1.0 Introduction

Vessels transiting within port limits from the Gorgon Marine Terminal (GMT) to the Barrow Island Outer Pilot Boarding Ground (PBG) via the alternative route, require an approved passage plan which can be shared between Pilots and vessel Masters. This work instruction has been compiled in accordance with SOLAS chapter V (Annex 24 and Annex 25) which provides the legislative guidance for passage planning.

1.1 Purpose

This work instruction details the navigation route between the GMT and the PBG, providing Pilots, Masters and Bridge Navigation Teams sufficient information to conduct a vessel along the route in a safe and controlled manner whilst minimising risk to personnel, environment and property.

1.2 Scope

This work instruction begins when a vessel departs the Gorgon Marine Terminal and concludes at the PBG.

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 ABU Marine 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
GMT	Gorgon Marine Terminal
JHA	Job Hazard Analysis
kts	knots
m	metres
MOF	Materials Offloading Facility

Acronym / Abbreviation	Meaning
MPX	Master Pilot Exchange
nm	Nautical miles
Pilot	BWI Marine Pilot
PS	Port Superintendent
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 Waypoint Bank

Waypoint	Reference	Latitude	Longitude
WP001	Turning Basin	20° 49.11'S	115° 29.81'E
WP002	Turtle Reef	20° 50.95'S	115° 32.87'E
WP003	Outer PBG	20° 47.60'S	115° 38.00'E

3.0 Route Bank

Route	Waypoint Sequence
Passage Plan – Gorgon Marine Terminal to PBG – Alternative Route	WP001, WP002, WP003

4.0 Passage Plan – Gorgon Marine Terminal to PBG – Alternative Route

Waypoint	Alongside Berth	• Pilot will setup and use a PPU for the passage as an independent means of position fixing. • The Pilot will have completed the necessary UKC calculations. • The Pilot will detail the manoeuvring of the vessel out of the berth, including unmooring arrangements and tug configurations as part of the MPX. • Pilot will brief the Master on contingency plans, No Go Areas and abort points as part of the MPX. • Tugs, as required, will be connected prior to letting go mooring lines and testing engines. • Test communications with tugs and ensure they are all aligned with the planned manoeuvre. • Engines to be tested prior to departure and recorded in the ship's log book and MPX form. • The Pilot will contact the Port advising of departure, which track will be used and confirm that any vessel occupying the adjacent berth is aware of the departing vessel movements. • Environmental data, including tidal flow and wind conditions at the Jetty head will be available to the Pilots and communicated to vessel's Master. • At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. • Night operations may require additional or alternate position fixing due to masking of navigation lights due to back scatter. • Anchors are to be cleared away and ready for letting go prior to departing the berth. • Flood tide sets to the South. Ebb tide sets to the North. • The Turning Basin is approximately 850m long x 650m wide. • No lines are to be let go without permission of the Pilot. • Pilot to establish communication with the unmooring teams prior to letting any lines go.
Latitude		
Longitude		
Course	Various	
Speed	Various	
Leg Distance	N/A	
Minimum Depth at CD	13.3m	
Berth Alignment	000°T/180°T	
Maximum Cross Track Error	N/A	
Primary Fixing	Visual/PPU/ECDIS	
Secondary Fixing	RADAR	
Parallel Index	N/A	

Gorgon Pilotage Passage Plan
Gorgon Marine Terminal to PBG - Alternative Route

Waypoint	WP001 (Turning Basin)
Latitude	20° 49.11'S
Longitude	115° 29.81'E
Course	123°T
Speed	~5kt to 8kt
Leg Distance	3.40nm
Minimum Depth at CD	13.3m
Maximum Cross Track Error	50m
Primary Fixing	Visual/PPU/ECDIS
Secondary Fixing	RADAR
Parallel Index	LNG 4 - 123°T/0.18nm

- Suitable number of tugs are to be made fast for the channel transit.
- Vessel speed shall be in line with the UKC requirements for the passage.
- At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required.
- Night operations may require additional or alternate position fixing due to masking of navigation lights due to back scatter.
- Flood tide sets to the South. Ebb tide sets to the North.
- Vessel is committed to the channel and will ground if it departs the channel boundaries prior to passing LNG 6 and 7 beacons outbound.
- With the exception of the centre lead aft tug (Tug #4) and at the Pilot's discretion, terminal tugs will be let go and dismissed once clear of LNG 6 and 7 beacons.
- A 1-mile radius turn is to be implemented for the alteration of course to Port onto the next course leg.

Gorgon Pilotage Passage Plan
Gorgon Marine Terminal to PBG - Alternative Route

Waypoint	WP002 (Turtle Reef)
Latitude	20° 50.95'S
Longitude	115° 32.87'E
Course	055°T
Speed	~8kt - 10kt
Leg Distance	5.8nm
Minimum Depth at CD	12.0m
Maximum Cross Track Error	200m
Primary Fixing	Visual/PPU/ECDIS
Secondary Fixing	RADAR
Parallel Index	LNG 3 - 055ºT/0.83nm

- Escort tug is let go and dismissed once steady on new course.
- Flood tide sets to the South West. Ebb tide sets to the North East.
- The passage concludes at the Outer PBG (20° 47.60'S, 115° 38.00'E), however, the Pilot may choose to disembark at Port Limits.
- Extra caution to be taken in vicinity of the PBG due to converging traffic.
- Vessel and Pilot Boat are to discuss and agree on vessel speed and heading prior to pilot transfer, to ensure a good lee for disembarkation. The pilot disembarkation arrangement 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.
- Course and speed shall be adjusted once clear of port limits for pilot transfer.

5.0 Execution of the Passage Plan - Expectations

5.1 Notes for Master and Bridge Team

- Prior to departing the Gorgon Marine Terminal the Master is to review the passage plan and plot the plan onto the appropriate charts or ECDIS system, briefing his/her Bridge teams accordingly. Any concerns or questions are to be raised with the Pilots prior to departure.
- 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 is 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 chart AUS 65 and the relevant ENC cells.
- 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 ship's 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 to. The Master/OOW is to monitor course, helm orders and engine settings to ensure compliance with the Pilot's directions.
- Pilotage is compulsory for the Port of BWI and the Pilot will always have the conduct of the vessel 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 vessel's progress into the Port can be reconstructed at a later date.

5.2 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 and any clearing bearings/ranges are properly understood.
- The Pilot will ensure tug numbering and communication protocols are explained fully.
- The 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:
    a. *GOR-COP-0254 - Gorgon - UKC Calculation Sheet - LNG Carriers,*
    b. *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 transit, there is a need to deviate from the passage plan, a revised passage plan will be formulated and agreed between the Pilot and Master. Identified hazards and supporting mitigation/controls will be noted in the MPX and the PS shall be informed prior to executing the revised plan.
- The Pilot shall inform the Port Superintendent if the vessel's machinery, steering gear or bridge equipment is unserviceable or operating in a restricted capacity. The Pilot and PS will discuss mitigation strategies and will determine if the vessel can commence the transit. Identified hazards and supporting mitigation/controls will be noted in the MPX.
- 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, the Pilot is to inform the PS at the first available opportunity and the transit delayed, if possible, until a spare PPU can be delivered to the vessel.

Any unplanned deviation from the agreed passage plan must be fully briefed to the Bridge Team and the Pilot should make every opportunity to return to the passage plan as soon as possible.

6.0 References

Ref. No.	Description	Document ID
1	Gorgon - Barrow Island Terminal Regulations (BITR)	GOR-COP-0174
2	Gorgon - UKC Calculation Sheet - Condensate Carriers	GOR-COP-0253
3	Gorgon - UKC Calculation Sheet - LNG Carriers	GOR-COP-0254