# SHIP FUEL OIL CONSUMPTION DATA COLLECTION PLAN (PART II OF THE REFER TOMP)

## 1 Ship particulars

|  |  |
| --- | --- |
| Name of ship  |  |
| IMO number  |  |
| Company  |  |
| Flag  |  |
| Ship type  |  |
| Gross tonnage  |  |
| NT  |  |
| DWT  |  |
| EEDI (if applicable)  |  |
| Ice class  |  |
|   |  |

## 2 Record of revision of Fuel Oil Consumption Data Collection Plan

|  |  |
| --- | --- |
| Date of revision  | Revised provision  |
|   |  |
|  |  |
|  |  |
|  |  |

## 3 Ship engines and other fuel oil consumers and fuel oil types used

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | Engines or other fuel oil consumers  | Power  |  | Fuel oil types  |
| 1  | Type/model of main engine  |  | (kW)  |   |
| 2  | Type/model of auxiliary engine  |  | (kW)  |   |
| 3  | Boiler  |  | (…)  |   |
| 4  | Inert gas generator  |  | (…)  |   |

Refer to EU MRV MP procedure ‘Emission sources and fuel types used’

*Note: in the above table, the power output (rated power) at Maximum Continuous Rated power as specified on the nameplate of the engine shall be indicated.*

## 4 Emission factor

*CF* is a non-dimensional conversion factor between fuel oil consumption and CO2 emission in the *2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships* (resolution MEPC.245(66)), as amended. The annual total amount of CO2 is calculated by multiplying annual fuel oil consumption and *CF* for the type of fuel.

|  |  |
| --- | --- |
| Fuel oil Type  | *CF* (t-CO2 / t-Fuel)  |
| Diesel/Gas oil (e.g. ISO 8217 grades DMX through DMB)  | 3.206  |
| Light fuel oil (LFO) (e.g. ISO 8217 grades RMA through RMD)  | 3.151  |
| Heavy fuel oil (HFO) (e.g. ISO 8217 grades RME through RMK)  | 3.114  |
| Liquefied petroleum gas (LPG) (Propane)  | 3.000  |
| Liquefied petroleum gas (LPG) (Butane)  | 3.030  |
| Liquefied natural gas (LNG)  | 2.750  |
| Fuel oil Type  | *CF* (t-CO2 / t-Fuel)  |
| Methanol  | 1.375  |
| Ethanol  | 1.913  |
| Other (………)  |   |

## 5 Method to measure fuel oil consumption

The applied method for measurement for this ship is given below. The description explains the procedure for measuring data and calculating annual values, measurement equipment involved, etc.

|  |  |
| --- | --- |
| Method  | Description  |
|   |   |

Refer to EU MRV MP Procedure ‘Methods used to determine fuel consumption of each emission source’ with following update:

* Replace “Method A …” by:” 1. method using bunker delivery notes”
* Replace “Method C …” by: “2. method using flow meters”
* Replace “Method B…” by: “3. Method using bunker fuel oil tank monitoring on- board’

Refer to EU MRV MP Procedure ‘Procedures for determining fuel bunkered and fuel in tanks’

Refer to EU MRV MP Procedure ‘Description of the measurement instruments involved’

Refer to EU MRV MP Procedure ‘Procedures for recording, retrieving, transmitting and storing information regarding measurements’

Refer to EU MRV MP Procedure ‘Method for determination of density’

Refer to EU MRV MP Procedure ‘Procedures for ensuring quality assurance of measuring equipment’

*Data Collection Plan should specify:*

* *How the ship will operationalize the summation of BDN information and conduct tank readings*
* *Method for tank readings (automated systems, soundings and dip tapes)*
* *Flow meters and their link to specific fuel oil consumers*
* *Calibration of the flow meters*
* *Any corrections, e.g. density, temperature, if applied*

## 6 Method to measure distance travelled

This section should be adjusted for IMO DCS requirements – in particular, the manoeuvring distance travelled within ports of call shall be reported.

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| --- |
| Description  |
|   |

Refer to EU MRV MP Procedure ‘Recording and determining the distance per voyage made’

*Notes:*

* *Distance travelled over ground in nautical miles should be recorded in the log-book*
* *Distance travelled while the ship is underway under its own propulsion*
* *Other methods to measure distance travelled accepted by the Administration may be applied.*

## 7 Method to measure hours underway

This section should be adjusted for IMO DCS requirements – in particular, the time at berth should never be reported.

|  |
| --- |
| Description  |
|   |

Refer to EU MRV MP Procedure ‘Determining and recording the time spent at sea from berth of port of departure to berth of the port of arrival’

*Note:*

* *Hours underway should be an aggregated duration while the ship is underway under its own propulsion.*

## 8 Processes that will be used to report the data to the Administration

This is a new requirement of the IMO DCS – adequate procedure must be defined and implemented.

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| --- |
| Description  |
|   |

## 9 Data quality

*Note: this section should be adjusted for IMO DCS requirements – in particular, distance travelled, fuel consumption only (no CO2 emissions to report), no check on cargo on-board or transport work.*

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| --- |
| Description  |
|   |

*Refer to EU MRV MP Procedure ‘Control activities: Internal reviews and validation of EU MRV relevant data’*

*Refer to EU MRV MP Procedure ‘Methods to be used to estimate fuel consumption’*

*Refer to EU MRV MP Procedure ‘Methods to be used to treat data gaps regarding distance travelled’*

*Refer to EU MRV MP Procedure ‘Methods to be used to treat data gaps regarding time spent at sea’*

*Data Collection Plan should include:*

* *Data quality control measures which should be incorporated into the existing SMS*
* *Procedure for identification of data gaps and correction thereof*
* *Procedure to address data gaps*