Bunkers – Regulatory and Practical Considerations

Piraeus, 8 November 2012
Capt. Simon Rapley
Introduction

- Simon Rapley – Loss Prevention Associate at the West of England P&I Club
- Master Mariner, former Captain
- 50 Minute presentation

What we will be covering:
- Regulatory Considerations – MARPOL, SOLAS & ISM, Port State Requirements & Port State Control enforcement
- Practical Considerations – Bunker testing onboard and ashore, quality and quantity disputes, bunkering records
Bunkers – Regulatory Considerations
IMO Regulatory Requirements

■ MARPOL – International Convention for the Prevention of Pollution from Ships

■ Annex VI – Regulations for the Prevention of Air Pollution from Ships

■ Regulation 13 – Nitrogen Oxide emissions – no fuel oil specification within this regulation concerning these emissions – regulations dependent on engine output and date of vessel construction.

■ Regulation 14 – Sulphur Oxide emissions – maximum sulphur content of fuel oil / IMO approved exhaust gas cleaning system or other approved method / other procedures or methods such as duel fuel; LNG/LPG gas & fuel oil or onboard blending of fuel – applies to all vessels

■ Regulation 18 – Fuel Quality – provision of a Bunker Delivery Note and representative fuel oil sample – vessels for 400 GT and above
MARPOL VI/14 - Sulphur Limits

Entry into force of MARPOL Annex VI

IMO assessment of fuel availability

Deferred implementation date as possible result of IMO assessment

Creation of ECA in the Baltic Sea
Sulphur Limits – Baltic and North Sea ECAs
Sulphur Limits – North American ECA
Sulphur Limits – US Caribbean ECA

- In effect from 1 January 2013
- Enforced from 1 January 2014
Sulphur Limits – Future ECAs?
Sulphur Limits – Further ECA?

Other possible ECA

North America
By 2012

Mexico and Panama
May be by 2018

Puerto Rico
US VI by 2013

Arctic
Possible by 2016

N.E. Atlantic
Unlikely

Norwegian &
Barents Seas
By 2015

Baltic &
North Seas
In place

Malacca Straits
Unlikely before 2013

Hong Kong
Voluntary
Scheme started

Japan
Under review
By 2013?

South Africa
Unlikely

Australia
Likely

Antarctica
Possible by 2015

Mediterranean
Part or all.....

There is only the
potential for more,
not less ECA
Sulphur Limits – EU Ports

Member states of the EU  Candidate countries  Other European countries
California Air Resources Board – OGV Rule

- Applies to contiguous zone waters
- Including the Channel Islands, San Nicolas, San Clemente and Santa Catalina islands & Farallon Islands
CARB Sulphur Requirements

- Vessel have to comply with both the CARB and North American ECA requirements

- Applies to US and foreign flag vessels visiting Californian ports, internal waters or estuaries, when within the Contiguous Zone

- Most recent changes came into effect on 1 December 2011

- Main engines, auxiliary engines and boilers must be run on:
  - MDO which must have 0.5% sulphur or less; or
  - MGO which must have 1.0% sulphur or less (in compliance with the North American ECA)

- From 1 January 2014 – only fuel oil with not more than 0.1% sulphur to be used.
MARPOL – Fuel Oil Switching

- **MARPOL VI / 14.6**
  - Written changeover procedures
  - Fuel oil system to be fully flushed of high sulphur fuel prior to entry to the SECA
  - Low sulphur fuel volumes in each tank are to be recorded in the logbook (as specified by the flag state) on changeover from high to low, and from low to high sulphur fuel
  - Date, time and position of changeover operations are to be recorded in the logbook when changing from high to low, and from low to high sulphur fuel

- Port State Control can inspect the relevant logbook to see whether fuel switching in line with MARPOL requirements has been carried out
MARPOL – Sampling

- 1 representative sample of not less than 400 ml is to be retained as a MARPOL Sample. (MARPOL Annex VI, Regulation 18.8.1) required for verifying the sulphur content of the fuel / compliance with MARPOL Annex VI
MARPOL – Sampling

- Resolution MEPC.182(59) – 2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI

- Sample to be “drawn continuously throughout the bunker delivery period”

- Separate samples are to be taken by each supplier
MARPOL - Sampling

- Taken at the ship’s manifold, as near to the connection between the receiving vessels manifold and the delivery hose, as is practicable

- All sampling equipment and sample container is to be clean
MARPOL – Sampling

- The sampling equipment and sample container are to be sealed for the duration of the supply.

- The sampling container and drip valve should be periodically checked during the operation.

- Seals should be checked by all parties upon completion of bunkering, prior to being broken.

- The primary sample should be shaken, to ensure a thoroughly mixed / homogenous sample.
MARPOL - Sampling

- Sample to be poured into smaller bottles for commercial / third party fuel testing purposes.
  - MARPOL sample – cannot be tested if there is a quality dispute
  - Bunker supplier’s sample
  - Vessel’s sample
  - Third party laboratory testing sample
  - Bunker surveyor sample

- Each sub-sample should be filled a little at a time and 3 or 4 passes made of each bottle

- MARPOL sample shall, and other samples should be sealed with a tamper proof security seal with a unique identity number by the supplier’s representative, in the presence of the receiver’s representative
MARPOL - Sample Labels

- Sample labels are to be fitted in the presence of the supplier / receiver
- The label should contain the following:
  - Name and IMO Number of receiving vessel
  - Port of location of bunkering operation
  - Date and time of commencement of delivery
  - Name of bunker supplier
  - Name of bunker tanker / bunker installation / truck registration
  - Location at which, and the method by which, the samples was drawn
  - Signatures and names of the supplier’s representative and the ship’s representative
  - Details of seal identification number
  - Bunker type and grade

- The MARPOL sample seal number must be recorded on the Bunker Delivery Note, other seal numbers should also be recorded, or a separate record kept
MARPOL Samples – Precautionary Measures

- In-line blending by the supplier during delivery can lead to differing specifications of fuel in different tanks, whilst the representative sample is on-specification. Fuel should be ordered fully blended prior to delivery.

- Multiple samples should not be taken simultaneously – a sample taken at either end of the supply hose would differ if the delivery hose is dirty from a previously pumped different product.

- Labels must not be signed prior to completion.
MARPOL Samples – Precautionary Measures

- Extra labels must not be signed

- Samples of unknown origin should not be signed for

- However, when only samples of unknown origin are available, or the sampling has not been witnessed; these must be signed for receipt only, and marked origin unknown. A letter of protest should also be issued to the supplier, and the port state and flag state informed

- When no sample is provided, a letter of protest should be issued to the supplier, and the port state and flag state informed
MARPOL Samples - Retention

- As per the Guidance in Resolution MEPC.182(59)
  - Samples to be stored outside the accommodation
  - A safe sheltered location
  - At a cool / ambient temperature
  - Not subject to elevated temperatures
  - Not exposed to direct sunlight
  - To be retained until the fuel is substantially consumed, but for not less than 12 months from the time of delivery (MARPOL Annex VI Regulation 18.8.1)
  - There should be a record keeping system in place to keep track of the vessel’s MARPOL samples
Retrospective sampling

- Not an ideal scenario, it is far better to have representative samples taken at the time of bunkering.

- Samples must be from three different levels within a tank.

- Only applicable if the suspect fuel has been loaded into an empty tank, as the sample may be affected if the fuel has been loaded on top of other fuel oil remaining in a tank.

- When two stable fuels are mixed, they may form an unstable fuel oil with characteristics outside the parameters specified in ISO 8217.
MARPOL Annex VI Regulation 18.5 requires the following items, as a minimum, to be detailed on a Bunker Delivery Note:

- Name and IMO Number of receiving ship
- Port
- Date of commencement of delivery
- Name, address and telephone number of marine fuel oil supplier
- Product name
- Quantity in metric tonnes
- Density at 15°C (kg/m³)
- Sulphur content (% m/m)
- A declaration signed and certified by the fuel oil supplier’s representative that the fuel oil supplied is in conformity with the applicable paragraph of regulation 14.1 or 14.4 and regulation 18.3 of Annex VI

The responsible officer should check the above, in particular the sulphur content.
Bunker Delivery Note (BDN)

- The BDN is to be signed by the Supplier’s representative, and counter signed by the receiver’s representative.

- The BDN must be retained onboard for 3 years from the date of delivery of the fuel to which it relates.

- The BDN should be readily available for inspection by the competent authority of a state which is a party to the Convention, who may take copies of BDNs.

- Where the BDN is not issued or completed in accordance with MARPOL requirements a letter of protest should be issued to the supplier and the port state and flag state informed.
Letter of Protest

Examples contained in IMO circular MEPC.1/Circ.551
SOLAS Regulatory Requirements

- **SOLAS**
  - Chapter VI – Carriage of Cargoes, Regulation 5.1, a Material Safety Data Sheet (MSDS) is to be provided prior to bunkering
  - Resolution MSC.150(77) Recommendations for Material Safety Data Sheets for MARPOL Annex I Cargoes and Marine Fuel Oils
  - Port State or Harbour Authority requirements – check with the local agent / or the supplier for guidance
Regulatory Requirements - ISM

- SOLAS Chapter IX – Management for the safe operation of ships also applies to bunkering activities:
  - ISM Code Part A Section 1.4.2 – Functional requirements for a safety management system – “Instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag state legislation;”
  - ISM Code Part A Section 7 – Shipboard Operations – “The Company should establish procedures, plans and instructions, including checklists as appropriate, for key shipboard operations concerning the safety of the personnel, ship and protection of the environment. The various tasks should be defined and assigned to qualified personnel.”
  - ISM Code Part Section 8 – Emergency Preparedness – “The Company should identify potential emergency shipboard situations, and establish procedures to respond to them.”
Port State Control

- Can examine fuel oil switching procedures, BDNs and samples, and other documentation relating to compliance

- Where there are irregularities, for examples, samples not provided or BDNs not correctly completed, they can examine notifications made to the supplier, port state and flag state

- Port State Control can question crewmembers in respect of samples and BDNs as required by MARPOL

- Non-compliance with fuel oil sulphur limits is a detainable deficiency; inside and outside SECAs
  - Within the Paris MOU, on average over the last year, one vessel has been detained for this reason every two months
Bunkers – Practical Considerations
Onboard testing can be reasonably accurate and can give an early indication of any problems when testing for:

- Density
- Viscosity
Onboard Testing

The accuracy of the test results will depend on the sophistication of the test equipment available on the vessel.
Shore Laboratory Testing

- Where third party testing is carried out to ensure fuel is within specification (ISO 8217:2005 or 2010), and to check for any impurities that may have been added during blending, the fuel concerned should not be used until testing is completed.

- The guidance given in relation to the use of the fuel: such as pre-heating and the setting up of centrifuges must be followed.
Quality Disputes – High Sulphur Fuel Oil

- Where bunkers exceed the local fuel oil sulphur limit
  - Inform the flag state, bunker port state authorities and the bunker supplier
  - Request permission from flag state to proceed to next scheduled port of call
  - Arrange testing of the MARPOL sample at a laboratory acceptable to the flag state
  - Communicate the test results to the flag state

- Use / disposal of the fuel
  - Use once in an area where the sulphur limit will not be exceeded
  - With flag state approval – blend onboard with compatible fuel to reduce the sulphur content to an acceptable level
  - Discharge the off-specification high sulphur bunkers to a terminal or vessel
Quantity Disputes

**Quantity should be determined by:**
- Gauging and taking temperatures of bunker barge / shore tanks and the tanks on the receiving vessel to determine the volume prior to and after bunkering; and
- Flow meter – ideally mass flow meter

**Accuracy dependent on:**
- List / trim correction availability and the accuracy of tables
- Accuracy of sounding or ullage calibration tables
- Temperature used for the volume correction factor
- Density used for the volume correction factor / determining the weight (Bunkers – ordered / paid for by weight, supplied / measured by volume)

**The agreed calculation figure on the delivery receipt should be signed and stamped by the vessel’s representative and the barge master**
Quantity disputes

- Dubious practices
  - Modified sounding / ullaging tapes to give incorrect measurements – Inspect the tapes prior to use
  - Same fuel measured twice – fuel gravitated between tanks during the gauging on the supplying vessel – Re-check the first tanks that were gauged
Quantity Disputes

- Dubious practices
  - Bunker barge tank sounding pipes seized or sealed – do not agree to volumetric flow meter only figures – issue a letter of protest
  - The bunker barge may have a list or trim to their advantage, with no correction tables available – ensure the supplying vessel is on an even keel and upright prior to gauging tanks, if not, issue a letter of protest
  - Modified bunker barge calibration tables – check if the tables are an original or copy – issue a letter of protest if unsure
Quantity disputes

- **Dubious practices**
  - Inaccurate temperature declared – if the supplier losses a few degrees from the temperature, they gain in volume and hence weight – take temperatures during gauging of all tanks to determine volume
  - Incorrect density provided – if unable to independently verify the density, then only sign for volume received
  - Water added to the fuel on the bunker barge. Hidden by providing a sealed fuel sample taken on the barge earlier, or by turning off the sampling mechanism whilst pumping water, or not using water detecting pastes when sounding tanks, instead using a paste that appears similar. Do not accept samples where the origin is unclear. Periodically check the sampling system. Provide the water detecting paste to be used
  - Fuel being diverted on the bunker barge to voids / cofferdams when being pumped to receiving vessel – Accurate measurements on the receiving vessel must therefore be taken
Quantity disputes

- Dubious practices
  - Air injected into the fuel supplied; the “Cappuccino Effect” – check the density of the fuel received as entrained air will reduce the fuel oil density
Quantity Disputes – Actions Onboard

- If there is a disagreement as to the quantity, a letter of protest should be issued.

- Do not sign bunker receipt as presented, amend to the vessel’s own figures.

- Alert Owners / Charterers / local P&I Correspondent.

- If necessary an independent surveyor should be appointed to measure the fuel oil in all of the supplying and receiving vessels tanks.
Quantity Disputes

- Where there is doubt as to the density of the fuel, and this cannot be determined onboard, then only the volume stemmed should be signed for.

- Where shortage is found later, alert Owner / Charterers etc. as some contracts allow 24 or 48 hours for shortage to be notified to the supplier.

- It must be ensured that no documentation is signed prior to the event to which it relates having actually taken place.
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Bunkering Records

Most bunker claims are based on the facts of what has occurred, therefore accurate records are important so that the circumstances of the case can be determined and a case can be substantiated.

Record keeping –
- Detailed engine room and deck log books
- Bunkering checklists
- Tank ullaging sounding reports
- Oil Record Book entries
- Bunker Delivery Notes
- Letters of Protest
- Bunker quality certificates
- Bunker receipts
- Sample distribution records
- Photos and video evidence – where safe and practical
Thank You

Any Questions?

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