

CODE OF PRACTICE FOR BUNKER (A 5GG: @CK A 9H9F B; fGG 648:2019)

LEGEND



Cargo Officer
of Bunker Tanker

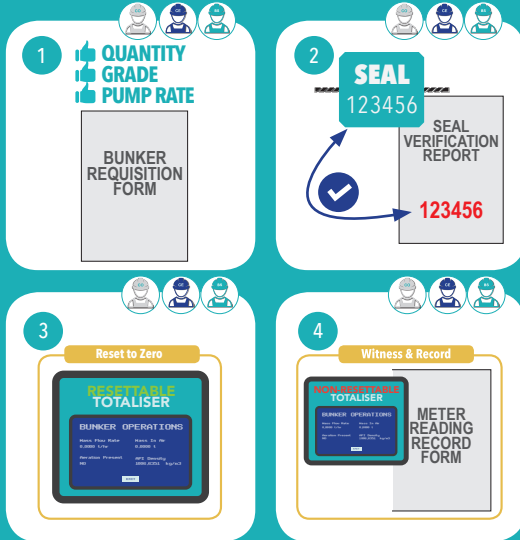


Chief Engineer of
Receiving Tanker



Bunker Surveyor

Pre-Delivery



1. **QUANTITY GRADE PUMP RATE**
BUNKER REQUISITION FORM

2. **SEAL**
123456
SEAL VERIFICATION REPORT
123456

3. **Reset to Zero**
RESETTING TOTALISER
BUNKER OPERATIONS

4. **Witness & Record**
TOTALISER
METER READING RECORD FORM

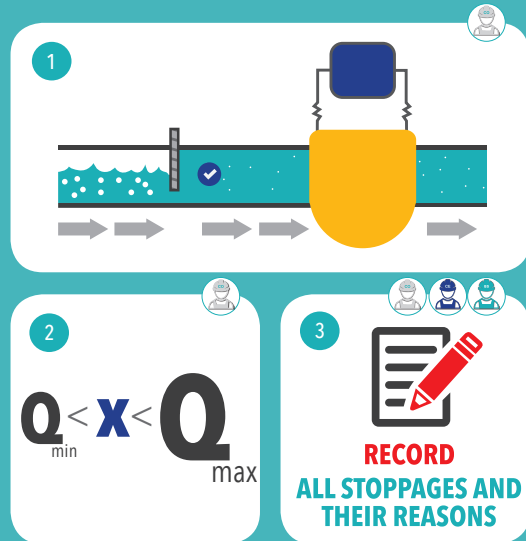
1. **Confirm** the quantity, grade of bunker and pumping rate (not lower than stated Q_{min} of the MFM system).
2. Seal numbers should **match** the latest seal verification report onboard. **Complete** the seal checklist.
3. Set resettable totaliser reading to **zero**.
4. **Witness** and **record** the opening meter readings.

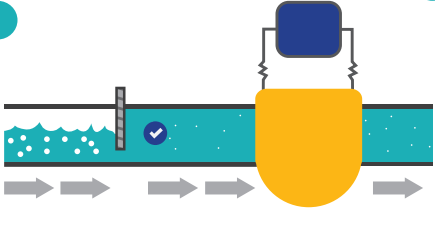
If any seal is missing, broken or if there is discrepancy, report to MPA immediately.

During Delivery

1. **Fill** the cargo line as fast as practicable at the beginning of the bunkering operation.
2. Ensure that **agreed** pumping rate is adhered to.
3. **Record** all stoppages. Details for the stoppages must be **recorded**.

Tank stripping and line clearing shall only be conducted at the end of the operation.

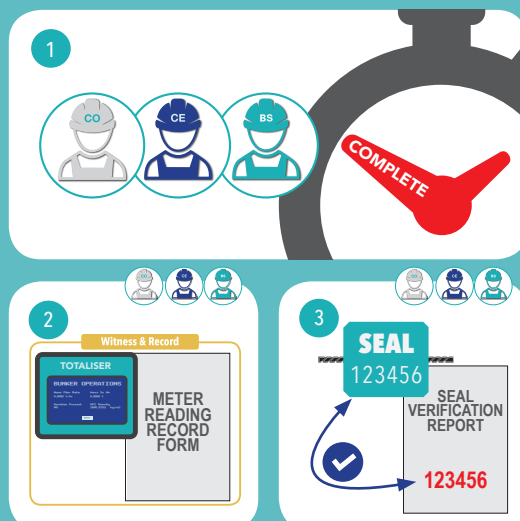


1. 

2. $Q_{min} < X < Q_{max}$

3. **RECORD ALL STOPPAGES AND THEIR REASONS**

Post-Delivery



1. **COMPLETE**

2. **Witness & Record**
TOTALISER
METER READING RECORD FORM

3. **SEAL**
123456
SEAL VERIFICATION REPORT
123456

1. All parties shall **agree** on when the delivery is completed.
2. **Witness** and **record** the closing meter readings.
3. **Verify** that MFM system seals remain intact.

No re-pumping of bunkers shall be allowed after the bunker metering ticket is printed.

MASS FLOW METER DISPUTE MANAGEMENT

LEGEND



Cargo Officer
of Bunker Tanker



Chief Engineer of
Receiving Vessel



Bunker Surveyor



QUANTITY DISPUTES



Cargo Officer (CO) shall do the following

1. Invite CE and BS to **re-witness** meter totaliser readings.
2. Provide assistance for CE & BS to check documentation, seals and piping system.
3. Raise a Note of Protest if dispute remains unresolved.

Chief Engineer (CE) shall do the following

1. **Re-witness** meter totaliser readings.
2. **Re-check and verify** all seals in seal verification report are **intact**.
3. Confirm that no modification from piping diagram was made.
4. Obtain and examine relevant pages of bunker tanker meter totaliser log.
5. Obtain and examine certificates and documents listed in clause 10.7.4 of SS648.
6. Raise a Note of Protest if dispute remains unresolved.



Bunker Surveyor (BS) shall do the following

1. **Assist CE** in the dispute management procedure as listed above.
2. Witness all procedures.
3. Record all relevant details, findings and observations in a statement of fact.

MPA HOTLINE FOR QUANTITY DISPUTES
DURING BUNKERING OPERATIONS

1800 - BUNKERS (1800-2865377)

QUALITY DISPUTES

- Lodge a complaint in writing to bunker supplier within 30 days after bunker delivery.
- Lodge a copy of the complaint and BDN with the "Executive Director, Singapore Shipping Association" AND "Bunker Services Department, Maritime and Port Authority of Singapore".



QUANTITY DISPUTE:
REPORT TO RELEVANT PARTY
WITHIN **14 DAYS**



QUALITY DISPUTE:
REPORT TO RELEVANT PARTY
WITHIN **30 DAYS**

MASS FLOW METERING BEST PRACTICES

BE FIRM

F

Flow Rate
($Q_{min} < X < Q_{max}$)

I

Inspect the seals before and after the bunker delivery.

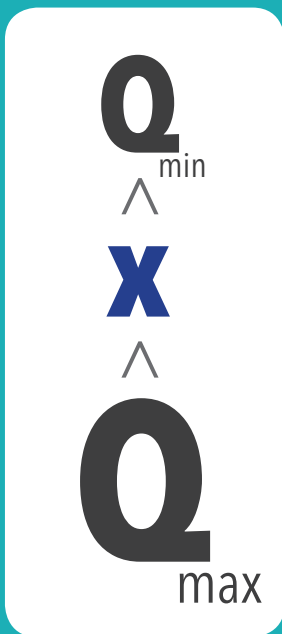
R

Reset the totaliser before the bunker operation and print out the Bunker Metering Ticket (BMT).

M

Match the delivered quantity figure indicated on the BMT with the BDN.

Flow Rate



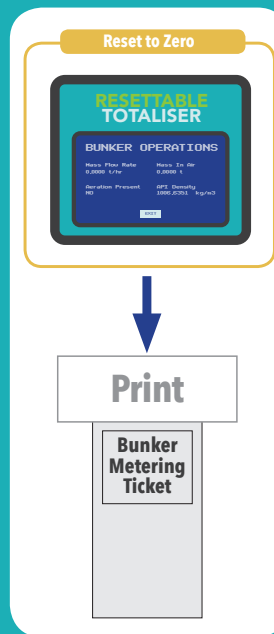
1. Flowrate for delivery shall be within the calibrated flow range of the MFM ($Q_{min} < X < Q_{max}$).
2. Calibration range is indicated on the stamping plate of the meter. The meter calibration certificate is available onboard the bunker tanker upon request.

Inspect Seals



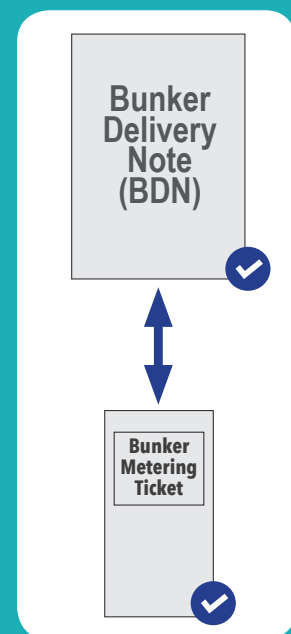
1. All seals have a **unique serial number** issued by Authorised Verifier.
2. **Match** the seal numbers with the seal verification report.
3. **Ensure** that the seals are **intact** and the blanks/flanges are **tamper-free before and after** the operation.

Reset Totaliser



1. Always ensure that the resettable totaliser is **set to zero** prior to delivery.
2. **Record the readings** of the non-resettable totalisers before and after the operation.

Match Records



1. Fill in **all** relevant and applicable fields of the BDN.
2. CO and CE to **endorse** and **stamp** all cancellation and amendments on BDN.

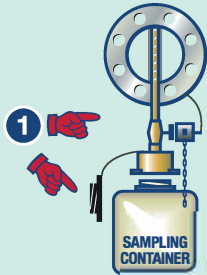
SINGAPORE STANDARD 648:2019 - SAMPLING PROCEDURES (KEY STEPS)

 CHIEF ENGINEER OF VESSEL

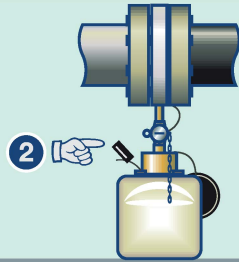
 CARGO OFFICER OF BUNKER TANKER

Chief Engineer should check and ensure that SS648's sampling procedures are carried out.

BEFORE BUNKERING



1 **Inspect** sampling equipment and **Ensure** sampling container is clean.

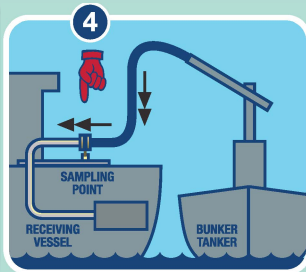


2 **Seal** sampling container.

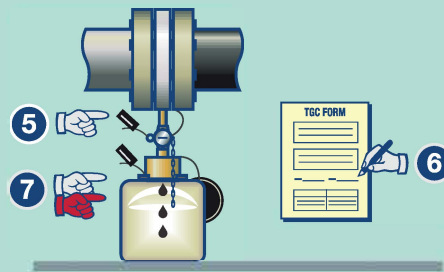


3 **Record** sampling container seal number in the Meter Reading Record Form and Bunker Surveyor's sampling document (if engaged).

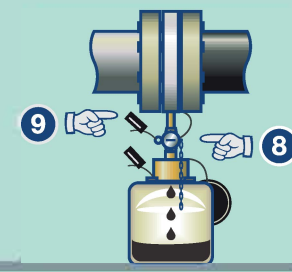
DURING BUNKERING



4 **Ensure** sampling starts simultaneously with the bunkering operation.

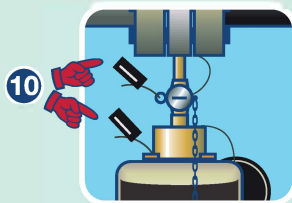


5 **Seal** needle valve at the commencement of bunkering.
6 **Record** needle valve seal number in the Meter Reading Record Form
7 **Check** continuous drip sample is taken throughout bunkering operation.

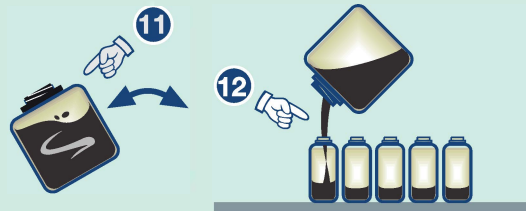


8 **Adjust** needle valve if necessary.
9 **Reseal** needle valve, if adjusted, and **Record** the new seal number in the sampling document.

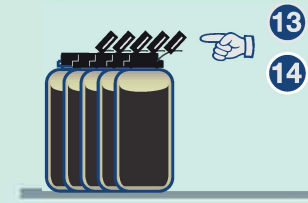
AFTER BUNKERING



10 **Confirm** that the seals of both the sampling container and the needle valve are not tampered with.



11 **Shake** or **Stir** the sampling container to promote homogeneity.
12 **Pour** the sample into 4 (or 5 if a testing lab is engaged) sample bottles making 3 or 4 passes to fill each bottle in turn.



13 **Tighten** sample bottle cap on sample bottle neck.
14 **Seal** the sample bottles with uniquely numbered security seals through the aperture on the cap and the opposite aperture on the bottle.



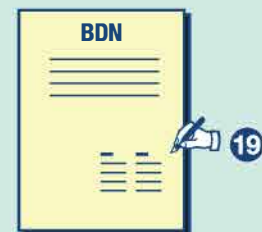
15 **Record** the seal numbers in the sample labels.

16 **Check** the sample labels for complete information.



17 **Paste** the sample labels on the sample bottles in the presence of both parties.

18 **Sign** the sample labels.



19 **Record** the seal numbers in the Bunker Delivery Note (BDN).

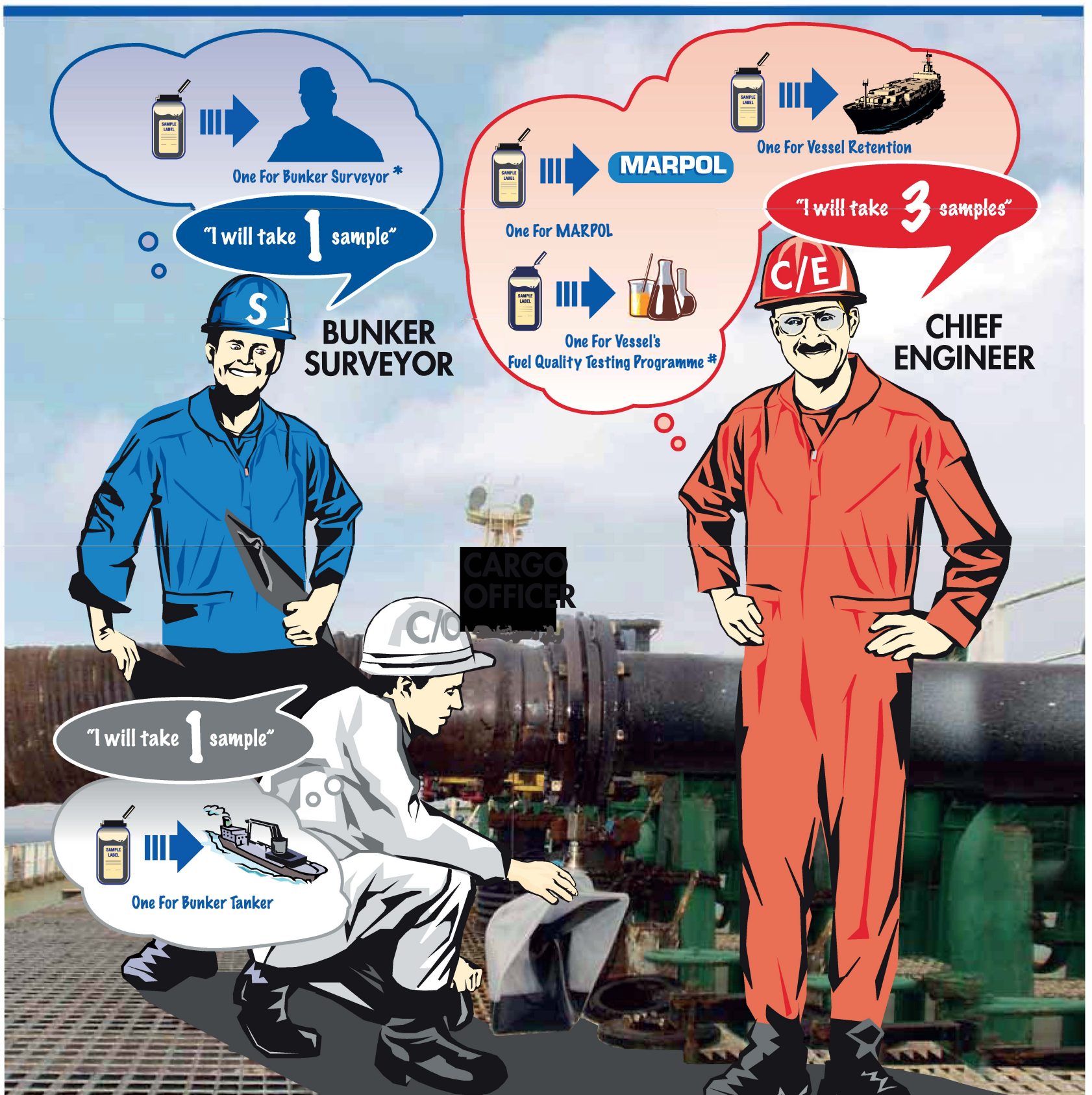
IMPORTANT NOTES

- DO NOT SIGN ANY SAMPLE LABELS PRIOR TO THE COMPLETION OF THE BUNKERING AND SAMPLING OPERATIONS.
- DO NOT SIGN EXTRA SAMPLE LABELS.
- AN ADDITIONAL SAMPLE SHALL BE COLLECTED FOR THE TESTING LABORATORY, IF ENGAGED, MAKING IT A TOTAL OF 5 SAMPLES FOR THE OPERATION.
- RECORDING OF THE SAMPLE SEAL NUMBERS IN THE BDN IS IMPORTANT. FAILURE TO DO SO, THE AUTHENTICITY OF THE SAMPLE CANNOT BE VERIFIED.
- COUNTER SEALS, IF USED, SHALL BE RECORDED IN THE SAMPLE LABELS AND BDN.



SINGAPORE STANDARD 648:2019

BUNKER SAMPLE COLLECTION (5 SAMPLES)



*If no bunker surveyor is engaged, this sample shall be retained by the bunker tanker.

#This sample shall be sent to the testing laboratory administering the fuel quality testing program. If the vessel is not under a fuel quality testing program, this sample need not be collected.

- The representative samples shall be obtained from a single custody transfer point i.e. at the manifold of the vessel.
- There shall be an agreement between the shipowners/bunker buyers and bunker suppliers on the sample bottles to be used. The sample bottles used shall comply with the requirements of SS 648:2019
- If additional SS 648:2019 samples are require, shipowners/ bunker buyers and bunker suppliers shall have this requirement specified in their contractual agreement to prevent confusion and disputes.
- Failure to comply with SS 648:2019 requirements on sample collection and distribution may delay the vessel and bunker tanker's schedule.
- Seals and counter seals (if used) for these five samples shall be recorded in the respective sample label and Bunker delivery note.

Chief Engineer should check and ensure that SS600's pre-delivery conference and documentation procedures are carried out.



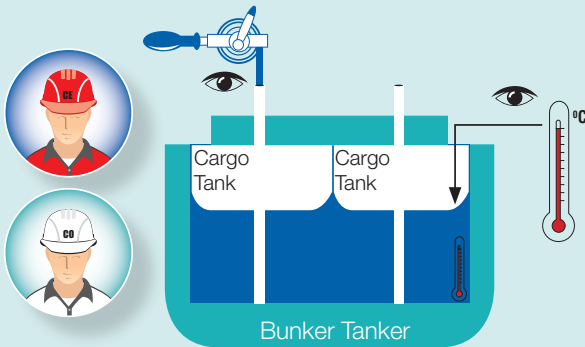
Chief Engineer



Cargo Officer

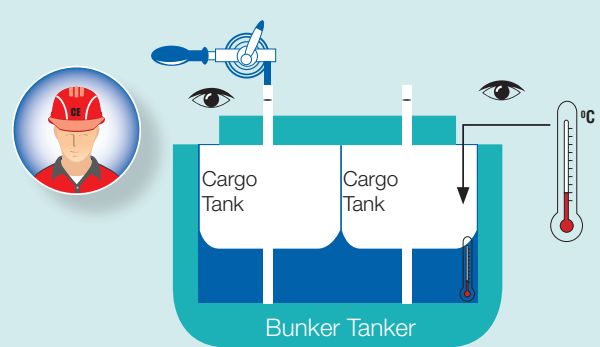
KEY STEPS

Opening Tank Gauging



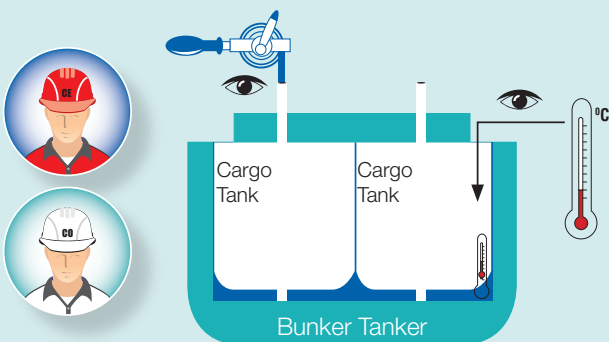
- 1 Check** the barge stock movement log book's recorded quantity prior to barge measurements and to bunkering.
- 2 Witness** and **Confirm** the opening tank gauging and cargo temperature readings of all cargo tanks.
- Bunkering operation shall commence only after confirmation by the Chief Engineer that the pre-delivery requirements are completed and the bunker hose(s) is/ are properly connected.

Delivery Procedures



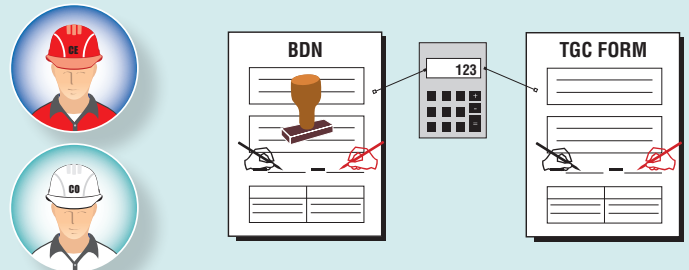
- Line-clearing method (if any) should be addressed during the pre-bunker conference and shall only be carried out at the end of the pumping operations.
- 5 Ensure** that the agreed pumping rate is adhered by the bunker tanker within safe operating practices. The agreed pumping rate should not be exceeded unless requested and endorsed by the Chief Engineer.
- The bunker residue content in the delivery hose(s) shall be drained back into the bunker tanker before the final gauging is taken. No re-pumping of bunkers shall be allowed, and post delivery checks and documentation shall commence.
- Chief Engineer must be informed that a preliminary sounding must be taken on the receiving vessel before stripping.

Closing Tank Gauging



- 8 Witness** and **Confirm** the closing tank gauging and cargo temperature readings of all cargo tanks.

Verification of Delivery Quantity



- 9 Complete** and **Sign** the Tank Gauging/Calculation Form. **Calculate** the delivered quantity.
- Delivered quantity shall be based on the bunker tanker's tank gauging and calculations as witnessed by both Cargo Officer and Chief Engineer.
- 11 Complete, Sign** and **Stamp** on the Bunker Delivery Note.

MPA HOTLINE FOR ON-SITE ASSISTANCE DURING BUNKERING OPERATIONS:

**1800 - BUNKERS
(1800-2865377)**



SINGAPORE STANDARD SS600 (AMENDED) - BUNKER QUANTITY DISPUTE MANAGEMENT

CARGO OFFICER (C/O) OF BUNKER TANKER

- a) Re-check reference heights and tank gauging of all cargo and non-cargo tanks of bunker tanker.
- b) Re-check all physical measurements against the tank calibration tables (TCT) of bunker tanker.
- c) Re-check all calculations and figures used for quantity determination onboard bunker tanker
- d) Confirm no modification to all relevant tanks and lines.
- e) Examine the stock movements in the bunker tanker's stock movement logbook related to the bunker delivery.
- f) Investigate and determine the pipeline content of the bunker tanker including any possible leakage points #.

CHIEF ENGINEER (C/E) OF RECEIVING VESSEL

- a) Re-check reference heights and tank gauging of all bunker tanks * of vessel.
- b) Re-check all physical measurements against the tank calibration tables (TCT) of vessel.
- c) Re-check all calculations and figures used for quantity determination onboard vessel.
- d) Confirm no modification to all relevant tanks and lines.
- e) Examine the relevant pages of the vessel's engine logbook and onboard records.
- f) Investigate and determine the pipeline content of the vessel including any possible leakage points #.
- g) Inspect the stock movements in the bunker tanker's stock movement logbook related to the bunker delivery.
- h) Request and obtain photocopy of the relevant pages of the bunker tanker's TCT for reference.
- i) Examine and request for photocopy of last certificate of quantity or equivalent document and surveyor's bunker tanker measurement reports.

g) Examine the last certificate of quantity or equivalent document and surveyor's bunker tanker measurement reports.

**IN THE EVENT OF
A QUANTITY DISPUTE...**

C/O

C/E

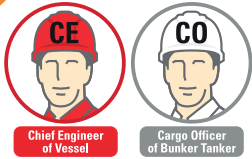
IMPORTANT NOTES

- * INCLUDES SETTLING, SERVICE, DAY AND OVERFLOW TANKS OF VESSEL.
- # BILGE WELL, PUMP-ROOM SPACE, ETC.
- CHIEF ENGINEER SHOULD TOGETHER WITH THE CARGO OFFICER AND BUNKER SURVEYOR (IF ENGAGED) INSPECT, GAUGE AND VERIFY THE BUNKER TANKER'S CARGO AND NON-CARGO TANKS.
- DELIVERED BUNKER QUANTITY SHALL BE BASED ON BUNKER TANKER'S TANK GAUGING, CARGO TEMPERATURES AND CALCULATIONS.
- ADDITIONAL RELEVANT CHECKS SHOULD BE PERFORMED ON THE BUNKER TANKER AND THE VESSEL, WHERE APPLICABLE, TO MANAGE THE BUNKER QUANTITY DISPUTE.
- IF THE BUNKER QUANTITY DISPUTE REMAINS UNRESOLVED, CHIEF ENGINEER AND CARGO OFFICER SHALL RAISE A NOTE OF PROTEST (NOP).
- THE NOP AND BDN SHALL BE SENT TO SSA (FAX NO. +65 6222 5527) AND MPA (FAX NO. +65 6221 1742) WITHIN 14 DAYS AFTER THE BUNKER DELIVERY.
- NO PARTY SHALL CAUSE ANY UNDUE DELAY TO EITHER THE BUNKER TANKER OR THE VESSEL.


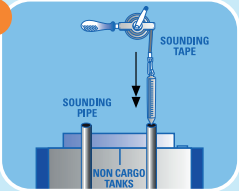
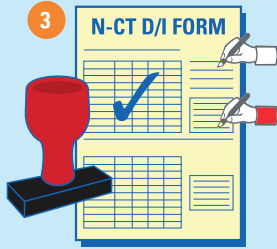
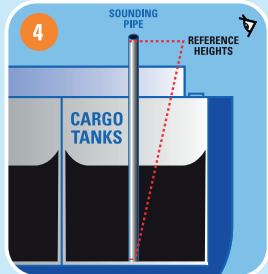
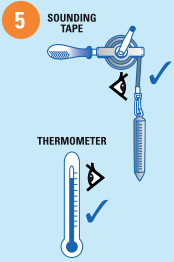
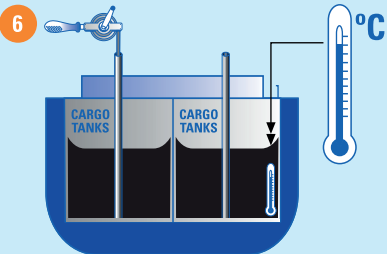



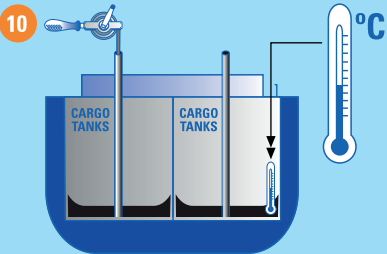
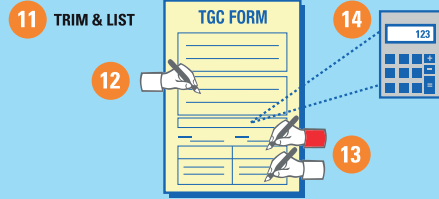
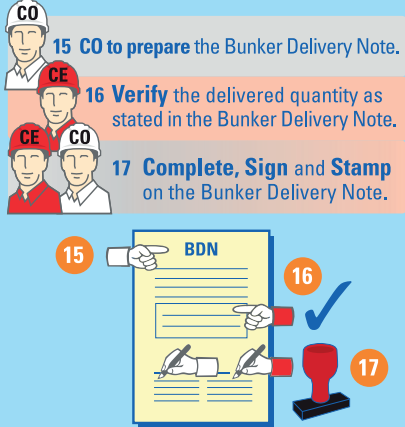


SINGAPORE STANDARD SS600 (AMENDED) - QUANTITY MEASUREMENT PROCEDURES (KEY STEPS)

LEGEND



Chief Engineer should check and ensure that SS600's pre-delivery conference and documentation procedures are carried out.

	Non-Cargo Tank Declaration / Inspection Form	Non-Cargo Tank Declaration / Inspection Form	Opening Tank Gauging
BEFORE BUNKERING	<p>1 Declare the contents and measurements of non-cargo tanks of bunker tanker in Part I of the Non-Cargo Tank Declaration / Inspection Form.</p> <p>2 Inspect / Gauge the non-cargo tanks and Verify Cargo Officer's declaration.</p>  	<p>3 Sign and Stamp on Part I of the Non-Cargo Tank Declaration / Inspection Form.</p> 	<p>4 Verify the Reference Heights of cargo oil tanks of bunker tanker.</p> <p>5 Check measurement equipment.</p>  
BEFORE BUNKERING	<p>6 Witness and Confirm the opening tank gauging and cargo temperature readings of All cargo oil tanks.</p> 	<p>7 Determine the Trim & List of the bunker tanker.</p> <p>8 Record all reference heights, gauging, trim & list of bunker tanker and cargo temperatures in the Tank Gauging / Calculation Form.</p>  	<p>9 Confirm all readings and Sign the Tank Gauging / Calculation Form immediately after the opening gauge.</p> 
AFTER BUNKERING	<p>10 Witness and Confirm the closing tank gauging and cargo temperature readings of All cargo oil tanks.</p> 	<p>11 CE/CO to repeat Step 7</p> <p>12 CO to repeat Step 8</p> <p>13 Complete and Sign the Tank Gauging / Calculation Form.</p> <p>14 Calculate the delivered quantity.</p> 	<p>15 CO to prepare the Bunker Delivery Note.</p> <p>16 Verify the delivered quantity as stated in the Bunker Delivery Note.</p> <p>17 Complete, Sign and Stamp on the Bunker Delivery Note.</p> 

IMPORTANT NOTES

- GAUGING TAPES WITH ILLEGIBLE MARKINGS OR THAT ARE KINKED SHALL NOT BE USED.
- ONLY ASTM-APPROVED THERMOMETERS IN GOOD WORKING CONDITION SHALL BE USED.
- WATER CUT SHALL BE TAKEN BY USING WATER-INDICATING PASTE FOR ALL GRADES OF BUNKERS.
- OIL-INDICATING PASTE SHALL BE USED WHEN GAUGING MGO TANKS.
- DO NOT SIGN THE NON-CARGO TANK DECLARATION / INSPECTION FORM BEFORE VERIFYING THE NON-CARGO TANKS.
- DO NOT SIGN THE TANK GAUGING / CALCULATION FORM OR THE BUNKER DELIVERY NOTE BEFORE WITNESSING AND CONFIRMING THE TANK GAUGING AND CARGO TEMPERATURE READINGS OF ALL CARGO OIL TANKS OF THE BUNKER TANKER.
- IN THE EVENT OF A QUANTITY DISPUTE, INSPECT, GAUGE AND VERIFY ALL CARGO AND NON-CARGO TANKS OF THE BUNKER TANKER. IF THE DISPUTE REMAINS UNRESOLVED, RAISE A NOTE OF PROTEST.