1.0 Introduction

This work instruction outlines the passage plan to be used by vessels transiting from the Port of Barrow Island PBG to the Gorgon Marine Terminal, via the alternative route, with a Pilot embarked. This work instruction has been compiled in accordance with document *GOR-COP-0187 Gorgon Constructions Operations – Pilotage – Pilot Passage Plan Guideline* and approved according to *GOR-COP-0186 Gorgon Constructions Operations – Pilotage – Passage Plan approval Procedure*.

1.1 Purpose

This work instruction details the alternate navigation route to be used for vessels transiting from the PBG to the Gorgon Marine Terminal and provides Pilots, vessel Masters and bridge navigation teams' sufficient information to navigate a vessel along the route in a safe and controlled manner.

1.2 Scope

This work instruction begins when a vessel arrives at the PBG and concludes when it reaches an assigned berth at the Gorgon Marine Terminal.

CAUTION

Caution must be taken when using beacons for navigation, particularly post-severe storm/cyclone activity.

1.3 Target Audience

This work instruction is intended for use by Pilots, vessel Masters and bridge navigation teams.

1.4 Acronyms and Abbreviations

The below table defines the acronyms and abbreviations used in this document

Acronym/Abbreviation	Meaning
AMSA	Australian Maritime Safety Authority
BITR	Barrow Island Terminal Regulations
BWI	Barrow Island
CBM	Conventional Buoy Mooring
CD	Clearing distance
ECDIS	Electronic Chart Display and Information System
ETA	Estimated Time of Arrival
JHA	Job Hazard Analysis
kts	knots
m	metres
MOF	Materials Offloading Facility
MPX	Master Pilot Exchange

Acronym/Abbreviation	Meaning
nm	Nautical miles
Pilot	BWI Marine Pilot
OOW	Officer of the Watch
PBG	Pilot Board Ground
PEL	Sectored leading light
PI	Parallel index
PP	Passage Plan
PPU	Portable Pilotage Unit
SMS	Safety Management System
SOLAS	International Convention for Safety Of Life At Sea
RPM	Revolutions per minute
UKC	Under Keel Clearance
XTE	Cross Track Error

2.0 Passage Plan – PBG to LNG Swing Basin – Alternative Route

Waypoint	1 - PBG
Latitude	20° 48.60'S
Longitude	115° 36.00'E
Course	231°T
Speed	~8.0kt
Leg Distance	3.80nm
Minimum Depth to CD	12.0m
Maximum Cross Track Error	200m
Primary Fixing	Visual/PPU
Secondary Fixing	GPS/RADAR
Parallel Index	LNG 2 231°T/0.55 nm

- Pilot will board at the PBG as shown on AUS 62
- Pilot to have completed UKC calculation to ensure clearance with reduced depth on this passage.
- Pilot will setup and use PPU for the passage as an independent means of position fixing.
- Vessel and Pilot Boat are to discuss and agree on vessel speed and heading prior to transfer, to ensure a good lee for boarding. The pilot ladder will be rigged as per SOLAS 2010 Chapter V Reg 23 as amended and secured to a height above the waterline as requested by the Pilot Boat
- Call the Port of Barrow on VHF 10 when crossing Port Limits.
- Anchors are to be cleared away and ready for letting go prior to entering port limits.
- Main engine to be tested ahead and astern prior to crossing port limits and recorded in the ship's log.
- Pilot, Master and bridge team will conduct MPX fully explaining NO GO areas, abort points and other relevant information.
- Parallel indexing to be setup and utilised throughout passage.
- Environmental data, including tidal flow and wind conditions at the Jetty head will be will be available to the Pilots and communicated to vessel Master
- Make fast tugs usually before passing LNG 2 beacon, test lines.
- Night operations may require additional or alternate position fixing due to back scatter and masking of lights due to shore lights.
- Extra caution to be taken in vicinity of the PBG due to the potential for converging traffic.
- At the PBG, the Flood tide sets to the South West. Ebb tide sets to the North East.

Waypoint	2 – WP 002A	• When approaching LNG 6 and 7 beacons, the vessels speed will be adjusted ensuring good steerage way for the channel transit and a controlled deceleration for the manoeuverinto the turning basin. • Be aware of potential back scatter on this leg due to shore lights. • The main leads maybe obscured on this leg due to vessels at the berth. Always positively identify and monitor the PEL light as backup for the main leading lights on the passage in-bound. • Flood tide sets to the South. Ebb tide sets to the North. • Establish communications with mooring teams. • Discuss with Master the mooring procedure at the berth. • Test communications with tugs and ensure they are all aligned with the planned manouever. • Abort point 1.00nm prior to passing LNG 6 and 7 beacons. • When the vessel passes beacons LNG 6 and 7 beacons it is committed to the channel and will ground if it departs the channel boundries. • Adjust vessels speed for final leg of passage in preparation for manoeuvering.
Latitude	20° 50.95’S	
Longitude	115° 32.87’E	
Course	303°T	
Speed	~5.0kt	
Leg Distance	3.40nm	
Minimum Depth to CD	13.5m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual/PPU	
Secondary Fixing	GPS/RADAR	
Parallel Index	LNG 12 303°T/0.38nm.	

Waypoint	3 – WP 003	• Flood tide sets to the South. Ebb tide sets to the North. • Vessels will generally swing to port in the swing basin and berth "head out". Any exceptions to this will be discussed during the MPX • The Turning Basin is approximately 850 metres long x 650 metres wide. • Care to be taken during manoeuvering to ensure tugs are not placed into danger with navaids etc. • Pilot will monitor the wharf berthing aids to ensure safe closure rate with the fenders. • The vessel is to be landed close to the final position and parallel to the line of the wharf. • No lines to be run without permission from the pilot.
Latitude	20° 49.11'S	
Longitude	115° 29.81'E	
Course	Various	
Speed	Various	
Leg Distance	N/A	
Minimum Depth to CD	13.5m	
Berth Alignment	000°T/180°T	
Maximum Cross Track Error	N/A	
Primary Fixing	Visual/PPU	
Secondary Fixing	GPS/RADAR	
Parallel Index	N/A	

3.0 Execution of Passage Plan - Expectations

3.1 Notes for Master and Bridge Team

- Prior to arriving at the PBG the master is to review the passage plan and plot the plan onto the appropriate charts or ECDIS system and brief his/her Bridge teams on the plan. Any concerns or questions are to be raised with the Pilots prior to the vessel arriving at the PBG.
- In accordance with AMSA regulations, all charts (paper and electronic) and navigational publications must be corrected to the latest edition of the Australian and Western Australian Notice to Mariners, including any applicable Temporary Notices to Mariners that may be in force. Additionally, the vessel it to have available and understand the BWI Marine Notices that are in force. BWI Marine Notices and other relevant port information are located on the Port of Barrow Island website.

  https://www.chevronaustralia.com/our-businesses/barrow-island/barrow-island-port
- Charts required for the passage are the latest editions of Australian Hydrographic charts AUS 62 and AUS 66
- In accordance with the *GOR-COP-0174 Gorgon - Barrow Island Terminal Regulations* any deficiencies that may affect the vessel's operating performance are to be reported in the appropriate ETA notice. Any deficiencies that occur after the 24 hour ETA is sent are to be reported to Pilots at the first available opportunity.
- All bridge navigational equipment must be switched on and functioning correctly prior to the Pilot boarding. All navigation systems, including paper charts, are to be arranged and displayed so that the Pilot can quickly determine the vessel position, course and speed when first arriving on the bridge and at any stage during the passage.
- Anchors are to be cleared away and ready for letting go prior to the Pilot boarding.
- An MPX involving the Pilot, Master, and bridge team, will be conducted after the Pilot has arrived on the bridge and verified the ships position. The Pilot will take conduct of the vessel at the conclusion of the MPX.
- To ensure an appropriate level of BRM Pilots utilise a "Closed Loop" system of communications for the relay of orders. The Master/OOW is to ensure the bridge is managed such that all orders can be clearly heard, understood and responded too. The Master/OOW is to monitor course, helm orders and engine settings to ensure compliance with the Pilots directions.
- Pilotage is compulsory for the Port of BWI and the Pilot will have the conduct of the vessel at all times whilst manoeuvring within port limits. It is acknowledged however, that the Master always remains in overall command of his vessel. Adhering to good BRM principles, Pilots actively encourage a "Challenge and Response" environment. If at any time the Master/OOW is unsure of the actions being taken, they are to challenge the Pilot and vice versa.
- Ship's position, proximity to dangers and UKC should be continuously monitored by the Master/OOW and cross referenced with the passage plan.If the Master leaves the bridge, the OOW must always seek clarification from the Pilot when in any doubt as to the pilot's actions or intentions.
- It is important to keep formal records of all navigational activities and any incidents in the appropriate Bridge Movement logbook. Information recorded should be of an

appropriate standard so that the vessels progress into the Port can be reconstructed at a later date.

3.2 Notes for the Pilot

- Conduct of the vessel will be assumed by the Pilot in an unambiguous manner.
- The Pilot will assist the bridge team to ensure radar conspicuous points, parallel indexing, any clearing bearings/ranges are properly understood.
- For each leg of the passage the Pilot is to brief the master on the required fixing interval and methods used to determine ship's position. In determining the most appropriate fixing method and interval the following will be taken into consideration'
  - The state of wind, sea and weather
  - Proximity to navigational dangers
  - Traffic density
  - Manoeuvring characterisitics of the vessel
  - Navigational equipment available, and,
  - How position data is displayed i.e. ECDIS or paper charts
- Pilot will ensure tug numbering and communication protocols are explained fully.
- Pilot is to ensure all navigation hazards (e.g. no go zones) are clearly marked on the chartlet.
- In order to adhere to Port of Barrow Island UKC requirements the Pilots will complete either

  GOR-COP-0254 - Gorgon – UKC Calculation Sheet – LNG Carriers or;

  GOR-COP-0253 - Gorgon – UKC Calculation Sheet – Condensate Carriers.

  This calculation may result in the transit being tidally restricted.
- If for any reason prior to commencing the Passage Plan, there is a need to deviate from the standard Passage Plan, a revised Passage Plan will be formulated and agreed between the Pilot and Master; any additional hazards will be identified and any mitigations/controls shall be detailed in an approriate JHA.
- The PPU is a mandatory piece of equipment for the conduct of pilotage operations at the Gorgon Marine Terminal. If the PPU does not function as is normally expected than the Pilot is to inform the BWI Port Superintendent at the first available opportunity

If there is a need to deviate from the passage plan for any reason, the bridge team must be fully briefed as to the pilot's intentions, and the pilot should make every opportunity to return to the passage plan as soon as possible.

4.0 References

Ref. No.	Description	Document ID
1	Gorgon - Barrow Island Terminal Regulations (BITR)	GOR-COP-0174
2	Gorgon Constructions Operations – Pilotage –Pilot Passage Plan Guideline	GOR-COP-0187

3	Gorgon Constructions Operations – Pilotage – Passage Plan approval Procedure	GOR-COP-0186
4	Gorgon - Pilotage – Chartlet L – Gorgon Marine Terminal	GOR-COP-0582
5	Gorgon - Pilotage – Chartlet L1 – Gorgon Marine Terminal - Alternative Route	GOR-COP-0583
6	Gorgon - Pilotage – Chartlet L2 – Gorgon Marine Terminal - Alternative Route	GOR-COP-0584
7	Gorgon – UKC Calculation Sheet – Condensate Carriers	GOR-COP-0253
8	Gorgon – UKC Calculation Sheet – LNG Carriers	GOR-COP-0254

5.0 Document Control

5.1 Ownership

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5.2 Revision History

Rev	Description	Date	Prepared By	Approved By
1.0	Approved for Use	15 March 2015	Arno Tielens	Hamish Murray
2.0	Approved for Use - updated	21 April 2015	Mike Deer	Dave Acomb