VERIFICATION GUIDELINES

FOR
THE CLEAN SHIPPING INDEX

Version 1.0

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Introduction

The Verification Guidelines were developed by the Clean Shipping Project, in cooperation by Det Norske Veritas (DNV), Gothenburg and Lloyds Register (LR), London/Gothenburg.
The Verification Guidelines should be followed when performing a ship verification of the Clean Shipping Index in order to issue a Certificate of Verification.

Background

The Clean Shipping Index (Index) is a tool used by cargo owners to assess the environmental performance of shipping. The Index covers most significant environmental impacts and is calculated by the operator entering data for each of their ships into a web-based database. The database presents the score achieved for the ships in the operator's fleet and gives a ranking to other vessels, but also to other carriers.

Since the Index is cargo owner driven and looks beyond regulatory compliance, it may give ship operators an opportunity to gain commercial advantage from enhanced environmental performance.

The Index may create a win-win situation in which the ship operator can make informed investment decisions to improve their ships' environmental performance. When in line with cargo owners' environmental priorities, these investments may lead to cargo owner preference.

The Index may well develop as a "ticket to trade" – meaning that a large number of cargo owners will only select carriers that can present verified environmental data of a certain quality into the Index. In future it is possible that shipping contracts also will contain terms linked to the achievement of agreed Index scores.

Both ship operators and cargo owners have emphasized the importance of independent verification of the data submitted into the Index, particularly in view of its self-scoring nature.

Verification procedure

Any verifier of the Clean Shipping Index has to be a member of the International Association of Classification Societies (IACS). The verifier has also to be accredited according to ISO/IEC Guide 65 (EN 45011) for a verification service. The verifier has to be accepted by the Clean Shipping Project.

When a ship operator and a verifier have agreed on verification of vessel data in the Index, the ship operator should contact the Clean Shipping Project for acceptance of the verifier. Thereafter the Project create a login for the verifier so all the operator vessel data in the database will be accessible. Exclusively for the verifier, a Certificate of Verification is also shown. By inserting the actual vessel IMO number in the Certificate, all data will be updated in the Certificate. A print out of this document is possible to do by the verifier.

The verifier proceeds with the actual verification in the operator office and on board. When the survey is finalized, the Certificate of Verification is filled in. Only if full compliance is shown between the operator assessment and the verifier assessment, the certificate will be uploaded into the database, under “verification document” for the actual vessel. The verifier is the only one that can upload the certificate to the database.

If non compliance is revealed, the operator has to adjust the scoring *or* adjust the performance followed by an additional survey for that item. Non compliance certificates submitted to the database will show as a non-compliance document. Any insoluble dispute between the verifier and the carrier shall be submitted to the Clean Shipping Project for judgement.

The Certificate is valid for at maximum five years unless a decrease in the performance takes place. It is not possible to change anything in the certificate once it is uploaded in the database. However it may be deleted by the ship operator, the Project administration or the verifier.

Verification survey

How the ship operator and the verifier decide to conduct the actual verification survey is a business between them – as long as all required documents, calculations and inspections are thoroughly penetrated. However experience has shown that some general patterns may both be time and money saving to follow.

When the verifier has got access to vessel data it is valuable if the documents that are required for the survey are sent to the verifier for a review and a more detailed planning of the verification. The documents required are listed in Table 1(see next page).

An office audit with the ship operator is needed especially for the verification of CO_2 performance, fuel sulphur levels and NOx performance. Here is given a possibility to study the information systems from the vessels and how it is received and processed at the office.

Results from the first review and the office audit may then be used for the ship audit where many items within the index are controlled according to the documents mentioned above. Spot checks on sample values from reported CO_2, SOx and voyage data will be carried out together with supporting evidence with respect to the chemicals and the water & waste sections.

Table 1.

Documents required for verification

1 Bunkering documents, SOx
2 Type and mass of fuel consumed within ECA-SOx – preferably over one calendar year, SOx
3 Oil record book, SOx
4 IAPP certificate, SOx
5 EIAPP certificates for all engines, if applicable, NOx
6 Other approved NOx measurements, if applicable, NOx
7 Overview of each voyage, split on ballast and laden legs if applicable, with sailed distance, port calls, cargo transported, type and mass of fuel consumed for main engine, auxiliary engines, boilers and other consumption. Data preferably available over one calendar year, CO_2
8 Documentation explaining methodology and calculation used for establishing CO_2 footprint, CO_2
9 TDS (Technical Data Sheet), Antifouling
10 AFS certificate, Antifouling
11 MSDS (Materials Safety Data Sheet), Antifouling
12 TDS (Technical Data Sheet), Stern tube oil
13 MSDS (Materials Safety Data Sheet), Stern tube oil
14 TDS (Technical Data Sheet), External hydraulic fluids
15 MSDS (Materials Safety Data Sheet), External hydraulic fluids
16 TDS (Technical Data Sheet), Gear oils for thrusters and controllable pitch (CP) propellers
17 MSDS (Materials Safety Data Sheet), Gear oils for thrusters and controllable pitch (CP) propellers
18 TDS (Technical data Sheet), Boiler/ Cooling water treatment
19 MSDS (Material Safety Data Sheets), Boiler/ cooling water treatment
20 TDS (Technical Data Sheet), Cleaning agents
21 MSDS (Material Safety Data Sheets), Cleaning agents
22 MSDS (Material Safety Data Sheets) Refrigerants
23 TDS (Technical Data Sheet), Refrigerants
24 Refrigerant Record Book, Refrigerants
25 Ballast Water Record Book, Ballast water treatment
26 Ballast water operating manual, Ballast water treatment
25 Certificate of Type approval of ballast water treatment systems, if applicable, Ballast water treatment
26 Certificate of Type Approval for Sewage Treatment Plant, if applicable, Sewage
27 ISSP certificate, if in place, Sewage
28 PMS documentation of tests, if in place, Sewage
29 Sewage handling manuals, Sewage
30 Garbage Record Book, Garbage handling
31 Garbage Management Plan, Garbage handling
32 IOPP Certificate, Sludge handling
33 Oil record book documentation, Sludge handling
34 IOPP Certificate, Bilge water treatment
35 PMS documentation of tests, if in place, Bilge water treatment

Verification of scoring parameters

SOx and PM

Office and onboard verification should take place.
A summary of all bunker deliveries for all types applicable (HFO,MDO,MGO, LNG etc) including quantity and sulphur content should be presented. The summary should cover one calendar year.
Documentation of bunker use at berth, including boilers, and within ECAs, if applicable, should be presented per voyage.
Documentation on external methods of reducing SOx emissions, if applicable, should be presented per voyage.
Onboard verification by establishing which fuels engines are operated on and then reviewing IAPP certificate and bunker records for about one bunkering per month over the calendar year. Sulphur testing procedures should follow the Revised MARPOL Annex VI (1). Sulphur analysis protocols should also be found on board.
If shore power connection is claimed, a review of the policy and usage should be done both in office and onboard.
Required documents: Bunkering documents (Bunker Delivering Notes, BDN summaries), Oil Record book, International Air Pollution Prevention certificate)

NOx

Office and onboard verification should take place.
For engines installed after 1st Jan 2000, the data will be found in the EIAPP certificate (1).
If the engine is older than that, or if NOx abatement technology is installed, NOx measurements could have been done according to the NOx Technical Code 2008 (1). In this case data should be proven.
Measurements could also have been done according to the Regulations of the Swedish Maritime Administration (2) for reduction of fairway dues. In this case these data should be proven.
The NOx emissions may also been calculated according to the Norwegian NOx emission tax system (3). An example of these calculations is given in the Guidance Document for the Clean Shipping Index. These calculations must be proven.
Onboard inspection of EIAPP for all engines and, if applicable, NOx abatement technology documentation and verified usage should take place.
If shore power connection is claimed, a review of the policy and usage should take place both in office and on board (same as for SOx).
Required documents: Engine International Air Pollution Prevention certificate for all engines – if applicable, Other approved NOx measurements or calculations – if applicable.

CO_2

Office and onboard verification should take place.

As for sulphur, calculation should cover the calendar year. Two options are possible: calculation according to MEPCs EEOI (4) or calculation according to the BSR guidelines (5)(6). The former cover all vessels while the latter only applies to container vessels.

In both calculation options the full methodology application of the guidelines should be proved. This mean for example that a summary of the ship itinerary for the entire period that is to be verified including: departure port, arrival port, distance travelled, cargo carried, should be presented.

A summary of type of main engine, auxiliary engine, boiler and other consumer fuel delivered during the total period should be presented (see SOx)

The mass of consumed main engine, auxiliary engine, boiler and other consumer fuel for the total period, should be presented.

Onboard verification should cover check on ship´s log and records of loading conditions, printouts from load computer, departure and arrivals and bills of laden for period covered.

Required documents: Overview of each voyage, split on ballast and laden legs if applicable, with sailed distance, port calls, cargo transported, type and mass of fuel consumed for main engine, auxiliary engines, boilers and other consumption. Data preferably available over one calendar year (or more). Documentation explaining methodology and calculation used for establishing CO_2 footprint.

ANTIFOULING

Onboard verification should take place.

Verify content of biocides and type of binder of the coating.

Acceptable biocides are:

- Tolylfluanid CAS No 731-27-1
- Dichlofluanid CAS No 1085-98-9
- Copper thiocyanate CAS No1111-67-7
- Dicopper oxide CAS No1317-39-1
- Copper CAS No 7440-50-8
- Zineb CAS No 12122-67-7
- Pyrithione zinc CAS No 13463-41-7
- Bis(1-hydroxy-1H-pyridine-2-thionato-O,S)copper CAS No 14915-37-8
- N´-tert-butyl-N-cyclopropyl-6-(methylthio)-1,3,5-triazine-2,4-diamine CAS No 28159-98-0
- 4,5-dichloro-2-octyl-2H-isothiazol-3-one CAS No 64359-81-5
- Tralopyril CAS No 122454-29-9
- Medetomidine CAS No 86347-14-0

Required documents: Anti-Fouling System certificate, Materials Safety Data Sheet, Technical Data Sheet.

STERN TUBE OILS

Onboard verification should take place.

Confirm the stern tube arrangement – if applicable. If biodegradable fluid is claimed, documentation should be presented to show that each main component of the product (>5% by weight) should have a biodegradation >60% within 28 days. Testing should be according to ISO 9439 (7) or ISO 10708 (8). ISO 9408 (9) may be accepted if the theoretical oxygen demand (ThOD) and a time period of maximum 28 days are chosen in the method.

Required documents: Materials Safety Data Sheet, Technical Data Sheet.

EXTERNAL HYDRAULIC FLUIDS

Onboard verification should take place.

Confirm the external hydraulic fluid arrangement. If a capped external hydraulic system is claimed, no fluid should possibly be able to reach the sea in case of leakage. If biodegradable fluid is claimed, biodegradation data should be presented in accordance with criteria for stern tube oils.

Required documents: Materials Safety Data Sheet, Technical Data Sheet.

GEAR OILS FOR THRUSTERS/ PITCH PROPELLERS

Onboard verification should take place.

Confirm gear oil arrangement for thrusters and/or pitch propellers – if applicable. If biodegradable fluid is claimed, biodegradation data should be presented in accordance with criteria for stern tube oils.

Required documents: Materials Safety Data Sheet, Technical Data Sheet.

BOILER/COOLING WATER TREATMENT

Onboard verification should take place.

If claimed, verify that the vessel avoids the usage of chemical products, or components in the products, classified as carcinogenic, mutagenic, toxic to reproduction (CMR substances), sensitizing, toxic or dangerous to the environment according to the EU Dangerous Substance Directive (10). Nitrite is excluded. In addition organic solvents classified with risk phrases on health and environmental danger should be avoided.

Required documents: Materials Safety Data Sheet, Technical Data Sheet.

CLEANING AGENTS

Onboard verification should be done.

If claimed, verify that the vessel avoids use of chemical products, or components in the products, classified as carcinogenic**,** mutagenic, toxic to reproduction (CMR substances) or dangerous for the environment according the Dangerous Substances Directive (10).

Detergents classified as dangerous to the environment according to the Dangerous Substances Directive or with limits in the EU Regulation on detergents (11), should be avoided. Also organic solvents classified with risk phrases on health and environmental danger should be avoided.

Detergents, surfactants or other components that disturb the installed bilge water treatment should be avoided. Information on approved surfactants is usually found on the website of the bilge water cleaning equipment manufacturer.

Required documents: Materials Safety Data Sheet, Technical Data Sheet.

REFRIGERANTS

Onboard verification should take place.

Confirm what refrigerant systems that are installed onboard. All refrigerants have to comply with criteria to get scoring. Reefer refrigerants are excluded. The ozone layer depletion potential (ODP) and the global warming potential (GWP) as defined by the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (12), should be verified for all refrigerants.

Verify if the refrigerants are natural (NH_3, CO_2) or hydrofluorocarbon (HFC) with ODP number = 0 and GWP number < 3500. Additional points are achieved if the GWP is below 1850.

Required documents: Material Safety Data Sheet, International Air Pollution Prevention certificate, Refrigerant Record Book.

BALLAST WATER TREATMENT

Onboard verification should be done.

Ballast water treatment is only applicable for international vessels. Regional and coastal shipping is excluded.

Confirm ballast water treatment policy. If claimed, verify ballast water exchange procedures and operating manual according to IMOs Ballast Water Convention with corresponding guidelines (13)(14).

If claimed, verify ballast water management systems with received Type Approval Certification according to MEPC Resolution (15). Verify ballast water treatment system and the use of it.

Required documents: Ballast Water Record Book, Ballast water operating manual, Certificate of Type approval (if applicable).

SEWAGE/ BLACK WATER

Onboard verification should be done.

Confirm sewage/black water treatment policy. Verify sewage water handling in Particularly Sensitive Sea Areas (PSSAs) See table 2 below. Either approved sewage treatment plant according to MEPC (16) verified by usage and function through maintenance record or verification of no sewage discharge in PSSAs through operation manuals.

Required documents: Certificate of Type Approval for Sewage Treatment Plant (if applicable), International Society of Sustainability Professionals certificate (if in place), Proposal Management System documentation (if in place), Sewage handling manuals.

Table 2. Particularly Sensitive Sea Areas

the Great Barrier Reef, Australia (designated a PSSA in 1990)
the Sabana-Camagüey Archipelago in Cuba (1997)
Malpelo Island, Colombia (2002)
the sea around the Florida Keys, United States (2002)
the Wadden Sea, Denmark, Germany, Netherlands (2002)
Paracas National Reserve, Peru (2003)
Western European Waters (2004)
Extension of the existing Great Barrier Reef PSSA to include the Torres Strait (proposed by Australiaand Papua New Guinea) (2005)
Canary Islands, Spain (2005)
the Galapagos Archipelago, Ecuador (2005)
the Baltic Sea area, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden(2005)
the Papahānaumokuākea Marine National Monument, United States(2007)

GARBAGE HANDLING

Onboard verification should take place.

Confirm policy for garbage handling. If claimed, verify no incineration of garbage, no waste overboard (food waste excluded) and separate garbage handling for reuse, recycling and disposal. Information should be presented according to Annex V in MARPOL 73/78 (17).

Required documents: Garbage Record Book, Garbage Management Plan

SLUDGE HANDLING

Onboard verification should take place.

Confirm policy for sludge handling.

Verify handling of sludge, incineration of sludge oil, documentation of sludge oil disposal according to oil record book. Verify sample reading in oil record book and verify according to the International Oil Pollution Prevention certificate following the MARPOL Annex I (18).

Required documents: International Oil Pollution Prevention certificate, Oil Record Book.

BILGE WATER TREATMENT

Onboard verification should take place.

Confirm policy for bilge water treatment. If claimed, verify that active treatment equipment is installed, calibrated and a documented emission of < 5ppm oil in the disposed bilge water. Verify if emission control box is installed and register position and time.

Required documents: International Oil Pollution Prevention certificate, Proposal Management System documentation (if in place).

CREW AWARENESS

Onboard verification should take place.

Confirm policy for crew awareness training. Judge result by asking the following questions to at least (but not limited to) Master, Chief Engineer, 2nd Engineer, 1st Officer, engine room personnel, galley personnel and electrician:

1. What are the environmental aspects of your daily operations, and the impact these may cause?
2. What kind of knowledge and tools to limit the environmental impact of your daily operations doyou have?
3. Do you feel that environmental issues are prioritized to the necessary level within your company, and that you are well prepared for new and stricter regulations?
4. What do you believe is the main challenge for you company with regards to an emerging greener economy?

Crew awareness questions replied in written format will be filed by verifier together with verification documents.

No required documents.

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