## PULAU BUKOM - SHELL (OS)

<table>
<thead>
<tr>
<th>JETTY</th>
<th>DEPTH A/S (m)</th>
<th>APPROACH DEPTH (m)</th>
<th>MIN LOA (m)</th>
<th>MAX LOA (m)</th>
<th>MAX DISPL (tons)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1E</td>
<td>11.2</td>
<td>15.1</td>
<td>-</td>
<td>110</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>1W</td>
<td>11.2</td>
<td>15.1</td>
<td>-</td>
<td>105</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9.2</td>
<td>15.1</td>
<td>-</td>
<td>170</td>
<td>54,000</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>11.3</td>
<td>15.1</td>
<td>-</td>
<td>170</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>11.6</td>
<td>15.1</td>
<td>-</td>
<td>190</td>
<td>44,000</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>12.9</td>
<td>15.1</td>
<td>70</td>
<td>190</td>
<td>55,000</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>16.5</td>
<td>15.1</td>
<td>120</td>
<td>275</td>
<td>193,000</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>13.5</td>
<td>15.1</td>
<td>90</td>
<td>245</td>
<td>100,000</td>
<td>High spot of 12.4m located 0.8c NW 1st Bukom Bn</td>
</tr>
<tr>
<td>8</td>
<td>16.6</td>
<td>15.1</td>
<td>90</td>
<td>275</td>
<td>180,000</td>
<td>Berthing speed of up to 0.15m/s at a berthing angle of 6 degrees.</td>
</tr>
<tr>
<td>9</td>
<td>13.0</td>
<td>15.1</td>
<td>-</td>
<td>190</td>
<td>65,000</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>15.7</td>
<td>15.1</td>
<td>70</td>
<td>265</td>
<td>150,000</td>
<td></td>
</tr>
<tr>
<td>10A</td>
<td>3.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>The use of anchor is prohibited</td>
</tr>
<tr>
<td>10B</td>
<td>5.6</td>
<td>-</td>
<td>-</td>
<td>60</td>
<td>2,000</td>
<td>The use of anchor is prohibited</td>
</tr>
<tr>
<td>11</td>
<td>5.5</td>
<td>7.6</td>
<td>-</td>
<td>120</td>
<td>8,000</td>
<td>Vsl &gt; 70m LOA, 2 tugs for un/berthing</td>
</tr>
<tr>
<td>12</td>
<td>13.0</td>
<td>15.1</td>
<td>-</td>
<td>120</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>10.9</td>
<td>10.5</td>
<td>98</td>
<td>155</td>
<td>21,500</td>
<td>Ethylene Berth; See General Info item 9.</td>
</tr>
<tr>
<td>OSPJ</td>
<td>10.4</td>
<td>10.3</td>
<td>206</td>
<td>345</td>
<td>355,000</td>
<td>&quot;Swing Radius&quot; 457m</td>
</tr>
<tr>
<td>OSSBM</td>
<td>24.0</td>
<td>22.8</td>
<td>240</td>
<td>345</td>
<td>355,000</td>
<td></td>
</tr>
</tbody>
</table>
Note: The maximum length may be increased depending on the jetty occupancy at the adjacent wharves.

**GENERAL INFORMATION**

1. The least depth between 2\textsuperscript{nd} and 3\textsuperscript{rd} Bukom Beacons is 14.3m-0.8 cables South-East of 2\textsuperscript{nd} Bukom Bn. (Note location of high spot of 11.6m -1.1 cables South-East of 4\textsuperscript{th} the Bukom Bn and 12.4 located 0.8c NW 1st Bukom Bn).

2. Counter current can be expected when the predicted maximum East-going stream (Ebb Tide) in the Western Anchorage is $> 1\text{.0 knot}$. It is predicted to commence from about 2 to 3 hrs before the time of the predicted maximum Ebb Tide and continues till the time of the next slack water.

3. The fenders at OS#9 protrude 1.5m from the wharf face and is not visible at certain heights of tide.

4. The number of mooring boats attending to vessels berthing at Shell Terminal are as follows:-
   a) **One Mooring Boat**
      i) Vessels LOA $\leq 100\text{m}$
   b) **Two Mooring Boats**
      i) Vessels LOA $> 100\text{m}$
   c) In circumstances where two mooring boats are required e.g. inclement weather conditions, vessels with slow reaction engines, etc 2 mooring boats could be requested.

5. Mooring arrangements as required by Marine Officer (Shell Bukom):
   a) For vessels $> 5000\text{ GRT}$, the minimum mooring requirement would be 2 lines, 2 backsprings and 2 breastlines for each end.
   
   b) Whenever possible, mixing of wire and rope should be avoided. If combination mooring lines have to be used, they should be restricted, where possible, to headlines and sternlines.

Caution: Beware of underwater marine cables and pipelines in the approach of Berth 11, 12 & 13.

6. No berthing of vessel above the maximum displacement.

7. VLCCs anchoring at ATRAF on the EBB tide should be programmed for a tidal strength $\leq 1\text{knot}$. 1 big tug should be in attendance.
8. One tug is recommended to assist for berthing and unberthing of vessels at OS11, due to underwater cables in the area. Pilots may, on consultation with the master, request for additional tug, if necessary.

9. All gas/chemical carriers to OS13 to be assisted by 2 tugs, regardless of bow thrusters’ condition.

10. Communication: Pilot Walkie talkie P03 VHF Channel 19 (Bukom Operation)

**PILOTAGE GUIDELINES**

1. **BERTHING (DAY)**

   a) **Flood Tide**

      i) OSSBM Programmed with at least 3 hours of west-going stream.

      ii) OS1 to OS10, OS11, OS12, OS13 & OSPJ No restriction.

      iii) OS10A, B Tidal strength ≤ 0.5 knot.

   b) **Ebb Tide**

      i) OSSBM No berthing.

      ii) OS1 to OS9 and OS12 When no counter current exists and OS#10 occupied by vessel > 10,000 GT - vessels’ displacements restricted to ≤ 25,000 tons.

      When no counter current exists and OS#10 occupied by vessel ≤ 10,000 GT – generally no restriction.

      When counter current exists - vessels’ displacement restricted to ≤ 25,000

      iii) OS10 When no counter current exists – No restriction.

      When counter current exists - vessels’ displacements restricted to ≤ 25,000 tons.

      iv) OS10A, OS10B & OS13 No restriction.

      v) OS11 Tidal strength ≤ 0.5 knot.
2. UNBERTHING (DAY)

a) **Flood Tide**

i) OSSBM, OSPJ No restriction.

   **Port A/S**

ii) OS1 to OS9
    OS10A, B
    OS11, OS12 & OS13 No restriction.

iii) OS10
    Draft >11.0m or
        displacement >40,000 tons
    Tidal strength ≤1.0 knot.

   **Starboard A/S**

iv) OS1 to OS10,
    OS11A & B
    OS12 No restriction.

v) OS10A, B Tidal strength ≤ 1.0 knot.
    (assisting big tug to provide towline).

b) **Ebb Tide**

i) OSSBM No unberthing if draft is
    > 15.0m.

   **Port A/S**

ii) OS1 to OS10
    OS10A, B,
    OS12, OS13, OSPJ No restriction.

iii) OS11 No restriction [1 big tug
    recommended when tidal strength
    > 1.0 knot (Selat Sinki)]

   **Starboard A/S**

iv) OS1 to OS10
    OS11
    OS12, OS13, OSPJ No restriction.

v) OS10A, B Tidal strength ≤ 1.0 knot (assisting
    big tug to provide towline)
3. **BERTHING (NIGHT)**

a) **Flood Tide**

i) OSSBM  Programmed with at least 3 hours of west-going stream.

ii) OS1 to OS10, OS11A and B and OS12, OS13, OSPJ  No restriction.

iii) OS10A, B  Tidal strength ≤ 0.5 knot.

b) **Ebb Tide**

i) OSSBM  No berthing.

ii) OS1 to OS8  When no counter current exists and OS#10 occupied by vessel > 10,000 GT – vessels’ displacements restricted to ≤ 25,000 tons.

When counter current exists - vessels’ displacement restricted to ≤ 25,000 or (≤ 26,000 tons for Shell ‘H’ class vessels)

iii) OS9 and OS12  When no counter current exists and OS 10 occupied by vessel > 10,000 GT- vessels’ displacements restricted to ≤ 25,000 tons.

When counter current exists - vessels’ displacements restricted to ≤ 12,000 tons.

iv) OS10  When no counter current exists - no restriction.

When counter current exists - vessels’ displacements restricted to ≤ 25,000 tons.

v) OS10A, B, OS13 & OSPJ  No restriction.

vi) OS11  Tidal strength ≤ 0.5 knots
4. **UNBERTHING (NIGHT)**

a) **Flood Tide**

i) OSSBM, OS13, OSPJ  
   No restriction.

   **Port A/S**

ii) OS1 to OS9  
    OS10A,B  
    OS11A & B  
    OS12  
    No restriction.

iii) OS10  
    Draft >11.0m  
    or displacement > 40,000 tons.  
    Tidal strength ≤ 1.0 knot.

   **Starboard A/S**

iv) OS1 to OS10  
    OS11A, B and OS12  
    No restriction.

v) OS10A, B  
    Tidal strength < 0.5 knot  
    (assisting big tug to provide towline)

b) **Ebb Tide**

i) OSSBM  
   No unberthing if draft is > 15.0m.

ii) OS13, OSPJ  
    No restriction.

   **Port A/S**

ii) OS1 to OS10  
    OS10A, B and OS12  
    No restriction.

iii) OS11  
    No restriction [1 big tug recommended when tidal strength >1.0 knot (Selat Sinki)]

   **Starboard A/S**

v) OS1 to OS10, OS12  
   No restriction.

vi) OS10A, B  
    Tidal strength ≤ 0.5 knot. (assisting big tug to provide towline)

vii) OS11  
    No restriction.
viii) OS7 & 8  

Vessels > 10,000 GT should whenever practicable exit between Second and Third Bukom Beacon or via Bukom #10.

**TUG ASSIGNMENT GUIDELINES**

<table>
<thead>
<tr>
<th>LENGTH OVERALL OF VESSEL (LOA)</th>
<th>NUMBER OF TUGS</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 100 metres</td>
<td>1 small tug</td>
<td></td>
</tr>
<tr>
<td>101 to 152 metres</td>
<td>2 small tugs</td>
<td></td>
</tr>
<tr>
<td>153 to 180 metres</td>
<td>2 medium tugs</td>
<td></td>
</tr>
<tr>
<td>181 to 220 metres</td>
<td>2 medium tugs</td>
<td></td>
</tr>
<tr>
<td>221 to 280 metres</td>
<td>2 big tugs</td>
<td></td>
</tr>
<tr>
<td>281 metres and above</td>
<td>4 big tugs</td>
<td></td>
</tr>
</tbody>
</table>

A vessel equipped with a suitable bow/stern thruster(s), in good working condition, may dispense with the need for a tug in that position.

Generally, for movements at Shell's Single Buoy Mooring (SBM) and its berths at Pulau Bukom the Terminal should be consulted for their tug recommendation/requirement.