

PULAU BUKOM - SHELL (OS)

JETTY	DEPTH A/S(m)	APPROACH DEPTH(m)	MIN LOA (m)	MAX LOA (m)	MAX DISPL (tons)	REMARKS
1E	11.2	15.1	-	110	10,000	
1W	11.2	15.1	-	105	10,000	
2	9.2	15.1	-	170	54,000	
3	11.3	15.1	-	170	50,000	
4	11.6	15.1	-	190	44,000	
5	12.9	15.1	70	190	55,000	
6	16.5	15.1	120	275	193,000	
7	13.5	15.1	90	245	100,000	High spot of 12.4m located 0.8c NW 1st Bukom Bn
8	16.6	15.1	90	275	180,000	Berthing speed of up to 0.15m/s at a berthing angle of 6 degrees.
9	13.0	15.1	-	190	65,000	
10	15.7	15.1	70	265	150,000	
10A	3.0	-	-	-	-	The use of anchor is prohibited
10B	5.6	-	-	60	2,000	The use of anchor is prohibited
11	5.5	7.6	-	120	8,000	Vsl > 70m LOA, 2 tugs for un/berthing
12	13.0	15.1	-	120	10,000	
13	10.9	10.5	98	155	21,500	Ethylene Berth; See General Info item 9.
OSPJ	10.4	10.3		206	72,000	
OSSBM	24.0	22.8	240	345	355,000	"Swing Radius" 457m

Note : The maximum length may be increased depending on the jetty occupancy at the adjacent wharves.

GENERAL INFORMATION

1. The least depth between 2nd and 3rd Bukom Beacons is 14.3m-0.8 cables South-East of 2nd Bukom Bn. (Note location of high spot of 11.6m -1.1 cables South-East of 4TH 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 ≥ 1.0 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 ≤ 100 m
 - b) Two Mooring Boats
 - i) Vessels LOA > 100 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 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 ≤ 1 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 \leq 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 \leq 25,000 tons.

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

When counter current exists - vessels' displacement restricted to \leq 25,000 |
| iii) | OS10 | When no counter current exists – No restriction.
When counter current exists - vessels' displacements restricted to \leq 25,000 tons. |
| iv) | OS10A, OS10B & OS13 | No restriction. |
| v) | OS11 | Tidal strength \leq 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 \leq 1.0 knot.

Starboard A/S

- iv) OS1 to OS10,
OS11A & B OS12 No restriction.
- v) OS10A, B Tidal strength \leq 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 \leq 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 \leq 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 \leq 25,000 tons.

When counter current exists - vessels' displacement restricted to \leq 25,000 or (\leq 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 \leq 25,000 tons.

When counter current exists - vessels' displacements restricted to \leq 12,000 tons.
- iv) OS10
When no counter current exists - no restriction.

When counter current exists - vessels' displacements restricted to \leq 25,000 tons.
- v) OS10A, B, OS13 & OSPJ No restriction.
- vi) OS11 Tidal strength \leq 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 \leq 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 \leq 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 GUIDELINES

LENGTH OVERALL OF VESSEL	NUMBER OF TUGS
Up to 100 metres LOA	1 small tug
101 to 152 metres LOA	2 small tugs
153 to 180 metres LOA	2 medium tugs
181 to 220 metres LOA	2 medium tugs
221 to 280 metres LOA	2 big tugs
Greater than 280 metres LOA	4 big tugs

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.

Revised: 20 Dec 2013