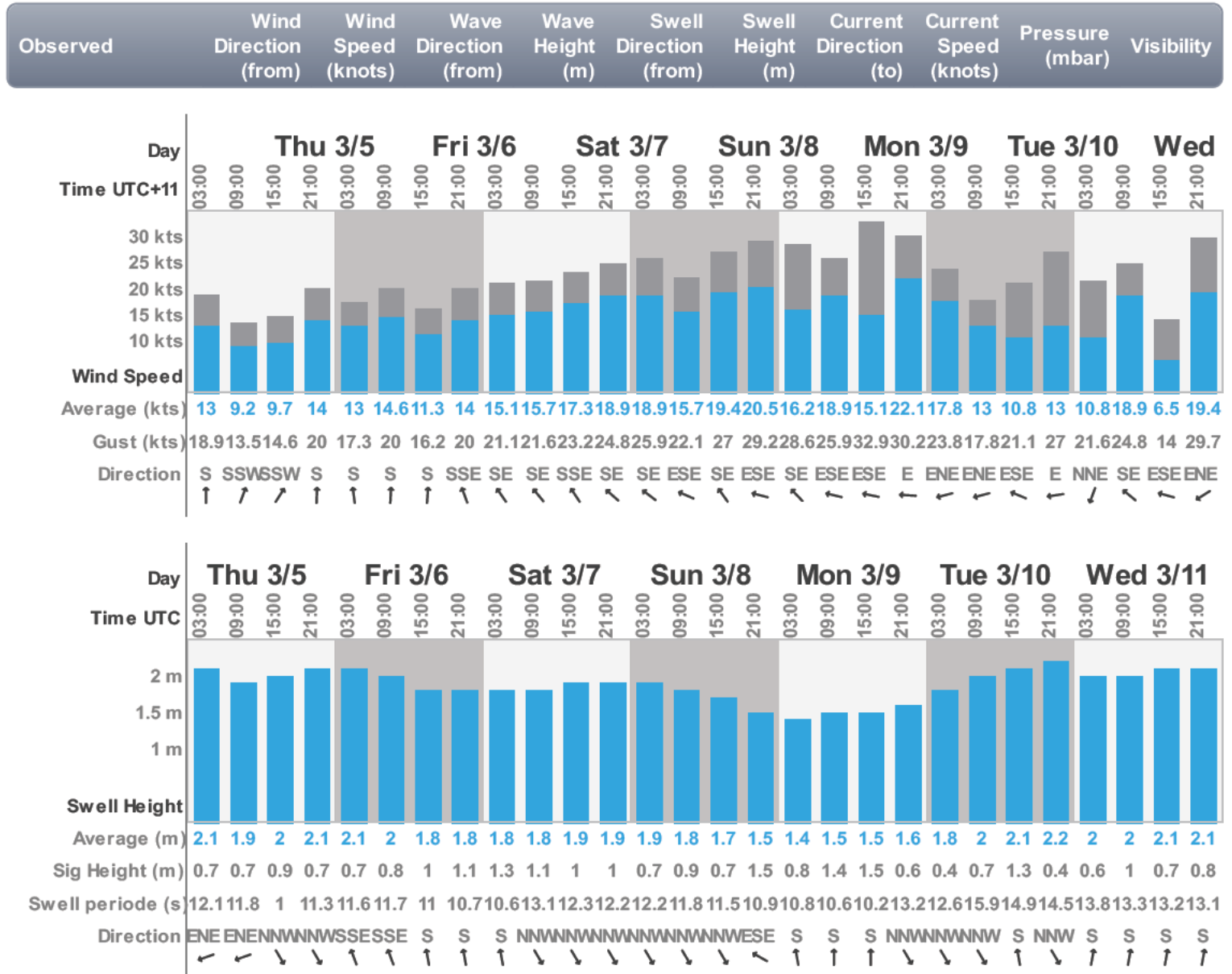
Crew	Current Personnel	Daily Man Hours	Project Man Hours
██████ [Nordic Explorer] [24 hrs/day]	16	384.00	20712.00
██████ [Nordic Explorer] [24 hrs/day]	13	312.00	15912.00
██████ [Nordic Explorer] [24 hrs/day]	1	24.00	1224.00
██████ [Nordic Explorer] [24 hrs/day]	1	24.00	1224.00
██████ [Nordic Explorer] [24 hrs/day]	3	72.00	3672.00
██████ [Nordic Explorer] [24 hrs/day]	2	48.00	2448.00
██████████ [Nordic Explorer] [24 hrs/day]	1	24.00	1224.00
██████████ [Nordic Explorer] [24 hrs/day]	0	0.00	240.00
██████████ [Nordic Explorer] [24 hrs/day]	1	24.00	1224.00
██████████ [Nordic Explorer] [24 hrs/day]	1	24.00	1224.00
Nordic Explorer Total	39	936.00	49104.00
██████ [No Limitation] [24 hrs/day]	4	96.00	4896.00
██████ [No Limitation] [24 hrs/day]	2	48.00	2448.00
No Limitation Total	6	144.00	7344.00
Totals	45	1080.00	56448.00

Bunkers Period Summary (Nordic Explorer, No Limitation)

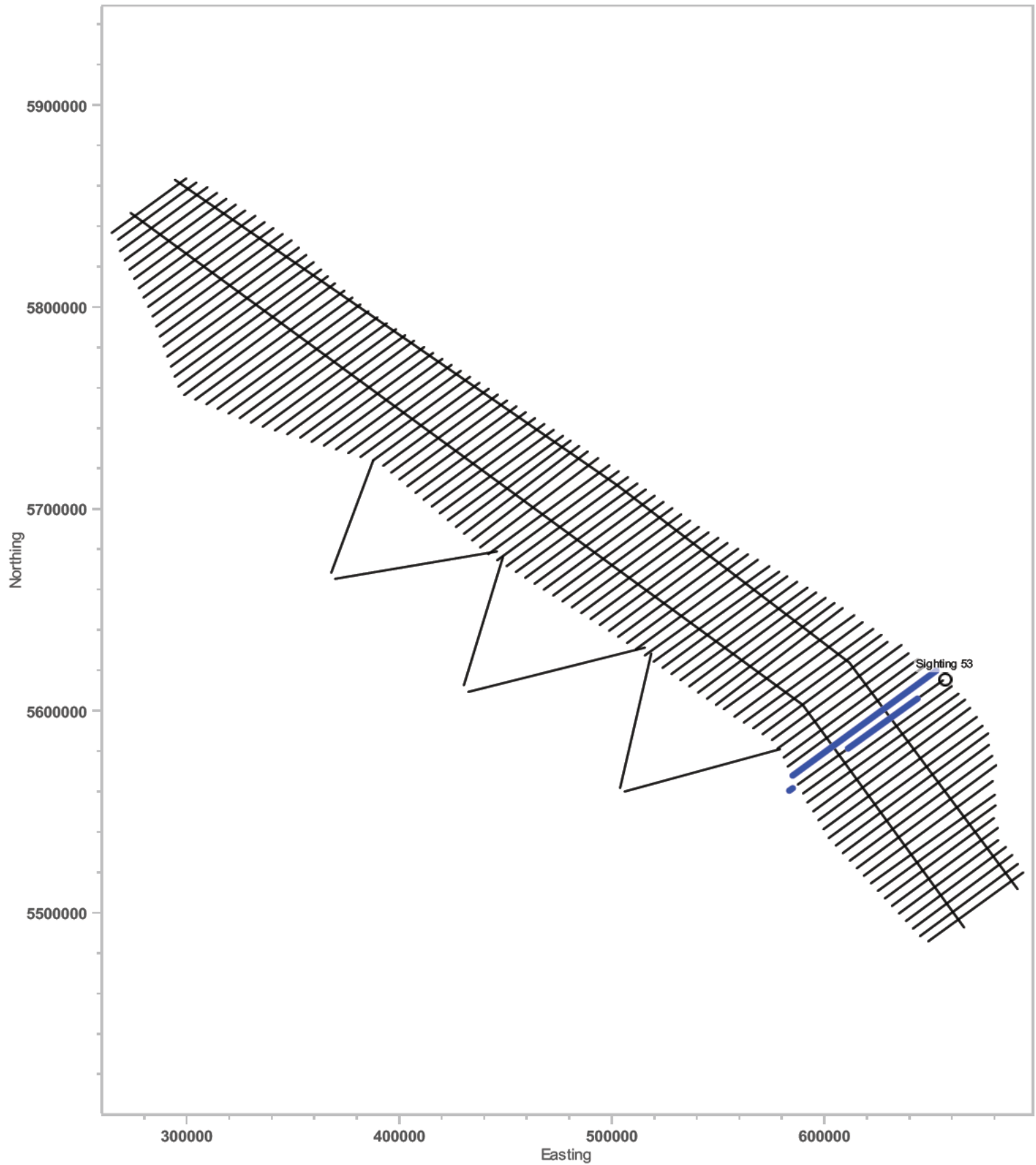
Bunker Type	Avg Usage	Day's Usage	Total Usage	Remaining
Marine Gas Oil (MGO) [m3] [Nordic Explorer]	11.069	13.1	564.5	710.6
Fuel Oil (IFO-Unknown) [Ltrs] [No Limitation]	378.431	450	19300	11350



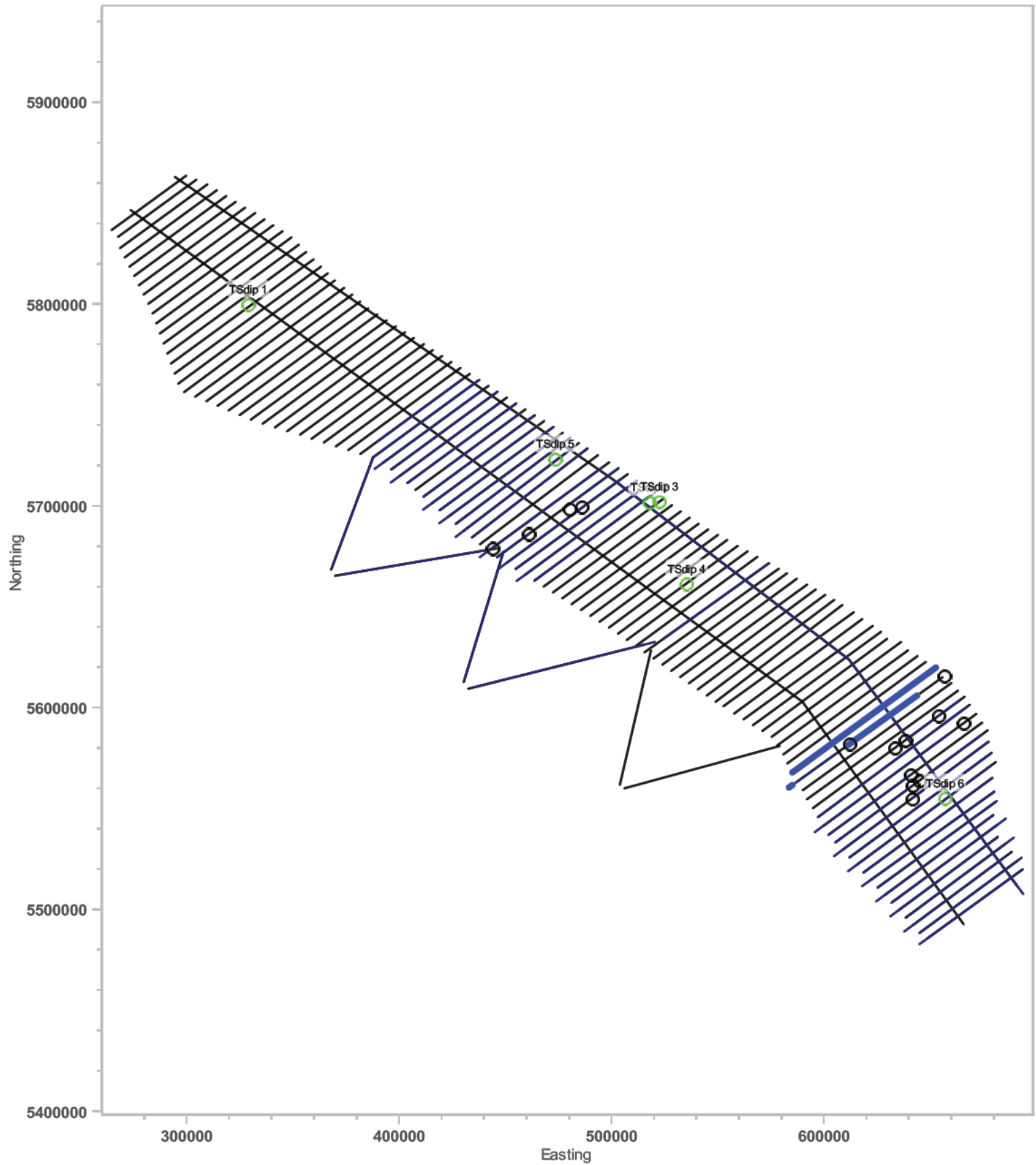
Weather - Project (Nordic Explorer)

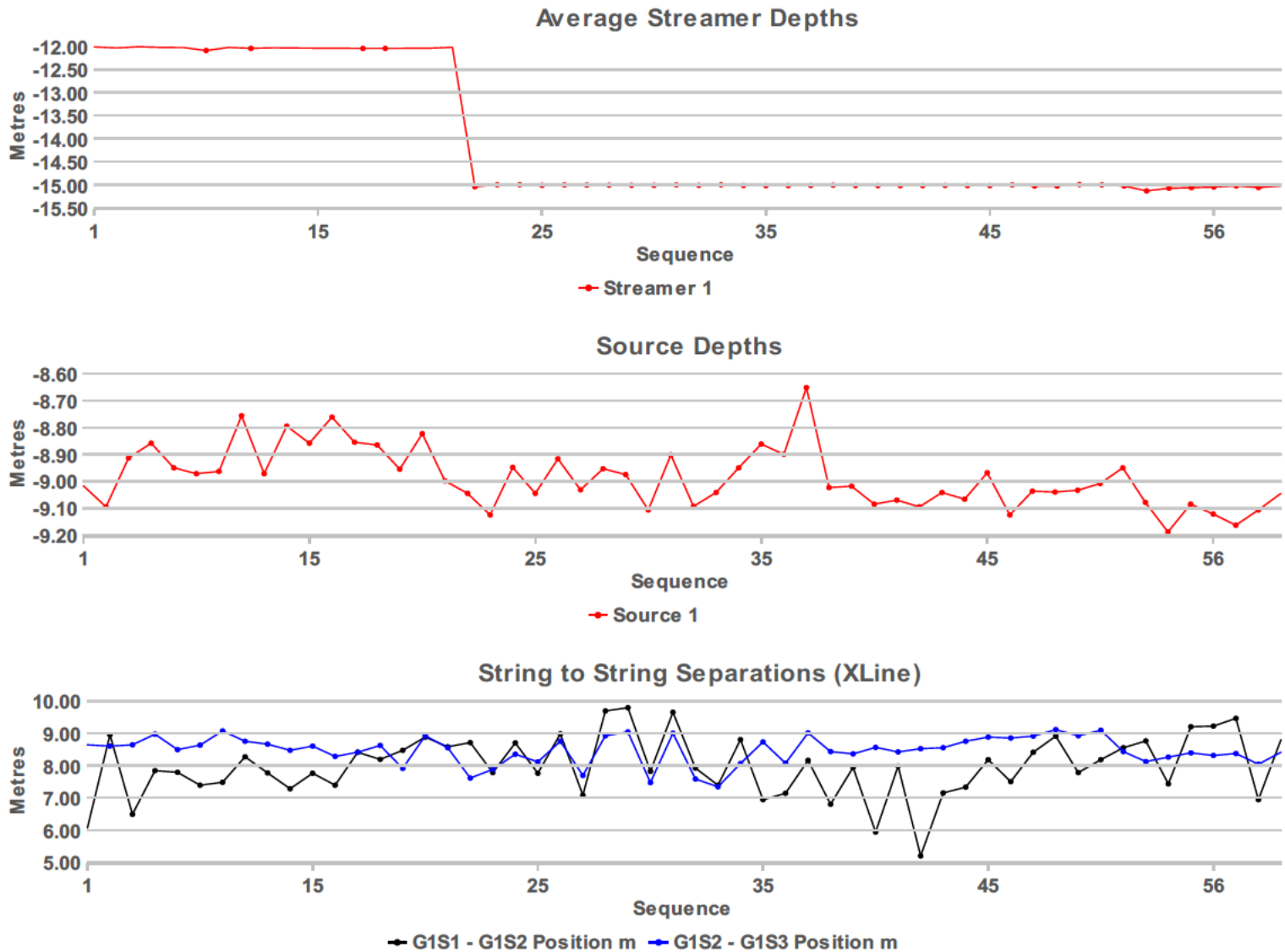


Otway Basin: Chgd
04-Mar-20 - 04-Mar-20



Otway Basin: Chgd
14-Jan-20 - 04-Mar-20





Daily Comments

GENERAL

Line 0083P1-058 on heading 232.9° completed at 00:15 at SP 13627

Line 0082P1-059 on heading 51.7° was acquired from 03:19 to 14:10 for SPs 13371 to 9961

Soft start commenced 16:18

MMO informed to shutdown d/t blue whale sightings 16:26

Pre-watch 17:32

Soft start 18:02

Line 0083P2-060 on heading 232.9° commenced at 18:34 at SP 10604 and continued through midnight

HSEQ

Hand Safety Awareness presentation

Corona Virus update

TBM for update on protocols by [REDACTED]

PRODUCTION

Line 0083P1-058

Chan: 1,2 noisy.

Chan's: 59,233,466,713,735 Bad due to sensitivity test.

First half of the streamer depth variation 13.7-16.5m due to weather condition.

Swell noise bursts randomly affected 25-35% of the cable channels for entire line. Strong multiples.

Line 0082P1-059

Chan: 735 noisy

Chan's: 3,7,59,478 Bad due to sensitivity test.

SP's: 10938-10945,11253-11265,12971-12983,13004-13018,13036-13054 NFH signature change due to GS1-GS2 gun separation.

First half of the streamer depth variation 8.9-17.3m due to weather condition.

Swell noise bursts randomly affected 20-30% of the cable channels for entire line. Strong multiples

Line 0083P2-060

Chan: 1,2,735 noisy

Chan: 233 Bad due to sensitivity test.

Swell noise bursts randomly affected 15-20% of the cable channels for entire line. Strong multiples

Head of cable depth variation 12.7-16.7m due to swell.

MMO/PAM

Nordic Explorer

SUMMARY OF EVENTS

Subject	Notes
Operations	Production continued throughout the day
MFO	MFO monitoring began 06:57 until 20:34
PAM	PAM monitoring carried on throughout the day

HSE

Report Period 04/03/2020		
Item	Subject	Notes
1	HSE training	Hand safety

MARINE MAMMAL AND TURTLE MONITORING

Report Period 04/03/2020	Nordic Explorer 2 people on visual watch
Total Hours/mins of Visual Monitoring	27 hours 14 minutes
Total Hours/mins of Acoustic Monitoring	23 hours 40 minutes
Total Monitoring Hours/mins	50 hours 54 minutes
No. of marine mammal sightings	3
No. of acoustic detections	0
No. of turtle sightings	0
No. of mitigation actions initiated	2
No. of incidences of non-compliance	0

Marine Mammal Species	Sighting/detection number	Total number animals	Visual (V) or Acoustic (A) Both (B)	Ships position at first sighting of mammal	Mitigation actions necessary (yes/no)
Sperm whale	52	6	V	39° 50.79s 142° 50.79e	No
Blue whale	53	1	V	39° 35.01s 142° 50.74e	Yes, shut down guns on SS
Unidentified whale	54	1	V	39° 38.54e 142° 44.74e	Delay SS

Sighting 052 - on 04/03/2020, at 15:13 LT three groups of sperm whales (six whales in total) were sighted approximately 4000 meters off the bow of the vessel, at a bearing of 120°. The first group of two sperm whales was moving slowly along the portside of Nordic Explorer parallel to the opposite direction. The closest approach was at 15:24 LT at a distance of 1000m from the source. The second group, composed of three whales, was moving along the starboard side at a distance of 3500m. The sixth sperm whale was seen on the starboard side at the distance of 5000m. All whales were cruising heading north. At 15:35 LT sperm whales were last seen. The source was not active, and no mitigation was required.

MITIGATION ACTIONS

Pre-Soft Start Observation Began	Pre-Soft Start Observation Ended	Soft Start Began	Guns at Full Power	Survey Line Started	Guns Stopped	Mitigation action taken	Vessel position at shut down
15:12	16:18	16:18	-	-	16:26	Shut down guns on SS	39° 35.66s 142° 49.47e
17:24	18:02	18:02	18:32	18:33	Still in prod	Delay SS	39° 36.04s 142° 48.85e

Sighting 053 - on 04/03/2020, at 16:26 LT, in the Buffer Zone, clear straight tall blows of Blue whale was sighted approximately 5500 meters off the starboard bow of the vessel, at a bearing of 210°. At 17:16 LT, the whale was last seen. The vessel was on soft start operations and shut down was required at 16:26. Soft start was recommenced at 18:02 LT. Lost production time 88 minutes.

Sighting 054 - on 04/03/2020, at 17:30 LT in the Buffer zone, dispersed blows of unidentified whale were sighted approximately 3500 meters off the starboard side of the Nordic Explorer, at a bearing of 250°. At 17:31 LT, the whale was last seen. The boat was approaching to the production line and pre watch was being conducted at this time. Delayed of soft-start was required of 8 minutes.

No Limitation

MARINE FAUNA MONITORING

Report Period: 04/03/2020	
Total hours/mins of visual monitoring	11:00
Total hours/mins of acoustic monitoring	11:00
Total monitoring hours/mins	22:00
No. of cetacean sightings	1
No. of acoustic detections	1

Marine fauna species	Sighting number	Total number animals	Visual (V), Acoustic (A) or Both (B)	Coordinates
Sperm whale	40/523	8	B	30°32.65S 142°50.25E

COMMENTS / PHOTOGRAPHS:

Sighting #40/Detection #523

At 13:39 LT some faint clicks were detected on the spectrogram. Clicks increased in intensity and were loud and clear (Fig 1). The crew from the *No Limitation* visually spotted some blows at the stern of the vessel, confirming the bearings from the click detector on PAMguard. The successfully confirmed the species and took a photograph (Fig 2). Around 16:15 LT an artificial noise previously detected associated with an Australian warcraft vessel on the previous days, started to appear on the spectrogram (Fig 3). Few minutes later, the sperm whales reduced their clicking indicating that they moved away from the area or decreased their vocalizations. Clicks were detected interruptedly for another hour but in a softer intensity. Last clicks detected at 17:09 LT

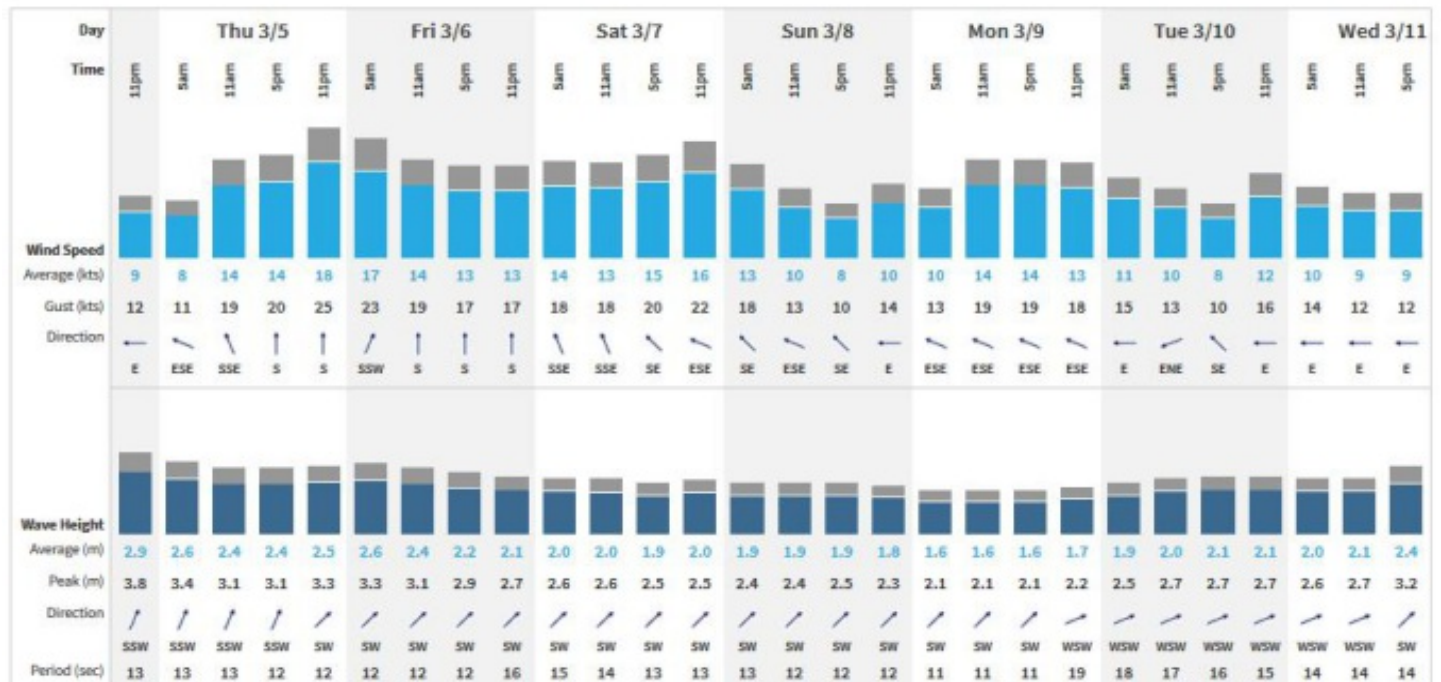
Weather Forecast

7-Day Marine Weather Forecast [What's new?](#)

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Thursday 3/5	Friday 3/6	Saturday 3/7	Sunday 3/8	Monday 3/9
Morning ▶ Breezy SSE winds with moderate choppy seas. Moderate mid period waves. Winds: SSE 14 to 19 knots. Seas: SSW 2.4 meters at 13 seconds. Afternoon ▶ Moderate to strong S winds with choppy seas. Moderate mid period waves. Winds: S 14 to 20 knots. Seas: SSW 2.4 meters at 12 seconds.	Morning ▶ Breezy S winds with moderate choppy seas. Moderate mid period waves. Winds: S 14 to 19 knots. Seas: SW 2.4 meters at 12 seconds. Afternoon ▶ Breezy S winds with moderate choppy seas. Moderate mid period waves. Winds: S 13 to 17 knots. Seas: SW 2.2 meters at 12 seconds.	Morning ▶ Breezy SSE winds with moderate choppy seas. Moderate mid period waves. Winds: SSE 13 to 18 knots. Seas: SW 2.0 meters at 14 seconds. Afternoon ▶ Moderate to strong SE winds with choppy seas. Moderate mid period waves. Winds: SE 15 to 20 knots. Seas: SW 1.9 meters at 13 seconds.	Morning ▶ Breezy ESE winds with moderate choppy seas. Moderate mid period waves. Winds: ESE 10 to 13 knots. Seas: SW 1.9 meters at 12 seconds. Afternoon ▶ Light SE winds with a slight chop. Moderate mid period waves. Winds: SE 8 to 10 knots. Seas: SW 1.9 meters at 12 seconds.	Morning ▶ Breezy ESE winds with moderate choppy seas. Moderate mid period waves. Winds: ESE 14 to 19 knots. Seas: SW 1.6 meters at 11 seconds. Afternoon ▶ Breezy ESE winds with moderate choppy seas. Moderate mid period waves. Winds: ESE 14 to 19 knots. Seas: SW 1.6 meters at 11 seconds.

7-Day Wind, Waves & Tide

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18-Mar-20

Page 1

Client: WesternGeco MCG

Client Job No: 8013

Telephone: [REDACTED]

Attention: [REDACTED]

Email: [REDACTED]

Contractor: Seabird Exploration

Contractor Job No: 2019019

Telephone: [REDACTED]

Attention: [REDACTED]

Email: [REDACTED]

Vessel: Nordic Explorer

Telephone: [REDACTED]

Email: bridge.explorer@vestlandoffshore.no

Client Rep: [REDACTED]

Telephone: [REDACTED]

Email: epi_lqc_ne@epigroup.com

Julian Day: 78

Project Day: 65

Basic Project Details

2D config					
General Details					
Record length:	12000 ms	Sample rate:	2 ms	Shotpoint interval:	25 m
CoS to CNG:	102.4 m	Fold Coverage:	200		
Cable Details					
No of Cables:	1	Chans Per Cable:	800	Front Depth:	15 m
Tail Depth:	15 m	Length:	10000 m	Group interval:	12.5 m
Source Details					
No of Sources:	1	Total Volume:	4470 cu ins	Depth:	9 m
Pressure:	2000 PSI	Volume:	4470	Strings per source:	3
String Separation:	8 m	String length:	11 m		

Timing Periodic Category Totals (Nordic Explorer, 2D config)

Category	Code	Day	Week	Month	Project	% Percent
Acquisition	AC	22.850	46.850	277.733	800.250	51.298
Chargeable Standby	SB	1.150	1.150	107.067	474.667	30.427
DownTime	DT	0.000	0.000	7.150	62.250	3.990
Mobilisation	MB	0.000	0.000	0.000	99.233	6.361
Non-Chargeable StandBy	NC	0.000	0.000	40.050	123.600	7.923
Total		24.000	48.000	432.000	1560.000	100.000

Production Totals (Chgd km by Shotpoint) - Full Fold

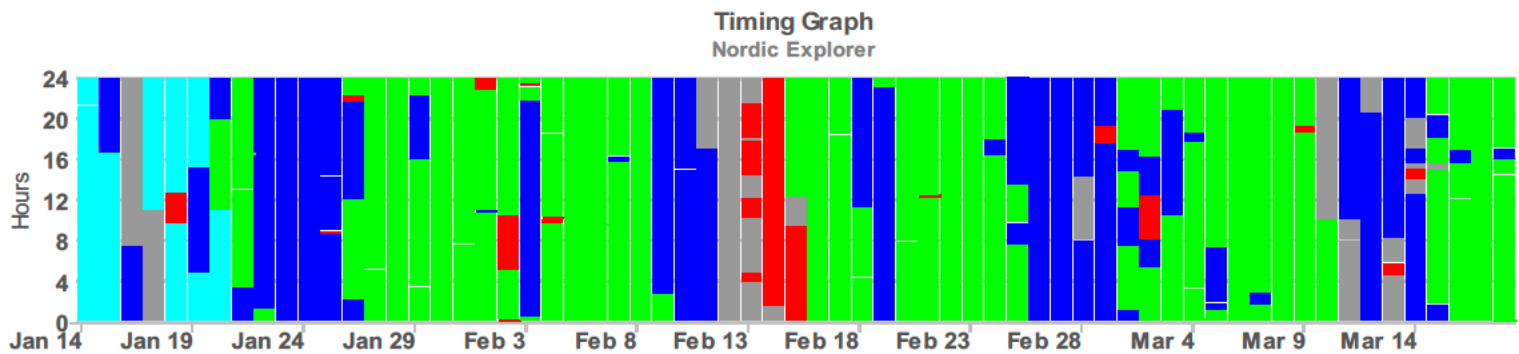
Charged km	Day	Week	Month	Project
Prime	134.450	281.650	1571.575	4502.325
Infill	0.000	0.000	0.000	0.000
Prime, Reshoot	0.000	0.000	89.950	89.950
Combined	134.450	281.650	1661.525	4592.275

Timing Diary (Nordic Explorer, 2D config)



Category	Code	Start	End	Duration
 Production Prime	AC_PP	Wed 18. Mar 00:00	Wed 18. Mar 00:09	0.150
SOL Seq 77 Line:59 Block=Otway Basin FGSP=12984 FCSP=12984 Hdg=232.3° Prime EOL Seq 77 Line:59 Block=Otway Basin LGSP=13036 LCSP=13026 Complete EOL Feather=0.2° EOL Water Depth=3538.2m EOL Average Noise=6µb				
Late start to line due to BIA. Deemed complete.				
 Prime Line Change	AC_PLC	Wed 18. Mar 00:09	Wed 18. Mar 03:18	3.150
Prime line change.				
 Production Prime	AC_PP	Wed 18. Mar 03:18	Wed 18. Mar 12:06	8.800
SOL Seq 78 Line:57 Block=Otway Basin FGSP=12814 FCSP=12804 Hdg=52.3° Prime EOL Seq 78 Line:57 Block=Otway Basin LGSP=9994 LCSP=10004 Complete SOL Feather=12.1° SOL Water Depth=3510m SOL Average Noise=6µb EOL Feather=-3.6° EOL Water Depth=1850m EOL Average Noise=6.2µb				
Line terminated early due to BIA ahead. Deemed complete.				
 Prime Line Change	AC_PLC	Wed 18. Mar 12:06	Wed 18. Mar 14:26	2.333
Prime line change.				
 Production Prime	AC_PP	Wed 18. Mar 14:26	Wed 18. Mar 15:55	1.483
SOL Seq 79 Line:55 Block=Otway Basin FGSP=10137 FCSP=10147 Hdg=232.3° Prime EOL Seq 79 Line:55 Block=Otway Basin LGSP=10624 LCSP=10614 Incomplete SOL Feather=-25.7° SOL Water Depth=1863m SOL Average Noise=9µb EOL Feather=3° EOL Water Depth=2128m EOL Average Noise=4.5µb				
Late start to line due to BIA. Streamer in turn at SOL. Straight by SP 10280. Line terminated due to seal sighting within 500 m zone.				
 Cetacean	SB_CT	Wed 18. Mar 15:55	Wed 18. Mar 17:04	1.150
Shutdowns for seals inside the 500 m zone.				
 Production Prime	AC_PP	Wed 18. Mar 17:04	Wed 18. Mar 23:26	6.367
SOL Seq 80 Line:55 Block=Otway Basin FGSP=10953 FCSP=10963 Hdg=232.3° Prime EOL Seq 80 Line:55 Block=Otway Basin LGSP=13038 LCSP=13028 Incomplete				

Category	Code	Start	End	Duration
SOL Feather=1.6° SOL Water Depth=2201m SOL Average Noise=3.8µb EOL Feather=0.2° EOL Water Depth=3707m EOL Average Noise=4.6µb				
Line terminated early due to BIA ahead. Deemed complete.				
 Prime Line Change	AC_PLC	Wed 18. Mar 23:26	Wed 18. Mar 24:00	0.567
Prime line change.				



Production Listing (Chgd km by Shotpoint) - Full Fold

Seq	Line	Heading	FCSP	LCSP	Prod Type	Production	Ave Knots	Seq Status	Line Status
77	59	232.3	12984	13026	Prime	1.075	4.466	Complete	Complete
78	57	52.3	12804	10004	Prime	70.025	4.326	Complete	Complete
79	55	232.3	10147	10614	Prime	11.700	4.432	Complete	Incomplete
80	55	232.3	10963	13028	Prime	51.650	4.421	Complete	Incomplete
Total						134.450			

Average Production Speed (Nordic Explorer)

Report Average MPS	Report Average Knots	Project Average MPS	Project Average Knots
2.266	4.404	2.168	4.215

Survey Progress (Otway Basin)

Percentage of Prime Charged

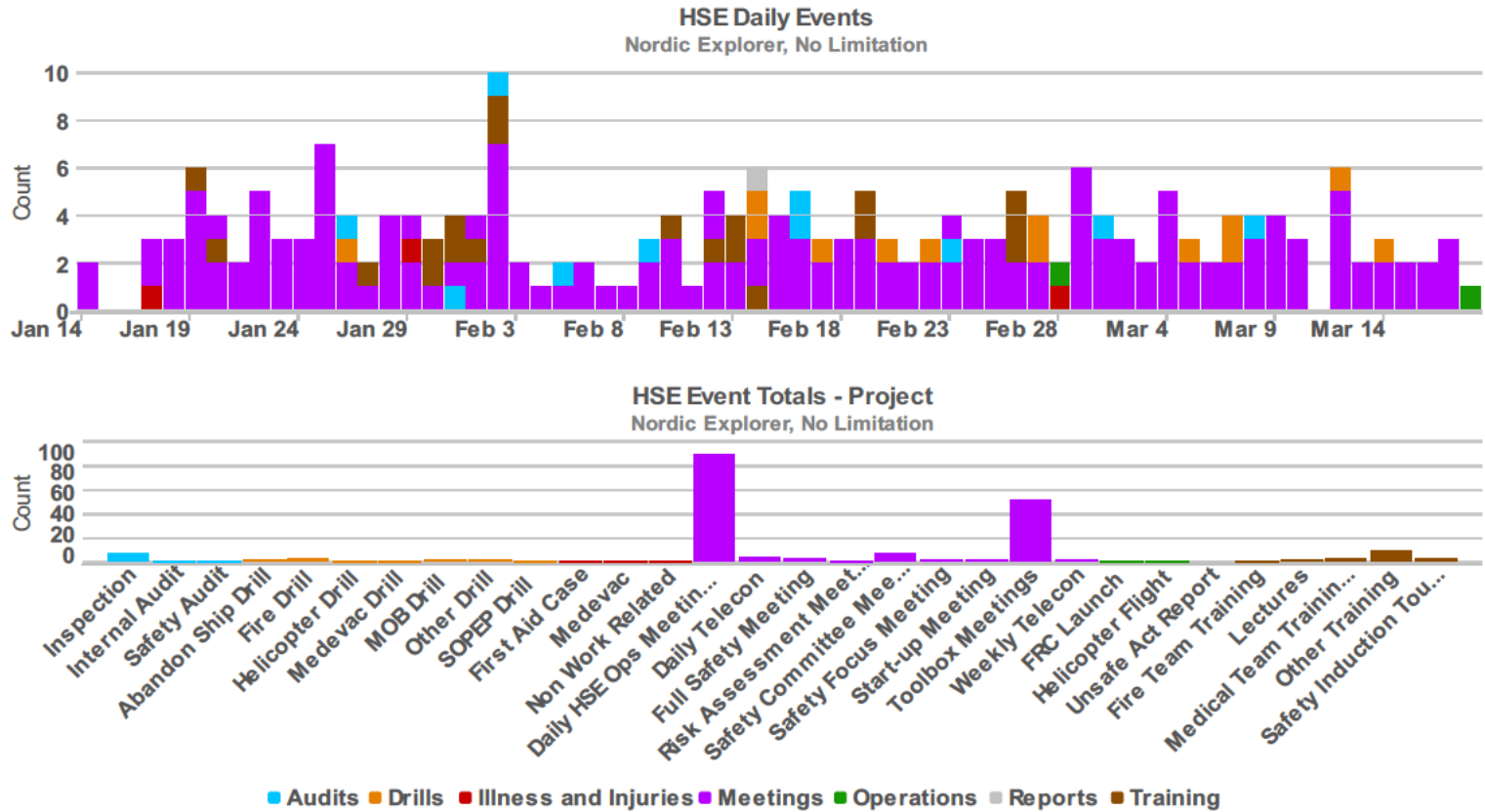


Percentages Charged	
Prime	47.380% of 9692.450 km (Sail Line)
Infill	0.000% of Charged Prime km (Sail Line)
	0.000% of Preplot km (Sail Line)

Average Daily Production	
Average Accepted Daily Prime and Infill Production	78.679 km
Average Charged Daily Prime and Infill Production	77.835 km

HSE Events Diary (Nordic Explorer, No Limitation)

Category	Code	Start	End
■ FRC Launch	Op_WaF_FRC	Wed 18. Mar 09:05	Wed 18. Mar 09:30
FRC Launch to swap MFOs between Nordic Explorer and No Limitation.			

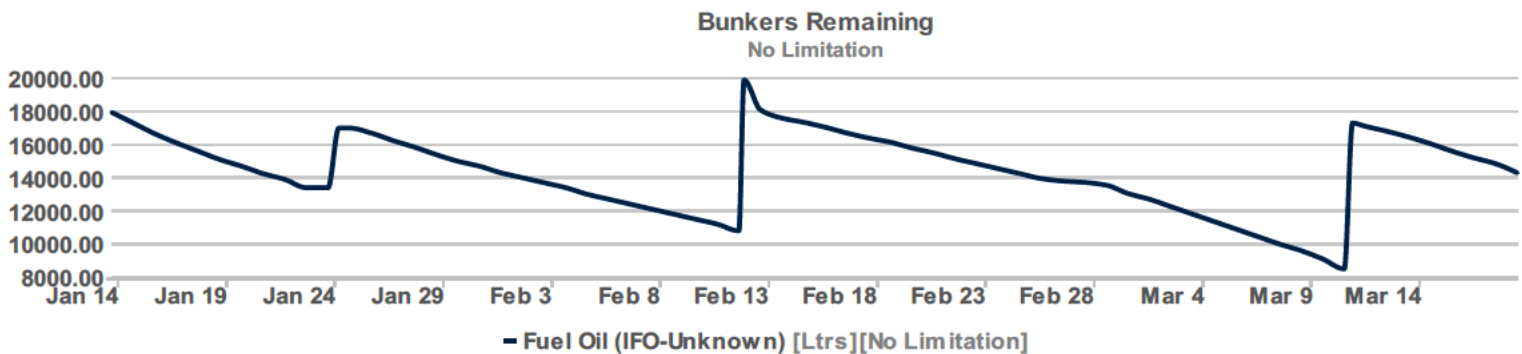
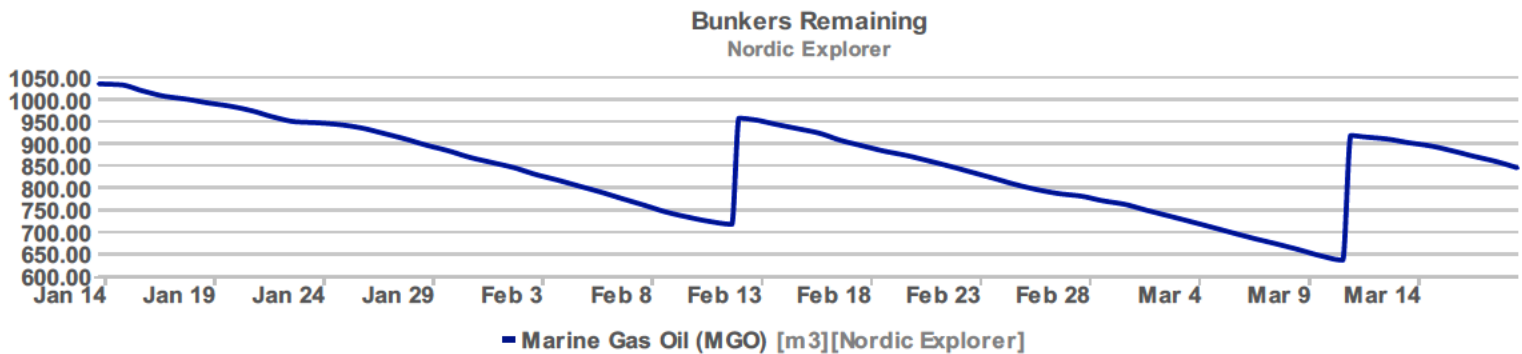
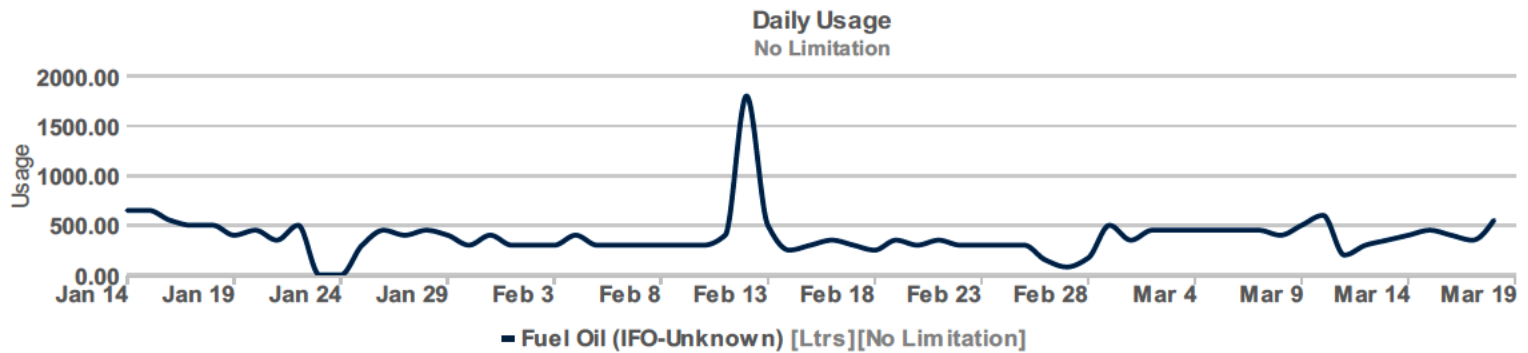
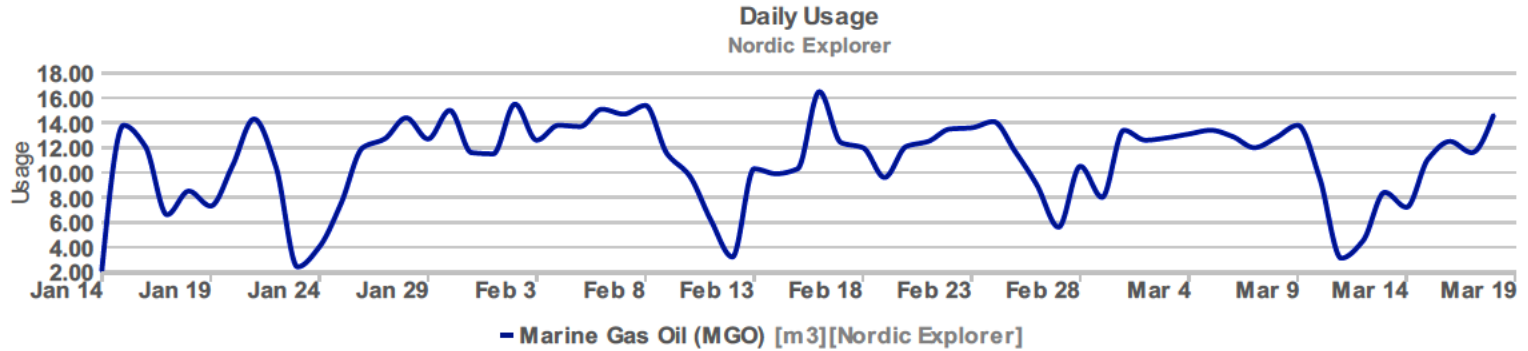


HSE Man Hours (Nordic Explorer, No Limitation)

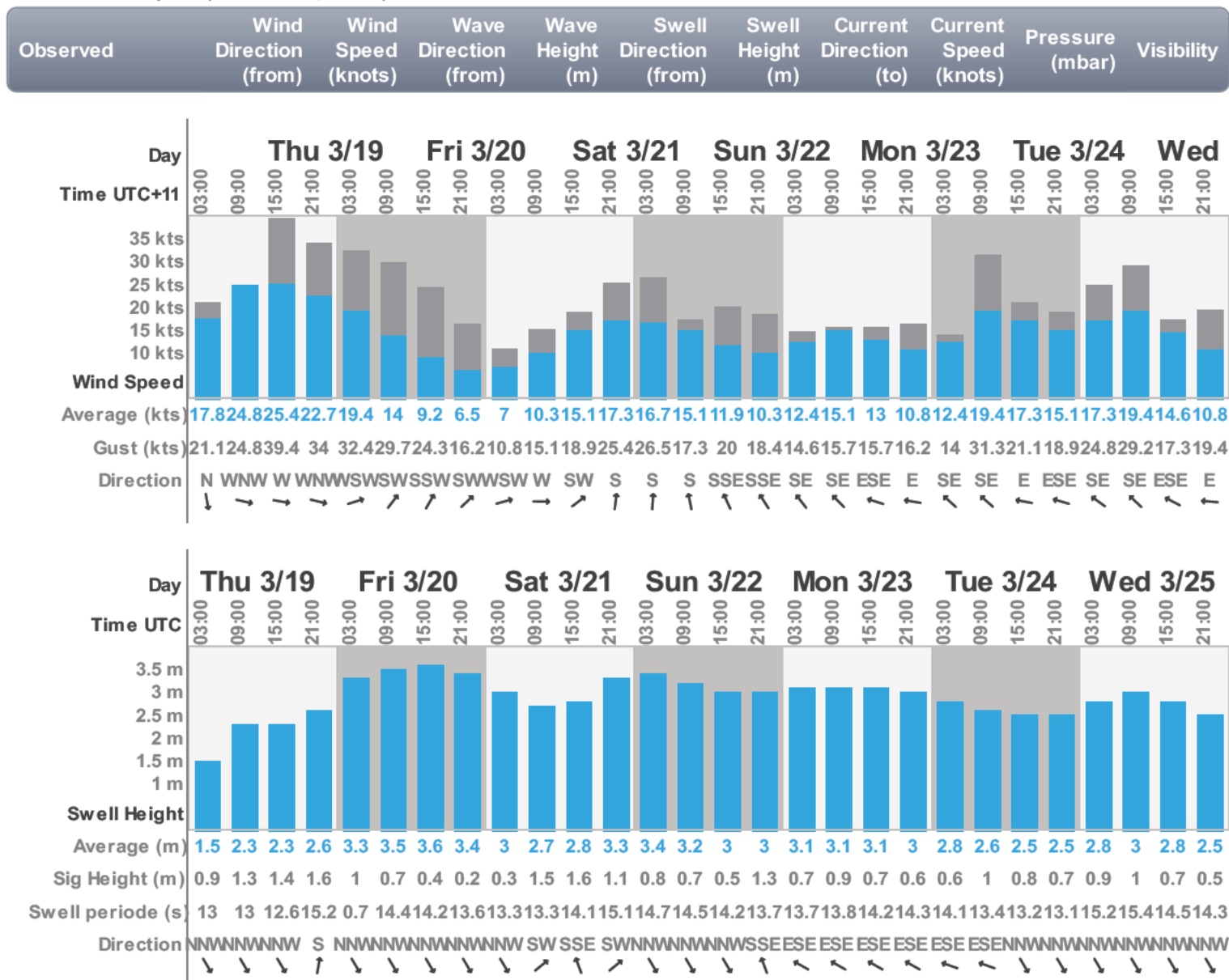
Crew	Current Personnel	Daily Man Hours	Project Man Hours
██████ [Nordic Explorer] [24 hrs/day]	17	408.00	26301.50
██████ [Nordic Explorer] [24 hrs/day]	13	312.00	20328.00
██████ [Nordic Explorer] [24 hrs/day]	1	24.00	1564.00
██████ [Nordic Explorer] [24 hrs/day]	1	24.00	1564.00
██████ [Nordic Explorer] [24 hrs/day]	3	71.58	4687.58
██████ [Nordic Explorer] [24 hrs/day]	2	48.00	3128.00
██████ [Nordic Explorer] [24 hrs/day]	1	24.00	1564.00
██████ [Nordic Explorer] [24 hrs/day]	0	0.00	240.00
██████ [Nordic Explorer] [24 hrs/day]	1	24.00	1564.00
██████ [Nordic Explorer] [24 hrs/day]	1	24.00	1564.00
Nordic Explorer Total	40	959.58	62505.08
Marine [No Limitation] [24 hrs/day]	4	96.00	6246.00
██████ [No Limitation] [24 hrs/day]	2	48.08	3123.08
No Limitation Total	6	144.08	9369.08
Totals	46	1103.67	71874.17

Bunkers Period Summary (Nordic Explorer, No Limitation)

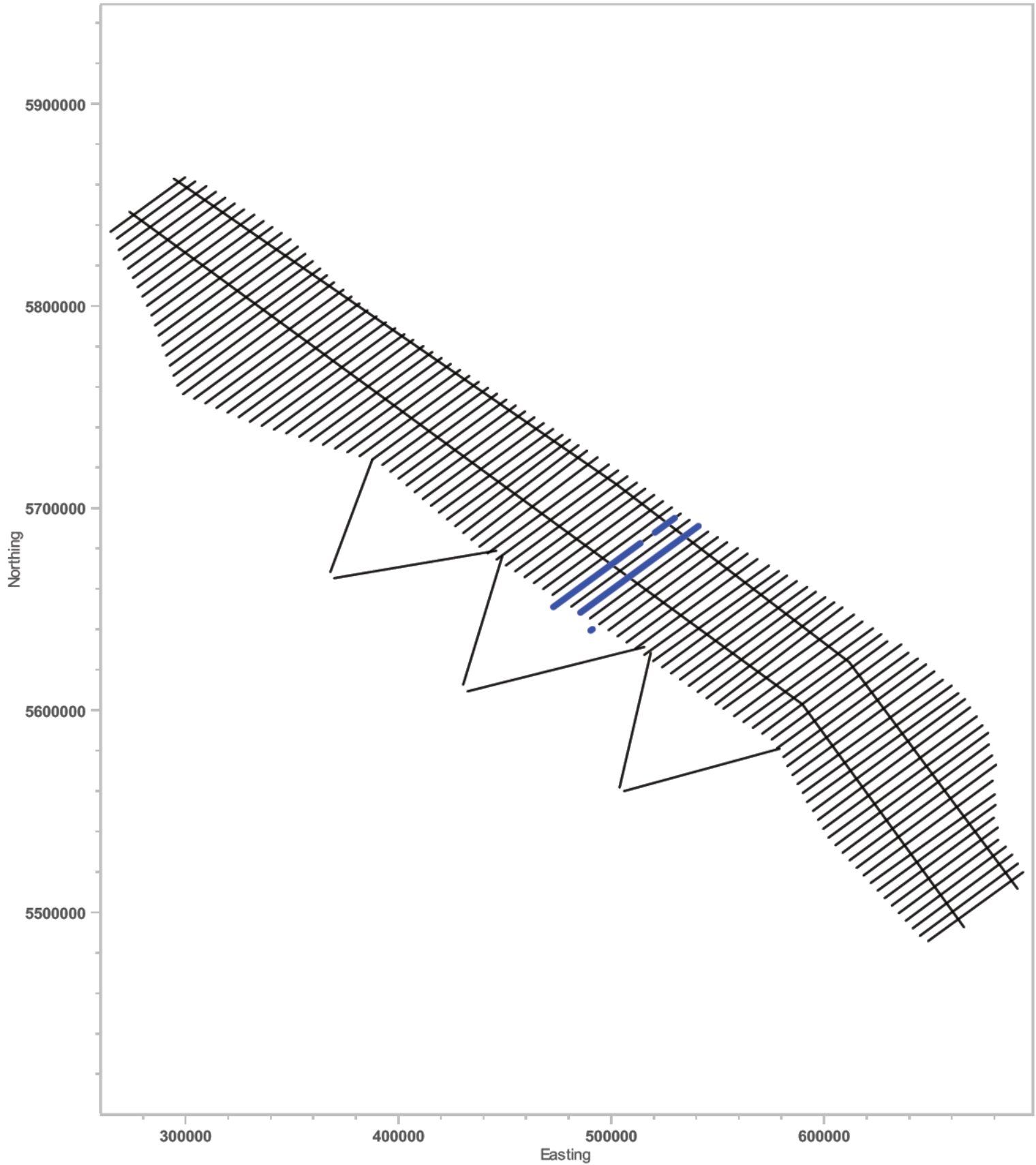
Bunker Type	Avg Usage	Day's Usage	Total Usage	Remaining
Marine Gas Oil (MGO) [m3] [Nordic Explorer]	10.954	14.6	712	845.1
Fuel Oil (IFO-Unknown) [Ltrs] [No Limitation]	386.923	550	25150	14300



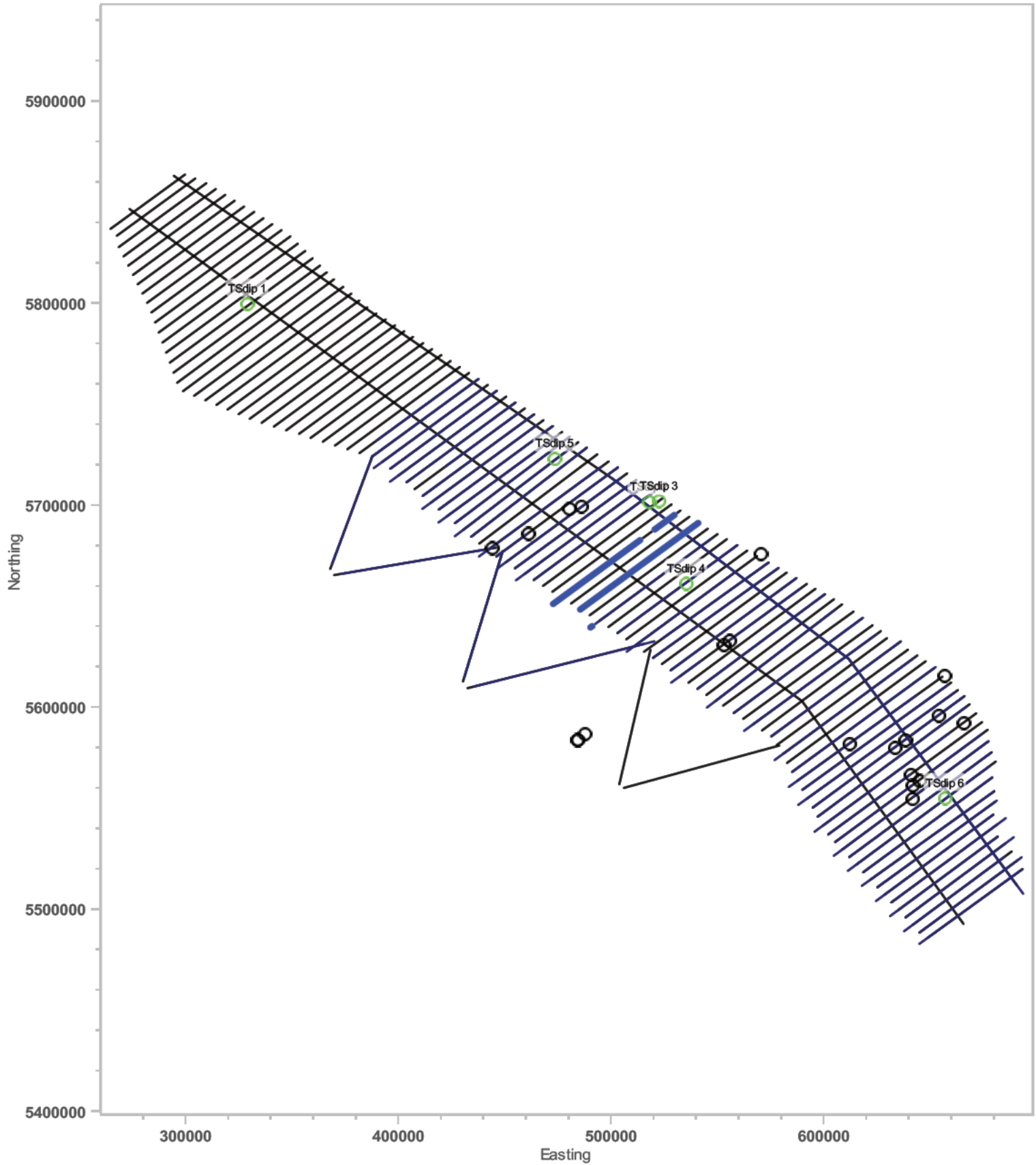
Weather - Project (Nordic Explorer)

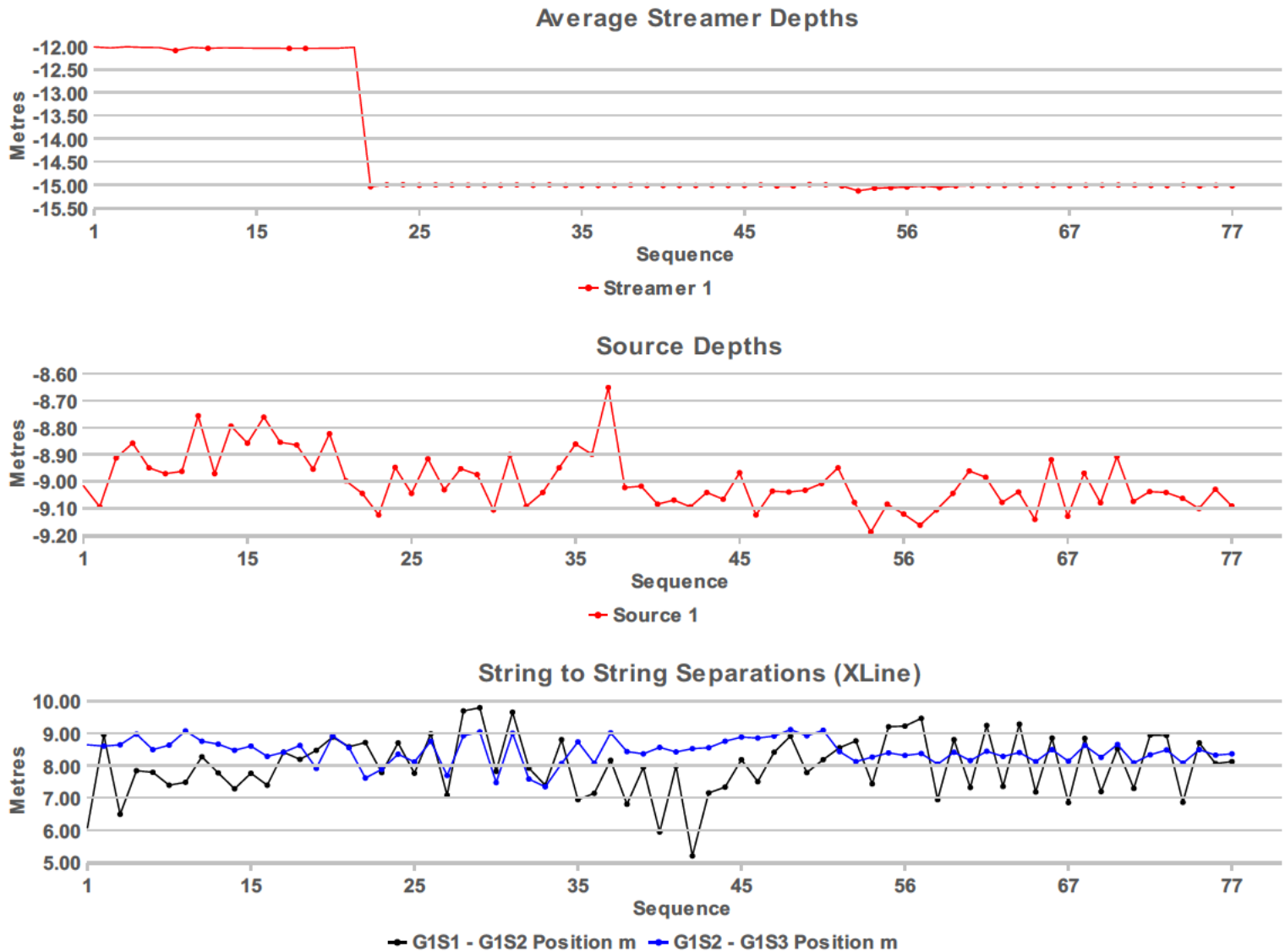


Otway Basin: Chgd
18-Mar-20 - 18-Mar-20



Otway Basin: Chgd
14-Jan-20 - 18-Mar-20





Daily Comments

GENERAL

Calm sea conditions resulting in good quality data being acquired. The only lost time was due to a shutdown for seals on line 55 during the afternoon.

Line 0059P1-077, hdg 231.9°, 00:00-00:09, SP 12984-13036. Continued from midnight. Deemed complete.

Line 0057P1-078, hdg 052.5°, 03:18-12:06, SP 12814-9994. Line terminated early due to BIA ahead. Deemed complete.

Line 0055P1-079, hdg 231.9°, 14:26-15:55, SP 10137-10624. Shutdown required due to seals inside the 500 m zone.

Line 0055P2-080, hdg 231.9°, 17:04-23:26, SP 10953-13038. Continuation of line 55. Incomplete due to seal interference.

HSEQ

09:05 - FRC launch for personnel transfer, 4 POB (swap MFOs between Nordic Explorer and No Limitation).

09:30 - FRC recovery complete.

10:45 - Presentation on hazard observations (session 1).

12:45 - Presentation on hazard observations (session 2).

Crew temperature checks continued to be made by the [REDACTED]. Now to be extended to cover a potential 14-day coronavirus incubation period.

PRODUCTION

Line 0059P1-077

Late start due to BIA. Deemed complete.

No shot or trace edits .

Negligible swell noise throughout the line.

Noisy echosounder data.

Line 0057P1-078

Line terminated early due to BIA ahead. Deemed complete.

No shot or trace edits .

Noisy echosounder data.

Line 0055P1-079

Late start due to BIA. Incomplete.

Shutdown due to seals at SP 10624.

No shot or trace edits .

Noisy echosounder data.

Line 0055P2-080

Continuation of line 55 following the seal shutdown. Incomplete.

No shot or trace edits .

Noisy echosounder data.

MMO/PAM

Nordic Explorer

SUMMARY OF EVENTS

Subject	Notes
Operations	Production throughout the day.
	Monitoring from 7:21-20:15
	Monitoring throughout the day

HSE

Report Period 18/03/2020

Item	Subject	Notes
1	Crew exchange	Crew exchange via FRC. to No Limitation and to Nordic Explorer

MARINE MAMMAL AND TURTLE MONITORING

Report Period 18/03/2020	Nordic Explorer 2 people on visual watch
Total Hours/mins of Visual Monitoring	24h 00min
Total Hours/mins of Acoustic Monitoring	25h 48min
Total Monitoring Hours/mins	49h 48min
No. of marine mammal sightings	3
No. of acoustic detections	0
No. of turtle sightings	0
No. of mitigation actions initiated	2
No. of incidences of non-compliance	0

No Limitation

MARINE FAUNA MONITORING

Report Period: 18/03/2020	
Total hours/mins of visual monitoring	07:15
Total hours/mins of acoustic monitoring	05:15
Total monitoring hours/mins	12:30
No. of cetacean sightings	3
No. of acoustic detections	1

Marine fauna species	Sighting number	Total number animals	Visual (V), Acoustic (A) or Both (B)	Coordinates
Sperm whale	528	1	a	38° 57.79 S 141° 22.22 E
Blue whale	45	1	v	38° 53.22 S 141° 28.45 E
Blue whale	46	1	v	38° 49.04 S 141° 22.47 E
Unidentified whale	47	2	v	39° 0.33 S 141° 6.76 E

Weather Forecast

16-Day Marine Weather Forecast [What's new?](#)

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Thursday 3/19	Friday 3/20	Saturday 3/21	Sunday 3/22	Monday 3/23
Morning  Breezy NE winds with moderate choppy seas. Small mid period waves. Winds: NE 13 to 17 knots. Seas: SW 1.2 meters at 11 seconds.	Morning  Strong W winds with very choppy seas. Small Craft Advisory. Hazardous Seas Warning. Large short period waves. Winds: W 25 to 35 knots. Seas: WSW 3.2 meters at 7 seconds.	Morning  Light SW winds with a slight chop. Hazardous Seas Warning. Large mid period waves. Winds: SW 7 to 9 knots. Seas: SSW 3.9 meters at 14 seconds.	Morning  Moderate to strong S winds with choppy seas. Large long period waves. Winds: S 15 to 21 knots. Seas: SSW 3.4 meters at 15 seconds.	Morning  Breezy SSE winds with moderate choppy seas. Large mid period waves. Winds: SSE 12 to 16 knots. Seas: SW 3.5 meters at 14 seconds.
Afternoon  Breezy NNW winds with moderate choppy seas. Small mid period waves. Winds: NNW 11 to 15 knots. Seas: SW 1.2 meters at 11 seconds.	Afternoon  Strong WSW winds with very choppy seas. Small Craft Advisory. Hazardous Seas Warning. Large short period waves. Winds: WSW 25 to 35 knots. Seas: WSW 4.1 meters at 8 seconds.	Afternoon  Breezy W winds with moderate choppy seas. Hazardous Seas Warning. Large mid period waves. Winds: W 10 to 14 knots. Seas: SSW 3.6 meters at 13 seconds.	Afternoon  Moderate to strong S winds with choppy seas. Large long period waves. Winds: S 16 to 22 knots. Seas: SSW 3.8 meters at 15 seconds.	Afternoon  Breezy SSE winds with moderate choppy seas. Large mid period waves. Winds: SSE 13 to 18 knots. Seas: SW 3.5 meters at 14 seconds.

16-Day Wind, Waves & Tide

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