Marine Operations Procedures
# THE BRISTOL PORT COMPANY
## MARINE OPERATIONS PROCEDURE

### Definitions and Abbreviations
- Definitions and Abbreviations (4 10 Apr 2015)

### Section 1 Passage planning

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<tr>
<td>3.5</td>
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<tr>
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<td>n/a</td>
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<td>n/a</td>
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Definitions and Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Administration Assistant</td>
</tr>
<tr>
<td>Abort Time</td>
<td>The time at which the process of docking or sailing a vessel must be terminated as it will not have its minimum under keel clearance.</td>
</tr>
<tr>
<td>ABP</td>
<td>Associated British Ports</td>
</tr>
<tr>
<td>ABS</td>
<td>Agricultural Bulk Services</td>
</tr>
<tr>
<td>Air Draught</td>
<td>Height of the upper most structure above the vessels water line (including whip aerials).</td>
</tr>
<tr>
<td>Avomax</td>
<td>PCC 180 metres LOA and over, any other type of vessel up to 190 metres LOA with beam in excess of 28 metres or draft in excess of 9 metres, or any vessel over 190 metres LOA and up to 210 metres</td>
</tr>
<tr>
<td>BAFT</td>
<td>Bristol Aviation Fuel Terminal</td>
</tr>
<tr>
<td>BCR</td>
<td>Bulk Terminal Control room</td>
</tr>
<tr>
<td>Beam</td>
<td>Extreme beam</td>
</tr>
<tr>
<td>Brackish water</td>
<td>Water with a relative density of 1.012</td>
</tr>
<tr>
<td>Conventional Vessel</td>
<td>A vessel without operational thruster or a high lift rudder</td>
</tr>
<tr>
<td>CG</td>
<td>Coast Guard</td>
</tr>
<tr>
<td>DAHM</td>
<td>Duty Assistant Haven Master</td>
</tr>
<tr>
<td>Daylight</td>
<td>Day light is defined as the period between morning civil twilight to evening civil twilight.</td>
</tr>
<tr>
<td>Deep-draught vessel</td>
<td>Any vessel with a draught of 12.5m or more</td>
</tr>
<tr>
<td>DFT</td>
<td>Department for Transport</td>
</tr>
<tr>
<td>DHM (C)</td>
<td>Deputy Haven Master Conservancy</td>
</tr>
<tr>
<td>DHM (SMS)</td>
<td>Deputy Haven Master Safety Management System</td>
</tr>
<tr>
<td>DHM (SO)</td>
<td>Deputy Haven Master Shipping Operations</td>
</tr>
<tr>
<td>DMEM</td>
<td>Deputy Marine Engineering Manager</td>
</tr>
<tr>
<td>EAM</td>
<td>Environment and Administration Manager</td>
</tr>
<tr>
<td>ETA</td>
<td>Estimated time of arrival</td>
</tr>
<tr>
<td>ETD</td>
<td>Estimated time of departure</td>
</tr>
<tr>
<td>HM</td>
<td>Haven Master</td>
</tr>
<tr>
<td>HS</td>
<td>Hydrographic Surveyor</td>
</tr>
<tr>
<td>King Road</td>
<td>Area shown in Panel A of chart 1859</td>
</tr>
<tr>
<td>Large Kerosene Vessel</td>
<td>Tanker of 160 m or more LOA and with a displacement of 45,000 tonnes or more bound to/from BAFT with kerosene</td>
</tr>
</tbody>
</table>
Definitions and Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>LKV</td>
<td>Large Kerosene Vessel</td>
</tr>
<tr>
<td>LOA</td>
<td>Length overall</td>
</tr>
<tr>
<td>MAIB</td>
<td>Marine Accident Investigation Branch</td>
</tr>
<tr>
<td>MAC</td>
<td>Marine Administration Controller</td>
</tr>
<tr>
<td>MCA</td>
<td>Maritime and Coastguard Agency</td>
</tr>
<tr>
<td>MEOTM</td>
<td>Marine Engineering and Oil Terminals Manager</td>
</tr>
<tr>
<td>MRCC</td>
<td>Marine Rescue Co-ordination Centre</td>
</tr>
<tr>
<td>MSO</td>
<td>Marine Support Officer</td>
</tr>
<tr>
<td>OB</td>
<td>Oil Basin</td>
</tr>
<tr>
<td>OBO</td>
<td>Oil Bulk Ore (vessel)</td>
</tr>
<tr>
<td>OPA</td>
<td>Oil and Pipelines Agency</td>
</tr>
<tr>
<td>PIE</td>
<td>Port Installations Engineer</td>
</tr>
<tr>
<td>PO</td>
<td>Pilot Order</td>
</tr>
<tr>
<td>Portbury Max</td>
<td>Vessels with a draught &gt;12.5m and/or LOA &gt;200m</td>
</tr>
<tr>
<td>Post-Panamax</td>
<td>A vessel 34m or more extreme beam</td>
</tr>
<tr>
<td>RPD</td>
<td>Royal Portbury Dock</td>
</tr>
<tr>
<td>SV</td>
<td>Sensitive Vessel</td>
</tr>
<tr>
<td>Sensitive vessel</td>
<td>Any post-Panamax, Avomax, LKV, deep-draught vessel or any other vessel that requires planning beyond a basic passage plan (MS26F), or any other vessels that have a lock-window of 1 hour or less</td>
</tr>
<tr>
<td>UKC</td>
<td>Under Keel Clearance</td>
</tr>
<tr>
<td>VTS</td>
<td>Vessel Traffic Service</td>
</tr>
</tbody>
</table>
To ensure that when a vessel is accepted a suitable berth is available and the vessel is capable of entering the Port.

Vessels shall be booked by the Agent via MAC/AA or Bristol VTS.

It must be checked that the vessels dimensions do not exceed:

- For Royal Portbury - 300m L.O.A., 41.0m beam and 14.5m draught brackish water (RD 1.012).
- For Avonmouth - 210m L.O.A., 30.1m beam and 11.0m draught brackish water (RD 1.012).

A vessel should not be given a pilot order unless all safety considerations have been assessed and particularly that the vessel has an adequate UKC for all stages of the passage. A pilot order can be issued without a specific berth being allocated.

A vessel must not be committed to entry, which is to say boarding a pilot or passing Breaksea, unless it has allocated berth which is indicated in the Operations Database. The berth does not need to be unoccupied if there is a specific plan to have it ready for close approach i.e. dock swap.

Non-compulsory vessels within the harbour area must not be committed to lock entry unless there is a suitable berth available. This berth may be allocated by the DAHM on an *ad hoc* basis.

It may be the case that the Operations Director, General Manager Operations, appropriate Trade Manager or Commercial Team needs to be consulted to resolve a conflict with berthing.

Consideration needs to be given to vessels with Class 1 dangerous goods (Explosives) on-board to ensure the terms of our explosives licence are met. Each cargo manifest received by Bristol VTS should be checked to see which class of dangerous goods are carried, if Class 1 DG’s are carried the HM, DHM and Operations Director should be informed by email. The Net Explosive Quantities (NEQs) stated in the licence apply to cargo for transit via Bristol as well as cargo inbound for Bristol.

When Bristol VTS have been alerted to Class 1 dangerous goods on board they will follow the process set out in SAF 134/2 (attached) to determine if the vessel can be accepted. The explosive quantities permitted at Portbury and Avonmouth are shown in the tables of SAF 134/1 (attached).
UNCONTROLLED WHEN PRINTED

All current and future container customers have been informed of the limitations, by berth, of the ammunition natures that Avonmouth and Royal Portbury Dock can accommodate.
Aide memoire

Maximum Explosive Quantities Permitted at Avonmouth & Royal Portbury Dock Container Terminals

These tables must be consulted to determine the acceptance / berthing arrangements for vessels carrying explosives. These tables should be read in conjunction with the “Marine Operations Procedures”, Section 1.1 (Vessel Acceptance) that states ‘a vessel will not be allocated a berth if the Division category exceeds our license (Ref XI/4811/4/6) and simplified aide memoire below’.

<table>
<thead>
<tr>
<th>DIVISION</th>
<th>Avonmouth ACT (West Wharf 1)</th>
<th>Portbury RPD Berth 1*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>5,000kg (NEQ)²</td>
<td>50,000kg (NEQ)</td>
</tr>
<tr>
<td>1.2</td>
<td>13,000 kg (NEQ)</td>
<td>UNLIMITED</td>
</tr>
<tr>
<td>1.3</td>
<td>180,000 kg (NEQ)</td>
<td>UNLIMITED</td>
</tr>
<tr>
<td>1.4</td>
<td></td>
<td>Exempted by Regs</td>
</tr>
<tr>
<td>1.5</td>
<td>5,000 kg (NEQ)</td>
<td>50,000kg (NEQ)</td>
</tr>
</tbody>
</table>

*Explosives in aggregated quantities exceeding 15,000kg (1.1) or 100,000kg (1.2) or 15,000kg (1.5) can only be handled between 20:00 and 06:00.

Reduced allowance If Berth 7 (Portbury) is occupied

When a loaded jet fuel vessel is berthed or being discharged at Berth 7, the maximum aggregated quantities of explosives that may be accepted reduces to:

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<thead>
<tr>
<th>DIVISION</th>
<th>Berthed</th>
<th>Discharging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>9,500kg (NEQ)</td>
<td>4,600kg (NEQ)</td>
</tr>
<tr>
<td>1.2</td>
<td>45,000kg (NEQ)</td>
<td>11,000kg (NEQ)</td>
</tr>
<tr>
<td>1.3</td>
<td>UNLIMITED</td>
<td>150,000kg (NEQ)</td>
</tr>
<tr>
<td>1.4</td>
<td>Exempted by Regs</td>
<td>Exempted by Regs</td>
</tr>
<tr>
<td>1.5</td>
<td>9,500kg (NEQ)</td>
<td>4,600kg (NEQ)</td>
</tr>
</tbody>
</table>

Additional Information

1. For explosives in Compatibility Groups A, B or F, the maximum allowable quantities are one third of the figures stated above. The revised total NEQ can be derived thus:

\[(\text{NEQ of Explosive in CG A, B or F}) \times 0.33 = \text{Revised total allowable NEQ.}\]

For example if 1.1A and 1.1B were carried the combined NEQ for ACT Berth would be:

\[5,000 \times 0.33 = 1,650\text{Kg NEQ max.}\]

2. Where explosives of a different class are carried together, they shall be deemed to be in the highest division. (1.1 Highest to 1.5 Lowest). Except where:

a. Explosives in division 1.5 are carried with explosives in division 1.2. In which case, they shall all be deemed to be in division 1.1
Arrival

When planning pilot orders, King Road ETAs, arrival and departure times, and tug allocations, the following points should be considered:

- HW King Road
- Minimum sill clearances;
- The minimum expected under-keel clearance for crossing the sill inbound is as follows;

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Panamax</td>
<td>1.8m</td>
</tr>
<tr>
<td>All other vessels</td>
<td>1.2m</td>
</tr>
</tbody>
</table>

- Sensitive vessels
- Traffic volume
- Air draught at M5 bridge.

Pilot orders for all sensitive vessels should normally be booked for 3½ hours before HW so that the vessel will lock in for HW. The appropriate planning form must be completed by the DAHM and agreed with the pilot before he embarks.

The earliest time that a vessel may start to cross the sill is when the UKC is at least 1.0m provided that;
- The tide is still rising,
- The lock and required personnel are ready in all respects,
- UKC is expected to be the minimum defined for the particular type of vessel
- Vessels docking on the ebb tide must comply with the UKC requirements stated in this procedure at all times.

Vessels are not permitted to make an approach into Portbury or Avonmouth lock entrance with less than 0.5m UKC. This will be monitored by VTS and adequate warning will be given to vessels making an approach with less than this required UKC.

Sensitive vessels will be given positive confirmation from VTS when the vessel has 0.5m clearance in the entrance, positive confirmation will also be given when the sensitive vessel has 1m UKC.
**Inbound Vessels that cannot swing in King Road**

Definition: A ship whose draught minus the Portishead Point rule-of-thumb allowance is greater than the expected HW height KR may not be expected to swing.

These vessels are required to dock from the west due to the available water east of RP pier. It is possible for them to swing in King Road with tug assistance, but this must not be considered routine and should only be executed as an emergency or abort procedure.

For these vessels, pilot orders should be no later than 3hrs 30 mins before HW KR.

The bow and stern tugs should be planned to meet the vessel at Welsh Hook, and the pilot must be advised in good time if this is not achievable. This is to allow the pilot to consider aborting in Walton Bay. The 3rd and/or 4th tug should be planned to meet the vessel at Portishead Point.

**Other vessels**

For all other arriving vessels, pilot orders and King Road ETAs should be such that;

For planning purposes, vessels intending to swing in King Road will not expect to pass Portishead Point until the King Road tide reading is equal to draught minus the Portishead Point rule.

The lock is in all respects ready, unless it has been agreed between VTS and the pilot that the vessel will lie alongside the pier until the lock is ready.

Vessels are not permitted to make an approach into Portbury or Avonmouth lock entrance with less than 0.5m UKC. This will be monitored by VTS and adequate warning will be given to vessels making an approach with less than this required UKC.

**All vessels must be in the lock with the gates closed by the abort time**
Departures

The following table and the appropriate planning form should be used where applicable;

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Planning Form</th>
<th>Earliest recommended PO Time</th>
<th>Latest recommended PO Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-Panamax (Loaded)</td>
<td>MS 26B</td>
<td>2½ hours before HW</td>
<td>1½ hours before HW</td>
</tr>
<tr>
<td>Post-Panamax (Ballast)</td>
<td>Not Required</td>
<td>As per all departing vessels.</td>
<td>1 hour before HW</td>
</tr>
<tr>
<td>Bulk Panamax (Loaded)</td>
<td>MS 26B*</td>
<td>2½ hours before HW</td>
<td>1½ hours before HW</td>
</tr>
<tr>
<td>Avomax</td>
<td>MS 26E</td>
<td>As per all departing vessels.</td>
<td>2 hours before Abort time</td>
</tr>
<tr>
<td>LKV (Loaded)</td>
<td>MS 26B</td>
<td>2½ hour before HW</td>
<td>1½ hours before HW</td>
</tr>
<tr>
<td>River Avon</td>
<td>MS26F</td>
<td>As per tide</td>
<td>HW</td>
</tr>
</tbody>
</table>

* MS26B should be completed if draught exceeds 12.5m or vessel is loaded post-Panamax

Part loaded vessels will be considered by the DAHM on a case-by-case basis.

All departing vessels

Notwithstanding the requirements in the table on page 2 of this procedure departing pilot orders and sailing times should be such that they must be planned to cross the sill when the UKC for the whole passage beyond the lock entrance is at least 1.2m

For early departures care is to be taken to ensure that the lock is not lowered away too early resulting in a dangerously small under keel clearance.

All vessels must be lowered to sea with the gates fully open by the abort time.

Timings are recommended (except for abort times) and should be used for general planning. Individual cases and variable circumstances may have these times change but any additional
commercial risk i.e. a vessel missing her slot due to late tugs etc. should be highlighted to the Operations and Commercial Departments. UKC margins are not to be considered.

**Abort Time**

The abort time must be calculated by the DAHM and agreed between both pilot/ship’s master and VTS prior to the vessel entering the lock. Initially this is done at the planning stage but when the vessel is on passage the dynamic tidal tendency will be more relevant. **If there is a difference between the actual and the predicted abort time due to the tide cutting or making the abort time must be re-calculated and the new time will be the earlier of the two.** It is appreciated that there is a tendency for the tide to be early or late with a consequential delay/advance of HW but this is difficult and dangerous to predict: the abort time should be calculated dynamically on known information. Portbury or Avonmouth Dock Radio or MSO should issue a 10 minute warning to the vessel that the abort time is approaching. In the case of deep draught vessels there is a ‘approach point of abort for deep draught vessels’ at the lock approach detailed in procedure 1.4

The abort time is when the UKC allowance in the entrance is at the limit of 1.0m on a falling tide less the time allowance below

<table>
<thead>
<tr>
<th>VESSEL SIZE</th>
<th>VESSEL DESCRIPTION</th>
<th>ALLOWANCE TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AVONMOUTH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PORTBURY</td>
<td></td>
</tr>
<tr>
<td>LARGE</td>
<td>Avomax</td>
<td>30</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>Vessels over 100m LOA (excluding Avomax)</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Vessels over 130m LOA (excluding Portbury Max)</td>
<td></td>
</tr>
<tr>
<td>SMALL</td>
<td>Vessels less than 100m LOA</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Vessels less than 130m LOA</td>
<td></td>
</tr>
</tbody>
</table>

Allowance times are estimated times that will normally permit the vessel to be cleared to safe water in King Road.
TBPC Pilotage Directions and Regulations lay down the criteria of vessels that must carry a pilot.

In some cases an assistant pilot may be required, either because it has been deemed necessary by the CHA (see below) or because of ship specific requirements or weather conditions.

<table>
<thead>
<tr>
<th>Type of vessel</th>
<th>Assistant pilot required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitive vessel 12.5m draught or greater</td>
<td>Assistant pilot required</td>
</tr>
<tr>
<td>LKV less than 12.5m draught inbound</td>
<td>Assistant pilot required lock to berth</td>
</tr>
<tr>
<td>LKV &gt;200m LOA, and/or &gt;32m beam, and/or &gt;12.5m draught (Sailing)</td>
<td>Assistant pilot required berth to lock</td>
</tr>
<tr>
<td>Post Panamax &gt;34m beam (inbound)</td>
<td>Assistant pilot required</td>
</tr>
<tr>
<td>Post Panamax &gt;34m beam (Sailing)</td>
<td>Assistant pilot required berth to lock</td>
</tr>
<tr>
<td>AVOMAX&gt;190m and/or &gt;28m beam (inbound)</td>
<td>Assistant pilot required</td>
</tr>
<tr>
<td>AVOMAX&gt;190m and/or &gt;28m beam (Sailing)</td>
<td>Assistant pilot required berth to lock</td>
</tr>
<tr>
<td>PCC with beam of 35m or greater</td>
<td>Assistant Pilot required (arrival)</td>
</tr>
<tr>
<td></td>
<td>Assistant Pilot required berth to lock</td>
</tr>
</tbody>
</table>

For vessels manoeuvring on or off BAFT, one of the pilots must be approved for that facility.

**Pilot Order**

A pilot order time will be allocated by Bristol VTS appropriate to the vessels dimensions and tide plan. The tidal planning guide contained in the VTS operations manual will be considered when allocating pilot order times. This ensures that vessel size and the strength of tide is considered in addition to draught.

When the pilot assigned to a particular vessel determines that the boarding of the vessel should differ by more than 15 minutes either side of the allocated pilot order time, in order to help the tide run more safely or efficiently, the pilot must inform Bristol VTS. Bristol VTS may authorise the change of boarding time and amend the pilot order time. If the change is not authorised the pilot must board at the allocated pilot order time ±15 minutes. A pilots request to board at a time different from the allocated pilot order time will be made as close to the pilot being allocated the vessel as is practical.
Up-to-date depth data should be obtained from Hydrographic Department charts and limiting depths advice in Local Notices to Mariners.

Bridge Depth - The depth for calculation is based upon the minimum depth within the designated area as shown in TBPC Bridge Patch chart.

Tide plan process

The main point of the process is to discuss and agree a plan for the tide.

The completion of one of the following forms is required prior to pilot boarding. All forms are to be completed by DAHM except for the MS26F:

- MS26A Deep draught/LKV vessel arrival
- MS26B Deep draught/LKV vessel departure
- MS26D Avomax arrival
- MS26E Avomax departure
- MS26F Pilot Passage Plan

The complexity of the tide in question will dictate whether the planning process is carried out by telephone with or by a meeting of the pilots, the towage provider and Marine Department representative.

The decision to have a meeting rests with the Haven Master or his deputy. However, the pilot or tug company may request the HM or DHM call a meeting if they consider it appropriate.

If there are changes to the passage plan then the form should be amended and re-issued.

**Initial Planning**

For complex tides, an initial plan should be considered at least a day in advance to ensure that an adequate number of tugs are available.

An appropriate pilot will be available for consultation; initial contact should be made via the pilotage clerk in order that the correct pilot is contacted at a convenient time.
Specific Planning

The responsibility for the completion of the appropriate form, its amendment and dissemination rests with the DAHM.

Arrival

At least 24 hours before Prior to arrival masters/agents must communicate to the port, amongst other things, the vessel’s maximum draught, DWT/displacement at current draught, main engine manoeuvring full-ahead speed.

Passage from Pilot embarkation point to Portishead Point. During this period the pilot will:

- Make an assessment of the vessel, noting and reporting any factors liable to affect passage plan particularly defects likely to affect navigation. In particular any variance from expected draught or speed should be reported to Bristol VTS and the Passage Plan reviewed accordingly.
- Conversely height and deviation of tide plus weather conditions are to be passed to the pilot from Bristol VTS.
- Confirm that the squat allowance is correct.
- Ascertain the distance from bow to bridge and report this to Bristol VTS. During berthing the pilot will be advised by the MSO how the position of the vessel’s bridge will be marked.

The objective is to lock in the vessel and have the outer gates closed by the abort time. For deep draught and sensitive vessels an ETA at Portishead Point 1 hour 15 minutes before HW KR is to be expected to achieve a successful docking.

For deep draught and post-Panamax vessels the escort tug will meet the vessel at English and Welsh Light Buoy; other tugs will be programmed to join the vessel at Walton Bay/King Road.

When the vessel’s UKC is at least 0.5m for the lock entrance then the pilot should be advised so that he may continue his approach.

Vessels are not to commence crossing the sill unless they comply with the UKC requirements stated in procedure 1.2.
Departure

Prior to departure the pilot should confirm visually the vessel’s draught.

On boarding, the pilot should confirm that the information supplied on the appropriate MS26 has been completed and is correct.

Bristol VTS should advise of any changes to predicted tidal height and current weather conditions.

The vessel must not depart from the lock after the abort time as detailed in the abort procedure.

If the vessel is deep-draught the tugs are programmed to remain with the vessel until Portishead Point; thereafter the escort tug will remain with the vessel to the English and Welsh Grounds buoy.

Abort Procedure

This is the operation by which the entry to the port is terminated and the vessel returned to safe water, or in the event of a departing vessel returned to the berth or held over in the lock. This may be initiated;

- At any stage of the passage between Breaksea and the lock entrances
- Before lock entry
- In the lock
- In an emergency.

The decision to abort may be made by the HM/DHM/DAHM/MSO, the pilot, or the master of the vessel. However there should be no disputes over the air. If any party calls an abort then it must be acted upon, there is no right of veto.

When considering the abort, both the abort time for the sill and the latest clearance depth at The Bridge should be considered.

On no account should the abort time be overrun. Bristol VTS or the MSO should initiate a 10 minute warning of the abort time to the pilot/master.

‘Approach point-of-abort’ for deep draught vessels’
Deep draught vessels are shown to be reasonably consistent in their lock sill to gates closed time such that there is an approach point of abort time that is to be used for arriving deep-draught vessels to Portbury lock such that;

If a deep draught vessel’s bow has not passed the west outer knuckle:
20 minutes before the abort time for Panamax vessels and
30 minutes before the abort time for post-Panamax vessels
Then an abort is to be called by the MSO/DAHM and the vessel returned immediately to sea.

Lock abort on Arrival - the abort must be initiated immediately if the vessel is not in the lock with the outer gates closed by the dynamic abort time.

Lock Abort on Departure - the abort must be initiated immediately if the vessel is not lowered in the lock with the outer gates fully open by the dynamic abort time.

The abort time for The Bridge should be calculated as follows;

\[
\begin{align*}
\text{Vessel’s draught} & \quad \text{m} \\
\text{PLUS safety margin} & \quad 1.2\text{m} \\
\text{PLUS allowance for squat} & \quad \text{m} \\
\text{EQUALS Depth required} & \quad \text{m} \\
\text{MINUS minimum charted height at Bridge} & \quad \text{m} \\
\text{EQUALS predicted tide height required} & \quad \text{m} \\
\text{From above height, time of predicted tide} & \quad \text{hhmm} \\
\text{MINUS run time of vessel from KR to E&W} & \quad \text{hhmm} \\
\text{MINUS clearance time for lock (see 11.8.2)} & \quad \text{hhmm} \\
\text{Abort time} & \quad \text{hhmm}
\end{align*}
\]

Run time to The Bridge

\[
\text{Run time required} = \text{Distance from ‘King Road’ to E&W (10.9 miles)}
\div \text{by the vessel or tugs speed} + 2\text{knots for tide.}
\]

At the initial planning stage a value of 0.5m may be used for squat in the calculation on form MS26. However, on boarding the vessel the above calculation should be carried out specifically. Should amendments be necessary the pilot must advise Bristol VTS of new abort time.

The Master must be advised of the situation and his agreement confirmed on the squat value to be used.
The following **minimum** underkeel clearances (UKC) apply:

- Lock/Estuary* vessels 34m beam or more: 1.8m
- Lock/Estuary* vessels less than 34m beam: 1.2m
- River Avon: 1.2m
- Swinging circle off Cumberland Basin lock: 0.5m
- Portbury and Avonmouth Docks: 0.5m

*except where mentioned in Procedures 1.2 & 1.4 regarding approach and abort.
The progress of a sensitive vessel is constrained by a pre-determined timetable. The timing of other vessels movements in or out of the dock/lock must therefore be controlled to ensure that the entry of a sensitive vessel is not impeded.

<table>
<thead>
<tr>
<th></th>
<th>Inbound vessels</th>
<th>Outbound vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not using tugs</td>
<td>HW – 4 hours</td>
<td>HW – 2½ hours</td>
</tr>
<tr>
<td>Using tugs not allocated to SV</td>
<td>HW – 4 hours</td>
<td>HW – 2½ hours</td>
</tr>
<tr>
<td>Using SV pusher tugs to lock only</td>
<td>HW – 4½ hours*</td>
<td>HW – 2¾ hours***</td>
</tr>
<tr>
<td>Using 2 of the SV pusher tugs to berth**</td>
<td>HW – 5 hours***</td>
<td></td>
</tr>
</tbody>
</table>

* Tugs must be released by HW-2 hours  
** Vessel should be able to enter KR with draught -3m (or some other height as amended by Local Notice to Mariners) at HW -3½ hours  
***Tug must be released by HW-1¾ hours

The E&W Escort Tug is not to be used for any movement if it is required for the docking of a Sensitive Vessel.

If the criteria above cannot be met due to any reason such as delays on arrival, cargo etc. then the movement/PO must be cancelled and rebooked after the Sensitive Vessel docking. Contact must be established with the duty shipping manager if this occurs

Any vessel due to dock behind a sensitive vessel must not approach the pier or enter the lock entrance area until that vessel is safely in the lock with the gates closed.
Definition of an Avomax vessel

“PCC 180 metres LOA and over, any other type of vessel up to 190 metres LOA with beam in excess of 28 metres or draft in excess of 9 metres, or any vessel over 190 metres LOA and up to 210 metres”

Special consideration is given to vessels over 190m LOA or 28m Beam such that;

- An assistant pilot is required in dock for both arrival and departure.
- There should be no movement during a level.
- Vessels 205m LOA and greater will require P berth to be unoccupied.
The area to the North West of Royal Portbury and Avonmouth Docks, known as King Road, is an area where traffic needs to be de-conflicted as it contains a large number of high ranking navigation hazards. Measures must be taken to avoid the area becoming congested and unnecessary passing or crossing situations should be avoided. To achieve this aim all vessels are to enter King Road at a time which is appropriate to the availability of the lock and tugs. Waiting in King Road will be kept to a minimum.

To ensure this is achieved inbound vessels will be informed of the progress made by vessels scheduled earlier on the tide with particular reference to tug availability. This will be updated at each reporting point and when tugs are released, starting to lower away, or leaving the lock as appropriate. This information will allow vessels to adjust speed and avoid entering King Road unnecessarily early.

In addition to giving regular information regarding ship / tug and lock movements VTS will if required give advice to vessels to adjust speed or pass a specific point at a specific time. This is of particular importance when considering non-piloted vessels.

**King road tug requirements.**

Notwithstanding the specific requirements for sensitive vessels, any conventional vessel with a draught greater than 9m or LOA greater than 200m must have at least 2 tugs available in King Road when passing Portishead Point. The planning to meet this requirement will ensure these tugs are available in good time with the remaining tugs planned so as not to cause a delay to the docking. In addition, a vessel assigned tugs when docking on an ebb tide, and stemming the tide in proximity of an outbound vessel in King Road, must have at least one tug available prior to passing Portishead Point.

Notwithstanding the specific requirements for sensitive vessels and conventional vessel described in the above paragraph. The towage guidelines provide the recommended number of tugs required for safe docking or sailing. The next first class pilot on turn and VTS are required to determine if any, or all, of the allocated tugs are required to be available in King Road when the vessel passes Portishead Point and communicate this requirement to all concerned parties. This requires a dynamic risk assessment to be made as it is dependent on the vessel handling characteristics, weather and other traffic movements.
If it is identified that a vessel is to have a tug/tugs available in King Road when passing Portishead point this decision should be made as early as possible in the planning process. The requirement will be passed to the towage provider and vessels agent. If appropriate outbound vessels may wish to keep out of the main strength of the flood tide particularly when sailing early on the tide this may involve leaving the main channel. Before planning to leave the channel or agreeing a passage plan which involves leaving the main channel Masters, pilots and VTS shall consider the following.

- The available depth of water, proximity to navigational hazards and prevailing weather conditions.
- The size of vessel, handling characteristics and cargo carried. Vessels carrying dangerous or polluting cargoes will not routinely leave the main channel.
- Unless the visibility experienced is good vessels should not routinely leave the main channel to ensure that recreational craft can be observed visually at a safe distance.

Vessels sailing from Avonmouth or Royal Portbury locks must contact Bristol VTS before leaving the lock to ascertain the traffic situation. Those vessels already in the navigable channel and proceeding with the flow shall have priority.

The outbound vessel can then speak bridge to bridge to any concerning inbound vessels. Should it be necessary for ships to pass in King Road, the leading inbound ship will dictate the passing arrangement. If the outbound vessel is unwilling to comply with this decision then it must remain in the lock until the risk is passed.

Once an agreement has been reached between ships, this information should be confirmed with Bristol VTS for onward transmission to other relevant vessels. Similar agreements must be made with subsequent inbound vessels if required.

The departing vessel will then repeat any passing arrangements made to VTS and state their intended passage plan, informing if this involves staying to the South / North side of the main channel. If leaving the main channel the vessels will inform VTS that they will be proceeding outside of the main channel to the South / North and advise at which point the vessel will leave and re-join the main channel.

If VTS are satisfied with the passage plan and passing arrangements and the vessel has been provided the with all relevant, traffic, weather and tide information, they may give
permission for the vessel to leave the lock. This permission will only be granted if the situation is clear and all parties understand the course(s) of action, if there is any doubt then Bristol VTS will hold the outbound vessel in the lock until other shipping is clear.

Radio contact should be maintained directly between ships in close quarter situations traffic relating to matters of navigation should be conducted on VHF Channel 12. If radio traffic relating to navigation is carried out on a vessels tug working channel VTS will monitor this channel and pass relevant information to concerning vessels on channel 12.

Vessels inbound on the flood should swing to port in the swinging areas of either Avonmouth or Royal Portbury Docks. These swinging areas should be kept clear when required by inbound vessels. It should be remembered when applying this procedure that vessels stemming the tide and overtaking vessels shall give way. Any intention to depart from this procedure should be made to Bristol VTS as soon as practicable.

King road traffic movements require additional management in restricted visibility, refer to M.O.P 1.9.
Shipping and VTS Operations require a modified approach in conditions of reduced visibility. The inability to visually assess situations elevates the risks and this may be mitigated by enhanced procedures and the increase of safety margins.

Restricted visibility procedures are to be introduced when the general or localised visibility is less than 1 nautical mile.

As King Road has been identified as an area containing a large number of high ranking hazards the following conditions will apply to King Road in restricted visibility.

Vessels leaving the lock at Avonmouth will only be permitted to proceed if King Road is clear of other commercial shipping with the exception of:

- Another inbound vessel which has already swung and is stemming the tide to the North of Avonmouth North pier, in this case the vessel stemming the tide will be carefully monitored by VTS to ensure the vessel or her tugs do not creep ahead towards the line of the pier whilst stemming
- Another inbound vessel is closing on Portbury pier, out of the tideway and deemed not to be a hazard by VTS

Vessels leaving the lock at Portbury will only be permitted to proceed if King road is clear of commercial shipping with the exception of a vessel already swung and waiting to the North.

Only one vessel will be permitted to swing in King Road at a time and only one vessel will be permitted to wait to the North of Avonmouth north pier at any one time.

If vessels are leaving Portbury and Avonmouth locks at similar times VTS will ensure overtaking situations do not occur until the outbound vessels have passed Black Nore point by controlling the time and order of the sailings.

Passing situations
Vessels shall not normally pass in King Road, traffic shall be organised in such a manner that prevents passing in King Road. This aim will be achieved by outbound vessels remaining in the lock or inbound vessels timing arrival into King Road as appropriate. Vessel transiting King Road to / from Sharpness may pass other vessels in King Road if the Sharpness vessel is able to remain to the North of King Road and consultation has taken place with the relevant parties.
It is appreciated that the range of visibility is likely to be inconsistent throughout the channel and visibility may reduce quickly, the above should however be considered best practice during the restricted visibility consultation process.

In the River Avon – VTS reporting vessels are not permitted to navigate within the river unless;
- Nelson Point is visible from Avonmouth Signal Station,
- Nightingale Valley is visible from Cumberland Basin (as determined by the lock controllers on duty at Bristol City Lock),
- Sea Mills is visible from Upper Horse Shoe.

These checks should be carried out when the vessel is either inbound passing Portishead Point or outbound ready to leave the lock at Bristol City Docks. The DAHM should use any available means to assess the visibility but if they cannot then they must assume that the visibility is detrimental given the local conditions.

All vessels required to furnish passage plans\(^1\) will comply with this procedure.

**Initial Actions – VTS & Shipping**

When it becomes apparent that the visibility in King Road or the River Avon is below, or shortly expected to be below 1 nautical mile then the docking or sailing of vessels should be re-assessed in consultation with relevant parties.

It is the responsibility of the DAHM at Bristol VTS to initiate consultation as soon as it becomes apparent that reduced visibility conditions are forecast or experienced.

Those parties consulted should include, but not be limited to pilots, tug masters, ship masters and the duty shipping manager.

**Restricted Visibility Checklist:**

| Portishead Point fog signal activated |  |
| Shipping advised |  |
| Tug company and/or tug masters informed |  |
| Visibility updates obtained |  |
| Radio navigation warning issued |  |

\(^1\) Vessels more than 30m LOA or vessels carrying more than 12 passengers
Vessel movements in restricted visibility

| Visibility details entered in weather log |
| River Avon checks made if applicable    |
| Support staff arranged                  |
| Portishead Marina informed              |
| Bristol City Docks informed             |
| Sharpness informed                      |

In consultation, the following should be considered:

- The passage plan(s),
- Other vessel movements within the VTS area,
- The ability of a vessel to maintain the desired track or position,
- The ability to safely pass a heaving line from vessel to tug,
- The ability of tugs to manoeuvre safely whilst connecting or disconnecting a tow line,
- The characteristics of all the tugs which will be involved in the operation,
- Tug assist methods that might best be used,
- Available space on the berth,
- Restrictions and limitations of the lock and berth, and any other factors such as critical equipment positions and dredger operations,
- Navigation aid failures including VTS systems,
- If the tug is fast at the time visibility reduces.
- Contingency plans especially for unforeseen tug disengagement.

**Actions Specific to Tug-Assisted Operations**

To plan the operation with full knowledge of any restrictions that may apply and to form contingency plans should these circumstances change, the tug master will inform the pilot/ship master of the following:

- Any limitations on the tug’s ability to assist,
- The maximum permissible speed at which any manoeuvre may have to be carried out,
- The necessity to provide information well in advance to the tug of all engine movements and alterations of course of the towed vessel,
- The necessity to inform the tug immediately of any changes in the towed vessel’s circumstances,
If a tug master believes that his tug is being put at risk or if he is not comfortable with the tug’s position relative to the vessel.

All of the tugs involved must maintain communications with each other throughout the operation. If at any time a tug master cannot see the vessel and he is attached by his line then he must let go and consider different methods of assisting the ship in consultation with the pilot.

During the consultation each of the following elements must be discussed and agreed:

- The method of tow,
- Speed – with good advance notice,
- Contingency planning.
- Pilots must be aware that if a bow tug is made fast when visibility falls to a distance where the tug master deems it unsafe to continue using this towing method, the tug master will advise the pilot that he will let go and assist by a different agreed method,
- The minimum distance which this will be done is when the tug master cannot see the line of the ship.

It is imperative that communications continue between the pilots, tugs and VTS and that contingency planning is considered as part of the passage plan.

**VTS - General Actions**

Consultation should produce the following general actions;

- Tidal planning amendments to de-conflict shipping to the east of Black Nore,
- The restriction of vessels departing the River Avon and lock(s) into King Road when other shipping is present (this includes Portishead Marina),
- Advisement to relevant parties that the VTS station is conducting operations in restricted visibility and that instructions may be issued to alter the tidal programme. This may include cancellations and postponements,
- Traffic organization contingency plans,
- More specific actions as detailed in the restricted visibility checklist.
When VTS advises shipping of reduced visibility (or vice-versa) they will, in addition to the passing of standard information, enquire whether the vessel is sounding the appropriate fog signal. If the reply is negative then the vessel must be reminded of the requirement to do so.

**VTS Manning**

VTS personnel must take additional actions to ensure that safe operations continue. The presence of restricted visibility requires extra vigilance and this will be achieved by the DAHM assessing whether additional support is required for the VTSO to concentrate on the radar information and radio traffic, and for the DAHM to control operations.

If support is required then he shall call an appropriate off-duty member of the VTS staff. If staff are not available then the HM/DHM should be called.

If restricted visibility is experienced during office hours then office staff may be called upon to assist with administrative duties.

The following should be considered when assessing the need for additional personnel;

- The time of day (during office hours it is quicker to procure office personnel),
- The current and predicted level of distractions such as telephone calls,
- The state of tide and whether shipping is active or not,
- Traffic density.

Support personnel should be tasked, primarily, with receiving telephone calls and other minor tasks. The VTSO and/or the DAHM telephones should be diverted to the support position.

Support staff will not be able to take pilot bookings and may not be able to deal with enquiries adequately. Non-urgent incoming calls should not be passed on to the DAHM or VTSO until they signal they are able to do so. Marine Office managers and assistants should be able to assist with enquiries and permits-to-work.
When actual or forecasted high winds are expected, and in general this should be considered to be 30 knots then special consideration should be given to the docking and sailing of vessels. When the actual wind speed is 15 knots or above then the use of an extra tug is to be considered and the DAHM at Bristol VTS is to initiate consultation with the relevant parties.

Those parties should include, but not be limited to pilots, tug skippers, ships’ masters and duty shipping manager.

During the consultation the following is to be considered:

- A vessel’s ability to maintain a desired track or position. In this respect vessels with a large windage are particularly susceptible,
- Wind direction, particularly regarding the intended manoeuvre,
- Whether the wind is steady or gusting,
- Whether the vessel is piloted, PECH or non-compulsory,
- The ability to safely pass a heaving line from vessel to tug,
- The ability of tugs to manoeuvre safely whilst connecting and disconnecting a tow line
- Whether additional tugs are required and their availability,
- The nature of the vessel’s cargo,
- The safety of lockgate controllers when mitring the lockgates,
- Available space on the berth with regard to the proximity of other vessels on adjacent berths,
- The ability of a vessel to safely remain on berth

If there is a conflict between the tug allocation decided by the Harbour Authority and the master of the vessel then the DAHM is to issue a direction.

**Berth allocation**

Berth allocation should be carefully considered by the DAHM in consultation with the commercial department and HM/DHM (SO) when high winds are experienced or forecast. This is obviously of greatest concern when allocating berths to vessels with a large windage area. Historically the greatest risk of mooring breakout exists on RP1 / RP2 when high freeboard vessels experience winds averaging 30 Knots or greater from a West to South Westerly direction. Consideration should also be given to vessels with a high windage area berthing on RP3/4 when strong winds are forecast from the South East.
It is vital that all matters of navigational safety and/or changes in Harbour Authority procedures are brought to the attention of Channel users.

Notice to Mariners can only be issued by the Haven Master or Deputy Haven Master.

**Creation of NtoM**

- Create the Notice to Mariners as per the format contained in MARSHARE\3. Marine Admin\3.7 Notice to Mariners
- Proof read and check
- Pass to HM or DHM then if cleared for publication
- Inform Marine Admin for emailing

**Publication to website**
This should be automatic via IT but the website should be checked by the notice issuer towards the end of the day to ensure that it is published.

**Cancellation**
The originator of the Notice to Mariner should ensure that it is cancelled when appropriate and removed from the web site and that a cancellation notice is issued where applicable.
Overview

For the purpose of this Marine Operations Procedure the River Avon is defined as that part of the River which lies within the jurisdiction of First Corporate Shipping, (trading as The Bristol Port Company). This area of jurisdiction is to the south-east of an imaginary line joining Nelson Point Light and St George Front Leading Light and all pills and creeks communicating directly with that part of the River Avon up to Ashton Avenue Bridge and the outer gates of Bristol City Docks. Bristol VTS provide an Information Service within the River Avon.

Vessels over 50GRT transiting the River Avon must be entered in Operations Database as a Channel Movement under the pilotage type RA regardless of the pilotage requirement. This is to ensure these vessels are included in River Avon Movement reports.

Vessel Dimensions

Vessels within the maximum dimensions below are pre-approved to transit the River Avon:

- Length over all (LOA) – 65 metres
- Beam (moulded) – 14.5 metres
- Draught – 4.5 metres
- Air Draught – 27.5 metres

Vessels up to 80 metres (LOA) may be permitted to undertake a transit of the River Avon subject to a formal Risk Assessment meeting the approval by the Harbour Master.

Pilotage Directions

See – The Bristol Port Company Pilotage Directions (extract below)

In addition to the criteria in paragraph 1 above, pilotage is compulsory for the following, in that part of Bristol’s harbour which lies within the River Avon (See Note 5) (a) Vessels of 50 metres or more length overall; (b) Sailing vessels of 40 metres or more length between perpendiculars;

Note 6: “Passenger vessels” means vessels holding a valid passenger certificate which permits them to proceed to sea or on any voyage or excursion carrying more than twelve passengers.
"Passengers" means any one or more persons as defined in Section 26 of the Merchant Shipping (Safety Convention) Act 1949.

*Passenger vessels below 20 metres LOA are exempt from Pilotage Directions (Pilotage Act 1987)

(3) A pilotage direction shall not apply to ships of less than 20 metres in length or to fishing boats of which the registered length is less than 47.5 metres.

Passage planning

River Avon Passage Planning is to be carried out on a MS26F prior to each transit of the River. Passage plans must be completed by the following:

- All vessels carrying 12 or more passengers.
- Vessels which fall within the Pilotage Direction and carry a Pilot or PEC must submit this passage plan to Bristol VTS prior to the River Transit.
- Vessels with an air draft of 27.5m or above.

The passage plan should be completed in sufficient time to allow any planning requirements to be put in place.

Escort Vessel

All vessels over 50 metres carrying 12 or more passengers must be accompanied on the River Avon by an escort vessel. At the discretion of the Harbour Master any vessel may require an escort vessel subject to a review of the vessel’s manouevring characteristics.

The escort vessel must be licensed as a tug (see Towage Guidelines Section 1 Licensing) and meet the following criteria:

- Bollard pull of at least 5 tons
- Capable of 8 knots
- Manned by a crew of 2
- Meet the tug crew requirement (Towage Guidelines Section 1 Tug Crew)
- Master must hold The Bristol Port Company Local Knowledge Endorsement
- Transmit an AIS signal
Passenger vessels

Vessels carrying 12 passengers or more must contact Bristol VTS prior to entering the River Avon and inform them of the following; number of passengers, number of crew & name of Boatmaster/Pilot/PEC Holder. This will be entered in Operations Database. Passenger vessels must also carry an AIS transmitter.

The below vessels are engaged on passenger sailings on the River Avon.

<table>
<thead>
<tr>
<th>Boat Name</th>
<th>Operator</th>
<th>Max Pax</th>
<th>Ops Database Pilotage Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagheera</td>
<td>Bristol Packet</td>
<td>55</td>
<td>RA</td>
</tr>
<tr>
<td>*Balmoral</td>
<td>White Funnel</td>
<td>690</td>
<td></td>
</tr>
<tr>
<td>Brigantia</td>
<td>Bristol Ferry</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Matilda</td>
<td>Bristol Ferry</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>*Matthew</td>
<td>Wakeham Marine</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>*Tower Belle</td>
<td>Bristol Packet</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

*Require Pilot/PEC

Navigation Requirements

Depth information is to be taken from Admiralty Chart 1859 and local information provided by The Bristol Port Company.

The Avonmouth M5 Motorway Bridge height is charted (Admiralty Chart 1859) as 29m at HAT (a total height of 43.4m above chart datum is used for passage planning; HAT=14.7m KR-0.3m correction for Broad Pill plus 29m bridge height) Vessels with an air-draft greater than 27.5m must calculate the time when it is safe to pass under Avonmouth M5 Motorway Bridge. At HAT the clearance under the bridge is 29m a minimum clearance of 1.5m from all structures and aerials must be maintained.

River Avon passages upstream of Custom House light for compulsory piloted vessels are to be undertaken between morning nautical twilight to evening nautical twilight. Times of nautical twilight are to be calculated in order that the section of passage upstream of Custom House light is completed before this time.
Vessels of any length which do not comply fully with the navigation bridge visibility regulations 1998 (SI 1998 No. 1419) paragraph 5 will not be permitted to navigate on the River Avon.

Vessels must plan to arrive at Cumberland Basin no later than HW (King Road).

When a compulsory piloted vessel of 50m LOA or greater is inbound to either lock into Bristol City Docks, or planned to swing off Tongue Head the outer Lock Gates must be open as the vessel passes Sea Mills. If the lock gates are not open the vessel will be held by the escort vessel until the lock is open. Should the lock gates not open the vessel will be aborted and proceed outbound.

Vessels under command of a qualified MCA Boatmaster must ensure the certificate is valid for the area of operation. Those who hold an MCA Boatmaster Level 1 Tier 2 License must also obtain The Bristol Port Company Boatmaster Local Knowledge Endorsement. Holders of a Tier 2 Level 2 License are also encouraged to undertake this endorsement scheme.

**Communication**

When approaching and transiting the River Avon inbound, all vessels should keep a listening watch on VHF Channel 12. Inbound vessels over 30 metres, or vessels carrying more than 12 passengers, must report to ‘Bristol VTS’ when at Shirehampton and Sea Mills reporting points. When passing Black Rock all vessels should make contact with ‘City Docks Radio’ on VHF Channel 14 on low power. A further call should be made to ‘City Docks Radio’ for final instructions on entering the lock when passing the Hotwells Pontoons. When transiting the River Avon outbound, keep a listening watch on VHF Channel 12. When passing Nelson Point all vessels should contact ‘Bristol VTS’ for traffic information in King Road. Outbound vessels over 30 metres, or carrying more than 12 passengers, must report to ‘Bristol VTS’ at Sea Mills, Shirehampton and Nelson Point.

**Restricted Visibility**

Visibility restrictions detailed in covered in Marine Operations Procedure 1.9
Communication between other Ports & Harbours will ensure that leisure and commercial traffic can operate safely and efficiently in the King road area. Bristol VTS may direct that all leisure craft remain in the waiting area, monitoring VHF channel 12 until a ship has passed, prior to proceeding to sea. Please see Bristol Port Company “Pilotage advice to small craft” which indicates the waiting area.

Telephone numbers of docks are as follows:

- Portishead Marina  01275 841941
- Bristol City Docks  0117 9273633
- Sharpness Pier Head  01453 511968

- In times of reduced visibility Bristol VTS should be contacted prior to locking any out.
- Other Ports and Harbours are to advise Bristol VTS of any operational lock problems which could affect inbound small craft.
- If another Port or Harbour becomes aware of a craft requiring assistance Bristol VTS should be advised of the situation so shipping can be informed if necessary.
- Bristol VTS are to advise other Ports and Harbours of any incidents which may affect safe passage of small craft.
The following consideration must be given to PCCs with a beam of 35 metres or greater as follows:

- Pilot orders should be booked as follows:
  
  Arrival in King Road 2 hours before HW to ½ hour after HW
  Departure anytime before to 1 hour after HW (after consultation with Pilot)

- Pilot requirements:
  
  Docking - 2 Pilots (Both embark at Breaksea)
  Sailing - 1 Pilot + 1 Dock Pilot (Dock Pilot disembarks in the Lock)

- Wind Limits:
  
  In winds up to 15 Kts from any direction – no restrictions apply.
  In winds greater > 15 Kts from any direction consultation with Pilots & Svitzer required.
To ensure that all movements within the Harbour Authority’s area of responsibility are carried out in a safe and efficient manner the following procedures are to be followed amongst others.

**Responsibility**

The DAHM is responsible for the positive control of vessel movements within Royal Portbury and Avonmouth Dock. The VTS Officer is responsible for positive control of vessel movements to and from the seaward approaches until control is handed to the appropriate lock control station.

Prior to granting permission for vessel movements from/to lock and berth and from the seaward approaches to the lock the following should be considered:-

- Other vessels or craft already underway, or expected to be underway, within the area,
- Diving Operations,
- Waterborne maintenance works or other works in close proximity to the water or near to the cope edge,
- Tidal and dock levels,
- The location and movement of Critical Equipment,
- Readiness of the lock and attending personnel,
- Weather conditions.

**Stations**

Note: Call signs must not be abbreviated.

There are five stations and their call-signs/VHF channels are;

- Bristol VTS, Ch12
- Portbury Dock Radio, Ch14
- Portbury Lock Control, Ch14
- Avonmouth Dock Radio, Ch14
- Avonmouth Lock Control, Ch14
Control of Vessel Movements

MARINE OPERATIONS PROCEDURE No. 2.1

ISSUE No. 2 ISSUE DATE: 13/10/2014

Procedure

FROM BERTH TO LOCK

Master/Pilot shall contact the relevant dock (Portbury Dock Radio or Avonmouth Dock Radio) on VHF Ch14 to exchange relevant information and request permission to proceed.

The following minimum information must be received by the dock radio station before permission to leave is granted.

- Draught,
- Next port of call
- If the vessel is piloted confirmation that the Master/Pilot exchange (MPX) has been completed satisfactorily,
- If the vessel is non-piloted (excluding harbour tugs and workboats) confirmation that a passage plan has been completed.

A vessel may only leave the berth when it has been given positive permission to do so by the dock radio station.

Once permission to leave the berth is obtained and if the vessel is proceeding to the lock it should contact the appropriate lock control on VHF Ch14 (Portbury Lock Control or Avonmouth Lock Control) before letting go any lines to ascertain lock status and to receive specific instructions applicable thereto. It is not necessary for a vessel to wait until the lock is ready before leaving the berth.

If a vessel is conducting an in-dock shift then it must report to the appropriate dock radio station once the vessel is re-secured.

ENTERING/DEPARTING THE LOCKS FROM/TO SEAWARD

Entering: A vessel must request permission to enter the lock, from Bristol VTS, prior to commencing their approach. The vessel will be given the King Road tide gauge reading and informed how this relates to the predicted tide height. If relevant the vessel will be informed of the drying height on South Pier Bank as per the latest Notice to Mariners (NtM) and will advise a vessel not to pass over South Pier Bank if required.
If permission is granted then the vessel should reply positively i.e. “Bristol VTS this is XXX, I am commencing my approach to XXX lock and I am changing to VHF Channel 14”. The vessel should then communicate directly with Avonmouth or Portbury Lock Control on VHF Ch14. Once secured in the lock the vessel should ascertain from the lock control station their berth position and any other pertinent information.

**Departing:** Vessels departing the lock outwards must request permission from Bristol VTS before letting go any mooring lines. The vessel will be given the King Road tide gauge reading and informed how this relates to the predicted tide height. If relevant the vessel will be informed of the drying height on South Pier Bank as per the latest Notice to Mariners (NtM) and will advise a vessel not to pass over South Pier Bank if required.

**DEPARTING THE LOCK INWARDS**

Vessels departing the lock inwards must request permission from Royal Portbury Dock or Avonmouth Dock Radio before letting go any mooring lines.

Vessels which do not moor in the lock must communicate before moving ahead. A flotilla, including tug groups may communicate as a single unit via the lead vessel.

When a movement has taken place outside of the direct control of the Harbour Authority e.g. a vessel leaving berth or lock without permission, then a report must be made on MS70 in order that the matter can be investigated.

**Station locations**

- Bristol VTS VHF Ch12 is based at the Signal Station.
- Portbury Dock Radio and Avonmouth Dock Radio VHF Ch14 are based at the Signal Station.
- Portbury Lock Control and Avonmouth Lock Control VHF Ch14 are based at the relevant lock control towers.
The following procedure is to ensure that all quayside critical equipment is positioned in such a manner that vessels can berth and depart without damaging that equipment. This may include temporary equipment or structures.

The MSO is primarily responsible for updating Marine Information section of Operations Database which must show the status of all critical equipment. If a crane is moved during the off tide period the DAHM is to update this information. Information on crane dimensions can be found on Drawing 42076 displayed in the Signal Station.

The following BPC equipment is considered critical:

- RP 1 & 2 - Container Cranes,
- RP 5 - Grain Loader,
- RP 5 & 6 - CSUs 1 & 2,
- RP 5 & 6 - Grab Cranes 3 & 4,
- West Wharf 1/2/3 - Avonmouth Container Gantry Cranes 44 & 45,
- Fixed quay-side cranes, as detailed on form MS46,
- Avonmouth mobile cranes (Mantsinen/Sennebogen),
- West Wharf 3/4/5 Gottwald Crane,
- Port mobile,
- Any other equipment that may cause a problem of a similar nature and that requires an assessment to ensure its safety.

Non-BPC equipment such as Sims gantry crane and contractors’ equipment should be assessed on an ad hoc basis by the DAHM when a vessel is due to on that berth.

The assessment process prior to a shipping movement should consider;

- Structure of vessel above the cope level,
- Flair of bow/stern,
- Movement of ramp/ship’s cranes that could cause the vessel to list,
- Whether the vessel has any angle of heel,
- Crane boom height,
- Crane proximity to quay edge.

If cranes are temporarily parked within the body length of a vessel with a stern or side ramp then the DAHM/MSO must advise the Master that he must not operate his ramp.
When coming on duty the MSO should confirm that critical equipment is in the correct position for a vessel to berth safely.

**A minimum separation distance of at least one bollard should be achieved from either the bow or stern of the arriving/departing vessel and the critical equipment.**

If one bollard separation is not possible (for instance due to breakdown, equipment storm-locks or equipment immobilisation) then it may be acceptable to position the critical equipment in the midships position, within the parallel body of the vessel or any other position but this should occur only with the following considerations:

- Another berth is not available or suitable,
- The vessel is confirmed to be upright; this must be verified before the vessel leaves the lock inwards or departs the berth. (Crane design safety margins normally allow for a $2\frac{1}{2}^\circ$ heel for a vessel alongside, and certain cranes such as the Gottwald are set far back from the cope),
- There are no overhangs from the vessel; container vessels often have released lashing turnbuckles protruding from the side, for instance,
- The wind conditions are such that the vessel will not heel due to wind effect,
- If the vessel has a stern or side ramp, the Master has acknowledged that the ramp will not to be raised or lowered until the cranes are clear of the ship’s body. The acknowledgement of this prohibition must be made via radio before leaving the lock inward and a letter must be issued to the Master once alongside (marshare/letters to ships/car ships on RP1and2.doc),
- Vessel stability has been assessed (vessels may heel under the influence of tugs pulling, for instance),
- The possibility of using additional tugs to control the vessel’s angle to the berth, or placing fenders to extend the distance between the vessel and the equipment, may also be considered as suitable control measures.
- Also, where cranes cannot be positioned in a safe position consideration may be given to berthing the vessel out of position and, when securely controlled by mooring lines, the vessel warped up to its correct position.

If it is considered that the equipment cannot be midships or within the parallel body length and the time of arrival of the vessel allows then the operation must be individually assessed on risk assessment form (MS47) and authorised by the HM/DHM (S.O)
If time does not allow for a written risk assessment then the DAHM may make a dynamic risk assessment having due regard for available mitigation and having discussed the operation with the HM/DHM (S.O). An appropriate entry should be made in the VTS log.

Additional mitigation may include the following:

i. Pilotage
ii. Tugs
iii. Line-handlers and line-handling boats
iv. Attendance by MSO (improvement in communication)
v. Additional fendering
The responsibility for determining the optimum dock levels and setting the levels on the Merlin system lies with the DAHM as the signal station is continuously manned and the DAHM is aware of the current shipping requirements. The following factors should be considered by the DAHM prior to making an adjustment to the pump settings to ensure safety of vessels in dock and efficiency.

- Draughts of inbound vessels
- Expected loading draughts of vessels on berth
- The amount of water loss anticipated through lock movements
- Time of H.W in relation to times of increased pumping costs
- Engineers requirements including the number of available pumps

During each low water period the DAHM will consider the dock level requirement and set as appropriate this will prevent the pumps cutting in if it is unnecessary. The DAHM will set the dock level by entering the desired dock level value and using the pump lock off function if necessary. Dock level should not be controlled using only the lock off function although it would be appropriate to use this function for safety reasons, such as small vessels operating in the vicinity of the pumps or to avoid peak electricity charges. If a change to the dock level is made then details of this will be sent to the “Level Set” email group using the standard pro forma email. This change in level setting will also be recorded in the VTS log book.

The starting and stopping of pumps should be kept to a minimum as this reduces wear on the pumps. To reduce the occasions that pumps are required to start / stop the difference between the start level and stop level should be large enough to prevent a number of pump stop / starts during normal lock operations.

When the dock level is not critical for a particular vessel the difference between the start and stop level should be 0.5m this will reduce pump start / stops and allow more water than required to be impounded during the night (00:00 – 0700) therefore reducing the frequency of pumping being required during times of increased electricity costs.

**Pumping costs**

When determining pumping times the following shall be considered

- Electricity costs are cheaper between midnight and 0700
- There is no difference between weekday and weekend charges
- During the winter months (Nov, Dec, Jan & Feb), there is an increased charge between 1700 and 1900.

The safety of vessels in dock should never be compromised due to pumping costs.
Dock level management during a level

Taking into account the precautions outlined in the levelling tide procedure, impounding water by taking advantage of a level should be considered normal practice when commercial requirements allow and conditions in the entrance are considered suitable.

Preventing the level by an increase in dock level should be considered if a large swell is anticipated in the lock entrance at the time of the level. An indicator of this will be forecast winds in excess of 30 Kts from south west through to north however weather systems in the Atlantic may produce a large swell with out the associated high winds at Avonmouth.

Increasing the dock level at Portbury will prevent a level breaking on all but the highest spring tides however tides above KR 14.0m will cause a level at Avonmouth regardless of dock level, an increased dock level will shorten the level period and may reduce risk to some extent. The likelihood of a levelling tide and the forecast weather need to be considered at least three days in advance due to the time required to increase the dock level.
The DAHM/Master/Pilot may agree to move a vessel in tandem with another (dock swap) within the same dock.

The following should be considered before agreeing a dock swap

- Weather
- Vessel size
- Other berth occupancy
- Tug allocation

In general it is not considered good practice to plan or execute dock swaps when;

- winds exceed 15 knots
- one of the vessels is sensitive
- one or both vessels is non-compulsory pilotage
Levelling tides produce unpredictable tidal flows around the Lock Entrances and Docks which may cause embarrassment to ship handling. It is therefore essential that affected parties are advised before a potential levelling tide takes place and also when it occurs.

As outlined in the dock level management procedure (2.3) impounding water by taking advantage of a level should be considered normal practice when commercial requirements allow and conditions in the entrance are considered suitable.

A software programme (located in Tide Monitor) has been written to assist in predicting levelling tides. From the “Operations database” select “Utilities”, “Tide Monitor” then “Tide graph”. The dock can then be selected by choosing either A or P.

For all tides over 12 metres King Road the possibility of a levelling tide should be considered by the DAHM and Lock Controllers.

The timing of a possible level should be predicted and closely monitored.

The timing of a level must be communicated to all appropriate vessels (inbound or on the berth), by Avonmouth Signal Station, in advance of their movements so that they may consider the implications on their movement. These parties include but are not limited to:-

- Pilots,
- PEC Holders and Masters of non-compulsory vessels,
- Tug masters, dredger masters and skippers of other vessels,
- Lock Controllers
- Bulk Terminal Control Room
- Any other berth (operations supervisor) where Bristol VTS have been advised that there is an air-draft critical operation in progress.

Tide Planning should consider an anticipated level and its affect on vessel movements.

When a level breaks;
- The Lock Controllers should advise;
  a) Vessels at or close to the locks system and then
  b) Bristol VTS.
The DAHM should inform the BCR and any other berth (operations supervisor) where Bristol VTS have been advised that there is an air-draft critical operation in progress.

- All movements to and from the Oil Basin are prohibited for the duration of a level.
- All movements are prohibited for the duration of a level unless authorised by the Duty Assistant Haven Master after consultation with relevant parties involved.
- Restricted movements may be undertaken during a level after consultation between the Duty Assistant Haven Master and pilot/master.

Restricted movements may be undertaken during the latter stages of a level when the tidal flow has reduced and after consultation between the DAHM and Pilot and/or Master. As part of this consultation the following points must be considered:

- The Lock Controllers should advise Bristol VTS.
- The DAHM should inform the BCR.
- All movements to and from the Oil basin are prohibited for the duration of a level.
- All other movements are prohibited for the duration of a level unless authorised by the DAHM.
Lock Operations

The purpose of this procedure is to explain lock operations during normal operation, machinery breakdown, adverse weather and when aborting a docking or sailing. The greatest priority in all lock operations is the safety of personnel and the integrity of the lock and dock.

Ships should preferably be control tower side to in/out, where vessels are required to use the other side then a lock gateman should be positioned on the same side as the ship for the docking and sailing. If this is not possible for any reason proper use should be made of CCTV cameras to monitor the passage of the vessel through the lock.

When putting two vessels in the same lock the lock controllers should avoid positioning vessels such that they overlap on opposite sides of the lock. If the combined length is greater than 190m at Avonmouth lock it is often preferable to lock the vessels in separately particularly in poor weather conditions. Due to the time taken positioning vessels in the lock it is not considered normal practice to put more than two ships in the same lock.

Lock gate operating restrictions

Portbury
The gates must not be moved without 7.5 meters of water on the sill. The only exception to this would be with engineering approval in the case of an emergency.

Due to water pressure on the gates, a head of no more than 13.5m should be allowed. e.g. Dock level 18.0m lock minimum level 4.5m. This differential applies to all the Portbury gates.

Avonmouth
The outer gates can be opened at any state of the tide. Approval from the HM / DHM, in consultation with the engineers, is required if the dock is to be held on a single set of gates over the low water period.

Duty engineer call out

Lock Controllers are trained and experienced in the normal operation of the gates. However there may be instances where, due to a system failure or weather, they will need guidance from the Port Engineers.
A call out to the duty engineer is required in the following circumstances using the normal call out procedure:

- When there is a failure of any part of the system requiring a change to diesel operation
- When there is a failure of the diesel system
- When there is a failure of any mechanical system that affects operations
- If weather conditions may affect the gate operation
- If weather conditions are causing unusual behaviour or noise from the gates and/or machinery

Additionally, the on call shipping manager is to be called if any of the above circumstances are likely to delay shipping or affect the integrity of the dock. The on call shipping manager must always be informed if there is any concern with gate operation due to weather.

Abort due to machinery failure

If the gates do not operate and they are in the fully closed or open position (safe position) then initial fault finding should be carried out by the lock gatemen including operating the lock gate in single pump mode if required. If this initial fault finding does not rectify the problem and the time to abort is less than 1.5 hours an abort should be carried out, this will allow additional time to achieve safe abort.

The gates should not be operated by the backup diesels if the gates are in the fully closed or open position (safe position) without engineers in attendance.

An emergency will exist when the outer gates are partly open and cannot be closed or opened fully. Under these conditions there is a risk of grounding a vessel in the lock at Avonmouth or Royal Portbury.

Backup diesel operation is required in response to the emergency situation when gates are partly open / closed and cannot be moved in normal operating modes. Depending on the position of the gates when the breakdown occurs the diesel operation may be used to close and mitre the gates or open them.

Diesel method of operation is much slower than normal operation and it should be remembered that it may be necessary to return the gates to the recessed position if a mitre cannot be achieved for any reason.
Gate swing times (Portbury)
The following are approximate times from the recessed position to the mitred position. In addition to
these timings the period from discovering a fault to activating backup means of operation must be
considered.

Normal Operation  =  3.5 Minutes
Single Pump       =  5.5 Minutes
Emergency Diesels =  15 Minutes

Manning

The planned on tide period runs from 4.3 hours before H.W to 3.5 hrs after H.W the lock will be
manned between these times. Two lock gatemen are required for any lock movements or when a
level is running, one on the lock side, positioned at whichever side the ship is going and the other in
the control room. This can be reduced to a single lock gatemen during times when the lock is not
being operated.

The Marine Support Officer should be in attendance at Portbury lock for all sensitive vessel arrivals to
monitor the vessel’s approach in relation to the passage plan and actual tidal tendency. The MSO can
be called upon to assist with the lock operation during a breakdown.

It may be necessary for additional lock gatemen to be on tide in exceptional circumstances if the lock
controllers, port engineers or DAHM have concerns and think that an additional lock gateman is
required to increase the safety of the operation they will approach the HM or DHM (SO) with a
request.
Training

When shipping and manning levels allow all lock staff will train to become proficient and/or maintain proficiency in operations at the lock they are not normally employed at. The intention is for each member of lock control staff to be capable of performing the duties associated with their position at both locks and be learning the skills required for promotion if appropriate.

Lock engineers will train each lock gateman and MSO on secondary methods of operation every 12 months. It is the responsibility of the lock gatemen and MSOs to ensure they are familiar with the use of this equipment.

Vehicles driving on the lock side

Vehicles should not be driven on the lock side without a clear operational need. Lock gatemen, and visitors should use the car park located on the west side of the middle gates or the car park next to the impounding pumps. Hobblers may take vehicles onto the lock side in accordance with their company risk assessment.

Personnel boarding in the lock

With the exception of jet fuel tankers it is not normal practice for personnel to board a ship in the lock, the vessel, master or agent must advise in advance if personnel are to board in the lock so that the appropriate safe means of access can be arranged. Personnel boarding must be kept clear of the lockside and only board the vessel when advised by the MSO or lock gatemen that it is safe to do so.
DAHM should advise agents, owners and masters that fendermen should be utilised to avoid damage in the following circumstances:

<table>
<thead>
<tr>
<th>Vessel Beam</th>
<th>Draught</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;29m</td>
<td>any</td>
<td>Fendermen recommended</td>
</tr>
<tr>
<td>27m - 29m</td>
<td>&gt;9m</td>
<td>Fendermen recommended</td>
</tr>
<tr>
<td>&gt;27m</td>
<td>any</td>
<td>Dependent on weather</td>
</tr>
<tr>
<td>&lt;27m</td>
<td>any</td>
<td>No recommendations</td>
</tr>
</tbody>
</table>
Requests by Agents, Masters or the Operations Department to shift vessels should be made through the DAHM at Bristol VTS.
Vessels shifting along quays may not require a pilot if they keep line(s) ashore.
Vessels shifting across dock i.e. when all lines must be let go, will be required to take a pilot if they require compulsory pilotage to dock or sail.
Linesmen (licensed) may not be required if the ship’s crew tend lines but manning levels should be considered.
BPC Operations Department personnel are not allowed to tend lines.
When arranging a vessel shift the following should be considered:

- The manning level of the vessel,
- Weather conditions especially the effect of wind,
- Pilotage,
- Manoeuvrability of the vessel,
- Requirement for tugs,
- Other shipping movements,
- Levelling tides,
- Critical equipment.

In general, shifts are to be considered a low priority against other dockings and sailings.
When planning the berth allocation for the Oil Basin the following should be considered:

- Vessels berthed at 1 and 7A when vessels are scheduled for 3 and 6,
- Receiver,
- Berth status regarding maintenance and arm availability,
- Requirement for bunkering.

The principle in this matter is to ensure the maximum passing distance for vessels transiting to No 3 and No 6 berths.

It may also be possible to reschedule arrivals / departures on a particular tide to maximise the passing distances. Consideration should also be given to berth occupation.

When it is not possible to allocate berths without this situation arising, the DAHM/Oil Basin Manager should inform the Shipping Manager of the conflict, in order that shipping can be re-scheduled.

All commercial vessels manoeuvring in the Oil Basin are required to be piloted.

Where a vessel is required to pass an alongside vessel in the Oil Basin then cargo operations may be required to be suspended.

Bunkers supplied by road may only be delivered to berths 1 & 6.
In addition to the requirements of other Portbury vessels the following points should be noted for LKVs:

- Minimum towage is 3+3 inwards, 3+2 outwards.
- Accurate arrival displacement and brackish water draught is required.
- MSO must complete the pre-arrival checks on form MS72 at least one day prior to arrival.

**Traffic Movements and Planning**

No vessel should pass an inbound or outbound LKV within the buoyed channel between Black Nore and Avonmouth North Pier. An inbound vessel that has passed the Firefly buoy and is committed to the pier approach may be considered as out of the buoyed channel. A departing LKV will be deemed to have joined the channel once passed the Portbury Middle buoy.

**All other tug requirements are detailed in the Towage Guidelines.**

**Non-tankers on BAFT**

Vessels other than LKVs on BAFT shall conform to the appropriate LKV rules and/or size rules regarding pilotage and towage.

Such vessels are required to conform to the safety requirements for tankers and accordingly must have a MS51 information pack on board.
OBO vessels may have carried oil cargo or have oil residues on board. It is essential that these vessels are checked to ensure that cargo spaces and adjacent tanks are safe for cargo operations.

When an OBO vessel is nominated then MAC/AA shall ensure that the agent is sent a questionnaire (MS19A). If the timing is such that this type of response is impractical then the information on the form should be obtained directly from the vessel by the MSO.

Until information to the contrary is received the vessel should be entered in the operation Database as a dangerous cargo vessel.

Information returned by an Agent should be noted in the ‘Basics’ comments box on the Operations database.

OBO vessels that have either oil residues or part cargoes of oil will require a gas free certificate before starting cargo operations.

If the information received before arrival at the berth does not allow the Bulk Terminal or Marine Department to be assured that there is no oil or oil residue on board then cargo operations must not be permitted. Liaison with the BCR is essential.

When a vessel carrying Ammonium Nitrate in bulk is nominated then the following should be implemented:

- Marine Department Administration to provide form MS 44 to the Agent and/or vessel,
- On berthing a Marine Department representative is to check that the safety precautions are in place and that the Master has signed form MS44
- A copy of the signed agreement should be returned to the Marine Department and filed in M323.
The use of Portable Pilot Units (PPUs) needs to be managed in order to ensure they are available for use on the vessels listed below when arriving or sailing. If for whatever reason the pilot is unable to take a PPU on board or if the PPU fails whilst in use then Bristol VTS will be made aware. The pilotage act can still be carried out and the lack of the PPU will be considered in the same way as any other navigation aid failure:

- deep draught vessel (12.5m or greater)
- any vessel berthing or sailing from RP 7
- post-Panamax
- avomax
- any vessel when poor visibility is forecast

Pilots should ensure they are familiar with the PPU equipment by using it on a regular basis. To ensure an adequate level of competency with the equipment a Key Performance Indicator has been set which requires each pilot to use the equipment on 10% of trips.

Pilots are expected to use the equipment on a range of vessels to ensure they are confident in using it as a navigation aid. This level of familiarisation will be required as the PPU should be used on board any type of vessel in restricted visibility if available: The pilot will record whether or not the PPU was used on the passage planning form to enable its use to be monitored additionally each PPU has a notebook to record when it was used and record any comments or faults.

Trainee pilots should only use the PPU when carrying out training trips accompanied by another pilot until 12 months after authorisation.

The PPU is an aid to navigation and as such it cannot be totally relied upon or used in isolation. If a pilot is in doubt as to the accuracy of the PPU then it should not be used. It is known that PPUs can act as a distraction particularly when the equipment is being set up and tested. The equipment will therefore be set up during the early stages of the passage to enable adequate time to monitor accuracy and give the pilot confidence in the information provided.

PPUs have proved to be effective aids to navigation in restricted visibility and have assisted in successful dockings in poor conditions. The PPU is however only an aid to navigation and regardless of the level of confidence put into the PPU’s accuracy the pilot should not rely on any single aid to navigation.

The use of a PPU in restricted visibility does not modify the ‘vessel movements in restricted visibility procedure’ and consultation will take place with all relevant parties to ensure movements in restricted visibility are carried out safely.
General
The mooring and unmooring of vessels is potentially a hazardous operation. It is also an operation that demands a high degree of teamwork. To be both efficient and safe, all involved must be properly trained and equipped, and must have a clear understanding of the contribution made by others, as well as their own role and responsibilities. All operations must be suitably planned. Line Handlers operating at the Port of Bristol must be approved contractors.

Port Skills and Safety document ‘SIP005 – Guidance on Mooring’ should be read in conjunction to this procedure.

Berth
The vessel’s berth position will be determined by the Berth Operator in consultation with the DAHM and relayed to the Ships Master/Pilot via Avonmouth/Portbury Dock Radio or the Marine Support Officer. Berth Operators should ensure that the work area is kept clear of hazards and meet the following criteria:

- Safe access to and from the berth must be provided.
- The berth area should be adequately lit.
- The area around mooring bollards should be clear of obstruction.
- Mooring bollards not available for use should be cordoned off or painted red.

When a berth does not meet the above criteria mooring operations must not commence. The DAHM must be consulted by the line handlers who will make contact with the berth operator to arrange an improvement in conditions. If the mooring operation is taking place during an ‘on tide’ period the Marine Support Officer will attend and provide liaison between the line handlers and berth operator. Mooring operations should only commence when the above criteria is met.

Berth allocation should be carefully considered by the DAHM in consultation with the Commercial Department and HM/DHM (SO) when high winds are experienced or forecast. This is obviously of greatest concern when allocating berths to vessels with a large windage area. (See MOP 1.10).

VHF Communication
VHF communication is a vital component of a safe mooring operation. It is essential that those onboard a vessel, in the mooring boats and on the berth are able to communicate promptly. Once VHF communication has been established, mooring personnel should keep
Line Handling and Mooring

MARINE OPERATIONS PROCEDURE
No. 2.13

ISSUE No. 2
ISSUE DATE: 26/08/2016

transmissions to a minimum and should normally only call to confirm actions and instructions, when in doubt, or in an emergency. Where tugs are being used, mooring personnel should monitor the tug-to-ship VHF channel in order to have an appreciation of progress in the berthing / un-berthing operation.

Mooring
The Master or Pilot should coordinate mooring/unmooring operations. The Master of the vessel has overall responsibility for the safe mooring of his ship, safety of his crew and a duty of care towards shore side workers. The master of a vessel shall at all times ensure his vessel is properly and effectively moored taking into account prevailing conditions whilst on berth.

The MSO will attend most arrivals on berth and will provide an overview of quayside operations to the Master or Pilot and relay berth position information. The MSO will liaise with Berth Operators when safe working conditions on the berth do not exist.

When mooring the following should be observed:

- Ship’s crew must be informed not to throw excessively weighted heaving lines.
- No mechanical throwing devices are to be used.
- Avoid excessive weight of mooring lines for the line-handlers when paying out lines from the ship. Keep the bight to a minimum and under control.
- Ensure that the vessel is moored in the correct location and as required by the berth operator, before standing down mooring personnel.

Unmooring
Unmooring should not commence until the gangway has been properly secured and communications established with the ship. The ship should not break away from the berth until permission has been given by Avonmouth or Portbury Dock Radio. The MSO does not routinely attend vessels departing berth and the line handlers should communicate with the Pilot or Master directly. If concern is raised regarding proximity of plant, cargo or any other risk to the ship or personnel they should request the MSO attends before commencing operations.

Mooring Boat Operations
All line handling boats used within the Bristol Port Company must be licensed and operated in accordance with the MCA Workboat Code of Practice. They should be sufficiently powerful to handle the size and weight of large mooring lines and manned be experienced skippers.
Care should be taken at all times to keep mooring boats clear of vessel propellers and thrusters. The skipper in charge of a boat should not allow it to come in close to the stem or stern without having first obtained clearance from the Master or Pilot on VHF radio.

Where a tug is towing on a shortened line and its wash is hindering the control of a mooring boat, or otherwise putting it at risk, the boat-handler in charge should notify the Master or Pilot, and ask for the towing line to be extended.

Where there is a risk of the mooring boat being trapped between the vessel and the berth, consideration should be given to running spring lines to the berth using a heaving line/messenger from the ship.

Self-Mooring Operations
The mooring of vessels using members of the ship’s crew only is considered to be potentially hazardous. Self-mooring should only be attempted following formal risk assessment by the Master of the ship. A copy of this Risk Assessment must be forwarded to the DAHM.

Any Self-Mooring Operation will only be authorised once the DAHM is satisfied with the Risk Assessment. This risk assessment should take into account the freeboard of the vessel in relation to the berth/lock, access arrangements, berth condition, control of the operation, number of crew available, weather and tidal conditions.

The minimum PPE Specification is to consist of Hard Hat, Safety Glasses, High Vis Jacket, Lifejacket and Safety Boots.

Failure to provide an adequate Risk Assessment will prevent the shift or necessitate the use of Licensed Line handlers.
Under the code all vessels over 500GT on international voyages are required to submit an ISPS declaration 24 hours before arrival. Those vessels not covered by the code are required to provide a Declaration of Security (DOS). The port has also asked for a crew list and notification of any receipt of stores, changes of crew, bunkers etc prior to arrival, in order that security clearance arrangements can be made in advance of the vessel arrival.

When a vessel record is created in the database it automatically creates the requirement for:-

- Security Pre-Arrival Notice (SPAN) or
- Declaration of Security (DOS)

This will be represented on the screen as a red O (denoting information outstanding)

The Port of Bristol Police are the administrators of the system but we have a duty to monitor security status.

If a vessel does not have an A (approved) against it before the start of the arrival tide then the Port Police must be advised.
The Consolidated European Reporting Scheme (CERS) and Hazardous Cargoes in the Operations Database

CERS2 is the interface between BPC and the MCA which in turn interfaces with SafeSeaNet (SSN).

The Vessel Traffic Monitoring Directive (2002/59/EC) and the Merchant Shipping (Vessel Traffic Monitoring and Reporting Requirements) Regulations 2004 require certain information to be passed by ships to their port of destination 24 hours in advance of arrival.

The BPC CERS2 software system, which resides mainly in the Ops Database (ODB), populates automatically most of the required fields as information is inputted in other areas of the ODB. Required fields are also indicated in red when information is required for the minimum report standard. A manual input will always be required for ‘persons on board’. If a required field is not completed and the system processes the vessel with CERS status as ‘?’ then no message will be sent. This does not comply with regulations.

The major requirement for manual input when a vessel is carrying dangerous or polluting goods (hazmat); in this case a series of manual data inputs must be completed.

**Operations Database Indicators**

The forward movements tab of ODB must have the CERS column visible. There are four status indicators:

- ? Missing fields
- P Pre-arrival report valid and complete
- A Arrived vessel with completed report
- RED/BLACK Red indicates invalid, black indicates valid.
### CERS Indicator

#### Operation Database

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Bunkering</th>
<th>ETA</th>
<th>LPD</th>
<th>Cargo Description</th>
<th>A_T</th>
<th>0_P</th>
<th>To</th>
<th>To Purpose</th>
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</table>

### Additional Information

- **CERS Indicator**
- **UNCONTROLLED WHEN PRINTED**
Hazmat criteria is quite wide ranging for SSN/CERS and differs greatly from previous requirements under the Dangerous Substances in Harbour Areas Regs 1987. The cargoes covered are:

(a) goods classified as dangerous in the IMDG Code
(b) dangerous liquid substances listed in Chapter 17 of the IBC Code;
(c) liquefied gases listed in Chapter 19 of the IGC Code;
(d) solids referred to in Appendix B of the BC Code; and
(e) goods in respect of whose carriage appropriate preconditions have been imposed in accordance with paragraph 1.1.3 of the IBC Code or paragraph 1.1.6 of the IGC code.
Polluting goods are defined as:
(a) oil, oily mixture, oil fuel or crude oil (as defined in Annex I to MARPOL);
(b) noxious liquid substances (as defined in Annex II to MARPOL);
(c) harmful substances (as defined in Annex III to MARPOL) and;
(d) any marine pollutant identified in the IMDG Code.

For vessels calling at Bristol the following cargoes are listed (not exhaustive)

1. IMDG in containers IMDG
2. Petroleum products MARPOL
3. Ammonium nitrate BC
4. Coal BC
5. Unslaked lime BC
6. Seed cake UN No.1386 or 2217 BC
7. Woodchips BC
8. Wood pulp pellets BC

The arriving vessel should provide a cargo/IMDG manifest if;

i) It is carrying INWARDS dangerous or polluting goods from a non-EU port and/or
ii) It is carrying OUTWARDS dangerous or polluting goods to any port, this includes cargo in
transit that may not have been declared in i) above.

The delivered manifest should be saved in M Files as follows;

With document open File:Save as… or Save a copy
M-Files: CERS: cers: Save: Choose class ‘CERS report’, enter rotation number and then whether
arrival or departure document in ‘Movement type’: OK
The system will then pick up automatically the document for the CERS report when it is generated 24
hours before arrival.
Departing HAZMAT

Vessels will have hazmat on board when departing if they have loaded it here, if it was in transit, or if they have discharged a part cargo, or if the cargo has been rejected. In general this will include for us;

i) IMDG containers loaded or in transit
ii) Petroleum products in transit (part discharge)
iii) Rejected ships with off-spec cargo.
The Consolidated European Reporting Scheme (CERS) and Hazardous Cargoes in the Operations Database

We can consider tankers ex-Milford/Pembroke etc as being empty on departure for the purpose of CERS reporting.

**Proactive activity**

When ships are booked in by whatever means the agent should be asked all the pertinent questions that will pre-fill the CERS message namely;

- Correct name
- IMO number
- Previous port
- Destination Portbury or Avonmouth
- ETA
- Cargo
- Hazmat Y/N
- Next port
- Persons on board

The book-in should conclude with a reminder that the ship will have to send a CERS report.

**Administration**

Where time allows the ODB should be examined by VTS and fields filled in from any available source. The most common omission is the ‘Next port of call’ column. This information can be obtained from the agents. Alternatively the ‘movements’ section of [www.lloydsmiu.com](http://www.lloydsmiu.com) may have the information. It may also show the ATD form the last port which can subsequently be entered.

In general the CERS dialogue box can be opened at any time to see what the red fields are.

The entering of a vessel new voyage into the Operations Database creates immediately a CERS allocation. If the IMO number is incorrect it is no longer admissible to ‘change vessel’ with the correct IMO number as the CERS system flags it as an error. If a new voyage is created with a vessel name and incorrect IMO number then, to validate the database information, the voyage must be cancelled and a new voyage started with the correct vessel name and IMO number.
In the event of any incident or emergency that requires management and additional resources then the first contacts listed below should be called. If they cannot be reached then the off-duty contact should be called. The second contacts should be called as soon as possible afterwards depending on the type and severity of the incident.

<table>
<thead>
<tr>
<th>EMERGENCY</th>
<th>FIRST CONTACT</th>
<th>SECOND CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping Accident in Dock (Including fire or flooding on board ship)</td>
<td>HM &amp; DHM (SO)</td>
<td>Port Police, Incident Controller Trade Manager</td>
</tr>
<tr>
<td>Shipping Accident in Estuary and River Avon</td>
<td>HM &amp; DHM (SO)</td>
<td>Port Police &amp; Incident Controller</td>
</tr>
<tr>
<td>Oil Basin incident</td>
<td>On-call Oil Basin Manager and HM or DHM (SO)</td>
<td>Port Police. Incident Controller</td>
</tr>
<tr>
<td>Search and Rescue (Using TBPC craft)</td>
<td>HM &amp; DHM (SO)</td>
<td>Port Police Incident Controller</td>
</tr>
<tr>
<td>Pollution (Oil, Chemical or Dangerous Goods) in Dock</td>
<td>On-call Shipping Manager</td>
<td>Port Police Incident Controller, MEM or AHM if resource required.</td>
</tr>
<tr>
<td>Pollution (Oil, Chemical or Dangerous Goods) in Estuary and River Avon</td>
<td>On-call Shipping Manager</td>
<td>Port Police Incident Controller</td>
</tr>
<tr>
<td>Lock failures either serious or if affecting shipping.</td>
<td>HM &amp; DHM (SO)</td>
<td>Affected Trade Managers</td>
</tr>
<tr>
<td>Decision as to the acceptance or otherwise of a &quot;Dangerous Vessel&quot;</td>
<td>HM</td>
<td>Port Police Avon Fire and Rescue</td>
</tr>
<tr>
<td>Unplanned labour strike or walk-out affecting shipping.</td>
<td>On-call Shipping Manager</td>
<td></td>
</tr>
</tbody>
</table>
### Callouts for Incidents and Emergencies

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 3.3</td>
<td>Issue Date: 01/01/2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incident/Problem Type</th>
<th>Callout</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigational Aids failure</td>
<td>DHM (C)</td>
<td>Hydrographic Surveyor 1</td>
</tr>
<tr>
<td>Dredging/workboats problems</td>
<td>Marine Engineering Manager and Oil Terminals Manager</td>
<td>HM/DHM (SO)</td>
</tr>
<tr>
<td>PV Robina Fisk</td>
<td>Senior Coxswain</td>
<td>Marine Engineering Manager and Oil Terminals Manager</td>
</tr>
<tr>
<td>SV Isambard Brunel major mechanical problems</td>
<td>Marine Engineering Manager and Oil Terminals Manager</td>
<td>DHM (C)</td>
</tr>
<tr>
<td>SV Investigator major mechanical problems</td>
<td>Marine Engineering Manager and Oil Terminals Manager</td>
<td>DHM (C)</td>
</tr>
</tbody>
</table>
Flood and Tide

The Environment Agency issues flood warning alerts by phone and email. A snapshot flood risk assessment is available at:


When a flood alert is issued VTS should assess its severity and inform other interested and/or affected parties by either telephone/fax or email. These parties may include:

- Marine Department
- Port Police
- Hobblers, Svitzer and Pilots
- Emergency Management Team
- Building Services
- Operations
- Oil Basin
- SGS/BAFT

Regardless of Environment Agency warnings, duty DAHMs should make their own assessment of tide heights and inform the above when there is a risk of combined tide/wave heights exceeding 14.5m.

Wind

When it becomes apparent that the wind speed in King Road is constantly 30 knots or greater Bristol VTS should send out an ‘Adverse Weather Condition Alert’ (AWCA). The alert can be sent from the standard sigsta email server to the following email address:

tlgrp117605@txtlocal.co.uk

Consult oil terminal procedures for action to be taken during high winds with a tanker engaged in cargo operations in the oil basin or BAFT.

The alert should be constructed in the following format, an example is shown:

Adverse Weather Condition Alert
Current wind speed & direction: 35kts SSW
Trend: Steady or gusting
Forecast: To decrease or increase##
It is vital that the end of the message ends with ## characters. If the two hashes are not included then the SMS message will not be sent.

Once the alert has been sent to the above email address the following people will automatically receive a text message containing the above text:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Manager (Operations)</td>
<td>07766071563</td>
</tr>
<tr>
<td>Bulk Terminal Operations Manager</td>
<td>07766071555</td>
</tr>
<tr>
<td>Container Terminal Operations Manager</td>
<td>07766071531</td>
</tr>
<tr>
<td>Operational Engineering Manager</td>
<td>07775538491</td>
</tr>
<tr>
<td>Duty Engineer</td>
<td>07867976874</td>
</tr>
<tr>
<td>Avonmouth Operations Manager</td>
<td>07779166635</td>
</tr>
<tr>
<td>Oil Basin Controller</td>
<td>07825518301</td>
</tr>
<tr>
<td>Malago</td>
<td>07766071550</td>
</tr>
<tr>
<td>DHM (SO)</td>
<td>07766071557</td>
</tr>
<tr>
<td>HM</td>
<td>07766071538</td>
</tr>
<tr>
<td>Avonmouth Containers</td>
<td>07769936056</td>
</tr>
<tr>
<td>Gear store manager</td>
<td>07766071522</td>
</tr>
</tbody>
</table>

It is the responsibility of the DAHM to initiate consultation with the relevant parties as soon as it becomes apparent that adverse weather conditions are forecast or experienced.

Those parties should include, but not be limited to Pilots, Tug Skippers, Ships Masters and on-call Shipping Manager.

The aim of this process is to alert all parties to the relevant conditions enabling them to make an informed decision on whether or not to continue with the movement.
During the consultation each of the following elements must be considered:

- A vessel’s ability to maintain a desired track or position. In this respect vessels with large windage are particularly susceptible,
  - Wind direction particularly regarding the intended manoeuvre,
  - Whether the wind is steady or gusting,
  - Whether the vessel is Piloted, PECH or non-compulsory,
  - The ability to safely pass a heaving line from vessel to tug,
  - The ability of tugs to manoeuvre safely whilst connecting and disconnecting a tow line,
  - Whether additional tugs are required and their availability,
  - The nature of the vessel’s cargo,
  - If cargo operations are due to commence on arrival,
  - The safety of lock controllers when mitring the lock gates,
  - Available space on the berth with regard to the proximity of other vessels on adjacent berths,
  - The ability of a vessel to safely remain on berth, or work cargo, under the prevailing conditions,
  - Whether a departing vessel will be able to manoeuvre away from the Pier.
The pilotage invoicing system is part of The Bristol Port Company’s Operations Database. Its purpose is to facilitate the production of invoices for pilotage charges which will be rendered to ships’ agents. It uses information generated automatically by the system but allows the manual creation, amendment and deletion of charges.

Guidance is contained in the document at marshare\6. Quality and Planning\Pilotage & PECH\Pilotage accounts and rates.

Authorised users of the system, for amending any information, is restricted to DHM (SO), VTS Personnel and Trade Revenue Controller.

For the system to be effective the operators are required to be familiar with the following:

- The port’s schedule of Pilotage Charges.
- Pilotage Directions and General Pilotage Regulations, particularly the difference between pilotage dues, pilotage standard charges and pilotage surcharges.

**Using the system**

It is very important to understand that the Operations Database is a live system throughout (including history) and that any change to the following categories can have an effect on the invoicing system;

- Pilotage Type
- Agent
- Vessel Details
- TBN Vessels

The effect of changing any of these categories will affect the dues, thus any amendments require the Pilotage Invoicing system to be checked.

Particular attention should be taken to amending Pilotage category and taking pilot orders.

Any flags activated should be resolved by the individual raising them, whenever possible. When this cannot be achieved then as much information concerning the issue should be passed on to the next DAHM in a written format if required.
The Trade Revenue Controller will address all queries concerning pilotage invoicing to the DAHM at for resolution.

**Charges connected with the pilot boat.**

When the pilot boat has been used for the boarding or clearing of personnel or carrying a parcel to or from a vessel and no pilot transfer has taken place. The DAHM is to ensure the transfer is recorded by sending an email to the “Pilot boat charges” email group stating why the transfer was carried out and who it was requested by.

**Berth charges.**

Following the completion of cargo a vessel which has been given permission to lay-by on her working berth or shift to an appropriate lay-by berth may be liable to additional berth charges. In order for this to be captured by the operations, finance and marine department the DAHM is to send an email to the “Lay-by” email group stating why the transfer was carried out and who it was requested by.
Upon receipt of water order by from ship or agent customer, complete MS5 and forward a copy to the Gear Store using the Fresh water group email (see information re hours below).

Information regarding provision of Water to Vessels

The Gear Store has stated that they can act upon water requests received between the following hours:-

0800 – 1700 Monday -Thursday
0800 – 1600 Friday

Outside of these hours water can be provided by contacting Port Police control which has call-out numbers.

Charges for water and additional charges are found in the latest edition of the BPC Vessel and Cargo Dues Schedule.