

Gorgon - Pilotage - Passage Plan - Landing Craft - PBG to Materials Offloading Facility (MOF)



1.0 Introduction

Vessels transiting within port limits from the Barrow Island Pilot Boarding Ground (PBG) to the Materials Offloading Facility (MOF) require an approved passage plan which can be shared between Pilots and vessel Masters. This work instruction has been compiled in accordance with documents *GOR-COP-0187 - Pilot Passage Plan Guideline* and approved according to *GOR-COP-0186 - Passage Plan Approval Procedure*.

1.1 Purpose

This Work Instruction is specific to Landing Craft, describing the navigation route between the PBG and the MOF. It provides Pilots, Masters and Bridge Navigation Teams sufficient information to conduct a vessel along the route in a safe and controlled manner, minimising risk to personnel, environment and property.

1.2 Scope

This Work Instruction begins when a vessel, specifically Landing Craft, arrives at the PBG and concludes when it reaches an assigned berth within the MOF.

It encompasses two routes. One route transits the main MOF channel and the other transits into the MOF via an alternative Northern Route.

Provided UKC requirements are satisfied, the Northern Route shall only be utilised when the tidal stream across the main MOF channel is outside the operating parameters stated in *ABU110700304 - Port of Barrow Island – Port Information Guide*.

The daily predicted tidal stream is promulgated via the *Port of Barrow Island – Daily Shipping Schedule and SIMOPS* document, which can be received by contacting the Barrow Island Marine Communications Operator at bwimco@chevron.com.

CAUTION:



This passage plan is tidally restricted for vessels with drafts greater than 4.5m when using the main MOF channel and 0.9m when using the Northern Route. All vessels must maintain a UKC of at least 1.0m or 15% of maximum draft (whichever is greater).

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

Vessels may not have the controlling draft and therefore the drafts of assist vessels must be considered.

1.3 Target Audience

This work instruction is primarily intended for use by ABU Marine Pilots, vessel Masters and vessel Bridge Navigation Teams.

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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
BWI	Barrow Island
CBM	Conventional Buoy Mooring
CD	Clearing Distance
ECDIS	Electronic Chart Display and Information System
JHA	Job Hazard Analysis
kts	knots
m	metres
MOF	Materials Offloading Facility
MPX	Master Pilot Exchange
nm	Nautical miles
OOW	Officer of the Watch
PBG	Pilot Board Ground
Pilot	ABU Marine Pilot
PI	Parallel index
PPU	Portable Pilotage Unit
SOLAS	International Convention for Safety Of Life At Sea
UKC	Under Keel Clearance
XTE	Cross Track Error

2.0 Waypoint Bank

Waypoint	Reference	Latitude	Longitude
WP001	PBG	20°48.60'S	115°36.00'E
WP002	Outer Leads	20°48.00'S	115°30.25'E
WP003	Inner Leads	20°47.72'S	115°28.90'E
WP004	West Cardinal	20°47.20'S	115°29.67'E
WP005	Berth	Various	Various

3.0 Route Bank

Route	Waypoint Sequence
4.1 PBG to MOF – Main Channel	WP001, WP002, WP003, WP005
4.2 PBG to MOF – Northern Channel	WP001, WP002, WP004, WP003, WP005



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4.0 Passage Plan - PBG to Materials Offloading Facility (MOF)

4.1 PBG to MOF – Main Channel

Waypoint	WP001 (PBG)	<ul style="list-style-type: none"> Pilot will board at the PBG as shown on AUS 62. 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. The Ebb tide sets to the North East. Vessel and Pilot Boat are to discuss and agree on vessel speed and heading prior to transfer, ensuring a good lee is provided for boarding. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat. Pilot, Master and Bridge team will conduct MPX fully explaining No Go Zones, abort points and other relevant information. Anchors are to be cleared away and ready for letting go prior to entering port limits. Call the Port of Barrow on VHF Ch10 when crossing port limits. Parallel indexing to be setup and utilised throughout passage. The CBM to the South of the track and the Lowendal Shoal to the North of the track are both No Go Zones. Beware of converging traffic in the vicinity of the South Cardinal Mark. Be aware of the CBM oil pipeline in the vicinity of the South Cardinal Mark. In the event of any failure, the vessel will (if possible) return to port limits or anchor (being aware of the oil pipeline and other obstructions). Night operations may require additional or alternate position fixing due to backscatter and masking of lights due to shore lights.
Latitude	20°48.60'S	
Longitude	115°36.00'E	
Course	276°T	
Speed	~6 to 10kts	
Leg Distance	5.4nm	
Minimum Depth at CD	6.1m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	South.Cardinal at 0.2nm	



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Waypoint	WP002 (Outer Leads)	<ul style="list-style-type: none"> • MOF leading lights and sector lights can be utilised if transiting the main channel. • Be aware of traffic departing the MOF. • Be aware of potential backscatter on this leg due to shore lights. • Final planned abort position is abeam of HB5. • Call the Port of Barrow on VHF Ch10 when passing MOF1/2 inbound. • The Flood tide sets to the South. The Ebb tide sets to the North. • When transiting the main channel, the Flood tide is generally strongest in the vicinity of HB5 and the Ebb tide is generally strongest when approaching the breakwater. Caution must be used in determining tidal flow due to variations. • When tide and vessel's draft permits, an emergency escape route to the North between MOF1/3 or to the South between MOF2/4 can be considered for the main channel. • Effect of tide diminishes when entering the MOF basin. • In the event of a failure, the vessel will (if possible) continue to the swing basin or proceed to anchor clear of any obstructions.
Latitude	20°48.00'S	
Longitude	115°30.25'E	
Course	282°T	
Speed	~3 to 6kts	
Leg Distance	1.3nm	
Minimum Depth at CD	5.5m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	Breakwater at 0.05nm	



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Waypoint	WP003 (Inner Leads)	<ul style="list-style-type: none"> • At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. • The swing basin is 320m in diameter. • Manoeuvring on approaches to the berth to be done at slow speed (less than 1 knot over the ground) • Ensure adequate clearing distances between the vessel and any obstructions, such as other vessels, navigational marks and mooring dolphins. • In the event of a failure, and depending on the situation, the vessel will hold position in the swing basin, proceed to a safe berth or proceed to anchor, clearing any obstructions. • Call Port of Barrow on VHF Ch10 once first line is ashore and again when all fast. • Pilot will normally disembark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat.
Latitude	20°47.72'S	
Longitude	115°28.90'E	
Course	Various	
Speed	<3kts (Also refer to Section 5.2 regarding reduced speed and closing distances)	
Leg Distance	Various	
Minimum Depth at CD	6.5m	
Maximum Cross Track Error	N/A	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	N/A	



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4.2 PBG to MOF – Northern Channel

Waypoint	WP001 (PBG)	<ul style="list-style-type: none"> • Pilot will board at the PBG as shown on AUS 62. • Vessel and Pilot Boat are to discuss and agree on vessel speed and heading prior to transfer, ensuring a good lee is provided for boarding. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat. • Pilot, Master and Bridge team will conduct MPX fully explaining No Go Zones, abort points and other relevant information. • Anchors are to be cleared away and ready for letting go prior to entering port limits. • Call the Port of Barrow on VHF Ch10 when crossing port limits. • Parallel indexing to be setup and utilised throughout passage. • 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. The Ebb tide sets to the North East. • The CBM to the South of the track and the Lowendal Shoal to the North of the track are both No Go Zones. • Be aware of converging traffic in the vicinity of the South Cardinal Mark. • Be aware of the CBM oil pipeline in the vicinity of the South Cardinal Mark. • In the event of any failure, the vessel will (if possible) return to port limits or anchor (being aware of the oil pipeline and other obstructions). • Night operations may require additional or alternate position fixing due to backscatter and masking of lights due to shore lights.
Latitude	20°48.60'S	
Longitude	115°36.00'E	
Course	276°T	
Speed	~6 to 10kts	
Leg Distance	5.4nm	
Minimum Depth at CD	6.1m	
Maximum Cross Track Error	100m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	South Cardinal at 0.2nm	



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Waypoint	WP002 (Outer Leads)	<ul style="list-style-type: none"> • Call Port of Barrow on VHF Ch10 and confirm route into MOF via Northern Route. • Be aware of traffic departing the MOF. • The Flood tide sets to the South. The Ebb tide sets to the North. • Beware of converging traffic from the North. • A No Go Zone exists to the East of the track. • In the event of any failure, the vessel will (if possible) return to port limits or anchor (being aware of the oil pipeline and other obstructions).
Latitude	20°48.00'S	
Longitude	115°30.25'E	
Course	326°T	
Speed	~6 to 10kts	
Leg Distance	1.0nm	
Minimum Depth at CD	5.2m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	West Cardinal at 0.3nm	



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Waypoint	WP004 (West Cardinal)	<ul style="list-style-type: none"> • The Flood tide sets to the South. The Ebb tide sets to the North. • Allow adequate lead in distance prior to passing HB3/4 to ascertain effect of tide on vessel. • Be aware of the CBM oil pipeline in the vicinity of HB3/4. • Be aware of traffic departing the MOF. • A No Go Zone exists to the West of HB3/MOF5. • When tide and vessel's draft permit, an emergency escape route to the East between HB4/MOF3 can be considered. • Be aware of the 1.9m patch near MOF5. • Be aware of potential backscatter on this leg due to shore lights. • At night, visual references ahead of the vessel are limited. As such, a greater reliance on radar fixing and PI methods may be required. • Effect of tide diminishes when entering the MOF basin. • In the event of a failure, and depending on the situation, the vessel will hold position in the swing basin, proceed to a safe berth or proceed to anchor (being aware of the oil pipeline and other obstructions).
Latitude	20°47.20'S	
Longitude	115°29.67'E	
Course	234°T	
Speed	~3 to 6kts	
Leg Distance	0.9nm	
Minimum Depth at CD	1.9m	
Maximum Cross Track Error	50m	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	MOF3 at 0.06nm	



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Waypoint	WP003 (Inner Leads)	<ul style="list-style-type: none"> • At night, visual references are limited within the MOF. Navigation aids are to be utilised for situational awareness and the use of a search light is recommended to highlight the berth face. • The swing basin is 320m in diameter. • Manoeuvring on approaches to the berth to be done at slow speed (less than 1 knot over the ground). • Ensure adequate clearing distances between the vessel and any obstructions, such as other vessels, navigational marks and mooring dolphins. • In the event of a failure, and depending on the situation, the vessel will hold position in the swing basin, proceed to a safe berth or anchor, clearing any obstructions. • Call Port of Barrow on VHF Ch10 once first line is ashore and again when all fast. • Pilot will normally disembark by Pilot Boat. The vessel is to follow any instruction from the Pilot Boat in regards to the rigging of the ladder. The pilot ladder will be rigged as per <i>SOLAS 2010 Chapter V Reg 23</i> as amended and secured to a height above the waterline as requested by the Pilot Boat.
Latitude	20°47.72'S	
Longitude	115°28.90'E	
Course	Various	
Speed	<3kts (Also refer to Section 5.2 regarding reduced speed and closing distances)	
Leg Distance	Various	
Minimum Depth at CD	6.5m	
Maximum Cross Track Error	N/A	
Primary Fixing	Visual	
Secondary Fixing	GPS/RADAR	
Parallel Index	N/A	

5.0 Execution of Passage Plan – Expectations

5.1 Notes for Master and Bridge Team

- Prior to commencing the passage inbound, 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 Pilot prior to commencing the passage.
- 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 Notices 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 charts AUS 62, AUS 65 and AUS 66.
- Any deficiencies that may affect the vessel's operating performance are to be reported to the Pilot at the first available opportunity prior to commencing the passage inbound.
- 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's position, course and speed at any time during the passage.
- Anchors are to be cleared away and ready for letting go prior to the Pilot boarding.
- A MPX involving the Pilot, Master, and Bridge team will be conducted after the Pilot has arrived on the bridge. 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 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

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appropriate standard so that the vessel's progress in to 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.
- 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 characteristics of the vessel
 - Navigational equipment available, and
 - How position data is displayed i.e. ECDIS or paper charts
- The Pilot is to ensure all navigation hazards (e.g. No Go Zones) are clearly marked on the chartlet.
- The Pilot will ensure tug and communication protocols are explained fully.
- 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 appropriate JHA.
- When manoeuvring vessels such that they are closing to within 50 metres of a fixed jetty, wharf or other moored vessel, approach speeds are to be less than 1.0 knot in order that all way can be taken off the vessel quickly and in a controlled manner, preventing any unplanned close quarters contact with said shore facilities or vessels.

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.

6.0 Document Control

6.1 Ownership

Document Author	Cameron Crampton	Owner	Brad Ryman
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6.2 Revision History

Rev	Description	Date	Prepared By	Approved By
1.0	Approved for Use	28 April 2016	Cameron Crampton	Brad Ryman