VESSEL: _____ DATE: _____

Details of training: UKC Calculation using Form 1.3.1A

- The UKC is to be calculated at shallowest depth following legs of the passage as minimum:
    1. Departure berth
    2. Berth to Pilot station
    3. Departure Pilot station to arrival Pilot station
    4. Pilot station to arrival Berth
    5. Arrival berth
- Depending upon the shallow depths along the passage/channel, a leg as above may be sub-divided into more sub-legs for UKC calculation.
- Indicate clearly using way points between which points UKC has been calculated.
- The **shallowest depth** is to be picked up from the ECDIS chart for each leg for entering the value in Charted depth e.g. shallowest depth at departure berth, shallowest depth for a passage from berth to pilot station, check dredged channel depth as applicable, shallowest depth for a passage from departure pilot station to arrival pilot station, shallowest depth for a passage from pilot station to arrival berth. Ensure route is to be manually scrolled to check and pick up the least depth along each leg of the passage.
- For **squat calculation**, use full ahead speed during maneuvering, full away sea speed for coastal & ocean passages. (If ship meets UKC requirement at higher speed, obviously there is going to be more UKC if vessel transits at lower speed than selected speed)
- If UKC is not met due to excessive squat calculated at the higher speed as above, calculate the squat at the speed which is just sufficient to meet the criteria. This speed becomes the maximum limiting speed for transiting the shallow depth and same marked on the ECDIS so that vessel doesn't transit at a higher speed than speed entered.
- The maximum **channel width** is to be entered 270 m even if the actual width of the channel is more than 270 m, if channel width is lesser than 270m, then enter actual value. The channel width is to be entered 270 m in open sea. Squat calculation formula takes into account the width of channel, if higher channel width value is entered, it will result in the low squat value.
- Take **height of tide** at low water. (If vessel meets UKC requirement at low tide, UKC is going to be more at rest of the time)
- If UKC requirement is not met at low height of tide as calculated above, it alerts the navigator when to transit the shallow depth and to re-calculate the UKC at high or intermediate height of tide when

it is safe to transit in order to comply with the company UKC. Same higher tide timings marked on the transit passage in ECDIS.

- Where vessel transit is dependent on high tide due to shallow bank, the combination of low speed and high tide timing is to be selected for transiting such depths. Bearing in mind that minimum speed of 6 to 7 knots is required to maintain the steerage of the vessel in the channel without the assistance of the tug.

- The height of tide value is not required for coastal and ocean passages where tidal information is not available.

- Increase of draft due to movements in sea and swell is to be realistic. Condition of the sea state is to be considered during various phases of the voyage i.e. increase of draft in open waters due to rolling and pitching is much higher than transiting a passage within the break/sheltered waters.

- **Wave Response Allowance**: It is the vertical displacement of the hull due to heave, roll and pitch motions experienced in open waters. Estimate angle of roll/pitch vessel is expected to experience, check the increase in draft due to angle of heel which is provided in Wheelhouse poster.

- **Hydrographic depth Accuracy** (Catzoc correction): Calculate Catzoc correction using formula in the Form 1.3.2, Catzoc correction need not to be applied at berth and Channel/Harbour or where depth exceeds 30 meters. Our rationale for not applying Catzoc correction at berth and Channel/Harbour is provided in Nautical Manual 7B/6.7, same reproduced asf:

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Depth accuracy correction need not be applied at berth and in channel as maximum safe draft is declared by local port regulation based on depth criteria:

- Port Authority manages channel navigation and terminal limitations based upon a declared safe draft
- There is clear precedent of similar sized vessels safely navigating the channel in numerous transits under similar conditions

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- **Allowance for bottom variation** is siltation, sand waves most likely found in rivers. Information is found in sailing direction.

- **Seasonal change** is sea bottom variation due to season change. Not all places are affected by bottom variation and seasonal changes. Information is found in sailing direction.

Attachment: Guidance for filling up UKC Form

Above has been read and understood.

CO: _____

2O: _____

3O: _____

X2O/X3O _____

D/C _____

Verified by: Master _____

Please file in OneDrive/ 3.2.3 Training folder

UKC Calculation Sheet