

CONTROLLED DOCUMENT

Terminal Handbook Pluto



Controlled Ref: XA7500MW0001

Revision:

Name	Signature	Date
Prepared by: John Jenkin (Person creating/editing document content)		
Approved by: Eric Barron (Person validating document content)		
Custodian: John Jenkin (Person managing document lifecycle)		
Concurrence (Agreement that must be obtained if an item is prepared external to, but impacts, a department or division. If concurrence is required, it must be noted within the body of the item).		
1.		

REVISION HISTORY

Revision	Description	Date	Prepared by	Approved by
16	Ballast Water management	18/01/2022	Glenn Attrill	Eric Barron
17	Sanction Assessment procedure added. Berth operability curves removed. Trap door and man rope requirements.	19/09/2022	John Jenkin	Eric Barron
18	Discharge of EGCS wash water and Freeboard parameters	18/10/2022	John Jenkin	Russell Probert

About this Revision

Section No	Change Type	Brief Explanation
2.6.2	Add	Freeboard restriction due to gangway and fender parameters
2.8.12	Add	Restriction on discharge of closed loop EGCS wash water at Pluto Terminal

Information Security Sensitivity Classification <i>Check one box only</i>	Public <i>(Approved for public dissemination)</i>	Confidential <i>(Shared with named individuals and groups)</i>
	Internal <i>(Shared with all Woodside personnel)</i>	Most Confidential <i>(Shared with named individuals only)</i>
Prepared by:	WEL for WEL – PO/Contract No:	

OPERATIONS/PROJECTS USE ONLY

Operating Facility:	Pluto Terminal
Key TAG No's:	

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 1 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

DOCUMENT DISTRIBUTION		
Full Name/External Organisation Name (if applicable) (Show Username (WOPID) to differentiate between persons with identical names).	Hard Copy	Electronic Notification
Document Control		
Logistics Marine		
??Pilots		
??ShippingOfficePlant		
Mike Minogue – Harbour Master mike.minogue@pilbaraports.com.au		
PLP_OIM (PLP_OIM@woodside.com.au)		
Phil Park (Manager Technical & Shipping)		
Deb Yeomans		
Ian Sutherland (Marketing & Trading Operations Manager)		
Kylie Vlasschaert (Manager Oil & LNG Charters)		
Bev Harland		

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 2 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

PREFACE

This document is intended to acquaint Owners, Charterers and Masters of Vessels with the general conditions, terminal facilities and available services at the Pluto Terminal.

It does not replace or modify official publications covering the waters, hazards, areas or subjects to which it pertains, nor is it intended for such purposes. All operations are subject to Terminal Procedures and Port Regulations.

While the information herein is believed to be correct at the time of printing, the Terminal Operator makes no guarantee and assumes no responsibilities regarding it or any information which may appear in supplemental publications.

To the extent this document contains any forward-looking statements, these are subject to risk factors associated with the oil and gas business. The expectations reflected in these statements are reasonable, but they may be affected by a variety of variables and changes in underlying assumptions which could cause actual results or trends to differ materially, including but not limited to: environmental risks, physical risks, legislative, fiscal, regulatory developments, and approvals.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 3 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

TABLE OF CONTENTS

1.	PORT OF DAMPIER.....	9
1.1	Location	9
1.2	Administration	9
1.3	Environment.....	9
1.3.1	Quarantine.....	9
1.4	Charts and Publications	10
1.5	General Weather Information.....	10
1.5.1	Winds	10
1.5.2	Cyclones.....	10
1.6	Tides and Currents	10
1.6.1	Tides.....	10
1.6.2	Currents.....	11
1.7	Anchorage.....	11
1.8	Prohibited Areas	11
1.9	Gas Trunkline.....	11
2.	WOODSIDE FACILITIES IN PORT OF DAMPIER	13
2.1	Pluto Terminal	13
2.2	Withnell Bay Terminal	13
2.3	Loading Facilities	13
2.4	King Bay Supply Facility	13
2.5	Pluto Terminal Shipping Channel	13
2.5.1	Sea Buoy.....	13
2.5.2	Hamersley Channel.....	13
2.5.3	Pluto Terminal Shipping Channel Sections	13
2.6	Jetty Facilities	14
2.7	Mooring Load and Environmental Monitoring System (MEMS)	15
2.7.1	Mooring Load Monitoring.....	15
2.7.2	Environmental Monitoring.....	15
2.8	Jetty Rules	15
2.8.1	Access.....	15
2.8.2	Stores	16
2.8.3	Engine Repairs.....	17
2.8.4	Fresh Water.....	17
2.8.5	Bunkers	17
2.8.6	Liquid Nitrogen	17
2.8.7	Gangway	17
2.8.8	Lifeboat Drills.....	17
2.8.9	Tanker Emergency Equipment Testing	18
2.8.10	Australian Government Requirements	18
2.8.11	Ballast Water Discharge Management.....	18
2.8.12	Discharge of Open Loop Exhaust Gas Cleaning Systems.....	18
3.	COMMUNICATIONS	19
3.1	Communications Plan Dampier	19

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 4 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

3.1.1	Pre-Arrival Communication	19
3.1.2	Tanker Pre-Arrival Messages	19
3.1.3	Arrival Port of Dampier Limits	20
3.2	Pluto Terminal Pre-Arrival Questionnaire (LNG Carriers)	20
3.2.1	Sequence of Messages	21
3.3	Pluto Terminal Pre-Arrival Questionnaire (Condensate Tankers)	22
3.4	Port Health	22
3.4.1	Quarantine Anchorage	22
3.5	Weather Reports	22
3.6	Communication Terminology	22
4.	SHIP COMPATIBILITY AND ASSURANCE	23
4.1	Sanctions Assessment Procedure	23
5.	BERTHING ARRANGEMENTS	24
5.1	Pilotage	24
5.2	Pilotage Requirements	24
5.2.1	Pilot Boarding Requirements	24
5.2.2	Terminal Representative	24
5.2.3	Channel Transit	25
5.2.4	Navicom Berthing Aid	25
5.3	Transit Criteria and Weather Limitations	25
5.3.1	Inward Transits	25
5.3.2	Outward Transits	25
5.4	Transit Restrictions for Vessel (LNG/Condensate)	26
5.5	Transit Speeds	26
5.6	Tanker Draughts	27
5.6.1	Inwards Draughts – LNG Tankers	27
5.6.2	Inwards Draughts – Condensate Tankers	27
5.6.3	Maximum Draughts Alongside	27
5.7	Towage Services	27
5.7.1	Integrated Tug Fleet	27
5.7.2	Tug Requirements	27
5.7.3	Tugs on Station	28
5.7.4	Tug Configuration and Mooring	28
5.7.5	Standby Duties	28
5.8	Mooring Integrity	28
5.9	Mooring Tensions	28
5.10	Mooring Requirements	29
5.10.1	Condensate Tanker Minimum Requirements	29
5.10.2	Condensate Tankers' Mooring Requirements	29
5.10.3	Mooring Lines	29
6.	MOORING CAUTIONS	30
6.1	Running of Mooring Lines	30
6.2	Limiting Conditions Alongside	30
6.3	Wind Restrictions	30

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 5 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

6.4	Electrical Storms	30
6.5	Limiting Sea States	30
6.6	Operation of Vessels Main Engine.....	31
7.	SAFETY PRECAUTIONS.....	32
7.1	Cargo Handling Philosophy	32
7.2	Ship/Shore Communications	32
7.2.1	VHF/UHF Radio Link.....	32
7.3	Emergency Documents.....	32
7.3.1	Ship/Shore Safety Check List.....	32
7.4	Vessel Readiness	32
7.4.1	Main Engine Readiness	33
7.4.2	Minor Shipboard Repairs.....	33
7.5	Fire Prevention.....	33
7.6	Fire Fighting Equipment.....	34
7.6.1	Tanker	34
7.6.2	Terminal	34
7.6.3	Environmental Pollution.....	34
7.6.4	Avoidance of Pollution.....	34
7.7	Manifold Access	35
8.	SERVICES.....	36
8.1	Fuel	36
8.2	Refuse.....	36
8.3	Fresh Water	36
8.4	Stores and Provisions	36
8.5	Repairs.....	36
8.6	Customs	36
8.7	Police	36
8.8	Security	36
8.9	Air Communications	36
8.10	Medical Assistance	36
9.	GENERAL.....	37
9.1	Responsibilities	37
9.1.1	Pilotage	37
9.1.2	Terminal Representative/Loadmaster	37
10.	CONTACTS.....	38
10.1	Woodside Contacts	38
10.2	Pilbara Ports Operations	38
10.3	Shipping Agencies	38
11.	LNG LOADING FACILITIES	40
11.1	LNG Carrier Particulars.....	40
11.2	LNG Communication System.....	40
11.3	LNG Venting	40
11.4	LNG Tanker ESD System	40

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 6 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

11.5	Pre-Loading Operations	41
11.5.1	Fitting of Gangway	41
11.5.2	Pre-Loading Meeting	41
11.6	Configuration and Limits of Loading Arms	41
11.6.1	QC/DC	41
11.6.2	Configuration	41
11.6.3	Water Spray System	42
11.6.4	Measurement of Cargo Heel	42
11.6.5	Testing the ESD System	43
11.7	Cargo Handling	43
11.7.1	Normal Loading	44
11.7.2	Vessel Exclusion Zone	44
11.7.3	Inerted Condition	44
11.7.4	Cooldown and Gassing Up.....	44
11.7.5	Loading and Topping Off.....	45
11.7.6	Prevention of Free Flow of Liquid.....	46
11.7.7	Cargo Ramp-Up and Ramp-Down	46
11.8	Draining and Inerting of Loading Arms	46
11.9	Completion of Operations	47
11.9.1	Disconnection of Loading Arms.....	47
11.10	Final Measurement of Cargo	47
11.11	Documentation	47
11.12	Removal of Gangway.....	47
11.13	Main Engine Preparation for Sailing	47
12.	CONDENSATE LOADING FACILITIES.....	48
12.1	Condition of Condensate Tankers	48
12.2	Loading Rates	48
12.3	Shore Tank Capacity	48
12.4	Loading Arms	48
12.4.1	Loading Arm Limits.....	49
12.4.2	Connection of Loading Arms	49
12.5	QC/DC.....	49
12.6	Emergency Shut Down System	49
12.7	Cargo Measurement	50
APPENDIX A	PLUTO TERMINAL SHIPPING CHANNEL NAVIGATION MARKS	51
APPENDIX B	RECOMMENDED APPROACHES TO THE PORT OF DAMPIER	53
APPENDIX C	PLUTO TERMINAL.....	54
APPENDIX D	JETTY LOADING PLATFORM – GANGWAY ARRANGEMENT	56
APPENDIX E	JETTY LOADING PLATFORM – GANGWAY ARRANGEMENT	57
APPENDIX F	JETTY LADDER ARRANGEMENT ON GANGWAY	58
APPENDIX G	LNG LOADING ARM WORKING RANGE (ELEVATION)	59
APPENDIX H	LNG LOADING ARM WORKING RANGE (PLAN)	60

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 7 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX I	CONDENSATE LOADING ARM WORKING RANGE (ELEVATION).....	61
APPENDIX J	CONDENSATE ARM WORKING RANGE (PLAN)	62
APPENDIX K	MOORING PROCEDURE.....	63
APPENDIX L	PLUTO TRANSIT AND TUG USE CRITERIA TABLE.....	64
APPENDIX M	PLUTO TERMINAL SPOOL PIECE (SHORT DISTANCE PIECE).....	65
APPENDIX N	PLUTO TERMINAL JETTY	66
APPENDIX O	SECURITY ARRANGEMENTS FOR SHIP'S CREW	67
APPENDIX P	REQUIRED BOARDING ARRANGEMENTS FOR PILOT.....	69
APPENDIX Q	PLUTO TERMINAL PRE-ARRIVAL QUESTIONNAIRE (LNG TANKER).....	70
APPENDIX R	PLUTO TERMINAL PRE-ARRIVAL QUESTIONNAIRE (CONDENSATE TANKER).....	71
APPENDIX S	SANCTIONS ASSESSMENT PROCEDURE	72
	Sanctions Assessment Procedure	72
	Sanctions Declaration	73

1. Port of Dampier

1.1 Location

The port is located on the North West Coast of Australia within the Dampier Archipelago. Legendre Island is positioned at 20° 21' S 116° 51' E and forms the North Eastern extremity of the Archipelago, and Rosemary Island in position 20° 28' S 116° 37' E forms the North Western extremity. The expanse of water within these bounds is called Mermaid Sound.

1.2 Administration

The Dampier Port Authority, via the office of the Harbour Master, administers the port. The WA Port Authorities Act 1999 and the WA Port Authorities Regulations 2001 govern conduct within the port.

The Port of Dampier services five major export operations:

1. Woodside Energy exporting NWSJV LNG, LPG and Condensate through the Withnell Bay Terminal.
2. Woodside Energy exporting Pluto LNG and Condensate through the Pluto Terminal.
3. Rio Tinto Iron Ore Pty Ltd exporting Iron Ore through their Parker Point and East Intercourse Island Terminals.
4. Dampier Salt Pty Ltd exporting solar salt through their Mistaken Island Terminal.
5. Burrup Fertilizers exporting Liquid Ammonia through the Dampier Port Authority Bulk Liquids Berth.

The five companies operate and maintain their own facilities. Pilotage services are company operated, and compulsory for all vessels using the above facilities.

Woodside Energy Ltd provides pilotage services for the Woodside terminals.

The Riverwijs Joint Venture provides towage and pilot boat services for the Woodside Withnell Bay and Pluto terminals.

1.3 Environment

The islands and waters of the Dampier Archipelago have been declared a Marine Park by the Department of Environmental Protection. The use of dispersants for any oil spill cleanup in an Environmentally Sensitive Locality is not permitted unless it has been authorised by the Designated Authority after receiving the advice of the Department of Environmental Protection.

Masters and Owners must be aware of this sensitivity when using the port. Heavy fines will be levied should pollution of any kind occur, or should any of the state or port environment regulations or company policies be infringed.

1.3.1 Quarantine

Plants or animals, including plant or animal products and other food items, are quarantine items and transfer of these items from vessel to shore is controlled by AQIS. Woodside Pilots and Loadmasters are not authorised to approve transfer of these items. Where any such items are to be transferred ashore, the ship's Master must arrange for the proper transfer via the ship's Agent and the Australian Quarantine Inspection Service.

1.4 Charts and Publications

Relevant charts and publications are:

- Australian Pilot Volume V
- Australian Chart No. 741 (Approaches to Dampier Archipelago)
- Australian Chart No. 57 (Dampier Archipelago)
- Australian Chart No. 58 (Port of Dampier)
- Australian Chart No. 59 (Port of Dampier Northern Sheet)
- Australian Chart No. 60 (Port of Dampier Southern Sheet).

1.5 General Weather Information

The Port of Dampier is in a hot, tropical region subject to cyclonic activity.

1.5.1 Winds

The prevailing winds are easterly in winter (typically from May to August) and south westerly in summer (typically October to March). The winds can blow in excess of 20 knots for sustained periods, and periods of sustained winds with diurnal variation is common for the area. During the winter, easterly winds tend to ease late afternoon and during the summer the south westerly winds tend to ease early morning for periods of two to three hours.

1.5.2 Cyclones

During the summer months the area may be affected by tropical cyclones. They generally originate in the Timor Sea and follow an erratic South Westerly path. The official season lasts from 1 November to 30 April with, on average, three cyclones per year passing close enough to the area to close the port.

1.6 Tides and Currents

1.6.1 Tides

The tides in Mermaid Sound are semi-diurnal, with a daily inequality between successive tidal ranges. This inequality can be marked, with a potential consequence on departure draughts of laden tankers.

Due to local environmental conditions, the actual and predicted tide readings can vary. A co-relation of the two must be made prior to and during any operations.

During cyclonic conditions, this differential may be as much as +2.0 m or -1.2 m.

All tidal and water depth information is referred to chart datum, (LAT: Lowest Astronomical Tide). Table 1 details relevant tidal data for Mermaid Sound.

Table 1: Tidal data

Tide data	Value
Maximum tidal range LAT to HAT	5.3 m
Mean sea level	2.655 m
MHWS	4.5 m
MHWS	3.2 m

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 10 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

Dampier is a standard port in the Australian National Tide Tables published by the Hydrographer of the Royal Australian Navy.

1.6.2 Currents

The tidal streams in Mermaid Sound follow a tidal cycle, the Flood being generally southerly and the Ebb tending Northerly. These streams can be affected by wind-generated movement, especially following the passage of a cyclone.

The tides at the berth run parallel to the shore and do not, except in cyclonic conditions, exceed 0.5 knots. In the Channel area, the strength of the tidal stream will not normally reach above 1.0 knot, except in cyclonic conditions, where streams of up to 2.5 knots have been experienced. Local anomalies such as late/early change in direction and/or rapid dissipation/intensification of flows are experienced in this port.

1.7 Anchorages

There are three anchorage areas designated for large vessels:

- Western Anchorage
- Eastern Anchorage (Nicol Bay - outside Port Limits)
- Inner Anchorage.

Vessels will be assigned an anchorage by the Dampier Port Authority prior to reaching Port Limits. A vessel may not anchor within the Inner Anchorages without a Pilot on board, unless permission is granted by the Dampier Port Authority to do so.

Refer to Pilbara Ports Authority (PPA) [Port of Dampier Handbook](#).

1.8 Prohibited Areas

No vessel or craft, other than with the express permission of the Harbour Master, may enter the following prohibited areas:

- Within 700 m of the Woodside jetties.
- Within 200 m of the Woodside Slugcatcher Vent in Withnell Bay.
- Within 200 m of the Dampier Cargo Wharf and Bulk Liquids Berth.
- Within 50 m of the Parker Point, East Intercourse and Mistaken Island Terminals.
- Within 50 m of the wharves at King Bay and Mermaid Marine Supply Bases.

1.9 Gas Trunkline

Three high pressure subsea trunklines have been established on the sea bed to supply gas to the onshore treatment plants situated near Holden Point (Pluto) and Withnell Bay. The pipeline routes are marked on charts and are protected by prohibited areas. The Pluto pipeline emerges from the shore and continues out from the port in a north-westerly direction.

The Pluto pipeline follows the following route:

From the shore at co-ordinates

20° 36' 17.748" S 116° 45' 28.478" E thence to

20° 35' 10.593" S 116° 44' 43.614" E

This section crosses the NWSJV channel.

20° 32' 38.413" S 116° 45' 40.466" E

Then to

20° 30' 34.189" S 116° 46' 17.049" E

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 11 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

20° 26' 47.117" S 116° 46' 31.018" E

20° 24' 40.609" S 116° 45' 59.216" E

The Withnell Bay Pipelines follow the following route in the approaches to and within the port:

20° 23.45'S 116° 45.27' E thence to

20° 24.36'S 116° 46.2' E thence to

20° 26.84'S 116° 46.83' E thence to

20° 29.82'S 116° 46.68' E thence to

20° 32.26'S 116° 45.58' E thence to shore in position

20° 35.4'S 116° 46.4' E

Prohibited areas are declared for five cables either side of these pipelines.

APPROVED

2. Woodside Facilities in Port of Dampier

2.1 Pluto Terminal

The Pluto LNG Terminal lies in position:

Lat: 20 36 South Long: 116 45 East.

The Terminal receives natural gas via a subsea trunkline from fields approximately 180 km offshore. Most of the gas is processed into LNG and condensate for export. LNG is primarily exported to Japan, and condensate is sold on both the domestic and overseas markets.

2.2 Withnell Bay Terminal

Woodside Energy Ltd operates the NWSJV Withnell Bay Terminal on the eastern side of Mermaid Sound. This facility lies approximately 3.2 km to the North of the Pluto Terminal. Refer to the Withnell Bay Terminal Handbook for details.

2.3 Loading Facilities

The Pluto Terminal has one loading jetty for the export of LNG and condensate (refer to APPENDIX N for berth arrangement).

2.4 King Bay Supply Facility

King Bay Supply Facility (KBSF) services the Woodside offshore facilities and is located at King Bay in the south-east of Mermaid Sound in position 20° 37.6' S 116° 44.8' E. Other oil companies use a Supply Base facility at Mermaid Marine Australia Supply Base (also in King Bay) and the Dampier Cargo Wharf. There is another supply base on the southern side of KBSF which is dredged to 6.0 m. This is the Burrup Materials Facility, which supports the Pluto project.

2.5 Pluto Terminal Shipping Channel

Woodside operates a buoyed channel to allow safe passage to vessels using the Pluto Terminal. The start of the channel is marked by the Channel Buoy (FL (2) Red 5 secs) in position 20° 26.2' S 116° 43.7' E. The first part of this channel is shared with the Withnell Bay Terminal, then branches off to the South West from Woodside No. 4 Buoy. The channel extends south into Mermaid Sound and turns towards the Pluto Terminal in the vicinity of P5 and PR1 transit beacons. The transit from Woodside 4 to the Pluto Jetty is via a gated dredged channel and turning basin marked by beacons and buoys.

2.5.1 Sea Buoy

The entrance to the port is marked by the Dampier Port Authority Sea Buoy (Q(4) Y 6s) in position 20° 25.5' S 116° 42.9' E. This buoy is marked by a Racon and exhibits an AIS signal.

2.5.2 Hamersley Channel

The Hamersley Channel is located to the west of the Pluto and Woodside Channels and is for the sole use of vessels using the Hamersley facilities. The Hamersley Channel terminates at Sea Buoy.

2.5.3 Pluto Terminal Shipping Channel Sections

The Pluto Terminal Shipping Channel as shown in APPENDIX A comprises the following sections:

1. **Pilot Boarding Ground C** to Woodside Channel Buoy is 2.4 NM.
2. **Approach Track** (Woodside Channel)
 - a. The Approach Track from Woodside Channel Buoy to Beacon 4, the lead light at the entrance to the channel is 2.5 NM. Least depth is 12.2 m LAT.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 13 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

3. Pluto Terminal Shipping Channel

- a. Commences at Woodside 4 to HP6 with initial course 195/015 degrees distance 4.2 NM.
- b. The Channel from HP6 to HP10 at 1.3 NM.
- c. From HP10 to the entrance to the swing basin is a distance of 2.6 NM.
- d. The Channel is maintained to 12.2 m LAT.
- e. The Channel width is 250 m.
- f. The Channel alignment is 141/321 degrees.

4. Alternative Departure Channel

- a. An Alternate Departure Channel, least depth 13.5 m, has been surveyed for use during periods of heavy weather or swell. This channel departs the approach track to the North of HP6 and to the North of Woodside No7 buoy and heads 035° for 2.25 NM then 326° for 2 NM to join the Hamersley Channel at Courtney Shoal Buoy. Final Departure is made via the Hamersley Channel to Sea Buoy, least depth being 20 m.

5. Manoeuvring Area

- a. The manoeuvring area is approximately 600 m diameter just to the south-west of the jetty and is dredged to 11.5 and 12.2 m (refer APPENDIX B).

6. Berthing Pocket

- a. The Jetty Berth pocket is dredged to 13.5 m and is 400 m long x 60 m wide.

2.6 Jetty Facilities

Position: Lat: 20° 36' South Long: 116° 45' East.

The jetty is a single berth loading facility for LNG and condensate tankers, starboard side alongside. The Loading Platform is equipped with four 16" LNG Loading/Vapour Return Arms and two 16" condensate arms.

The berth can accommodate vessels from 180 m to 315 m LOA. The Maximum Berthing Displacement is 115,000 MT.

Note: Condensate Tankers at the lower end of this range (LOAs 180 to 220 m), often known as Medium Range or MR Tankers, require detailed compatibility analysis to be conducted before they can be considered for this Berth.

A gangway to accommodate all tankers is located on the jetty loading platform, and is hydraulically operated in luffing, slewing and shuttling modes. It is designed to rest on the ship's dedicated strengthened rail (LNG) and sits on the deck of condensate tankers (refer to APPENDIX D and APPENDIX E).

Four breasting dolphins with single cylindrical cell rubber fenders and panels extending from LAT +4.0 m to LAT +8.67 m comprise the berth face. Each breasting dolphin is equipped with double release hooks and capstans for spring lines. The maximum berthing speed is 0.15 m/s.

There are aft facing hooks on one of the two forward breasting dolphins for mooring of condensate vessels. There are no forward-facing hooks on the aft breasting dolphins.

Three mooring dolphins, each end of the berth, are equipped with triple and quadruple release hooks and capstans for breast lines.

All hooks are linked to the Terminal Mooring Load and Environmental Monitoring System (MEMS) and have a safe working load of 125 tonnes. The capstans are two-speed, at a hauling speed of 30 m/min the working load is 30 kN; at 15 m/min the working load is also 30 kN. A maximum load of 60 kN can be pulled for one minute at reduced speed.

2.6.1 Freeboard requirements

To ensure sufficient fender contact overlap and gangway operability all tankers are to maintain a minimum freeboard of 9.7m minus height of tide at all times.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 14 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

To ensure Marine Loading Arms are operated within the correct range all tankers are to maintain a maximum height of the top of the manifold to water line of 20.1m minus height of tide at all times. (top of manifold height = (freeboard + manifold – height of tide) < 20.1 m)

2.7 Mooring Load and Environmental Monitoring System (MEMS)

2.7.1 Mooring Load Monitoring

A mooring load monitoring system is provided for all mooring hooks. The loads are displayed in the Woodside Pilot's office and the Terminal CCR. In addition, the information is transmitted to the tankers and displayed on a dedicated laptop, carried by the Pilot.

The system software allows for pre-tension parameters as well as high- and low-level alarm criteria to be displayed and monitored.

2.7.2 Environmental Monitoring

In addition to the mooring load information, the MEMS systems provide environmental data as follows:

- Tidal data.
- Current Speed and Direction.
- Wind Speed and Direction.
- Air Temperature and Pressure.
- Relative Humidity.
- Wave Height and Period.
- Water Temperature.

The system also accesses the Remote Offshore Warning System (ROWS), which monitors, predicts, and alarms, limiting sea state trends for channel transits and vessels alongside.

2.8 Jetty Rules

During loading the Master is required to ensure that all statutory and company regulations are observed. Refer to Pluto Terminal Conditions.

2.8.1 Access

2.8.1.1 Security Alongside

Vessels will only be accepted to load at the Pluto Terminal if they have a valid International Ship Security Certificate.

Vessels should follow the guidelines contained in their ship security plan to ensure an appropriate security level is maintained onboard at all times. The Port and Terminal security level in force will be communicated to ships prior to their arrival and, where necessary, additional security measures agreed in a Declaration of Security before the vessel's arrival.

The Terminal has strict access controls in accordance with its facility security plan and reference should be made to APPENDIX O for details of requirements.

2.8.1.2 Security and Control of Tanker's Personnel

Control of personnel access to the tanker will be via the security personnel at the Pluto Terminal main gate. Refer to APPENDIX O for further details.

2.8.1.3 Access through the Terminal

Access to the tanker through the Terminal is strictly controlled. Pedestrian traffic is prohibited between the jetty and the main gate. The jetty is deemed secure under Maritime Security legislation and is accessed through electronically operated gates.

Vehicle access to the jetties is strictly controlled, and only approved vehicles are allowed to operate within the Terminal.

The Master is required to sign acceptance of the Security Arrangements for Ship's Crews (refer to APPENDIX O) prior to berthing. The appointed Shipping Agent will provide the Master with details of available transport services. Arrangements for alternative transport, such as an approved bus service, may be arranged through the Agent.

Masters of tankers are reminded that intoxicated persons are not permitted access through the Terminal. Random breath testing is in force at this Terminal, and anyone producing a sample of 0.04 BAC or above will not be allowed onto the site. The ship's agent will be informed and will have to collect the person from the main gate.

2.8.1.4 Actions following Muster Signal

Actions to be followed during Emergency Muster either in the Terminal or on board Tankers:

- When the muster signal sounds, Pilots and Loadmasters on board tankers must report their whereabouts to the relevant main gate security team so that they can be included in the site muster. This is particularly the case when the Pilot has arrived on board the tanker at sea and will not appear on the site muster manifest.
- Similarly, the Pilot/Loadmaster on board the tanker is to account for any visitors embarked on board the tanker such as agents, surveyors, buyer representatives, and other visitors. The muster of such persons on board the tanker must be relayed to terminal security.
- All non-ship's personnel embarked on board vessels while alongside a terminal or within port limit limits must muster and remain on board the tanker until the all clear has sounded or an alternative instruction is given from either the terminal representative (Loadmaster) and/or the tanker Master.
- In the event that pilot/Loadmaster and tanker master consider it unsafe for visitors to remain on board the tanker, actions to remove visitors from the vessel and to a terminal muster point will be advised to the visitors, escort arranged, and security notified.
- Pilots, Loadmasters, ship's crew or visitors who are in transit through the terminal should proceed to, and report at, the nearest designated muster point and remain there as instructed.

Location of Emergency Muster Points:

- Remain at Muster on board the tanker (as per above).
- Wherever there is a green flag indicating Muster Point.
- At Pluto the nearest Muster Point is the FAR at the jetty carpark.

In the event of unavailability of the loading jetty or gangway for disembarkation of tanker personnel and visitors, ship's lifeboats or the offside accommodation ladder may be utilised to remove personnel from the tanker. This will be conducted only in exceptional circumstances and will be covered by the tanker's muster and emergency evacuation procedures.

2.8.2 Stores

Due to vehicle access restrictions and jetty configuration, only storing of hand-carried items is allowed. A reasonable quantity of goods which can be hand carried down the jetty is considered to be a single pallet which can be broken down and hand carried across the gangway.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 16 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

Under certain circumstances stores/mechanical spares can be arranged, by vessel agent, for delivery by boat. Terminal permission is required, delivery times are restricted, and cargo operations cannot be compromised by this operation. If permission is not granted, stores can be delivered at inner anchorage or outer anchorage by boat arranged by agent.

Tankers visiting the Pluto terminal can take stores from stores boats on the outboard side while alongside, provided that the following criteria are met:

1. The storing operation must not compromise the loading schedule of the tanker. Storing will be permitted from time of 'all fast alongside' until the tanker is ready to commence arm cooldown (LNG vessels. If storing is not completed within this time frame, the storing will be suspended until completion of loading (loading arms 'liquid free in the case of LNG vessels). The alternative is to complete stores at the outer anchorages prior to/post pilot embarkation/disembarkation.
2. Small vessels and workboats used for alongside storing at any Woodside operated terminal must be compliant and current with Woodside Marine Assurance vessel vetting process. No other third-party vessels will be permitted.
3. The tanker and workboat must comply with all other relevant safety, security and environmental regulations of the terminal, the port authority, and the respective vessel's Safety Management System (SMS).
4. The tanker and workboat must comply with all other relevant safety, security and environmental regulations of both the terminal, the port authority and the respective vessel's Safety Management System (SMS).
5. No liability or protest will be accepted on behalf of the terminal operator or Woodside Marine for restrictions, damages, incidents, or other form of loss arising from the storing operation alongside.

2.8.3 Engine Repairs

No engine immobilisation is allowed alongside the berth. With the Harbour Master's approval, limited repairs may be allowed at the anchorage. It is unlikely that approval will be given during the cyclone season (November to April).

2.8.4 Fresh Water

Not available.

2.8.5 Bunkers

Not available.

2.8.6 Liquid Nitrogen

Not available.

2.8.7 Gangway

A shore gangway is provided on the jetty. Ship's personnel are required to assist in this operation with respect to the placement of the gangway.

Masters of tankers should be made aware that the shore gangway is to be considered as a ladder rather than a stairway. Arrangements must be made to ensure that the safety of personnel is not compromised if the gangway is used in the transfer of stores or crew's baggage. Refer APPENDIX F Jetty Ladder Arrangement on Gangway.

2.8.8 Lifeboat Drills

While it is recognised that there may be a need to conduct lifeboat drills, for reasons of Terminal safety and security it is not permitted to put lifeboats into the water while alongside the jetty.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 17 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

2.8.9 Tanker Emergency Equipment Testing

Lifeboat engines, emergency fire pumps, and emergency generators are able to be tested to allow for compliance with Port State Control requirements. These tests should be planned to occur before or after any hydrocarbon transfer, to minimise any impact to the ship's loading schedule.

2.8.10 Australian Government Requirements

Prior to arrival at the Terminal, the Master must ensure that the vessel meets all Australian government requirements, including compliance with the *Australian Biosecurity Act 2015* and the Department of Agriculture, Water and the Environment [Australian Ballast Water Management Requirements](#). More information may be sought from approved Australian agents.

Pratique requirements must be confirmed by approved Australian Agents, including any special customs and immigration requirements. Pratique requirements must be met/complied with before a vessel visits the terminal.

2.8.11 Ballast Water Discharge Management

All arriving Tankers at Woodside Terminal must comply with the *Australian Biosecurity Act 2015* requirements for ballast water management for vessels arriving into Australian Economic Exclusive Zone (EEZ). This includes compliance with compulsory exchange of ballast water prior to arrival into Australian waters for those vessels not fitted with a Class Approved and operational Ballast Water Treatment System (BWTS). Those vessels fitted with a Class approved BWTS will have submitted a copy of the Ballast Water Management Certificates as evidence, as part of the Woodside Assurance Process.

Note: Discharge of ballast tank sediment is an offence in Australian Waters. A tanker may use ballast eduction to remove residual ballast water to an acceptable level provided its use will not result in the increased risk of discharge of ballast tank sediment.

Refer to the Department of Agriculture, Water and the Environment [Australian Ballast Water Management Requirements](#) for more information.

2.8.12 Discharge of Open Loop Exhaust Gas Cleaning Systems

Pluto LNG Terminal is located in an environmentally sensitive area and as such the discharge of closed loop wash water is not permitted at the terminal. Refer to [AMSA Marine Notice 2/2021-Requirements for the use of exhaust gas cleaning systems Australian Waters and Reporting to ASMSA](#) for further information.

3. Communications

The following contact information applies to the Pluto Terminal:

Email: pilotloadingmaster@woodside.com.au
 Telephone: (08) 9158 7153 / 7154 / 7159 / 7076
 Facsimile: (08) 9144 1404

3.1 Communications Plan Dampier

- Pilbara Ports Authority
- The Dampier VTS tower is manned 24 hours a day. Routine operational communications, such as Pilot on board notification, intended movements, and planned routes or clarification between vessels are to be communicated directly from each vessel via the working channel.
- Any port-related safety issues should be communicated directly to “Dampier VTS”, who are required to respond immediately.
- VHF Channel 11 Calling
- VHF Channel 11 Working
- Woodside Radio
- VHF Channel 82 Working (Tugs, Pilot and Tanker)
- Pilotage (Pluto Terminal)
- UHF Channel 1 (Pilot Channel)
- Tug Standby Channel
- VHF 82 and PABX (In addition to the tug's mobile phone as advised by the Pilot)
- Port Emergency Frequency
- VHF Channel 79
- Cargo Loading
- Dedicated UHF LNG and Condensate loading Channels

3.1.1 Pre-Arrival Communication

To assist in Terminal planning and to satisfy Port Regulations, the following pre-arrival messages (Section 3.1.2) are to be sent to the Tanker's Agent as detailed. The Agents have instructions regarding the distribution of messages.

Prior to a Tanker's arrival at a Woodside Facility the relevant Terminal Conditions will be sent to the tanker's Master, along with the Pre-Arrival Information (72 hours before the scheduled Pilot Boarding time). The Tanker's Master is to sign and return the Terminal Conditions to the Pilot Loading master in-box (pilotloadingmaster@woodside.com.au) at least 24 hours prior to the scheduled Pilot boarding time. The acknowledgement of Terminal conditions must be met with no comments/restrictions and/or limitations. (in short it must be a clean acknowledgement).

Failure to do so may result in delays to berthing and loading the tanker.

3.1.2 Tanker Pre-Arrival Messages

The following information is required by the Terminal and is to be sent to the Tanker's Agent by all tankers using the facility.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 19 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

1. On departure from last port of call (in any event no less than five days prior to arrival):

- Answer Pluto Questionnaire (refer to Section 3.2 for LNG tankers and 3.3 for Condensate tankers).

2. Seven days prior to arrival:

- Advise ETA and Arrival Draught Dampier.

3. Three days prior to arrival:

- Advise ETA.

4. Two days prior to Arrival:

- Advise ETA, Arrival and Departure Draughts.
- Confirm all cargo systems operational.

Note: Any changes in ETA of more than 6 hours after the 7 Day ETA should be immediately notified.

5. 24 hours prior to arrival:

- Confirm ETA.

Note: Tanker Masters are requested to send the 24 hour ETA and any changes of more than one hour within 24 hours of arrival to the Pilot direct in addition to the Agent. Masters must also consult their Charterers' Instructions in this regard.

The Tanker's Agent is to forward the information to the Pilot, Shipping Office & Offtake Coordinator.

Email: pilotloadingmaster@woodside.com.au

Telephone: +61 8 9158 7153 / 7154 / 7159 / 7076 / 7110

Emails: ??shippingofficeplant@woodside.com.au
Pluto_LNG_Offtake@woodside.com.au

3.1.3 Arrival Port of Dampier Limits

- All vessels within VHF range of the Port of Dampier are required to monitor VHF channels 16 and 11 for information regarding the movement of other vessels arriving at, or departing from the port.
- Two hours prior to arriving at port limits vessels must contact Dampier Port Communications and advise ETA at port limits and any other relevant information such as intention to anchor, ship's security level, expected time of Pilot boarding, etc.
- The Pilot will contact the vessel one hour prior to the scheduled Pilot boarding via VHF channel 11.
- There is a recommended fairway in use to the north of the port and all vessels are encouraged to use this fairway. See APPENDIX B.

3.2 Pluto Terminal Pre-Arrival Questionnaire (LNG Carriers)

Ship's agent to provide electronic copy of 72 Hour Pre-Arrival Questionnaire. Refer to APPENDIX Q for example questionnaire for LNG carriers.

If, at any stage of the ballast passage, it becomes apparent that the vessel may not be able to meet the ETA as instructed by the Charterer, Woodside Pilots must be informed as soon as possible, so that any exposure to tank-tops can be evaluated.

If the vessel is unable to comply with the requirements of the applicable Charter Party for arrival tank temperatures, Woodside Pilots must be advised as soon as possible. For example, on Moss vessels if any of the arrival tank temperatures will be warmer than **-110 °C**, and on Membrane vessels if any of the arrival tank bottom temperatures is warmer than **-130 °C**, Woodside Pilots must be informed

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 20 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

as soon as possible so that any exposure to tank-tops can be evaluated. Arrival Cargo Tank pressures should be controlled to be targeted at less than 14 kPag, but ideally around 10 – 11 kPag if possible.

The Pilots' Office must be advised of any problems associated with cargo systems, navigation equipment, moorings, etc. as early as possible, to allow for contingencies to be developed in order to avoid delays to LNG Tanker Schedules.

3.2.1 Sequence of Messages

1. On departure from the discharge (or repair) port:

- Ship's name
- Date and time of FAOP from their discharge Port
- Date and time of arrival (ETA) at the Pilot boarding point in Dampier

2. Seven days prior to arrival:

- Date and time of arrival (ETA) at the Pilot boarding point in Dampier
- Estimated tank temperatures on arrival and tank cool down period required
- Expected arrival draft
- Earliest possible ETA Dampier

3. Five days prior to arrival:

- Date and time of arrival (ETA) at the Pilot boarding point in Dampier
- Estimated tank temperatures on arrival and tank cool down period required
- Earliest possible ETA Dampier

4. Three days prior to arrival:

- Ship's agent to provide electronic copy of 72 Hour Pre-Arrival Questionnaire. Refer to APPENDIX Q and APPENDIX R for examples of questionnaires for LNG and Condensate vessels.

5. Two days prior to arrival:

- Date and time of arrival at the Pilot boarding point in Dampier
- Estimated quantity of LNG on board on arrival
- Volume of LNG cargo to load
- Any requirements which could extend the vessel's stay in port beyond that required to load the cargo

6. One day prior to arrival:

- Ship's name
- Date and time of arrival at the Pilot boarding point in Dampier
- Estimated tank temperatures and cooldown period required
 - Any changes of more than one hour in the ETA after the 24 hour ETA should be immediately copied directly to the Pilot as well as the ship's Agent.
 - The Weather forecast for Mermaid Sound will be sent to the vessel approximately 24 hours prior to arrival.

7. Arrival at Port of Dampier limits:

- Notice of readiness (NOR) should be tendered at the time the Pilot boards. If the vessel has arrived off the port at the time instructed by the Charterer and is not required by the Terminal to proceed directly to the berth, the time that the vessel anchors at the outer anchorage can be submitted as NOR. NOR acceptances will be stamped for "Receipt Only" by the Pilot at the time of Pilot boarding. NOR will be noted on the Pilot's Port Time Sheet.

3.3 Pluto Terminal Pre-Arrival Questionnaire (Condensate Tankers)

Ship's agent to provide electronic copy of 72 Hour Pre-Arrival Questionnaire. Refer to APPENDIX R for example questionnaire for Condensate tankers.

The Pre-Arrival Questionnaire must be completed by all condensate tankers on departure from the last port of call (in any event, to be received at least five days prior to arrival.).

3.4 Port Health

Radio Pratique is in force for the Port of Dampier. Vessels should send a Radio Pratique message to their Agent not more than 48 hours or less than 24 hours before arrival.

3.4.1 Quarantine Anchorage

Should Radio Pratique not be granted, the Harbour Master will advise an anchorage position, if the vessel is not berthing on arrival.

3.5 Weather Reports

While at anchor, vessels should monitor weather reports. Urgent reports will be passed on request to the vessel by Dampier Port Communications (VHF 16 - 11). While alongside, reports of an urgent nature will be passed to the vessel via the Pilot.

3.6 Communication Terminology

The communication terminology in Table 2 applies to all ship/shore communications.

The terminology is intended to ensure uniformity in calling and important message relays such as loading rates, etc.

The Pilot will ensure the Terminal CCR has the correct name of Tanker when making first contact.

Table 2: Communication Terminology

Message	Terminology
Tanker calling the Terminal CCR	Terminal/Terminal/"Vessel Name"
Pilot calling the Mooring Party	Jetty/Jetty/Pilot
Tanker calling the Jetty Operator	Jetty/Jetty/"Vessel Name"
Terminal CCR calling the Tanker	"Vessel Name"/"Vessel Name"/Terminal
Mooring Party calling the Pilot	Pilot/Pilot/Jetty
Jetty Operator calling the Tanker	"Vessel Name"/"Vessel Name"/Jetty

All loading rates will be in cubic metres per hour at 15 degrees Celsius.

Unless otherwise specifically stated, all pressures will be in kPa gauge.

4. Ship Compatibility and Assurance

All vessels scheduled to load at Pluto Terminal will be subject to a compatibility and assurance approval process which, if successful, will approve the vessel for a single, or multiple, terminal visits. The compatibility and assurance process will review the suitability of the vessel prior to arrival in terms of management capability and performance and the physical attributes of the ship against the infrastructure of the terminal. Aspects under consideration will include, but are not limited to, the following:

- vessel size and displacement
- compatibility with the jetty fender/mooring systems
- arrival and departure draft
- compatibility with gangway access, marine loading arms and emergency shutdown systems
- total windage, vessel manoeuvring characteristics and bridge visibility from the conning position
- suitability of towage fittings
- operator history
- Class or flag state restrictions.

Terminal approval may be withdrawn should a vessel fail to meet the expectations of the terminal.

4.1 Sanctions Assessment Procedure

International and Australian Sanctions may impact the ability of operator, lifting parties, and others to undertake or participate in product offtake activities at Woodside operated facilities. For the purpose of assisting Operator to comply with these requirements only, Marine Assurance undertakes a process (based on the information available to Marine Assurance) to assess whether any sanctions exist against a vessel or relevant person and, in some circumstances, Operator may require additional information or explanation from the relevant lifting party. The Sanctions Assessment Procedure (refer to APPENDIX S) prescribes the form in which this further information or explanation may be sought (i.e. with completion of a pro-forma declaration). Lifting parties should also undertake their own process to ensure they comply with any International and Australian Sanctions that may apply to their role in respect to product offtake activities at Woodside operated facilities.

Operator undertakes to give prior notice in writing of the requirement for a declaration to be completed by the lifting party (this will be driven by the Marine Assurance team's checks in respect of a vessel) and in turn requires that any change in circumstances after submission of the declaration be communicated by re-submission of a new declaration.

Operator may withhold, suspend, or terminate provision of marine services in support of product offtake (including pilotage) and require removal of any vessel from a berth, taking into account responses in the declaration (or re-submitted declaration) or Operator's own and ongoing sanctions assessments.

5. Berthing Arrangements

5.1 Pilotage

Pilotage is provided by Woodside Marine Operations. Pre-arrival information will be forwarded to vessels by the Pilots several days prior to their arrival in Dampier.

Towage is provided by Riverwijs.

5.2 Pilotage Requirements

Pilotage is compulsory for all tankers utilising the Pluto Terminal.

The Pilot will board the tanker at a position approximately 1.5 Nm NE of the Sea Buoy at pilot boarding ground C. For tankers with an approved helideck, the Pilot may board by helicopter using pilot boarding ground A. This will be confirmed by pre-arrival messages from the Pilots prior to the vessels arrival.

5.2.1 Pilot Boarding Requirements

Personnel transfer is a high-risk operation and Woodside expects strict adherence to the relevant International Instruments, including Resolution A.1045(27), SOLAS V23 (Section 7) and the IMO/IMPA Pilot Ladder Poster (refer to APPENDIX P).

Woodside does **not** accept any pilot ladder arrangements of a trapdoor design for the transition between the rope ladder and combination gangway.

Specifically, a responsible officer **must** inspect the pilot boarding arrangements and confirm the ladders are clean, of sound construction, are correctly rigged in accordance with the legislative instruments and as directed by the Pilot (e.g. height, manropes). Further a deck officer **must** supervise the personnel transfer from the upper deck.

All Pilot Ladders used to board or disembark a ship must:

- be constructed and rigged in accordance with SOLAS including;
 - o independently lashed to the rated strong points on the upper deck (**NOT** handrails),
 - o ladder and gangway secured against the side of the vessels hull,
 - o ladder winch reel back up bottle screws (or similar) attached
- have a certificate stating the ladder has been constructed to comply with SOLAS and/or ISO 799
- be no more than 30 months old (from date of manufacture).

Pilot ladder ancillary equipment including the manropes, independent upper deck ladder lashings, and shipside lashings are to be no more than 30 months old (from date of manufacture).

Ensure corrosion induced wear in stanchion fittings, collapsible side rails on gangways and their platforms does not result in unstable hand or foot holds.

The bottom of the ladder should be positioned two metres above water level with manropes available if required by the Pilot (SOLAS 7.1.1).

A suitable lee must be provided for embarkation of personnel and equipment.

5.2.2 Terminal Representative

The Pilot acts as both Pilot and Terminal Representative (Loadmaster), on all tankers using the Terminal. The Pilot is responsible to the Pluto Terminal for ensuring that its requirements regarding the safe mooring and loading of the tanker are observed. The Pilot has a responsibility to the Harbour Master for ensuring the requirements of the Dampier Port Authority Regulations are observed. A Pilot/Loadmaster remains on board the vessel throughout the loading operations. Tankers are required to provide suitable accommodation for the Pilot/Loadmaster.

The Pilot is required to ensure that the good liaison and communications, essential for a safe and efficient operation, are maintained between the tanker's staff and the Terminal. The Pilot is to ensure that any concerns, comments or advice from either the Tanker's Master and Officers or the Terminal are followed through in an appropriate manner.

It is incumbent on the Master to ensure full cooperation with the Pilot to ensure a safe and efficient operation.

5.2.3 Channel Transit

Tankers, unless for reasons of safety or as specified by the Harbour Master, should remain within the designated Pluto Terminal Shipping Channel when proceeding to or from the Terminal.

At all times while manoeuvring, the vessel should monitor VHF Channels 11 and 82 in addition to the Terminal's UHF Pilotage Channel.

5.2.4 Navicom Berthing Aid

As part of a service agreement, the Pilot will carry a portable DGPS unit. This equipment is used as a berthing aid including jetty approach speeds.

5.3 Transit Criteria and Weather Limitations

Due to the sustained wind patterns that affect the Port, it may be necessary, where this is possible, for the Pilot to request a tanker to increase her arrival ballast draught.

The actual decision to berth a vessel depends on many factors, which can only be assessed by the Pilot and Master in conjunction. In any event, no vessel will be berthed in wind speeds in excess of 30 knots.

High windage LNG vessels are wind limited as defined by their cargo capacity, allocated jetty and whether the vessel in transit to or from of the berth. Refer to APPENDIX L Pluto Transit and Tug Use Criteria Table.

Depending on the circumstances, winds of less than 30 knots may be restrictive to a tanker berthing operation. The direction and speed of any tidal or induced current will be taken into account when berthing decisions are made.

Prior to loading operations and any inward or outward transits, the Pilot will, if required, confirm the actual sea state against the forecast to ensure the planned UKC is correct and can be maintained.

Requirements of the Terminal's Cyclone Procedures take precedence over these criteria.

5.3.1 Inward Transits

During the inward transit and prior to committing a vessel to entering the final leg of the channel, the Pilot must ensure that Terminal staff will be available to commence mooring the ship at the time the vessel arrives alongside.

As part of the inward procedure, the Terminal CCR (control room) must be contacted prior to the turn at Number HP8 beacon and provided with an estimated time the vessel will be alongside. If the Terminal is unable to provide a mooring crew at the scheduled time, the inward transit must be suspended until confirmation is received that a mooring crew will be available.

5.3.2 Outward Transits

When sea states exceed or are predicted to exceed the criteria for a reef crossing, all vessels must depart via the Alternative Departure Channel.

The deviation to the east is necessary to avoid a shallow patch east of Number 6 Beacon and must always be observed when transiting the Alternative Channel.

The following track must be observed when the Alternative Departure Channel is used:

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 25 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

1. When clear of HP6 beacon, alter course to starboard to bring Legendre light dead ahead on about 035° T. Pass to the north of Woodside No. 7 Beacon.
2. Continue on this course until due east of Courtney Head Lt. Then alter course to port to a course of about 326° T.
3. This course is then adjusted in order to make the charted recommended track between Courtney Shoal Buoy and Hamersley No. 3 Port hand buoy.
4. Continue outwards through the Hamersley Channel, least depth 20 m.

From time to time, Alternative Departure Channel transits will be undertaken in fine weather, to maintain pilot familiarisation.

5.4 Transit Restrictions for Vessel (LNG/Condensate)

Transit restrictions are detailed in APPENDIX L which defines operational parameters for maximum wind and number of tugs for berthing and departures at Pluto Terminal. Vessel Wind Limits are based on vessel type, allocated jetty, size, displacement, UKC and windage and are determined during the terminal compatibility process.

5.5 Transit Speeds

Transit speeds for the vessels are based on the model and computed response characteristics of the vessels with respect to squat and vertical motion as well as the other parameters used in determining a minimal Under Keel Clearance for the entire tidal range.

Simulation results have shown that speeds in excess of those in Table 3 and Table 4 degrade the ability to effectively respond to a loss of steering or engine failure.

Should maximum sectional speeds be exceeded, a Marine Event Report will be generated for analysis purposes.

Table 3: Maximum Transit Speed for Arrival Tankers (UKC ≥ 2.0m)

Passage Section Inwards	Description	Max. Sectional Speed
Approach Track	Sea Buoy to P3 Buoy	12 knots
Pluto Bend	P3 Buoy to P12 Buoy	10 knots
PGP Inner Channel	P12 Buoy to P16 Buoy	8 knots
PGP Swing Basin	P16 Buoy to Berth	5.5 knots

*Max Sectional Speed in the vicinity of No P10 to No P11 can be exceed by ½ knot if required by the prevailing environmental conditions.

Table 4: Maximum Transit Speed for Departure Tankers (UKC ≥ 1.5)

Passage Section Outwards	Description	Max. Sectional Speed
PGP Swing Basins	Berth to P16 Buoy	5.5 knots
PGP Inner Channel	P16 Buoy to No. P12 Buoy	8 knots
Pluto Bend	P12 Buoy to P3 Buoy	10 knots
Approach Track	P3 Buoy to Sea Buoy	12 knots

5.6 Tanker Draughts

5.6.1 Inwards Draughts – LNG Tankers

In ballast condition LNG Tankers operate at draughts which are within normal port operating parameters. Reference is made to the maximum berthing displacement and weather criteria for UKCs.

5.6.2 Inwards Draughts – Condensate Tankers

To ensure 24 hour non-tidal restricted berthing, tankers should arrive with a draught of 10.0 m or less. Reference is made to the maximum berthing displacement and weather criteria for UKCs.

5.6.3 Maximum Draughts Alongside

A minimum under keel clearance of one metre must be maintained for vessels alongside.

- Maximum Permitted Draughts.
- LNG and condensate: 12.5 m + low water tide height.

5.7 Towage Services

All tankers berthing at the Pluto Terminal will utilise the services of the tugs provided by Riverwijs. This service is provided under the terms and conditions of the UK Standard Towage Agreement (1974). Towage Services will only be provided upon acknowledgement of this condition. Riverwijs provide towage service to the NWSJV (North West Shelf Joint Venture) and WBPL (Woodside Burrup Pty Ltd).

5.7.1 Integrated Tug Fleet

Currently, the Integrated Tug Fleet consists of the following capacity:

- 4 x 65 tonne bollard pull tugs NWSJV contracted.
- 2 x 75 tonne bollard pull tugs WBPL contracted.

5.7.2 Tug Requirements

The guidelines for tug usage allows for a certain amount of flexibility in the system and are considered more appropriate than specific rules, which tend to be conservative. To ensure that all contingencies are allowed for, the Pilot may consider an increase in numbers is required prior to each operation.

For departure, all aspects must be assessed. If the Pilot or Master considers an increase in numbers is appropriate, at least six hours' notice (under normal operations) must be given to Riverwijs, either directly to the Riverwijs Dampier Fleet Manager, or via the standby Tug Master.

Due to the requirement to periodically dry dock the tugs as well as the possibility of mechanical breakdown, there will be occasions when only five tugs will be available. The Pilot and Master will consider all aspects of the operation if a three tug operation is called for. Where a delay for more favourable conditions is required, this course of action will take precedence over all other considerations.

Should a situation arise in which the usual number of tugs required is not available, the following controls must be put in place as a minimum:

- The minimum number of tugs required to safely berth an LNG Tanker is three tugs.
- To berth an LNG tanker with only three tugs the tanker must have an adequate and operational bow thruster.

- The maximum wind limit for berthing tankers with only three tugs is less than 20 knots and may be reduced further subject to the tankers windage area. Effective windage of less than 7500 m² is limited to a maximum wind speed of 20 knots, and effective windage greater than 7500 m² is limited to an average wind speed less than 15 kts.

5.7.2.1 LNG Tanker – Summary of General Tug Requirements

Refer to table in APPENDIX L.

5.7.3 Tugs on Station

For inbound tankers, one escort tug will meet the tanker at P3 beacon and make fast for escort and the remainder of the allocated tugs at P9 and P10. For the outbound tankers, the tugs will normally escort the tanker to P8 beacon. One tug will be secured on the centre lead out until at least this point.

For inbound tankers, one tug will meet the tanker at Pluto P3 beacon and make fast aft. Two forward (P&S shoulder) tugs will meet the inbound tanker before passing beacon Pluto P6 and escort until making fast as per the pilot's direction. The 4th (and if required 5th) tugs will meet the inbound tanker after passing beacon Pluto P10 and make fast as per the pilot's direction.

If conditions warrant, the Pilot may retain the tug escort to any point deemed appropriate.

5.7.4 Tug Configuration and Mooring

The placement of tugs will be dictated by the Pilot in relation to the manoeuvre and the weather.

All tugs will be made fast using tugs lines. When letting go, tug lines are to be lowered to the tug. Tug lines must **NOT** be dropped when they are being let go.

5.7.5 Standby Duties

As part of the Terminal safety requirements, one tug will remain on standby in the tug pens at the Karratha Base Supply Facility (KBSF) while a tanker is alongside any of the berths or facilities. If required, due to weather or for other reasons of safety as may be determined by the Pilot, this tug and/or additional tugs will take up a standby position either outside the mooring basin, or alongside the vessel as may be determined by the Pilot.

When one berth is occupied and there is a movement at the other terminal berth, the standby tug will be released by the Pilot on the moored vessel in sufficient time to attend the other movement. In the event of an emergency on the moored vessel, the Pilot will request the necessary assistance from the Pilot on the manoeuvring vessel.

5.8 Mooring Integrity

The Master is responsible for providing adequate mooring lines and ensuring that they are properly tended while the tanker is alongside.

The Master and Pilot must agree that the tanker is effectively moored prior to the commencement of cargo operations. The Pilot must inform the Master or his deputy if he has any concerns regarding the moorings, in particular with respect to moorings bearing an even strain.

Cargo operations should be stopped if there are concerns with regard to the mooring integrity and especially if the tanker does not take adequate measures to adjust the moorings in a way that keeps the ship in position alongside the jetty.

5.9 Mooring Tensions

All mooring hook loads are monitored in the Terminal CCR. In line with mooring requirements, all mooring lines should be pre-tensioned. Tensions on each hook will be relayed to the Pilot by the

Terminal CCR during the course of the mooring operation for the purpose of ensuring an even tension on all lines.

5.10 Mooring Requirements

All vessels moored at this terminal should conform to the requirements contained in the OCIMF Mooring Equipment Guidelines 4th Edition (MEG4), particularly with respect to Section 3, Mooring Forces and Environmental Criteria.

For LNG tankers, the mooring requirements will be assessed individually. Generally, these will be more conservative than for a condensate tanker of the equivalent size.

5.10.1 Condensate Tanker Minimum Requirements

1. All wires and ropes should be on winches. No ropes on bitts will be allowed.
2. All wires and HMPE ropes are to be fitted with suitable tail lines. No mixed moorings will be allowed.

Note: Vessels fitted with a complete mooring system of HMPE ropes of comparable MBL and characteristic to wires will be treated as a ship with all wire moorings with respect to Class A and B requirements. HMPE moorings are otherwise treated as synthetic moorings in relation to MBL requirements.

5.10.2 Condensate Tankers' Mooring Requirements

TANKER SIZE	WIRE	HMPE	LINES REQUIRED	
	MBL (tonne)	MBL (tonne)	Fore	Aft
90 – 150 (DWT x 1000 t)	80	89	2+2+2	2+2+2

MBL = Minimum Breaking Load

If a vessel does not comply with these mooring requirements, a mooring analysis may be required for acceptance to ensure mooring integrity.

5.10.3 Mooring Lines

The following are the requirements for all mooring lines:

- All mooring lines used by vessels are to be in good condition, with no joins (splices, knots, bends or shackles) in them.
- Mooring lines are to be kept tight and the ship kept firmly alongside and parallel to the fender line.
- During adjustment of mooring lines it is essential that the ship's position alongside with respect to the spotting line is maintained.
- Ship mooring lines are to be properly tended 24 hours per day by a competent person while a vessel is moored alongside.
- Regular checks are to be made to ensure lines have an even tension.
- The use of wire mooring tails is prohibited.
- Under no circumstances is wire line to be made fast to a bollard.
- Standing lines and lines to winch drums must be deployed symmetrically fore and aft.

6. Mooring Cautions

Swell -induced movement can cause very high mooring loads. The minimum mooring requirements have been determined based on mooring studies associated with the berths at Withnell Bay.

6.1 Running of Mooring Lines

Vessels will only be allowed to run one mooring line at a time even though a dual headed messenger line may be used. This will be advised and discussed during the Master Pilot exchange.

Refer to APPENDIX K Mooring Procedure for details of running of mooring lines.

- Each of the spring lines (forward and aft) is to be run by passing a heaving line to the outer end breasting dolphin, to which the jetty mooring crew will attach a messenger rope. The messenger rope will be retrieved onto the ship and attached to mooring line tail rope, about a metre from the shore side eye of the tail. In the case of spring lines, heaving lines should not be passed back to the shore by re-attaching them to the mooring or messenger lines, as they often foul during the deployment process. This fouling significantly increases hazard levels on the mooring dolphins.
- **The first breast line** at each end (forward and aft) will be retrieved onto the ship by a heaving line in a similar fashion to the retrieval of the spring lines.
- The ship's crew pass a heaving line to the outer end breasting dolphin to which the jetty mooring crew will attach a messenger rope, which is then taken to the poop deck. Heaving lines must remain attached to the messenger while running remaining mooring lines.
- **The second** breast line and all subsequent lines can be retrieved in the process outlined in APPENDIX K.
- The ship should never retrieve a messenger line, a heaving line, or a mooring line using the ship's winches while jetty crew are on the dolphin. Ship's crews are requested to check that the jetty mooring crew is standing well clear before retrieving any line using a winch. This is to avoid any potential for a parted line to recoil and strike members of the jetty crew. Delays to mooring operations will occur if this process is not followed.

6.2 Limiting Conditions Alongside

During periods of cyclonic activity, reference is to be made to the Cyclone Procedures, which may require the tanker to depart prior to the onset of operational limiting conditions affecting the berth.

6.3 Wind Restrictions

When winds of 35 knots (60 sec average) affect the berth, loading is to be stopped and arms disconnected. The standby tug(s) will be available for an immediate departure if necessary. Normally, in squall conditions the vessel will remain alongside. Refer to Section 11.6.2.2 for further information. The arms can be manoeuvred in wind speeds up to 50 knots. Maximum wind allowed for sailing is 30 knots, except in an emergency.

6.4 Electrical Storms

When there is electrical storm activity in the vicinity, loading operations are to be stopped.

6.5 Limiting Sea States

The berth is not an all-weather facility. Berth operability is defined by the limiting sea states (wave height to wave period H_s/T_p) for LNG and condensate tankers at the berth.

The ROWS system monitors sea states to warn of a possible trend toward the limits. The mooring loads are also alarmed for pre-set limits on tensions. The Pilot will carry on board a portable MEMS computer to monitor the system and warn the vessel if an alarm is triggered.

6.6 Operation of Vessels Main Engine

The vessel's main engine is not to be operated alongside at any time while the mooring dolphins are attended by personnel.

The main engine must remain in full standby mode and no changeover under normal operations made from bridge to ER control made until the mooring dolphins are vacated by personnel.

7. Safety Precautions

A Loadmaster is assigned to the tanker throughout the vessel's stay in port and will liaise between the ship and shore, particularly in the event of an emergency.

7.1 Cargo Handling Philosophy

The Master is responsible for the operation of the tanker, including the cargo handling operations. The Master is to ensure the ship's staff members who are delegated the responsibility of conducting or overseeing cargo operations and related duties are qualified and competent to do so. At all times, sufficient personnel should be available on board to keep an efficient deck and cargo watch. In general, the responsible officer should remain in the cargo control room in order to ensure that the ship/shore liaison is continuously maintained.

7.2 Ship/Shore Communications

ALL SHIP/SHORE MESSAGES MUST BE READ BACK TO ENSURE CONCISE COMMUNICATION. ONLY AGREED TERMINOLOGY MUST BE USED.

During critical periods of the operation, such as "start up" and "topping off" the Pilot will be in the tanker's CCR to monitor operations and will assist in communications where necessary. The tanker is to inform the Pilot of any circumstance that may affect normal loading operations.

7.2.1 VHF/UHF Radio Link

The standby tugs will maintain a continuous watch on VHF Channel 82. The Tanker CCR is required to continuously monitor this channel which is dedicated to the Terminal operation.

7.3 Emergency Documents

Before commencing operations, the Master or his deputy must ensure that copies of the following documents are placed ashore at the head of the gangway:

- Cargo Handling Plan.
- List of characteristics of cargo on board and to be loaded, together with position of stowage.
- Crew List.
- Vessel's General Arrangement Plan.
- Vessel's Fire Plan.

7.3.1 Ship/Shore Safety Check List

The Ship/Shore Safety Inspection will be conducted jointly by the Pilot on behalf of the Terminal and the Chief Officer, or his appointed representative, on behalf of the tanker. The Safety Checklist as contained in the "Port Document" will be completed and signed by the parties prior to the opening of the tanker's manifold valves. Repetitive checks will be carried out as necessary, but at least every 12 hours, and must be initialled with the time of the check to indicate continued compliance.

7.4 Vessel Readiness

The Master of the vessel should ensure that his vessel is securely moored alongside at all times. All mooring winches are to "out of gear and on the brake".

There must be sufficient crew members, with responsible officer supervision, on board at all times to deal with any emergency. At least one member of the duty watch must be visible, on deck, at all times.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 32 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

7.4.1 Main Engine Readiness

While alongside the Terminal, the tanker's main engines and related auxiliaries must be kept in a state of readiness such that the tanker can leave under her own power in an emergency.

7.4.2 Minor Shipboard Repairs

While alongside the Terminal, repairs and maintenance to tanker machinery and equipment must be limited to those items which do not impair the following:

- The fire detection or fire-fighting capability of the vessel.
- The safe and efficient handling of cargo.
- The propulsive power or manoeuvrability of the tanker.
- The safe operation and integrity of the mooring system.
- The safe operation of electrical equipment located in gas dangerous zones.

"HOT WORK" in non-approved areas and work on open decks or on the jetty head which involves hammering, chipping, or use of power tools is strictly prohibited.

7.5 Fire Prevention

Sources of ignition, inclusive of smoking, must be restricted to designated areas on board the tanker and ashore. Such areas must not have direct communication with hydrocarbon dangerous zones and be ventilated on the over pressurisation and/or total recirculation principal.

Smoking on board is only allowed in "public" rooms as agreed between the Pilot and the Master or his deputy.

Certified safe type permanent electrical equipment must be in good order and maintained and operated in such condition that its original certification is not jeopardised.

All portable electrical equipment, including hand held torches, radios and gas analysers, which are operated in gas dangerous zones, must be certified safe, by a recognised authority for use in the flammable atmosphere concerned. All equipment should be in such a condition and operated in such a manner that its original certification is not jeopardised.

All doors, portholes and openings from the outer deck to accommodation or machinery spaces (other than the pumproom) must be kept closed except for entry/exit purposes. All ventilators through which gas can enter must be closed and mechanical ventilation must be stopped if gas is being drawn into the system. Window type air conditioning units must not be used. Normal air conditioning or mechanical ventilation must be used in a mode that maintains a positive pressure sufficient to prevent the ingress of any hydrocarbon gas through doors, ports or hatches which are not gas tight or monitored by gas detectors.

All main radio equipment must be isolated and earthed while berthed at the Terminal.

Use of Satcom equipment utilising geostationary satellites is permitted but must be switched off in the event of emergency, release of gas or on the advice of the Pilot.

Mobile phones are not to be used outside the confines of the accommodation at any time.

During cargo handling operations, no vessel will be allowed alongside the tanker unless authorised by the Pilot and agreed by the Master.

7.6 Fire Fighting Equipment

7.6.1 Tanker

All fire fighting equipment must be in good working order. Portable equipment must be correctly positioned and ready for immediate use. The fire main is to be pressurised while the vessel is alongside.

The ship/shore international connection must be prominently identified with the connecting flange and bolts ready for immediate use on both tanker and shore.

Emergency towing wires are not required.

7.6.2 Terminal

Prior to the tanker's arrival, the Terminal will ensure that all fixed fire fighting installations are in good working order, portable equipment in position and all equipment ready for use.

7.6.3 Environmental Pollution

The Port of Dampier is located in an Environmentally Sensitive Locality as designated by the Government of Western Australia, Department of Fisheries and Wildlife. The ecosystem within the port is vital to the ecology of the area.

All safeguards must be taken to prevent pollution of the port. Without limitation, the following points must be observed while the tanker is within port limits. Masters must ensure that their crews are aware of the anti-pollution requirements of the port.

7.6.4 Avoidance of Pollution

- Any pollution by the tanker must be reported immediately to the Pilot/Loadmaster and Terminal CCR. Immediate steps to stop the cause and limit the extent must be taken and the tanker's oil spill emergency plan put into operation.
- Bunker transfers alongside the Terminal are prohibited except if required for hull stresses and trim purposes. Prior to any transfer, the approval of the Pilot is required. Any transfer must be adequately planned and sufficient personnel deployed to guard against accidental overflows and spills.
- No refuse, oily waste or other matter likely to cause pollution is to be jettisoned from the tanker.
- Bilges and other spaces likely to be contaminated with oil residue, etc., must not be pumped into the sea.
- Contaminated ballast must not be discharged into the sea.
- Loading arms must be drained before disconnecting. Drip trays are to be placed at manifolds to collect any drips or spillage. Suitable absorbent material should also be on hand.
- During operations, the scuppers of all vessels must be effectively plugged and no leakage or spillage on board is to be swept or allowed to leak overboard. ANY LEAKAGE OR SPILLAGE must be reported immediately to the Terminal Operator, who will initiate the Terminal Oil Spill Contingency Plan.
- When 'topping off', ensure that the loading rate is reduced in good time and that the Terminal is "standing by" to "stop loading" as required.
- NEVER rely on a "shore stop". It will not absolve the vessel from blame, or any clean up expense, if the cargo tanks overflow.

- Always ensure that the valves of a shut off tank are not leaking. Check the ullage of the “shut off” tank” shortly after the valve has been closed. When topping off the final tank, make sure that the loading rate is eased down and the shore personnel are on standby to shut off.
- All flanged joints required to connect loading arms to a vessel, e.g. reducing pieces/spools, must contain “full bolting”, using the largest possible bolts to fit the flange holes.
- All overboard discharge/sea valves part of, or connected to, the cargo oil system must be shut, lashed and sealed during the loading operations, to prevent any accidental discharge of oil via the pump room or engine room:
- Prior to commencing any loading operation, the Loadmaster must confirm with both the vessel and the surveyors that all overboard discharge valves on lines which could contain oil or oily fluid in the pumproom and engine room are closed and sealed.

7.7 Manifold Access

Normal port practice limits manifold access at all times when the loading arms are being manoeuvred and when product is being transferred through them.

Designated personnel, who are aware of the specific hazards around the manifold area, are permitted entry at all times for essential reasons associated with managing the cargo transfer operation and the connection and disconnection of the loading arms. Time spent at the manifold when the arms are filling or are full of liquid should be minimised under this requirement. This hazard and the management of it will be discussed specifically at the pre-load meeting on board the tanker prior to each cargo transfer.

Any purging activity performed by terminal or ship staff can lead to peak noise levels. All personal at manifold should be aware that a purge is about to occur, so they have the opportunity to fit hearing protection.

8. Services

8.1 Fuel

Bunker fuel or diesel fuel is not available at the Terminal.

8.2 Refuse

No garbage, rubbish, or refuse may be thrown overboard while the vessel is within the berth limits. The Master may make special arrangements with the Agent and Government Authorities for removal and disposal during an extended stay.

8.3 Fresh Water

Not available.

8.4 Stores and Provisions

Subject to prior approval, a small amount, one pallet, of hand carried items may be provided. For larger orders, Masters are recommended to cable their Agents giving seven days' notice of their requirements. Large quantities of ships stores cannot be loaded at the berth and boat/barge transportation to the anchorages will be required.

8.5 Repairs

Minor ship repair work can be arranged through the ship's Agent. No repairs or engine immobilisation may be undertaken at the berth.

8.6 Customs

A sub collector of Customs and staff are resident in the area.

8.7 Police

There are police stations in Dampier and Karratha.

8.8 Security

All personnel wishing to enter or leave Pluto Terminal facilities must be cleared through the plant security gates, where they will be checked against a crew or visitor list provided by the ship's Agent.

8.9 Air Communications

The area is served by frequent daily air services to Perth and other cities. The service operates from Karratha airport situated approximately 15 kilometres from the Terminal.

8.10 Medical Assistance

Doctors and dentists are available in Karratha and Dampier. A modern hospital is situated in Karratha. Very seriously ill patients can be transferred to Perth by the Royal Flying Doctor Service.

9. General

9.1 Responsibilities

9.1.1 Pilotage

Woodside Pilots are expected to ensure any pilotage operation undertaken within the Port of Dampier and at offshore facilities are carried out in accordance with the requirements of the Port Operations Sub Process, local procedures, standards, and instructions, and with due regard to good seamanship.

9.1.2 Terminal Representative/Loadmaster

Woodside Pilots acting as Loadmaster are expected to act as the Terminal Representative and ensure that any tanker conducting cargo operations carries out these activities in compliance with Port Operations Procedures, relevant Terminal handbooks and local facility procedures.

The Terminal Representative will:

- provide an emergency response focal point
- carry out joint safety rounds with the ship's crew
- co-ordinate the starting and finishing of cargo
- attend the vessel's cargo control room during critical activities
- co-ordinate with stakeholders the timings involved with the cargo operations, berthing and sailing of the vessel
- provide general liaison with the Terminal over cargo matters
- co-ordinate commercial issues between the ship and Terminal.

The Terminal Representative role is seen by many stakeholders as the focal point for the individual ship visit and thus the person to call for any issue with the vessel. However, while the Terminal Representative should endeavour to ensure a smooth ship's visit for all stakeholders, the Pilot is **not** expected to be on call to deal with the following:

- Ship Agent's communication with Master
- issues with the crew and access through the facility
- Ship's stores.

The Pilot should ensure that, once the cargo has settled down, ship's staff and the Terminal should call them only for safety and cargo critical issues, and not general ship-related activities. The co-ordination of commercial matters has the potential to interfere with the ability of the Pilot to get quality rest so as to adhere to the plan for managing the ship's visit. The Pilot should call for relief if commercial matters have disrupted the ship's visit plan in terms of the assigned Pilot's fatigue management.

Pilots are encouraged to switch off their mobile phone to rest, and leave instructions for the ship's crew to call them if required for Loadmaster responsibilities.

The Senior Pilot is encourage to divert his mobile phone to pilots not currently assigned a tanker, so that they can get quality rest breaks.

10. Contacts

10.1 Woodside Contacts

Woodside Energy Limited

PO Box 517

Karratha WA 6714

Telephone (61) 8 9183 8118

Main Gate Radio Room (61) 8 9158 8171

Woodside Marine Pilotage Operations

Telephone (61) 8 9158 7076

Facsimile (61) 8 9144 1404

Email pilotloadingmaster@woodside.com.au

10.2 Pilbara Ports Operations

Harbour Master

Pilbara Ports Authority

PO Box 285

Dampier WA 6713

Telephone (61) 8 9158 6562 (Harbour Master)

Facsimile (61) 8 9159 6558

Port Communications (VTS)

Telephone (61) 8 9158 6556

10.3 Shipping Agencies

GAC Australia, Dampier Office

Unit 6, 18 Hedland Place

Karratha, WA 6714 Australia

Tel +61 8 9183 8627

Fax +61 8 9185 1251

Email shipping.dampier@gac.com

Web www.gac.com

Inchcape Shipping Services Pty Ltd

Unit 7, Lot 6/20 Hedland Place

2nd Floor Building Society House

Karratha WA 6714 Australia

Telephone (61) 8 9185 6319

Facsimile (61) 8 9185 2971

Email dampier@iss-shipping.com

Five Star Bulk Shipping Pty Ltd

PO Box 11

Karratha WA 6714 Australia

Tel +61-8-91838627

Fax +61-8-91851251

Email dampier@vstarcosco.com.au

Monson Shipping Agency Pty Ltd

185/26 Sharpe Ave

(PO BOX 939)

Pegs Creek WA 6714 Australia

Tel: +61 8 9197 2555

Fax: +61 8 6270 4450

Email: karratha@monson.com.au

Wilhelmsen Ships Service Pty Ltd

Wilhelmsen Ships Service

ABN: 61 000 740 714

Unit 4 and 5 Balmoral Centre

Balmoral Road

PO Box 1005

Karratha WA 6714 AUSTRALIA

Ph: + 61 8 9144 2311

Fax: + 61 8 9144 2008

Email WSS.dampier@wilhelmsen.com

APPROVED

11. LNG Loading Facilities

11.1 LNG Carrier Particulars

As a general condition for all LNG Carriers at the Terminal, it is required that the vessel complies with the following:

1. Equipment

All equipment must be in a sound state of repair, with main engines, mooring winches and windlasses all in proper working order. Mooring equipment, including mooring lines, must be in good condition.
- a. Certification

All LNG carriers must be in possession of a complete and valid set of safety certificates. These include:

 - i. Certificate of Fitness for the carriage of liquefied gases in bulk
 - ii. Load Line Certificate
 - iii. Safety Construction Certificate
 - iv. Safety Radio Certificate
 - v. Cargo Equipment Register
 - vi. Safety Equipment Certificate
 - vii. Cargo Gear Certificates
 - viii. ISM Safety Management Certificate
 - ix. ISSC.
- b. Vessels are to be in all respects "In Class".

11.2 LNG Communication System

The following communication systems must be utilised for operational requirements:

- Terminal-supplied UHF (portable) link for cargo operations between the Tanker and Terminal CCR.
- A VHF link as backup to the UHF.
- Hot line telephone direct to Terminal CCR via the fibre optic link, or electrical link in the case of a condensate vessel.

The Terminal will supply intrinsically safe portable handsets when required.

11.3 LNG Venting

Boil off gas must not be vented to atmosphere under normal cargo loading operations.

In the event of vapour return compressors being inoperative due to mechanical breakdown, the Terminal CCR is to be informed and loading stopped immediately. Where this condition makes it imperative to vent boil-off gas to atmosphere, every endeavour must be made to heat the gas prior to its discharge to ensure its relative density is as low as possible.

The burning of gas for engine room requirements is permitted where commercial and statutory requirements are followed.

11.4 LNG Tanker ESD System

Cargo operations are safeguarded by an Emergency Shutdown (ESD) system. This system operates via a fibre optic link and is backed up by an electric or pneumatic system in case of breakdown.

11.5 Pre-Loading Operations

11.5.1 Fitting of Gangway

On completion of mooring, the Pilot will advise the Terminal Operator that the tanker is secure and the gangway can be lifted aboard.

The gangway is hydraulically operated and sits on the tanker's strengthened rail. A responsible member of the Tanker's staff, nominated by the Master, should be standing by on board to assist in the placement of the gangway. The Terminal Operator and tanker's staff member are to inspect and agree that the gangway and associated safety equipment are in place and secured prior to allowing personnel access to the gangway.

11.5.2 Pre-Loading Meeting

Prior to the commencement of liquid loading arm connection, a pre-load meeting must take place. The meeting will include the tanker's Chief Officer, the Pilot, and a suitably briefed representative of the LNG Plant.

The meeting agenda will include the items as listed in the LNG Tanker Port Document LNG Loading Plan and the shore interface elements of the Ship Shore Safety Checklist. The final quantity to be loaded will be noted, with instruction coming from the latest LNG Information Sheet or LNG Offtake Coordinator (OTC).

The objective is to ensure operations are conducted in a safe, environmentally friendly and efficient manner.

11.6 Configuration and Limits of Loading Arms

11.6.1 QC/DC

The loading arms are equipped with a quick connect/disconnect coupler.

11.6.2 Configuration

The Terminal is fitted with four loading arms.

- Two outer arms A and D are LNG Loading.
- Two inner arms B and C are LNG loading and Vapour Return arms (A is closest to shore).

The normal loading arm configuration will be either arms:

- A (L) / B (V) / C (L), or
- B (L) / C (V) / D (L).

If, due to maintenance considerations, either B or C arms are unavailable, the two outer arms can be used (A and D). The ESD envelope will be reduced due to this alignment. The position of the "Spotting Line" will be determined by the Terminal and is dependent on the vapour return arm (B or C) to be used.

Should an LNG loading arm become inoperable during loading, (e.g. due to a valve malfunction or leak), an early decision as to whether to change the line-up could save considerable time. Such a malfunction is likely to be noticed at the start of loading, although a significant leak may occur at any time during loading.

It is possible to continue to load using one arm, with a maximum rate of 5,600 m³/hr for the whole or balance of loading.

11.6.2.1 Loading Arm Limits

See APPENDIX G and APPENDIX H for information on loading arm limits.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 41 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

11.6.2.2 Weather Limitations

The Loading Arms are designed to be manoeuvred in wind speeds of up to 50 knots. Loading should be stopped and arms disconnected, parked, and storm/cyclone locked in good time if wind speeds in excess of 35 knots are anticipated.

11.6.2.3 Fitting of Short Distance Pieces and Strainers to Ship's Loading and Vapour Lines

The vessel must present at the Pluto Terminal with its "short distance pieces" (refer to APPENDIX M) fitted to its liquid loading and vapour return manifolds as nominated by the Terminal. A 60 mesh cargo manifold loading strainer (or dual flow strainer) is to be installed within each of the nominated loading lines and a strainer in the range of 20 to 60 mesh (or dual flow strainer) is to be installed within the nominated vapour return line. For avoidance of doubt, this applies every time the vessel connects to carry out either a gas up, cooldown, or loading operation at the Pluto Terminal.

Note: Where a strainer is found to be damaged prior to arm connection, the loading is to be delayed until the strainer is replaced.

11.6.2.4 Connection of Loading Arms

While the loadings arms are unattached and being manoeuvred in the manifold area, all ship's staff are to remain clear of the arm by a radius of 1.5 m, to avoid contact and the risk of crushing injury. Permission to enter this radius including to approach ships presentation flange must be granted by the shore personnel.

The vapour return will be connected first, followed by the liquid arms.

The tanker will be responsible for arriving with the "short distance spool pieces" (if so equipped) and loading strainers in place and removing the tanker's manifold blank flanges.

Following connection for all loadings, including gas up and tank cooldowns, the loading arms will be pressure tested to 600 kPa and the vapour line to 200 kPa gauge and inerted to <1% oxygen.

The Loadmaster will be satisfied that the above tests have been satisfactorily completed before any tanker ESD valves can be opened.

11.6.3 Water Spray System

Prior to opening the tanker's manifold valves, the tanker's side water curtain, in way of the manifold, must be brought into operation by the tanker's personnel.

All other required protection systems in way of tank domes, flanges, valves, and superstructure, as required must be operable.

11.6.4 Measurement of Cargo Heel

Prior to the opening of the tanker's manifold valves, the quantity of cargo heel is to be measured. This applies in all cases, regardless of whether the tanker requires gas up, full or partial cooldown, or normal loading.

The measurement is to be witnessed by the tanker's Designated Officer on behalf of the tanker, and by the Pilot on behalf of the Terminal. If an independent cargo surveyor has been appointed, he/she should also witness the custody transfer measurement.

The initial measurement is subject to any special requirements for heel measurement on completion of cooldown after a refit or gas up.

11.6.5 Testing the ESD System

11.6.5.1 Routine Testing

Many of the ESD system checks are conducted by the Terminal on a routine basis without a tanker in the berth. However, the ESD1 system will be tested for each loading as follows:

11.6.5.2 Prior to Arm Cooldown

After advising the Terminal CCR, the tanker will initiate an ESD1 logic test from the tanker via the ESD FOSSL. For this test, ESD valves ashore and on board the tanker should remain closed.

When the Terminal and tanker are ready to commence loading, the ESD valves ashore and on board the tanker are to be opened. The Terminal will initiate an ESD1 from ashore. The total closure time of the tanker's ESD valves is to be timed and witnessed for correct operation.

11.6.5.3 When the Loading Arms are Cold

During the final stages of ship line cooldown and prior to ramping up the loading rate, the operation of the tanker's manifold ESD valves must be tested. This test will be conducted by ceasing liquid flow in one loading arm, while maintaining the liquid flow in the other loading arm.

When all parties are ready, the Pilot will request the Terminal to cease the liquid flow in the appropriate loading arm, and this will be confirmed by the Terminal. When this is done, the tanker will manually close (stroke) the manifold ESD valve on that liquid line. This will be witnessed for correct operation and, when satisfied, the Pilot/Loadmaster will request the tanker to re-open the ESD valve and the Terminal to resume liquid flow when the valve is opened. This will then be repeated for the other liquid line.

11.6.5.4 Cold ESD1 Test

On occasions it is necessary to carry out a Cold ESD test.

After drydocking or interventive maintenance work has been completed on ESD valves, a Cold ESD test of the connected liquid and ESD valves may be conducted at the tanker's request.

Valves will be shut by activating an ESD1 from the shore as a test of the ESD1 system with valves cold. Both the tanker ESD1 valves and shore hydraulic ESD1 valves will be witnessed for correct operation.

Prior to the initiation of any test, the liquid flow through the loading arms will be stopped.

The Pilot/Loadmaster must ensure that both the ship and Terminal personnel are fully prepared and that all personnel near the manifold move to a safe location.

When the Pilot is completely satisfied that all necessary precautions have been observed and agreement has been obtained from both parties, the ESD1 test may proceed.

The ESD1 activation must be preceded by a countdown, which is to be undertaken by the party initiating the test.

11.7 Cargo Handling

The Pluto Terminal operates under strict environmental emission conditions. Close co-operation between the loading vessel and the Terminal is necessary in order to comply with these conditions.

The Terminal must keep the tanker informed when loading pumps are stopped, started, or when a loading line up or rate is changed.

The Tanker will keep the Terminal informed of any changes in the tanker's gas up, cooldown, or loading cargo line up, and the starting and stopping of Return Gas Compressors. Tanker is to ensure that liquid or vapour flows to the vessel are never blocked off by having insufficient tanks open and/or valves excessively choked.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 43 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

11.7.1 Normal Loading

On completion of the loading arms purge and pressure tests, the tanker's Designated Officer, the Pilot and the Terminal CCR must agree all systems are correctly lined up and ready. The tanker's vapour return manifold can then be opened and tank pressure returned ashore via free flow or high duty compressor, if required.

11.7.2 Vessel Exclusion Zone

During loading operations an exclusion zone of 180 metres exists around the starboard manifold while bulk rate liquid transfer is under way (refer Figure 3 in APPENDIX B). Storing vessels are not allowed to enter the exclusion zone while any liquid is in the loading arm.

11.7.3 Inerted Condition

When a tanker arrives in an inerted condition, the vapour return line is lined up to the shore flare until the gassing up of the tanker's tanks and pipeline systems has been completed. Before gassing up, the tanker will be fitted with a strainer at the Vapour Return Manifold (shore supply).

11.7.4 Cooldown and Gassing Up

11.7.4.1 Cooling of Loading Arms and Tanker's Pipeline System (Normal Operations)

Under normal loading operations, the tanker will arrive at the Terminal with loading lines and manifold at ambient temperature.

Prior to commencing the cooldown of loading arms and tanker's pipeline system, the Tanker and Terminal CCR must confirm:

- The tanker is ready to accept liquid/vapour through the loading arms.
- The Terminal is ready to commence cooldown of the loading arms.

When both parties have confirmed readiness, the tanker will request the Terminal to commence cooldown. Both arms will be cooled down simultaneously by means of the cooldown controller valves.

Cooldown flow rate will be regulated to 7 m³/hr on each arm until LNG reaches the apex of the loading arms. Flow rate will be increased to 115 m³/hr on each arm from this point.

11.7.4.2 Gassing Up of Cargo Tanks

(Tankers arriving in an inerted condition)

The line up and cooldown of the tanker's loading lines will be as per the normal cooldown procedure, except that only one loading arm will be required to be cooled at this stage. The tanker will specify to the Terminal the liquid flow required.

Gassing up of the tanker's tanks will be by displacement. LNG liquid is taken through the cooldown lines and through the LNG vaporiser to the vessel's tanks, as vapour, via the Vapour line into the top of the tanks. The inerted vapour is displaced via the liquid line, temporary elbow and HD compressor to the shore flare. To reduce flaring ashore, each cargo tank is isolated when gassed up. Towards the end of the gassing up operation there will be short periods where the makeup of the vapour return will rapidly change from inert gas to LNG vapour and back to inert gas as the tanker gasses up the pipeline system. Consistent LNG vapour return will not occur until the end of the operation.

The tanker will keep the Terminal informed regarding the status of the gassing up operation, utilising onboard sampling (hydrocarbon content).

To complete the “Gas Up” a small amount of C1 gas venting will take place, to purge the dead legs. This will occur if a vessel is to proceed to “Tank Cooldown”. The venting can interact with the Jetty Fire and Gas System, potentially causing an ESD1.

11.7.4.3 Cooldown of Tanker’s Cargo Tanks

After gassing up the tanker’s tanks and pipeline system, cooldown of the tanker’s spray pipework can be commenced. Once this is completed the tanker will request adjustments of the liquid flow rate to cool down the cargo tanks.

At the completion of cooldown of the tanker’s tanks, the second loading arm will be cooled down. When both liquid arms and the vessel’s ESD valves are cold, liquid flow will be stopped and an ESD1 test conducted. Loading can now commence.

From time to time the Terminal may require an adjustment in cooldown rate to meet environmental flaring requirements.

Maximum cooldown rate for ship cargo tanks is 167 m³/hr.

11.7.5 Loading and Topping Off

All loading activities will be at the discretion of the tanker. The Terminal CCR may require stopping loading at any time due to Terminal operational requirements.

The Terminal is responsible for measuring the pressure differentials across the strainers fitted in the shore system. Any abnormal change in the differential pressure indicating a blockage or failure of any strainer is a potentially serious matter and loading is to be suspended through both arms until the cause is ascertained and rectified. Pressure comparisons between ship and shore commence at the start of ramp up, with every rate change, and continue hourly (when loading at full rate) until ramp down commences.

Every hour during the loading, the tanker is to inform the Terminal of the quantity received, loading rate, expected ramp down time and manifold pressures on liquid arms.

In the event of a trip of the loading pumps, the Terminal must not resume loading until the tanker has confirmed loading can recommence.

Throughout the loading operation, the tanker must provide reasonable notice to the Terminal for any changes or requirements which affect the loading operation. This is especially critical during topping off sequences. In the initial stages of loading, the tanker and shore will monitor the rate of loading such that the need to flare excess return gas is minimised.

11.7.5.1 Cargo Ramp-Up

This will be at the tanker’s request, at intervals of 1000 m³/hr. Proper attention to communication procedure is essential for a smooth operation at this time.

11.7.5.2 Ramp-Down and Topping off

Ramp down of shore cargo pumps is usually 60 minutes duration in 1,000 m³/hr increments, with each decrease at the ship’s request to a minimum 1000 m³/hr, at which the stop loading order will be made. Topping off is to be arranged such that there is a stable period of at least 10 minutes’ pumping at 1000 m³/hr prior to calling for a stop.

It is critical that communications between the tanker and the Terminal are not compromised in any way during topping off of the cargo. If there is any defect in the communications systems, tank protection, CTMS, Whessoe guage system (as back up), or tank filling valves, the Loadmaster will direct the topping off operation to be stopped immediately.

Prepare and have a documented ramp down plan (for topping off tanks), similar to the example in Figure 1, available for review at the preload meeting to allow tanks to be closed in a planned, controlled sequence. **Loading will not commence until this plan is presented:**

9000	00:00	35.66	34996	94.9	-1	37.56	36013	97.7	-1	36.53	35528	96.4	-1	36.03	35229	95.6
8000	00:04	35.90	35146	95.3	-1	37.91	36163	98.1	-1	36.81	35678	96.0	-1	36.28	35079	96.0
7000	00:08	36.12	35279	95.7	-1	38.26	36296	98.5	-1	37.08	35811	97.1	-1	36.52	35512	96.3
VL300	00:12	36.33	35396	96.0		38.59	36413	VL300	-1	37.32	35928	97.5	-1	36.74	35629	96.6
6000	00:16	36.61	35552	96.4					-1	37.67	36084	97.9	-1	37.04	35785	97.1
5000	00:20	36.86	35685	96.8					-1	38.00	36217	98.2	-1	37.32	35918	97.4
4000	00:24	37.08	35796	97.1					-1	38.30	36328	98.5	-1	37.57	36029	97.7
VL200	00:28	37.26	35885	97.3						38.55	36417	VL200	-1	37.77	36118	98.0
3000	00:32	37.55	36018	97.7									-1	38.11	36251	98.3
2000	00:36	37.79	36118	98.0									-1	38.38	36351	98.6
VL100	00:40	37.95	36185	98.1										38.58	36418	VL100
1000	00:44	38.30	36318	98.3												
STOP	00:48	38.49	36385	STOP												
0																
FINAL LEVEL		38.59	36420			38.59	36413			38.55	36417			38.58	36418	
TTL= 145668 98.780%																

Figure 1: Example ramp down plan

11.7.6 Prevention of Free Flow of Liquid

To prevent free flow of liquid to the tanker at either the start or end of loading, the Terminal will use the main loading control valves. These valves will be opened at the commencement of forward flow and closed when tanker requests loading to stop.

11.7.7 Cargo Ramp-Up and Ramp-Down

This will be at tanker's request at intervals of 1,000 m³/hr. Proper attention to communication procedure is essential for smooth operation at this time.

11.8 Draining and Inerting of Loading Arms

On completion of loading, the Terminal liquid loading valves and tanker's liquid loading double shut valves are to be closed for MOSS vessels and ESD valves for membrane tankers

Note: Tanker's valves should not be shut until the Loadmaster has confirmation that shore valves are shut.

The liquid loading arms should be drained and purged sequentially using the following procedure.

The loading arm will be pressurised to 600 kPa with nitrogen and then the tanker will open the manifold cooldown valves, allowing the nitrogen to displace the liquid in the shipside section of the loading arm to the vessel's cargo tanks.

The Terminal will admit nitrogen and pressurise the loading arms to approximately 600 kPa. The shore side section of the loading arm, together with associated systems, will then be drained back ashore.

Upon completion of the draining of the loading arms, the arms should be purged with nitrogen until a hydrocarbon content of less than 2% by volume, or less than 40% LEL, is achieved.

The vapour return line will remain open to shore throughout the liquid arm draining. Once the liquid arms have been drained and purged and with the mutual agreement of both the tanker and the Terminal, the vapour return valves may be closed, and the vapour return arm purged with nitrogen to achieve a hydrocarbon content of less than 2%.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 46 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

11.9 Completion of Operations

11.9.1 Disconnection of Loading Arms

While the loadings arms are unattached and being manoeuvred in the manifold area, all ship's staff are to remain clear of the arm by a radius of 1.5 m, to avoid contact and the risk of crushing injury. Permission to enter this radius, including to approach the ship's presentation flange, must be granted by the shore personnel

The Terminal is responsible for fitting the blanks to the Terminal's liquid loading and vapour return arm flanges.

The tanker is responsible for fitting blanks to the tanker's manifold. If Terminal-provided spool pieces have been used, these will be disconnected by the vessel and landed back on the jetty.

The strainers must be inspected and recorded by the Pilot or the Terminal Operator and confirmed clear of debris or damage. Any debris should be collected, and both parties given a sample for analysis.

11.10 Final Measurement of Cargo

The final quantity of cargo on board must be measured after all the tanker's manifold valves have been closed.

An independent surveyor may determine cargo quantity and quality.

11.11 Documentation

In order to secure the Master's signature it is desirable to receive documentation on board prior to the vessel sailing.

The Pilot/Loadmaster will receive documents on behalf of the Terminal.

Pluto Terminal practises early departure procedures (EDP).

11.12 Removal of Gangway

The gangway will be removed on confirmation of all personnel ashore. A responsible member of the tanker's staff should be standing by on board to assist if any problems emerge which may require action from the tanker. The Fibre Optic Ship Shore Link (FOSSL) will be disconnected immediately prior to the lifting of the gangway.

11.13 Main Engine Preparation for Sailing

Procedures for preparing main engines for sailing may only be implemented after the loading and vapour return arms have been disconnected and gangway removed from the vessel.

Pre-departure testing of the main engine may only be carried out with the full agreement of the Pilot.

12. Condensate Loading Facilities

12.1 Condition of Condensate Tankers

As a general condition for vessels at the Terminal, it is required that the vessel is acceptable to the Operator and complies with the following:

1. Equipment

- a. All tankers must be in a sound state of repair, with main engines, mooring winches, and windlasses all in proper working order. Mooring equipment, including mooring lines, must be in good condition. Manifold equipment to comply with *OCIMF Recommendations for Oil Tanker Manifolds & Associated Equipment*.

b. Certification

All tankers must be in possession of a complete and valid set of safety certificates. These are to include:

- i. Load Line Certificate
- ii. Safety Construction Certificate
- iii. Safety Radio Certificate
- iv. Safety Equipment Certificate
- v. Cargo Equipment Register
- vi. Cargo Gear Certificates
- vii. ISM Safety Management Certificate
- viii. International Ship Security Certificate

c. Vessels are to be in all respects "In Class"

d. Vessels must be able to comply with the following minimum loading rates:

Vessels larger than 50,000 tonnes SDWT must be able to maintain a loading rate of the larger of 5% of vessels SDWT in TPH or 4000 TPH (approximately 5.3 Ml per hour).

Vessels less than 50,000 SDWT are required to turn around within a maximum period of 24 hours (No. 8 beacon inward to No. 8 beacon outwards). This provides a window of 18 hours from commencement to completion of loading.

e. Maintain a coverage with a P&I Club which is a member of the International Group of P&I Clubs, for legal liability of oil pollution damage up to the current maximum amount being offered by the International Group of P&I Clubs supplemental coverage available through such P&I Clubs. Current coverage of \$1 billion dollars US is required.

12.2 Loading Rates

Maximum loading rate through two condensate loading arms is 4800 m³/hr.

12.3 Shore Tank Capacity

Total pumpable capacity: 119,000 m³

Tanks 1 and 2: 60,000 m³ each

12.4 Loading Arms

There are two 12" condensate loading arms for loading condensate on the jetty.

Tankers should prepare 16" reducers on the starboard side.

12.4.1 Loading Arm Limits

Refer to APPENDIX I and APPENDIX J for information on loading arm limits.

Slewing Range: 3.6 m forward of centre line. 3.6 m aft of centre line

Horizontal range: Maximum distance from fender face: 14.5 m

Vertical range: 7.1 m to 21.2 m above Chart Datum

The loading arms are designed to be manoeuvred in wind speeds of up to 50 knots. They should therefore be disconnected, parked, and storm/cyclone locked in good time if sustained wind speeds of 30 knots are anticipated (maximum allowable wind for sailing).

Note: Shore operators will not manoeuvre the arms in winds in excess of 35 knots. Particular attention should be paid to this during cyclonic events.

12.4.2 Connection of Loading Arms

The connection at the tanker manifold is by quick connect/disconnect couplers (QC/DC) which have been designed to adapt to tanker flanges of 12" and 16" Class ANSI 150 lb. Tankers are normally required to present a clean 16" flange with a minimum flange thickness of 36.6 mm and maximum of 39.8 mm.

Note: Although these areas are fitted with QC/DC couplers, the arms cannot be disconnected without operating the key interlock system. This system is not an emergency release system.

While the loadings arms are unattached and being manoeuvred in the manifold area, all ship's staff are to remain clear of the arm by a radius of 1.5 m, to avoid contact and the risk of crushing injury. Permission to enter this radius, including to approach ship's presentation flange, must be granted by the shore personnel.

Prior to removing the blind flange, the 1" drain upstream of the coupler must be opened to release any possible over pressure in the arm.

The Terminal Operator will confirm with the Pilot that tanker's manifold is shut and that the arm pressure test can take place. The Pilot will be advised when the loading arms have been connected, pressure tested satisfactorily, inerted, and are ready to load. The loading arms will be depressurised once the tests have been satisfactorily completed.

12.5 QC/DC

The loading arms are equipped with a quick connect/disconnect coupler.

12.6 Emergency Shut Down System

Once the gangway is secure, the Terminal Operators will place an ESD transmitter on board the tanker in the vicinity of the vessel's manifold. This is hardwired to the shore.

A logic test is conducted once the ESD transmitter is connected. Prior to commencement of loading, with at least one shore valve open and one loading pump in operation, the Pilot will test the ESD system, demonstrating its use to the ship's staff at that time.

The ESD Transmitter is intrinsically safe and can be operated on deck. There is a hotline to the shore CCR as well as the ESD activation device situated in the control box.

The system is a "fail safe" facility, designed to activate loading pump shutdown and shore ESD valve closure when the shutdown button on the ESD transmitter is activated.

12.7 Cargo Measurement

An independent surveyor will determine cargo quantity and quality.

Custody of product will take place at ship's manifold.

Pluto Terminal practises early departure procedures (EDP).

APPROVED

APPENDIX A PLUTO TERMINAL SHIPPING CHANNEL NAVIGATION MARKS

Navigational Aid No.	Description	Light Characteristics	Comment	Range (nm)	Focal Plane Elevation	Topmark	Topmark Colour	Seabed Level (AHD)	Latitude	Longitude
HP1	SPAR BUOY - STARBOARD	FL. G. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CONE	GREEN	-19.5	20°28 5024	116°43 8049
HP3	SPAR BUOY – STARBOARD	FL. G. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CONE	GREEN	-15.8	20°31 9963	116°42 8401
HP5	FIXED SINGLE PILE – STARBOARD & FRONT LEAD	Fl G / Bu 6s 0.5G+0.5+0.5Bu+0.5 +3 5Bu+0.5=6sec	GREEN & BLUE SEQUENTIALLY SYNCH' WITH HPR1 REAR LEAD	6nm GREEN 7nm BLUE	15.6 m AHD	TRIANGLE ★	ORANGE	-15.97	20°32 9090	116°42 6502
HP6	SPAR BUOY – PORT	FL R. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CYLINDER	RED	-16.0	20°32 6778	116°42 8647
HP7	FIXED SINGLE PILE – STARBOARD & FRONT LEAD	Fl G / Bu 6s 0.5G+0.5+0.5Bu+0.5 +3 5Bu+0.5=6sec	GREEN & BLUE SEQUENTIALLY SYNCH' WITH HPR1 REAR LEAD	6nm GREEN 7nm BLUE	15.6 m AHD	TRIANGLE ★	ORANGE	-15.81	20°33 7920	116°42 7826
HP8	SPAR BUOY – PORT	FL. R. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CYLINDER	RED	-15.27	20°33 1632	116°42 9260
HP9	SPAR BUOY – STARBOARD	FL. G. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CONE	GREEN	-15.27	20°33 8925	116°43 0398
HP10	SPAR BUOY – PORT	FL. R. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CYLINDER	RED	-15.27	20°33 8098	116°43 1470
HP11	SPAR BUOY – STARBOARD	FL. G. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CONE	RED	-15.27	20°34 4507	116°43 5229
HP12	SPAR BUOY – PORT	FL. R. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CYLINDER	RED	-15.27	20°34 2679	116°43 6307
HP13	SPAR BUOY – STARBOARD	FL. G. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CONE	GREEN	-15.27	20°35 1537	116°44 1319
HP14	SPAR BUOY – PORT	FL. R. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CYLINDER	RED	-15.27	20°35 0709	116°44 2397
HP15	SPAR BUOY – STARBOARD	FL. G. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CONE	GREEN	-15.27	20°35 9284	116°44 8031
HP16	SPAR BUOY – PORT	FL. R. 3s	SYNCH' WITH CHANNEL	6	7.6 m AHD	CYLINDER	RED	-15.27	20°35 6435	116°44 7391
HP17	FLOATING BUOY – BASIN	FL. Y. 3s	SYNCH' WITH CHANNEL	6	5.8 m above SWL	NONE		-15.27	20°36 1252	116°44 8414
HP19	FLOATING BUOY – BASIN	FL. Y. 3s	SYNCH' WITH CHANNEL	6	5.8 m above SWL	NONE		-15.27	20°36 2674	116°44 8953
HP20	FLOATING BUOY – BASIN	FL. Y. 3s	SYNCH' WITH CHANNEL	6	5.8 m above SWL	NONE		-15.27	20°36 3305	116°45 0414
HP21	FIXED SINGLE PILE – BASIN & FRONT LEAD	OFI Bu	N/A	8	15.0 m AHD	TRIANGLE ★	ORANGE	-15.4	20°36 3981	116°45 2998

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 51 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

Navigational Aid No.	Description	Light Characteristics	Comment	Range (nm)	Focal Plane Elevation	Topmark	Topmark Colour	Seabed Level (AHD)	Latitude	Longitude
HP22	FIXED SINGLE PILE – REAR LEAD	ISO BU 4s	N/A	8	24.6 m AHD	TRIANGLE ✱	ORANGE	-6.16	20°36 5201	116°45 4056
HP23	FIXED COLUMN –	F R	N/A	5	9.6 m AHD	NONE	NON	N/A	20°36 1540	116°45 2340
HPR1	TRIPLE SINGLE PILE –	Fl W / Bu 6s 0.5W+0.5+ 0.5Bu+0.5 +3 5Bu+0.5=6sec	VERTICAL SEQUENTIALLY SYNCH' WITH P5 & P7	WHITE/BLUE 7nm	25.7 m AHD	TRIANGLE ✱	ORANGE	-13.79	20°33 2323	116°42 5578

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

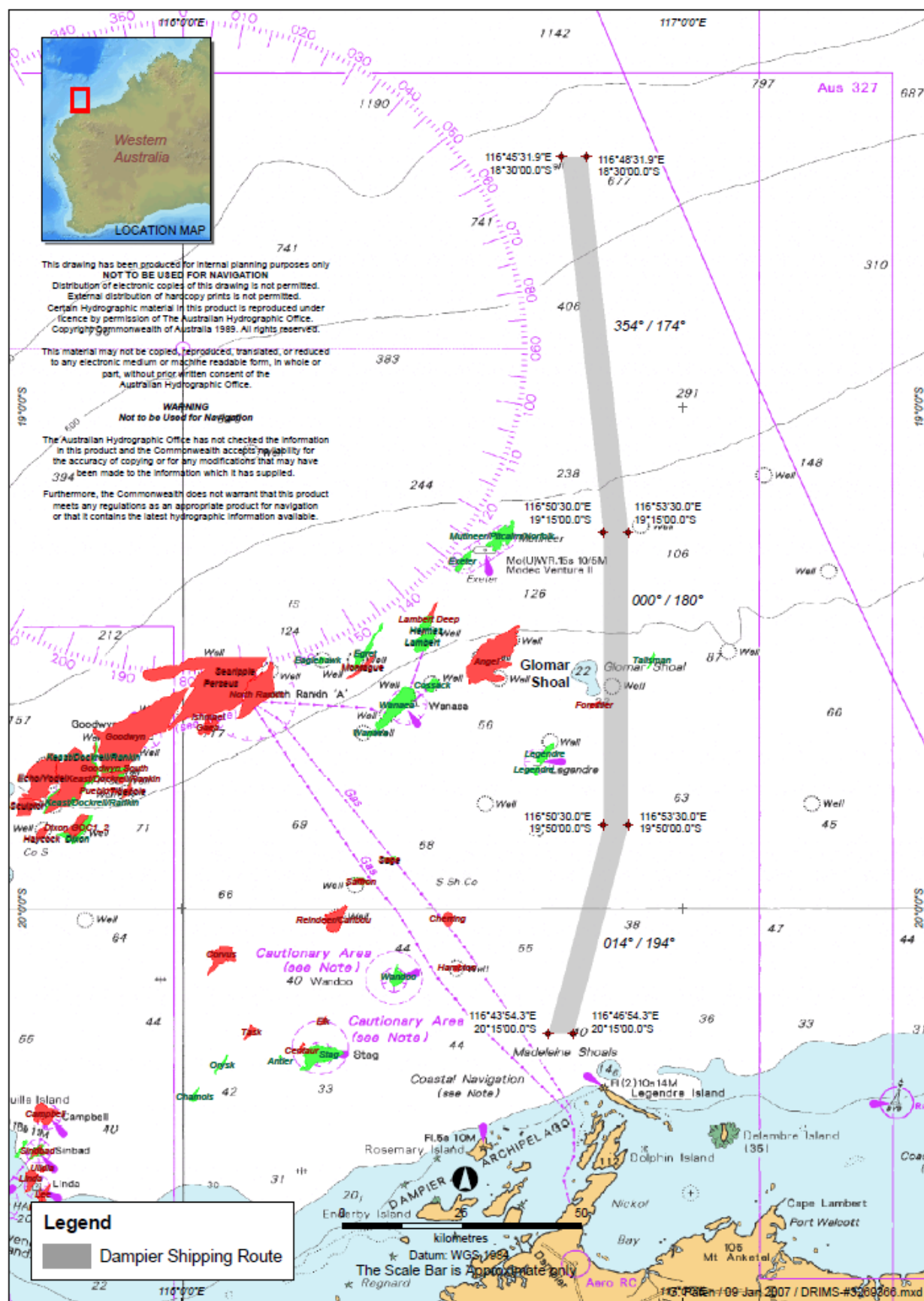
Native file DRIMS No:

Page 52 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX B RECOMMENDED APPROACHES TO THE PORT OF DAMPIER



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 53 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

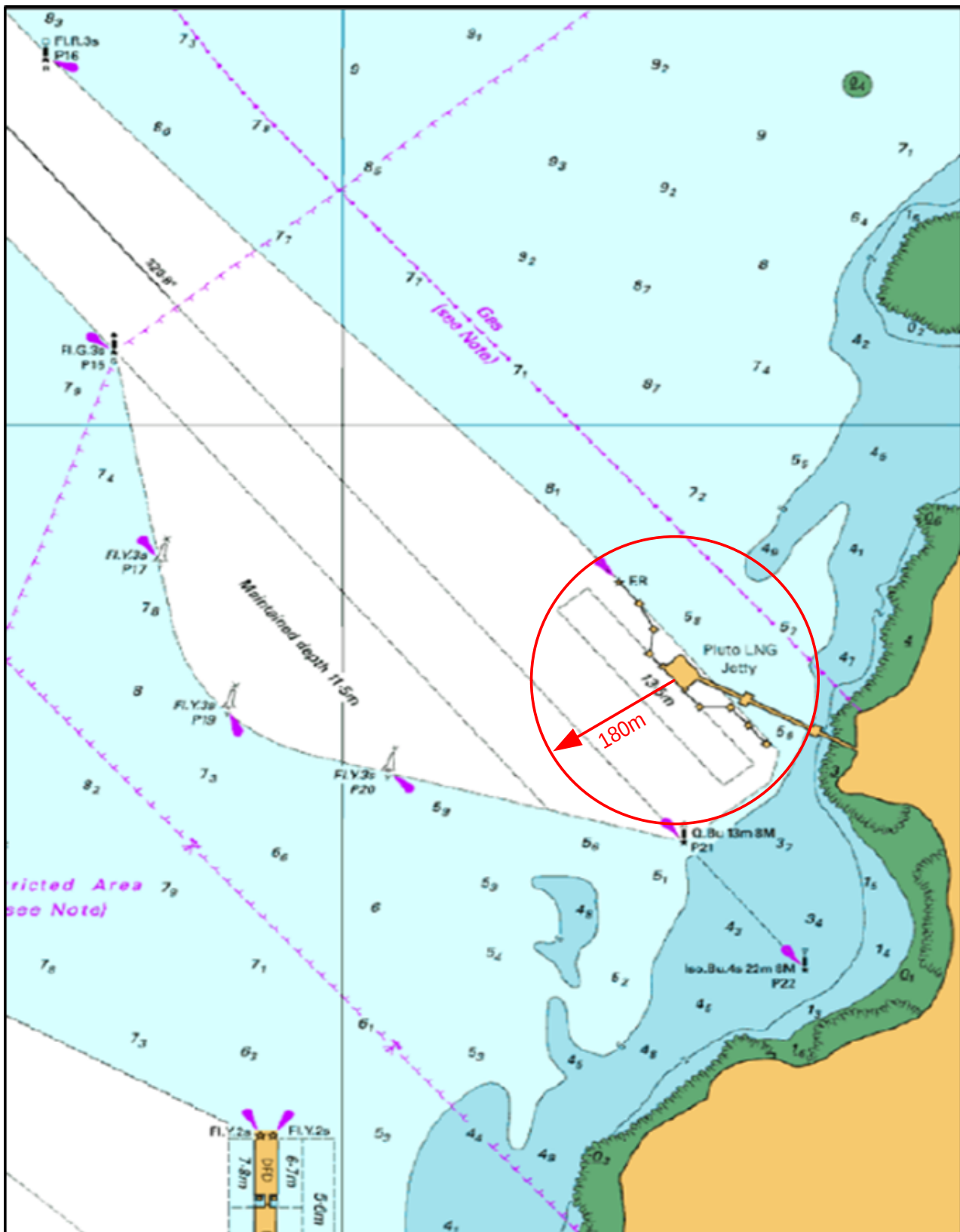


Figure 3: Pluto Terminal Exclusion Zone

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

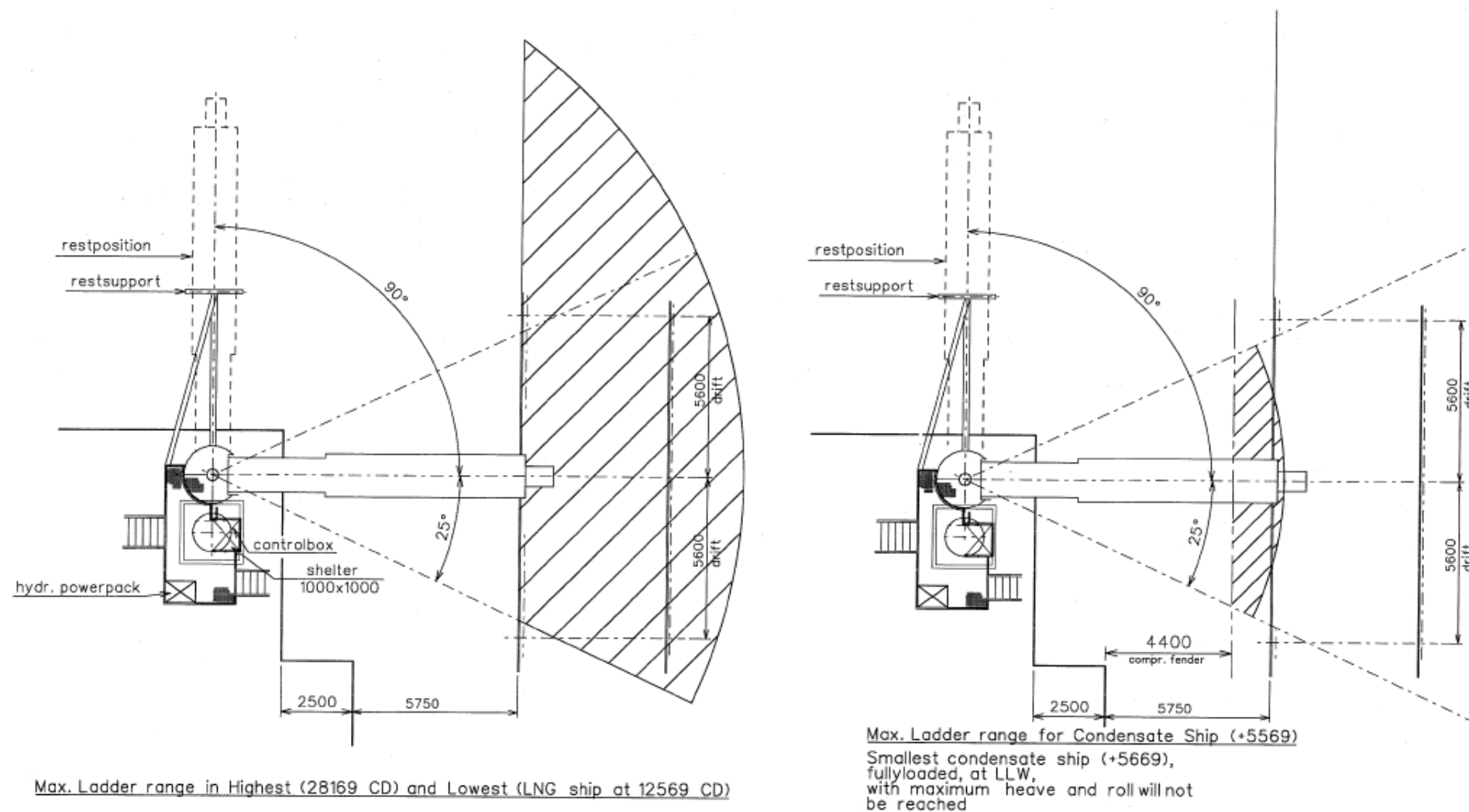
Native file DRIMS No:

Page 55 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX D JETTY LOADING PLATFORM – GANGWAY ARRANGEMENT



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

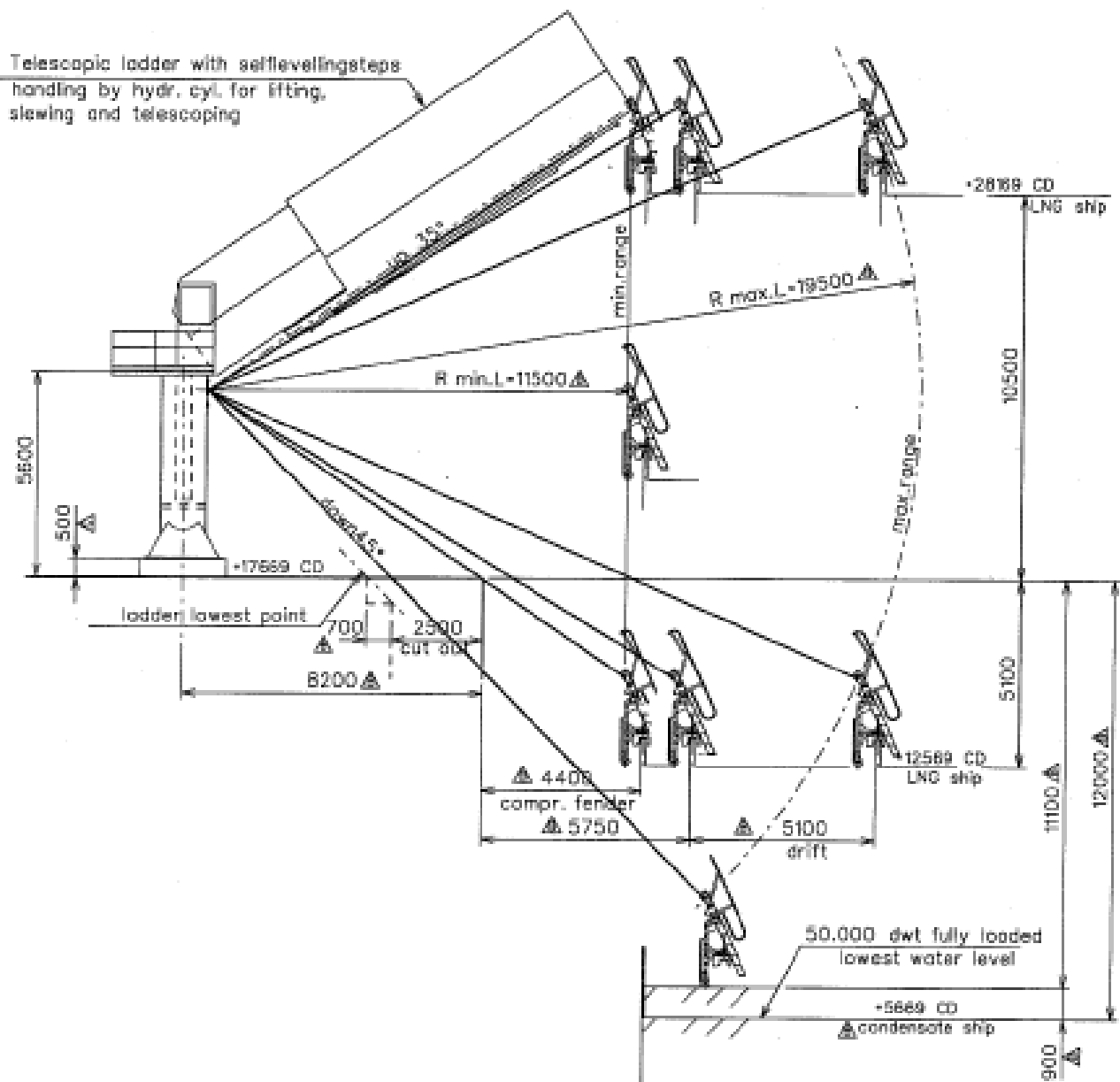
Native file DRIMS No:

Page 56 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX E JETTY LOADING PLATFORM – GANGWAY ARRANGEMENT



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

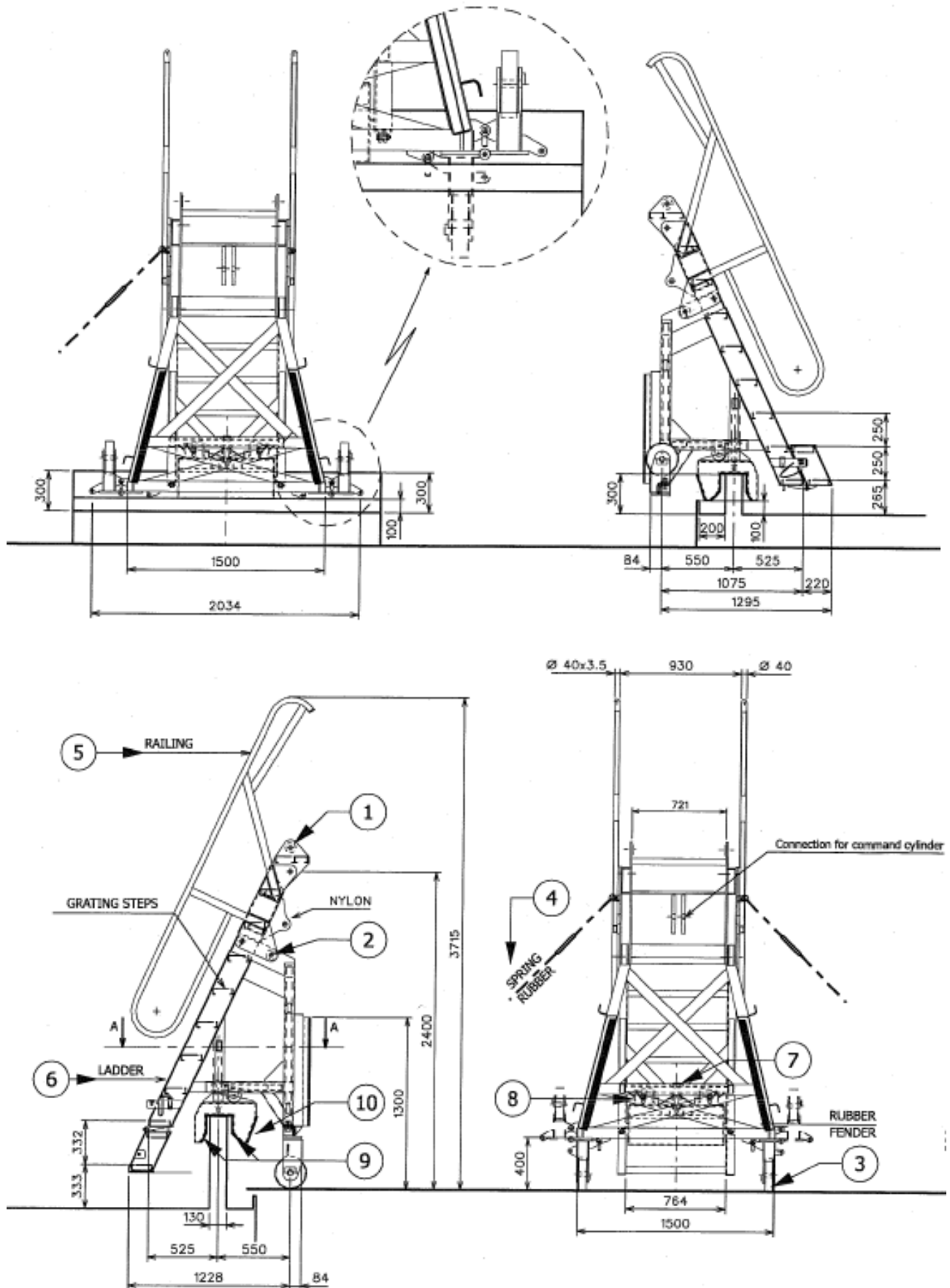
Native file DRIMS No:

Page 57 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX F JETTY LADDER ARRANGEMENT ON GANGWAY



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

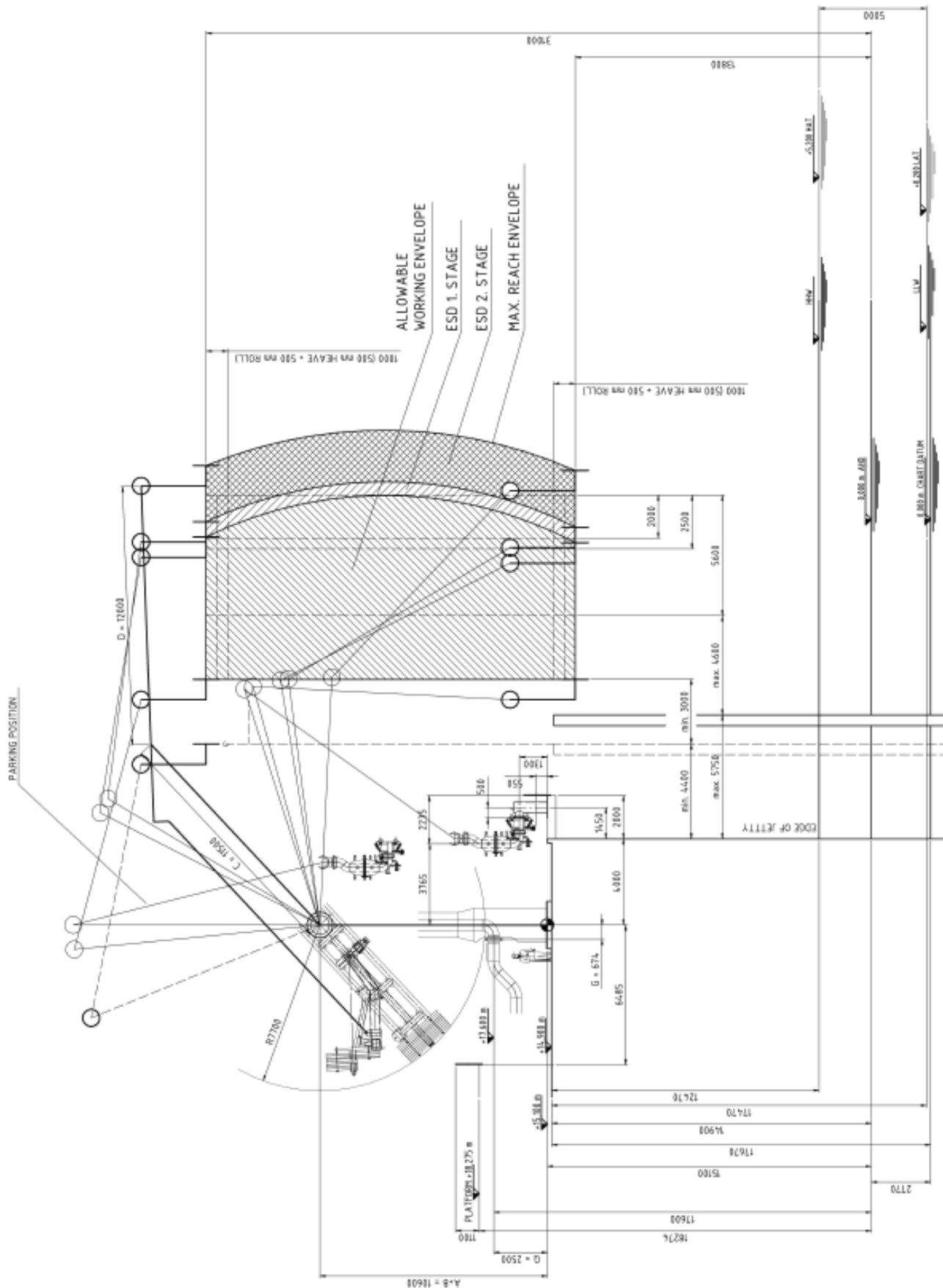
Native file DRIMS No:

Page 58 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX G LNG LOADING ARM WORKING RANGE (ELEVATION)



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

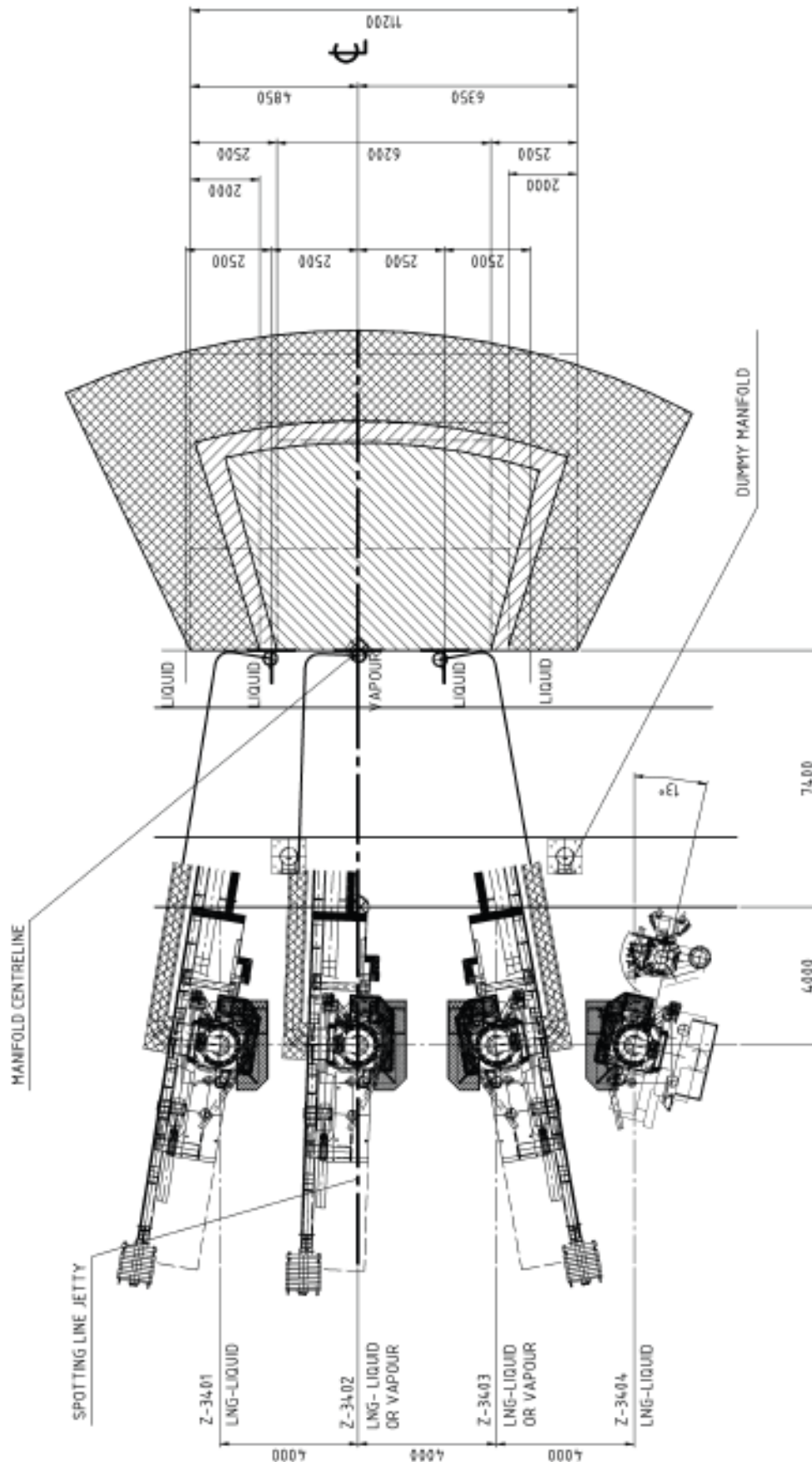
Native file DRIMS No:

Page 59 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX H LNG LOADING ARM WORKING RANGE (PLAN)



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

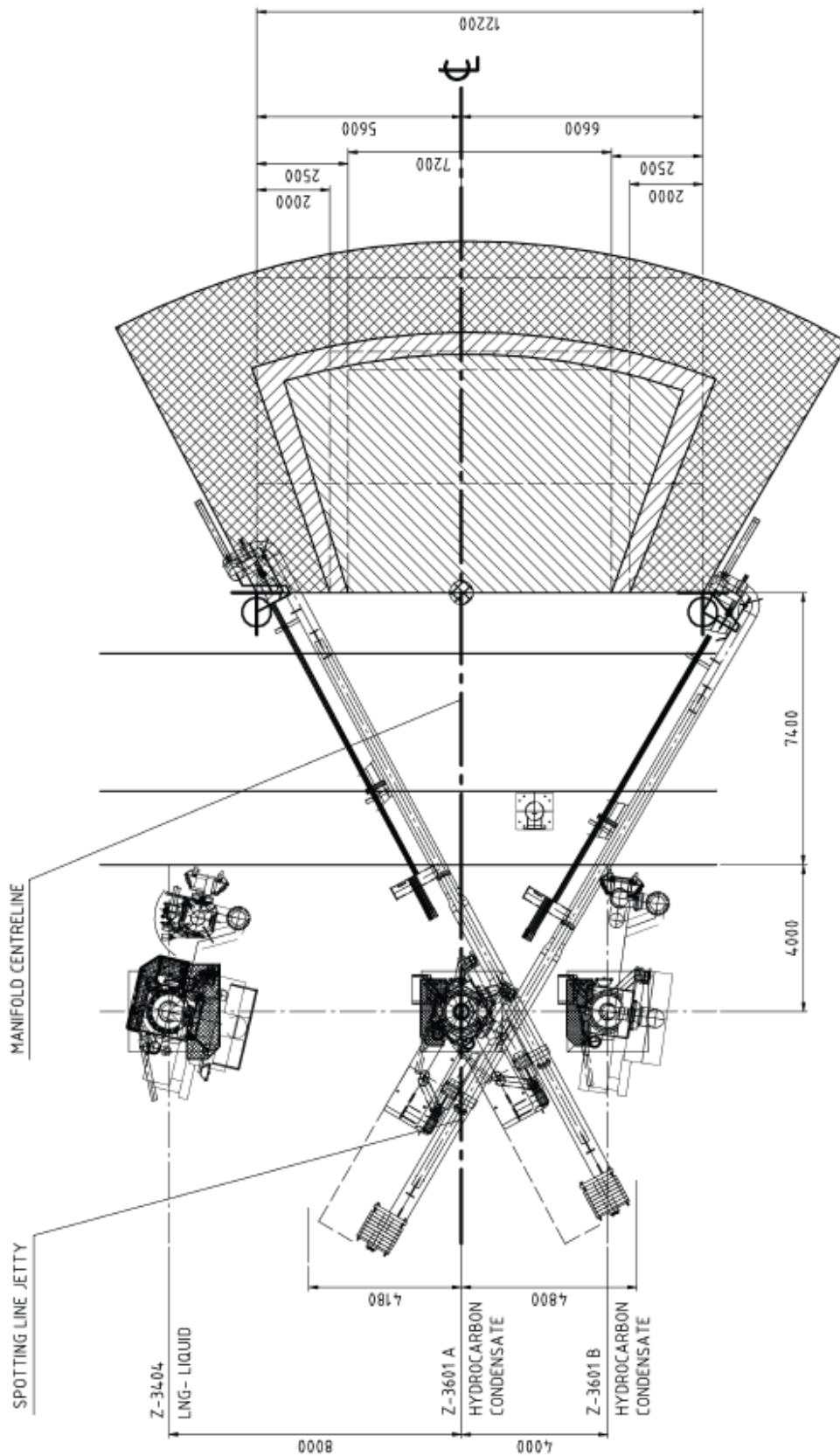
Page 60 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED



APPENDIX J CONDENSATE ARM WORKING RANGE (PLAN)



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

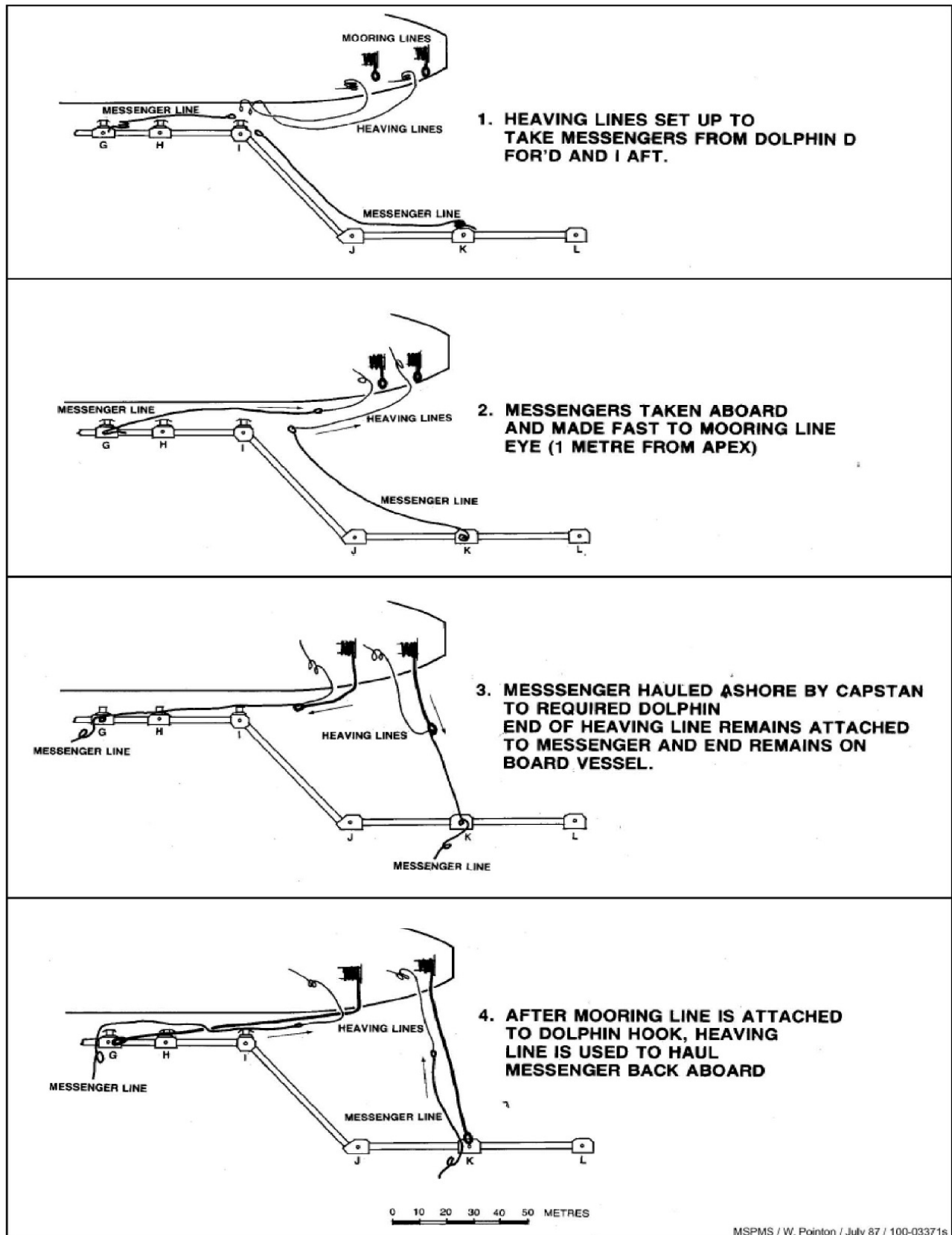
Native file DRIMS No:

Page 62 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX K MOORING PROCEDURE



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 63 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX L PLUTO TRANSIT AND TUG USE CRITERIA TABLE

Vessel Type	LNG					Condensate		
Vessel Size	Arrival Displacement < 115,000 t					DWT < 80K	DWT >80K	
	Vessel Wind Limit (R)	Cargo Capacity <170 000 m³ = Maximum 25 knots		Cargo Capacity ≥ 170 000 m³ = Maximum 20 knots				
ARRIVE	WIND knots (10 min avg)	< 23	23 ≤ 25	< 15	15 ≤ 20	≤ 30	<25	25 ≤ 30
	Tugs	4 *	4/5	4	4/5	2	4 *	4/5
	UKC	≥ 2.0 m						
DEPARTURE	WIND knots (10 min avg)	28		20		30 #	30 #	
	Min Tugs	3 ^		3 ^		2	3 ^	
	UKC	≥ 1.5 m						
	For sea states exceeding Tp 10 sec and/or Hs 0.8 metre the Alternative Channel must be considered.							
Maximum draft alongside 12.5 m + LW Height								
Note	R = Vessel Wind Limit = Limit set by Woodside Marine Assurance based on lateral windage, MEG4 wind coefficients and arrival displacement. * = Maximum winds for LNG/Condensate berthing with 3 tugs is 20 knots, however this is subject to conditions on the day. # = May be higher in emergency ^ = If no 75 tonnes tug available 4 tugs required for departure. If no 75 tonnes tug available arrival in winds ≥ 15 knots a 3rd party Escort Capable Tug required. 4/5 = 5th tug at Pilot discretion							

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 64 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX M PLUTO TERMINAL SPOOL PIECE (SHORT DISTANCE PIECE)

Notes.

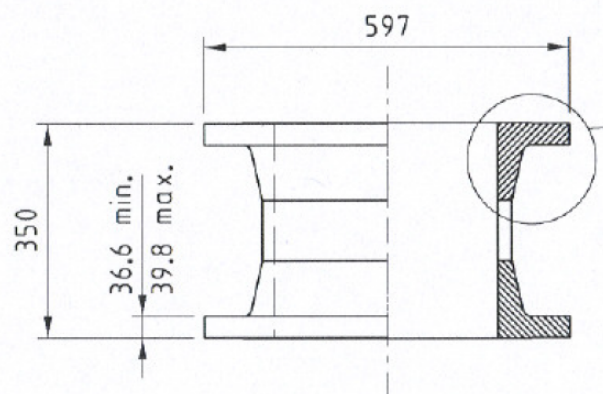
This adaptor piece is suitable for 16" M.I.B. Quick Connect/Disconnect Couplers at Withnell Bay Terminal. The dimensions of the adaptor and surface finish of the flange face are in accordance with the recommendations of M.I.B. International.

For correct operation and sealing, it is important that:

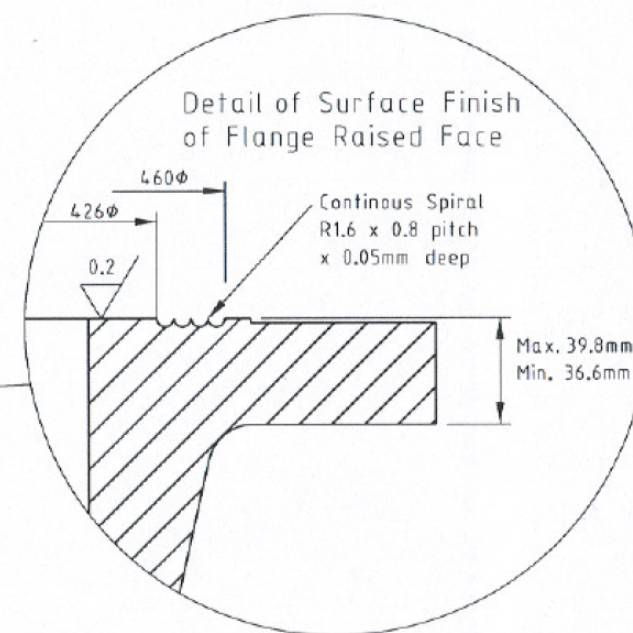
1. The QC/DC is fitted with tapered guides which align the coupler to the outside of the ship's flange. Therefore the diameter of the ship's flange '597' must not exceed 598.5mm (Recommended minimum diameter=595.3)
2. There must be sufficient clear space at the back of the flange to ensure freedom of movement of the hooks. The recommended minimum dimension is 90mm but in any cases this distance must not be less than 75mm. In this regard, lifting eyes should not be fitted.
3. The QC/DC is designed to connect to a flange of thickness in the range 36.6 to 39.8mm.
4. The QC/DC has two seals, a CNAF gasket for normal sealing and a PTFE energised seal which acts during transient temperature conditions such as arm cooldown. The energised seal requires a surface finish of 0.2umRa. The flange should preferably be machine as shown in way of the CNAF gasket. This machined finish may be either continuous spiral or concentric rings. Flat Face flanges are also acceptable. In order to provide future re-machining allowance, a flange thickness of (say) 39mm is preferred. Bolt holes in the connection flange are optional.

Material: ASTM A182 Gr F316L.

Flanges generally follow ASME/ANSI B16.5-1988 Class 150.
WEL Weld procedure SS2001



Standard 16" ANSI 150 RF SCH80 Flange
(Bolted to Ship's Flange)



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

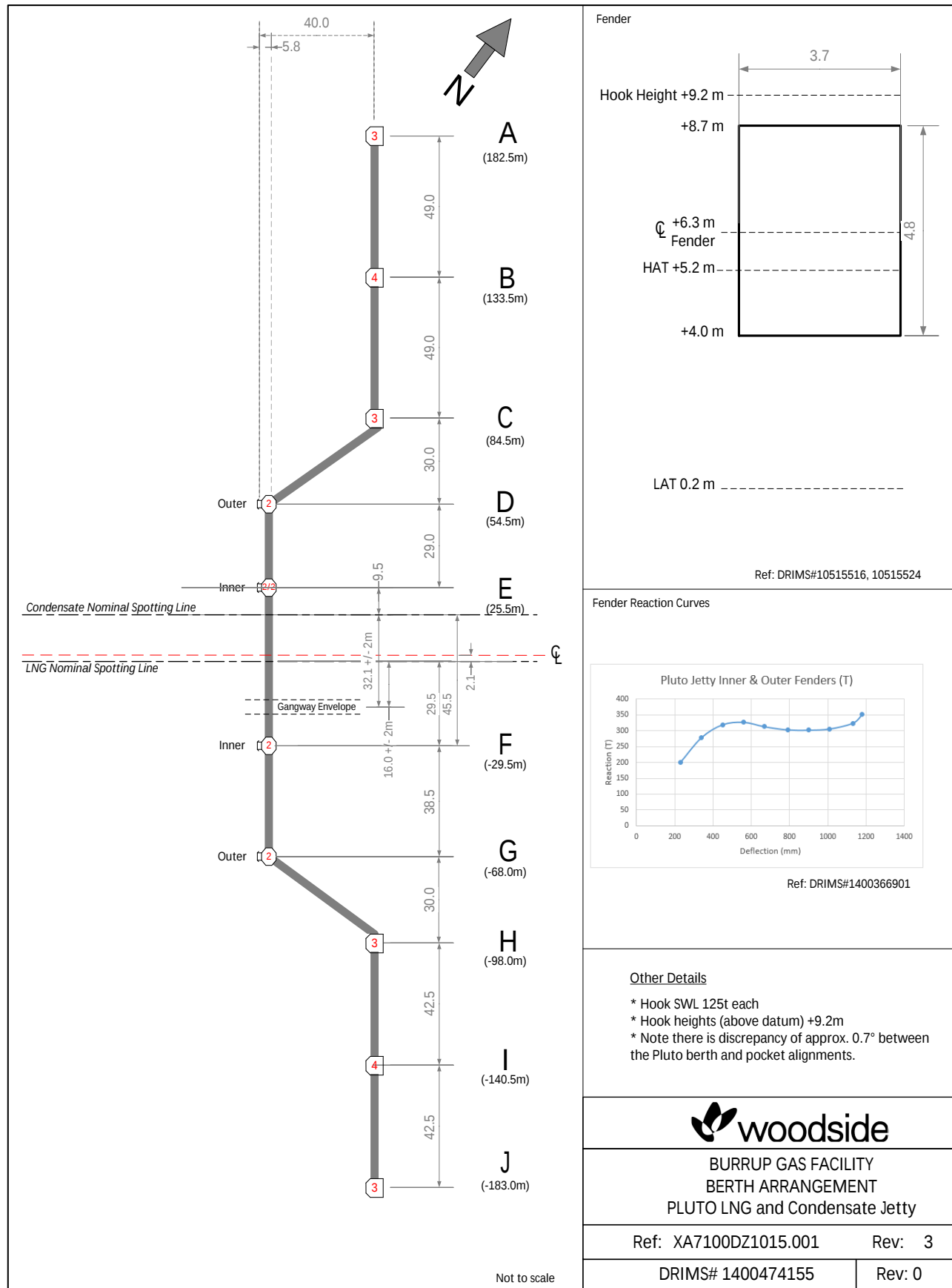
Native file DRIMS No:

Page 65 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX N PLUTO TERMINAL JETTY



This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 66 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX O SECURITY ARRANGEMENTS FOR SHIP'S CREW

Security Arrangements for Ship's Crew

THE MASTER:

To ensure an adequate level of security with regard to the monitoring of Ship Crews and Visitors transiting the Onshore Gas Plant, all vessels are required to implement the following procedures:

Ship Crews Joining, leaving or proceeding on Shore Leave

- Other than under exceptional circumstances, Ad Hoc requests for transportation will not be accepted after the vessel has berthed and transportation requests confirmed.
- The following information must be provided to Security at the Plant Main Gate by agent before vessels arrival:
 - Current Crew List including family members and supernumeraries
 - Names of any crew members joining or leaving the ship at this port.
 - Names of crew members required to go ashore for medical, dental or other treatment.
 - List of visitors including name of Company and reason for visit.
 - Scheduled times for all buses servicing the ship's visit. **No movements allowed between 1600-1715 daily.**
- Crew members and visitors are required to possess photographic identification in order to be allowed access to the Onshore Gas Plant and a Woodside Pass signed by the Master or his delegate.
- When going ashore or returning to their vessel all crew members will be checked against the Crew List by security. Any personnel not registered on a crew or visitors list will not be allowed access.
- Requests for emergency transportation of crew members from the ship must be made to the Pilot/Loadmaster on board the vessel, who will liaise with Security as required.

Requirements for Ship Crews Transiting Terminal

1. No Matches or lighters are to be carried through the gas plant.
2. No mobile phones are to be taken from/to the vessel for transit through the Plant unless turned off and the battery separated from the phone. For mobile phones which cannot have their battery removed crews/visitors are to ensure these devices are switched off, locked and placed in bags provided by Security.
3. No ignition sources, namely battery powered equipment (laptops, PDA's, personal music devices, cameras, video games, torches, etc.) may be taken from / to the vessel for transit through the Plant unless the battery powered equipment is turned off and the batteries are separated from the device. For items which cannot have their battery removed such as iPods, crews/visitors are to ensure these devices are switched off and locked. Crews / visitors must declare for inspection all mobile phones and battery powered equipment to security staff while on the vessel. Equipment can then be stowed in luggage or placed in bags provided by Security.
4. Crew members are permitted to carry cigarettes through the terminal. Cigarettes must be contained in a bag and not be accessed while transiting through the site.
5. Crew members are permitted to carry alcohol through the terminal but must be declared to security prior to transiting through the site. All alcohol must be un-opened and contained in a bag.
6. Crew members and visitors proceeding ashore are to **remain on board inside the accommodation** until the terminal security escort arrives on board. Shore leavers are to

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 67 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

remain assembled in a common area/room until the gangway watch advises that the escorting security guard has boarded the vessel. Crew members are not permitted to walk in any area of the Plant or Jetty unaccompanied by a Maritime Security Guard. Confirmation of ships drafts from the mooring dolphins are the only permitted exception to above rule and require terminal representative approval.

PLEASE ENSURE SHORE LEAVERS DO NOT DISEMBARK THE VESSEL UNTIL A SECURITY GUARD ARRIVES AT THE GANGWAY TO ESCORT THEM TO THEIR TRANSPORT. SHORE LEAVERS TO REMAIN ASSEMBLED IN THE ACCOMMODATION UNTIL THE MARITIME SECURITY ESCORT ARRIVES ON BOARD.

7. Children under 15 years of age require special approval from Terminal Management to transit the terminal (notification is required minimum 72 hours prior to arrival. Approval is at Terminal Management's discretion and will not be honoured during high risk or maintenance periods.
8. Crew members and visitors to wear correct PPE (enclosed footwear, long trousers, long sleeved shirt, glasses and helmet. PPE may be left with Security at main gate and reclaimed before returning to ship.) Children are to have an equivalent level of PPE dependent on their age and ability to wear PPE.
9. All crews transiting the facility must adhere to West Australian road rules.
10. Ship's crew members may be subject to random drug and alcohol testing in conformity with the Onshore Gas Plant's Drug and Alcohol policy, Ship's crew are permitted a BAC reading no higher than 0.04.

Third Party Personnel visiting vessels

The names of all visitors to the ship, together with their company and the reason for the visit, must be provided to the Shipping Office for approval via the Agents. Personnel not registered as visitors will not be allowed access to the Jetty.

In the event of any infringement of these regulations, Woodside Energy Ltd reserves the right to prohibit shore access to ship crew members.

Signed

Accepted:

Pilot/Loadmaster

Master

Name:

Name:

APPROVED

APPENDIX P REQUIRED BOARDING ARRANGEMENTS FOR PILOT

REQUIRED BOARDING ARRANGEMENTS FOR PILOT

INTERNATIONAL
MARITIME
PILOTS' ASSOCIATION

H.Q.S. "Wellington"

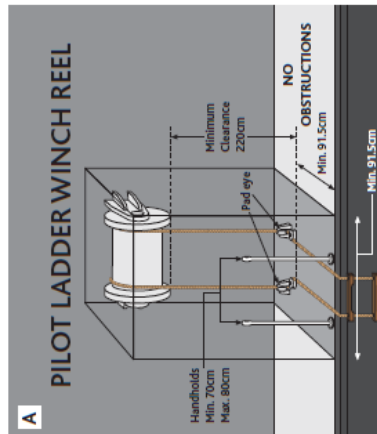
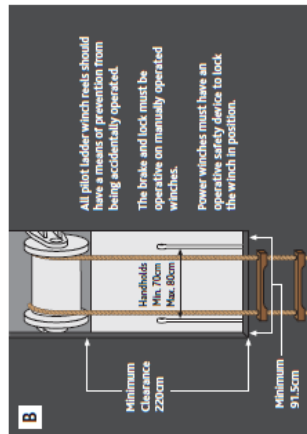
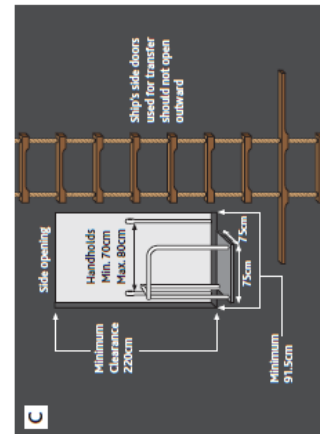
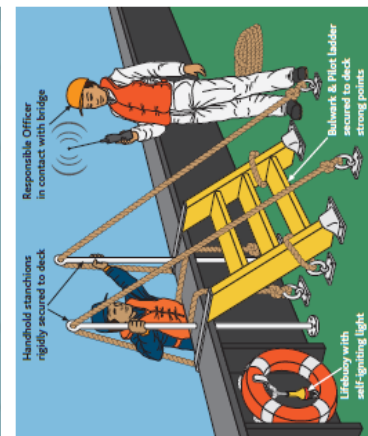
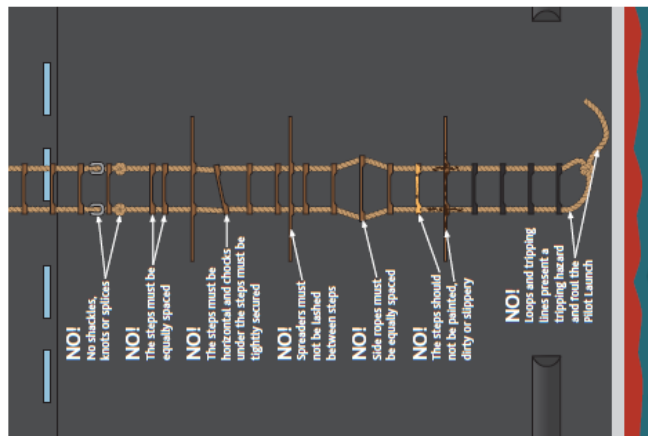
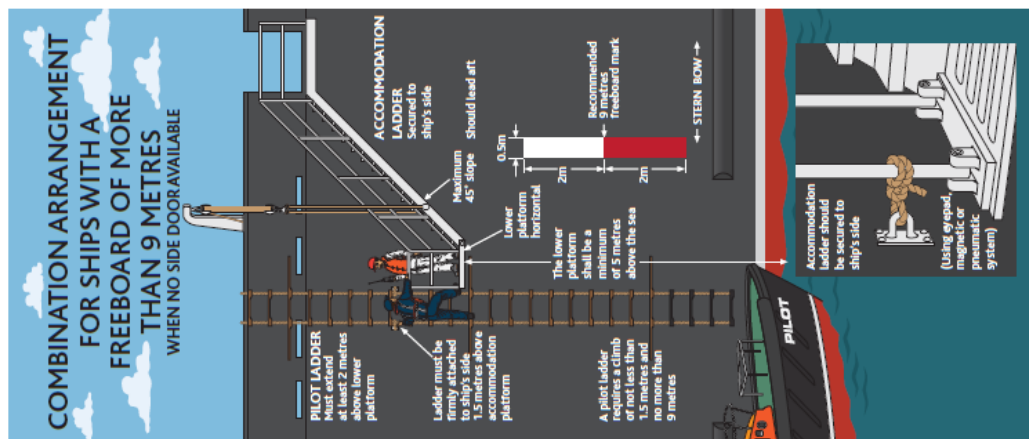
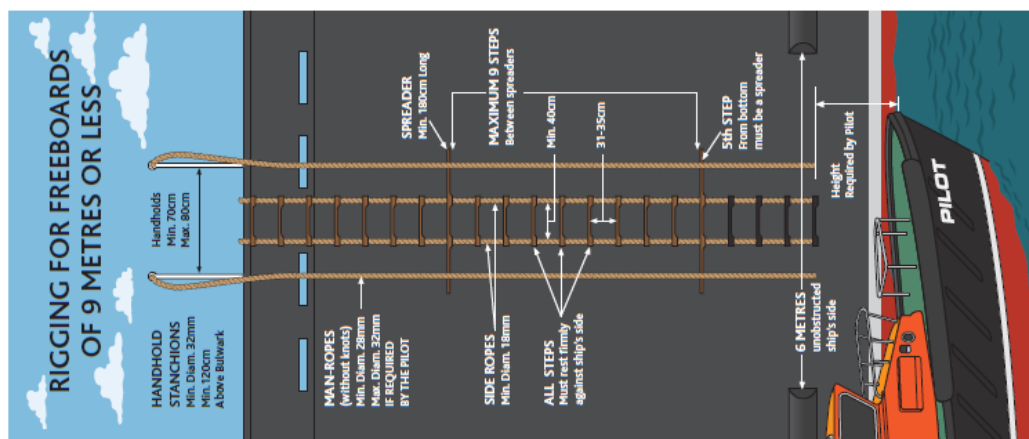
Temple Stairs, Victoria Embankment, London WC2R 2PN

Tel: +44 (0)20 7240 3973 Fax: +44 (0)20 7210 3518 Email: office@impahq.org

This document and all IMO Pilot-related documents are available for download at: <http://www.impahq.org>

In accordance with SOLAS Regulation V/23 & IMO Resolution A.1045(27)

INTERNATIONAL MARITIME PILOTS' ASSOCIATION

 Email: office@impahq.org
<http://www.impahq.org>


This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 69 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX Q PLUTO TERMINAL PRE-ARRIVAL QUESTIONNAIRE (LNG TANKER)

Pre-Arrival Questionnaire for LNG Tankers									
Due 3 Days Prior to Arrival									
Vessel									
Date:									
Vessel Name:									
Masters Name:									
Port of Registry:									
Pilot Ladder									
1	Date of Manufacture:	Port Ladder			Stbd Ladder				
2	Are there any replacement steps?		Please Select		How many?				
3	Are there any replacement spreaders?		Please Select		How many?				
4	Date of last inspection (other than visual):								
Arrival									
5	Estimated Date/Time of Arrival:								
7	Estimated Arrival Drafts:	Fwd:		m	Aft:			m	
8	Arrival Displacement:			tonne					
9	Estimated Tank Temperatures on Arrival:			°C					
10	Cooldown Period Required?			hrs					
Departure									
11	Estimated Departure Drafts?	Fwd:		m	Aft:			m	
12	Estimated Departure Displacement?			tonne					
13	Main engine warm through time required prior to departure from berth?			hrs					
Please confirm the following:									
14	All Navigation, Mooring, Safety and Engine Systems are fully operational?							Please Select	
15	No Tank Leakage?							Please Select	
16	The following systems are operating correctly and have been inspected / tested?								
	a	Cargo system and boil off control equipment?						Please Select	
	b	Gas Detection Analysers?						Please Select	
	c	ESDS, alarms and interlocks?						Please Select	
	d	Tank high level alarms?						Please Select	
	e	Tank low / high pressure alarms?						Please Select	
	f	Remote operated valves						Please Select	
	g	ESD valves pressure tested and confirmed tight?						Please Select	
17	Does the vessel have a vapour strainer?							Please Select	
18	Cargo tanks and lines free of oxygen?							Please Select	
19	Stress calculations for cargo, ballast and bunker transfers made within recommended safety limits?							Please Select	
20	Vessel has a valid International Ships Security Certificate?							Please Select	
21	The current (MARSEC) Security Level under which the vessel is operating?							Please Select	
22	Did the vessels previous port have a valid Maritime Security Plan?							Please Select	
23	Are the vessel's mooring lines fitted with Jockey Ropes?							Please Select	
24	If so, what is the overall condition of the Jockey Ropes?							Please Select	
25	When were the Jockey Ropes last changed?								
26	Ballast Water:								
	a.	Ballast quantity, type (SBT, CBT, DIRTY), origin?							
	b.	Has the vessel complied with Biosecurity Act 2015 for Ballast Water Management?						Please Select	
	c.	If Ballast Water Treatment System (BWTS) is used, has the operator shared the BWTS certificate with Woodside Marine Assurance?						Please Select	
	d.	If ballast water exchange is used, has the vessel complied with Department of Agriculture Ballast Water Management Requirements for exchange of ballast water?						Please Select	
Mooring Lines and Tails									
27	Vessels replacement policy of mooring line/wires and tails.							hrs/months/ or other.	
Please fill out the attached worksheet with the below information regarding mooring lines/wires and tails.									
28	Age of each mooring line/wire and tails.								
29	Last date of inspection of mooring lines/wires and tails.								
30	Visual condition of each mooring line/wire and tail.								
For your information the pilot will discuss mooring arrangements with the vessel prior to berthing.									
Please have your mooring line certificates and inspection reports ready for inspection by a Terminal Representative.									
Rev 7 03/04/2022									

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 70 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX R PLUTO TERMINAL PRE-ARRIVAL QUESTIONNAIRE (CONDENSATE TANKER)

Pre-Arrival Questionnaire for Oil Tankers									
Due 3 Days Prior to Arrival									
Vessel									
Date:									
Vessel Name:									
Masters Name:									
Port Of Registry:									
Pilot Ladder									
1	Date of Manufacture:	Port Ladder			Stbd Ladder				
2	Are there any replacement steps?		Please Select		How many?	N/A			
3	Are there any replacement spreaders?		Please Select		How many?	N/A			
4	Date of last inspection (other than visual):								
Arrival									
5	Estimated Date/Time of Arrival:								
6	Estimated Arrival Drafts:	Fwd:		m	Aft:			m	
7	Estimated Arrival Displacement:			tonne					
Departure									
8	Estimated Departure Drafts?	Fwd:		m	Aft:			m	
9	Estimated Departure Displacement?			tonne					
Please confirm the following:									
10	All Navigation, Mooring, Safety and Engine Systems are fully operational:						Please Select		
11	All cargo systems leak free and fully operational?						Please Select		
12	Inert gas system operational, tanks inerted to less than 8% O2.								
13	Any residue traces of H2S will be less than 5 ppm on arrival at terminal?						Please Select		
14	All cargo systems, transfer equipment inspected. Leak free and operating correctly?						Please Select		
15	Stress calculations for cargo, ballasting, bunkering transfers made and within recommended safety limits.						Please Select		
16	The maximum loading rate for the present loading operation?							cu m/hr	
17	Maximum loading rate through one port 16" manifolds?							cu m/hr	
18	Maximum loading rate through two starboard 16" manifolds?							cu m/hr	
19	Does manifold arrangement comply with OCIMF standards.						Please Select		
20	Ballast Water:								
	a.	Ballast quantity, type (SBT, CBT, DIRTY), origin?							
	b.	Has the vessel complied with Biosecurity Act 2015 for Ballast Water Management?					YES		
	c.	If Ballast Water Treatment System (BWTS) is used, has the operator shared the BWTS certificate with Woodside Marine Assurance?					YES		
	d.	If ballast water exchange is used, has the vessel complied with Department of Agriculture Ballast Water Management Requirements for exchange of ballast water?					N/A		
21	Vessel has a valid International Ships Security Certificate?						YES		
22	The current (MARSEC) Security Level under which the vessel is operating?						Security Level 1		
23	Did the vessel's previous port have a valid Maritime Security Plan?						Please Select		
Mooring Lines and Tails									
24	Vessels replacement policy of mooring line/wires and tails.								
		Mooring lines:				hrs / months / or other.			
		Tails:				hrs / months / or other.			
For inshore terminals please fill out the attached Mooring Line & Tail Data worksheet with information regarding mooring lines/wires and tails.									
<i>For your information the pilot will discuss mooring arrangements with the vessel prior to berthing.</i>									
<i>Please have your mooring line certificates and inspection reports ready for inspection by a Terminal Representative.</i>									
Rev 5 03/04/2022									

Note: There are no shore reception facilities for dirty ballast or slops.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 71 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

APPENDIX S SANCTIONS ASSESSMENT PROCEDURE

Sanctions Assessment Procedure

For Vessels Visiting Woodside Terminals

1. The Vessel Owners (and Vessel Personnel) are bound under:
 - a. clause 3 (Conditions of Use) of the Withnell Bay Jetty Terminal Conditions; or
 - b. clause 3 (Conditions of Use) of the Pluto Terminal Conditions,as applicable (the 'Terminal Conditions').
2. This Sanctions Assessment Procedure ('Procedure') forms part of the 'Terminal Handbook' applicable at the Terminal and is issued under the Terminal Conditions. Any defined terms in the Terminal Conditions carry the same meaning within this Procedure unless defined otherwise in this Procedure.
3. The Company undertakes Sanctions assessments prior to the provision of Jetty Services to Vessel Owners. As a result of these Sanctions assessments or otherwise, the Company may require a declaration to be submitted (refer to the following page) ('Declaration') prior to the relevant loading date at the Woodside terminal. The Company will give prior notice in writing of this to any Vessel Owner if required by the Company.
4. Should there be any change of circumstances that would affect the responses after submission of the Declaration (if required by the Company), immediate re-submission is required with updated information.
5. The Company may undertake ongoing Sanctions assessments and is not bound by a response in any Declaration submitted to the Company.
6. The Company may withhold, suspend or terminate the provision of Jetty Services and require the removal of any Vessel from the Jetty, or take any other action the Company reasonably considers appropriate (and the Terminal Representative may give directions accordingly), taking into account the responses in the Declaration (or any re-submitted Declaration) or the Company's own and ongoing Sanctions assessments.

WHERE REQUIRED, COMPLETED DECLARATIONS (REFER TO FOLLOWING PAGE) AND UPDATED INFORMATION TO BE SENT TO PilotLoadingMaster@woodside.com.au

NOTE: Completion of the Declaration is a Company requirement in the circumstances described above.

Definitions

'Sanctions' means any trade, political, economic or financial sanctions laws, regulations, embargoes, or restrictive measures administered, enacted or enforced by any Sanctioning Authority.

'Sanctioning Authority' means any government and their relevant emanations and official institutions including those of: Australia, New Zealand, the USA, the United Nations Security Council; the European Union (and each of its member states), the United Kingdom, Switzerland and Japan.

'Sanctions List' means the Consolidated List maintained by the Australian Government Department of Foreign Affairs and Trade, or any list maintained by, or public announcement of a Sanctions designation made by, a Sanctioning Authority from time to time.

'Restricted Party' means any person or entity listed on a Sanctions List or any person or entity organised, located or resident in a country or territory that is, or whose government is, the target of Sanctions.

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 72 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

Sanctions Declaration

Date completing form:	Click here to enter a date	Woodside Load Port Terminal:	
Vessel Name:		Agent(s):	
Master's Name:		Load Date:	

Questions answered "Yes" require detailed comments in remarks section below

1.	Is the Vessel Owner or any Vessel Personnel a Restricted Party?	Yes	No
2.	Is the Vessel Owner or any Vessel Personnel directly or indirectly owned or controlled by a Restricted Party?	Yes	No
3.	Is the Vessel Owner or any Vessel Personnel engaging in or has engaged in any transaction or conduct that could result in it becoming a Restricted Party?	Yes	No
4.	Is or has the Vessel Owner or any Vessel Personnel been subject to any allegation, claim, proceeding, formal notice or investigation with respect to any Sanctions?	Yes	No
5.	Is the Vessel Owner or any Vessel Personnel engaging in, or has engaged in, directly or indirectly, any transaction or conduct which evades or avoids, or has the purpose of evading or avoiding, or breaches or attempts to breach any Sanctions applicable to it?	Yes	No
6.	Has the Vessel Owner or any Vessel Personnel engaged in, or is engaging in, directly or indirectly, any trade, business or other activity with or for the benefit of any Restricted Party?	Yes	No

Question Number	Remarks for questions answered "Yes"

Master's Name:

Signature:

Date:

Ship STAMP:

(Source: [SharePoint](#))

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted, or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

Controlled Ref No:

Revision:

Native file DRIMS No:

Page 73 of 73

Uncontrolled when printed. Refer to electronic version for most up to date information.

APPROVED

CONTROLLED DOCUMENT

Terminal Handbook Pluto

Controlled Reference Number: XA7500MW0001
Revision: 18
Sensitivity: 2. General

Approved by:

Prepared by:	van Eeden, Johan	18/10/2022
Custodian by:	Jenkin, John J.	17/11/2022 06:27:41
Approved by:	Probert, Russell	08/12/2022 12:49:32

This document is protected by copyright. No part of this document may be reproduced, adapted, transmitted or stored in any form by any process (electronic or otherwise) without the specific written consent of Woodside. All rights are reserved.

APPROVED