VERIFAVIA shipping

EU MRV / IMO DCS

Views from an Independent Verifier

Verify. Comply. Navigate. ®

Hamburg, 22 August 2018

www.verifavia-shipping.com

Summary

1 EU MRV – Reminder & Update

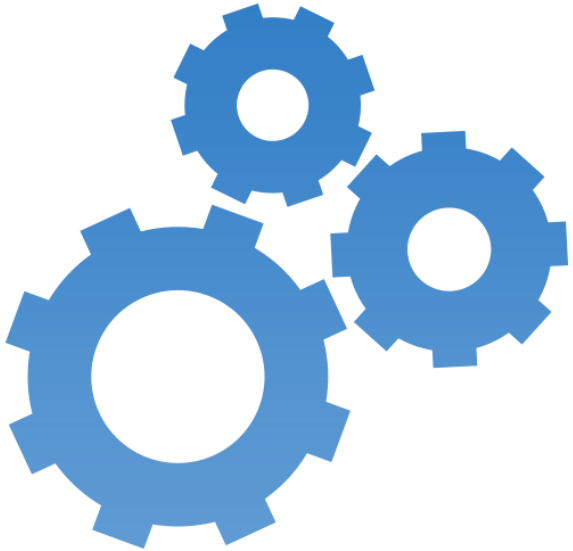
2 About THETIS MRV

3 IMO DCS - Update

4 IMO DCS vs. EU MRV

5 Views from Independent Verifier

6 About Verifavia Shipping



Commission's 3-step strategy to cut GHG emissions from maritime transport announced in June 2013

Step 1
- Monitoring, reporting and verification of carbon emissions from ships + publication of data

Step 2
- Emissions reduction targets for the maritime transport sector

Step 3
- Further measures, including Market-Based Measures (MBM)

European Commission

The EU MRV regulatory framework includes the Regulation 2015/757 …

19.5.2015 EN Official Journal of the European Union L 123/55

REGULATION (EU) 2015/757 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 29 April 2015

on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC

(Text with EEA relevance)

Council of the European Union

EUROPEAN PARLIAMENT

… and the Delegated & Implementing Acts, which were published in November 2016

Delegated Regulation (EU) 2016/2071

Shipping Emissions Monitoring Methods

Implementing Regulation (EU) 2016/1928

Shipping Emissions Cargo Carried

Implementing Regulation (EU) 2016/1927

Shipping Emissions Templates

Delegated Regulation (EU) 2016/2072

Shipping Emissions Verification & Accreditation

EU MRV Road Map for Shipping Companies

Accreditation of verifiers
1st Mar 2017

31st Aug. 2017
Deadline for Submission of **Monitoring Plan** to Verifier

Deadline for completion of **Monitoring Plan assessment**
31st Dec. 2017

1st Jan 2018
Start of Reporting Period 1

End of Reporting Period 1
31st Dec. 2018

30th April 2019
Deadline to **submit verified Emissions Report** to EC and Flag State

On-board EU MRV **Document of Compliance (DoC)**
30 June 2019

Which parameters must be monitored per voyage?

Fuel Consumption at Sea

Fuel Consumption at berth

Time at Sea

Distance Sailed

Cargo On-board

Transport work

Energy Efficiency parameters

! *Fuel consumption, time at sea and distance sailed shall be monitored from berth to berth*

! *Fuel consumption within ports at berth shall be monitored separately*

! *Ships performing more than 300 voyages per year all subject to the EU MRV are exempt from per-voyage monitoring*

Transport work = Cargo on-board * Distance sailed

What is an EU MRV voyage?

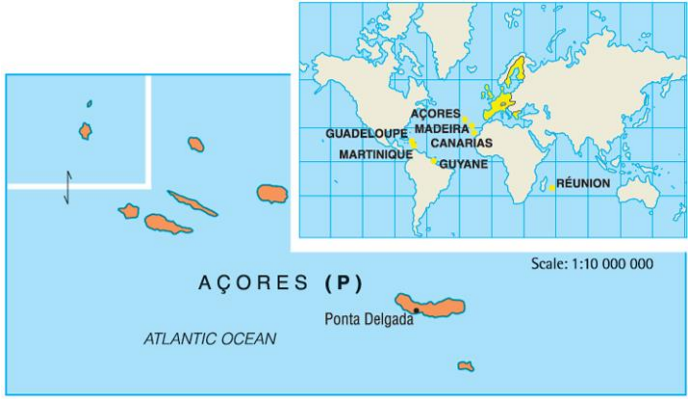
- A **port of call** is a port where a ship stops to load or unload cargo or to embark or disembark passengers
  - Consequently, stops for the sole purposes of refuelling, obtaining supplies, relieving the crew, going into dry-dock or making repairs to the ship and/or its equipment, stops in port because the ship is in need of assistance or in distress, ship-to-ship transfers carried out outside ports, and stops for the sole purpose of taking shelter from adverse weather or rendered necessary by search and rescue activities are not ports of call
- A **voyage** is a journey between two consecutive ports of call
- An **EU MRV voyage** is when at least one of the two ports of call is in the EEA
- **Ballast voyages** shall be considered same as **laden voyages**

Illustration - Which voyages must be reported?

- A Port of Call is a port where a ship stops to load or unload cargo or to embark or disembark passengers
- A voyage is a journey between two Ports of Call
- A reportable voyage is a voyage where at least one Port of Call is in the EU

What are the EEA outermost regions?

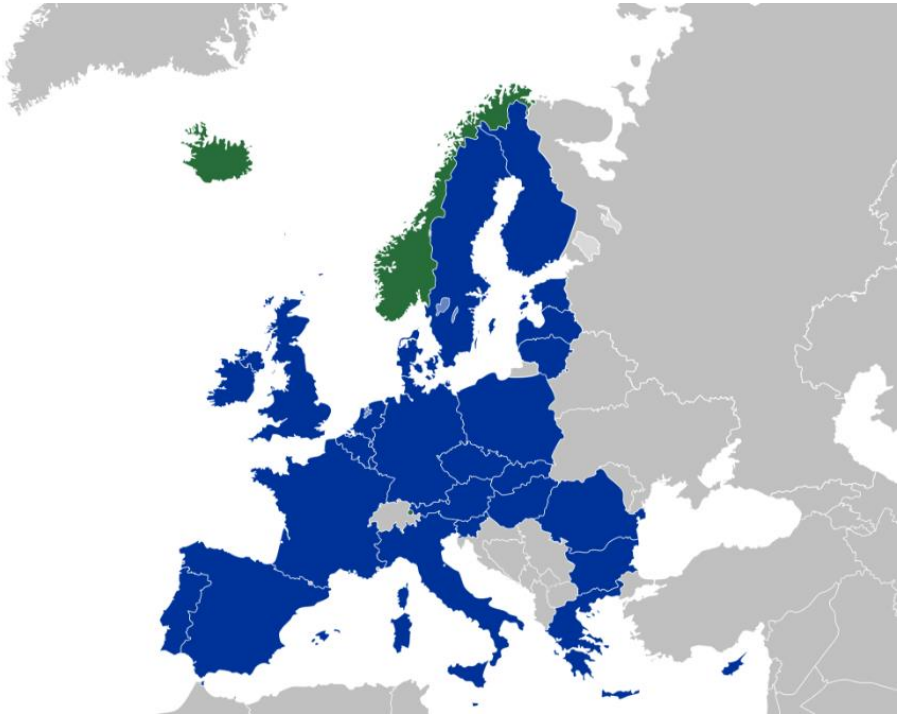
All voyages calling at a port of call located in an EEA outermost region are also subject to EU MRV



EEA outermost regions: Açores, Canary Islands, French Guiana, Guadeloupe, Madeira, Martinique, Mayotte, Reunion and Saint Martin

What is the geographical scope of EU MRV?

All voyages calling at an EEA port of call are subject to EU MRV



EU Member States: Belgium, Bulgaria, Croatia, Republic of Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden and the UK.

EEA Member States: EU Member States + Iceland + Norway

EEA outermost regions: see next slide

! Gibraltar is considered to be an EU port

Which data shall be reported in the emissions report?

Amount and emissions factor for each type of fuel consumed in total
Aggregated emissions from all reportable voyages (intra-EEA / outbound / inbound)

Emissions within ports at berth

Total distance travelled

Total time spent at sea

Total transport work

Energy efficiency parameters
- Fuel consumption per distance
- Fuel consumption per transport work
- CO_2 emissions per distance
- CO_2 emissions per transport work

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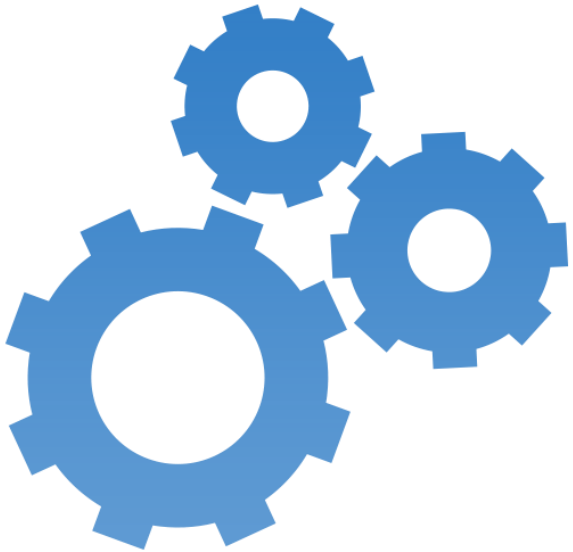

About THETIS MRV

VERIFAVIA shipping

Sécurisé | https://mrv.emsa.europa.eu/#private/myfleet

EMSA THETIS-MRV | MY FLEET | CONFIG | SUPPORT | Welcome Dufour | Verifier, Self register, ver 3.2.4 | Menu | Logout

Info! WUCHANG Monitoring Plan has been Deleted

IMO Number		Ship Name		Company		Reporting Period		VR Status	
Ship type		Flag		Verifier		ER Status		DoC Status	
Alert		In Fleet	Yes						

Search | Filter | Reset

	IMO	Alert	Name	Flag	Ship Type	ER Status	VR Status	Reporting Period	Verifier	Company
Actions	9259898	i	PINK CORAL	Malta	Chemical ta...				VERIFAVIA (...	SOCOMAR Srl
Actions	9263942		ASPHALT SE...	Marshall Isla...	Chemical ta...				VERIFAVIA (...	ASP Ship Ma...

THETIS MRV – Optional vs. mandatory modules

Module 1

Monitoring Plan production and assessment

OPTIONAL (may be done outside THETIS MRV)

Module 2

Emissions Report production and verification

MANDATORY (has to be done through THETIS MRV)

THETIS MRV - Monitoring & reporting options

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Per-voyage / per-port activity data

Annual aggregation of data

1 Entered manually into THETIS MRV during the monitoring year

2 Uploaded into THETIS MRV at the end of the year using XML

Monitored outside of THETIS MRV

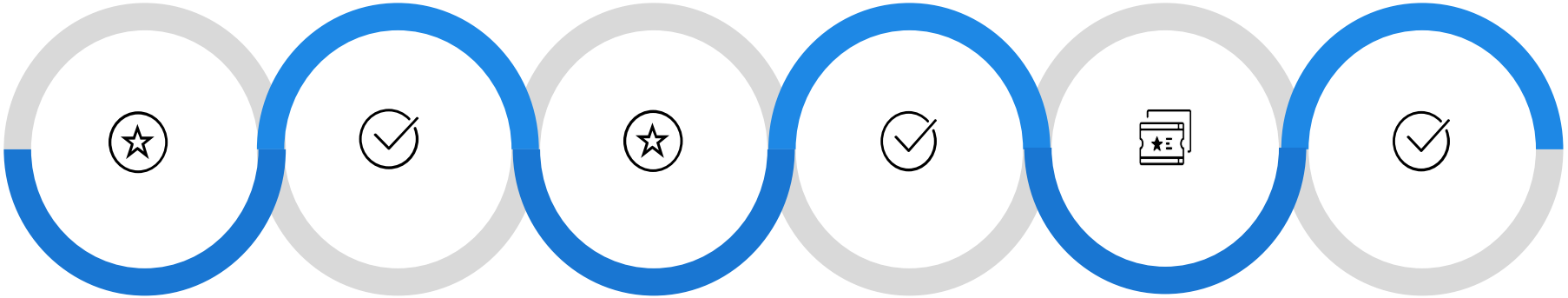
Aggregation of data done automatically by THETIS MRV

3 Aggregated data entered manually into THETIS MRV at the end of the year

4 Aggregated data uploaded into THETIS MRV at the end of the year using XML

One of these four options must be selected

Emissions Report (ER) verification - 6 steps to become MRV Compliant



Submit per-voyage data data to the verifier	Verification of per-voyage data	Submission of per-voyage or aggregated data into THETIS MRV	Validation of per-voyage or aggregated data in THETIS MRV	Submission of data to the Commission and Flag State in THETIS MRV	Issuance of Document of Compliance (DoC)
Shipping company	VERIFAVIA shipping	*Shipping company*	VERIFAVIA shipping	*Shipping company*	VERIFAVIA shipping

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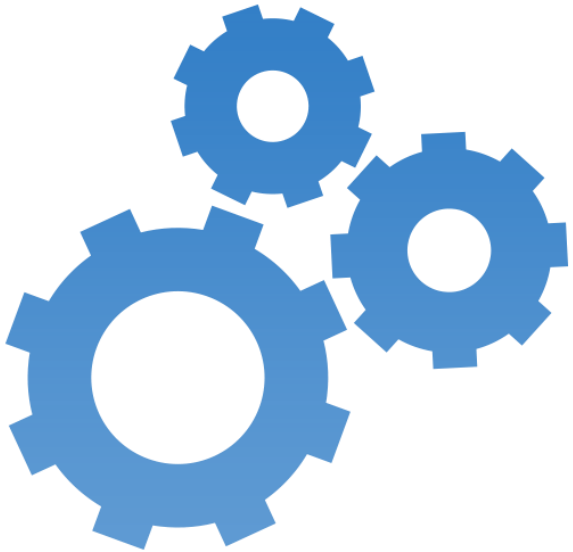
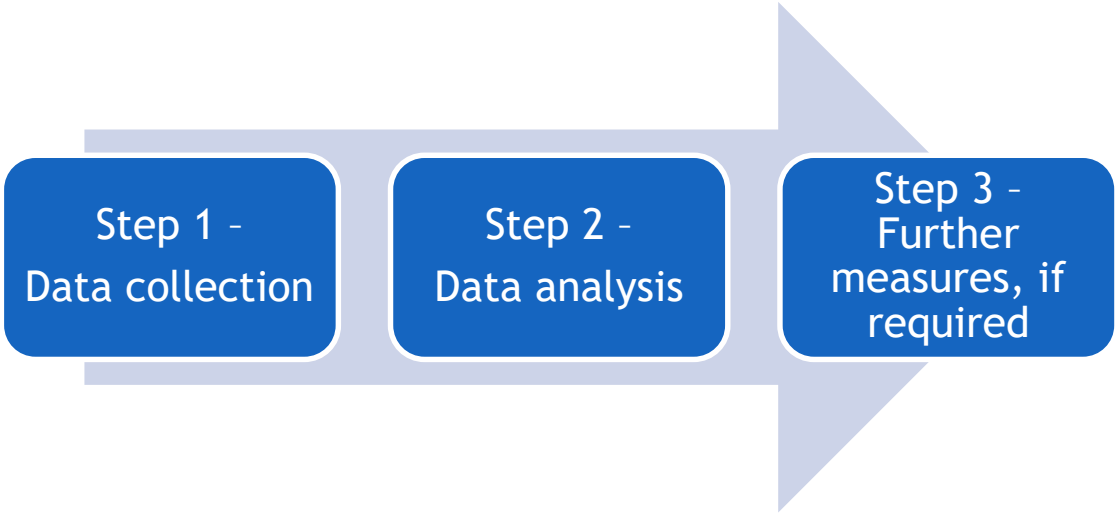


IMO Data Collection System is part of a three-step process



INTERNATIONAL MARITIME ORGANIZATION

The Regulation 22A was adopted at MEPC 70 in October 2016 and will come into force on 1st March 2018

ANNEX 3

RESOLUTION MEPC.278(70)
(Adopted on 28 October 2016)

AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1997 TO AMEND THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS, 1973, AS MODIFIED BY THE PROTOCOL OF 1978 RELATING THERETO

Amendments to MARPOL Annex VI

(Data collection system for fuel oil consumption of ships)

INTERNATIONAL MARITIME ORGANIZATION

Several guidelines have been published by IMO (resolutions and circulars)

RESOLUTION MEPC.282(70)
GUIDELINES FOR THE DEVELOPMENT OF A SHIP ENERGY EFFICIENCY MANAGEMENT PLAN (SEEMP)

RESOLUTION MEPC.292(71)
GUIDELINES FOR ADMINISTRATION VERIFICATION OF SHIP FUEL OIL CONSUMPTION DATA

RESOLUTION MEPC.293(71)
GUIDELINES FOR THE DEVELOPMENT AND MANAGEMENT OF THE IMO SHIP FUEL OIL CONSUMPTION DATABASE

MEPC.1/Circ.876
SAMPLE FORMAT FOR THE CONFIRMATION OF COMPLIANCE, EARLY SUBMISSION OF THE SEEMP PART II

IMO DCS Road Map for shipping companies

Adoption of IMO DCS
Oct 2016

Mar 2018
Coming into force of IMO DCS

Deadline for completion of **Data Collection Plan assessment**
31st Dec. 2018

1st Jan 2019
Start of Reporting Period 1

End of Reporting Period 1
31st Dec. 2019

30th April 2020
Deadline to **submit data to Flag administration**

On-board **Statement of Compliance**
31 May 2020

Data Collection Plan

- Ship particulars
- Records of revision
- Ship engines, fuel oil consumers, fuel oil types used
- Emission factor
- Method to measure fuel oil consumption
- Method to measure distance travelled
- Method to measure hours underway
- Processes that will be used to transfer the data to the administration
- Data quality

IMO DCS Data Reporting Format

Method used to measure fuel oil consumption[9]		
Fuel oil consumption (t)	Other(…….)	
	(C_f ;…..)	
	Ethanol (C_f: 1.913)	
	Methanol (C_f: 1.375)	
	LNG (C_f: 2.750)	
	LPG (Butane) (C_f: 3.030)	
	LPG (Propane)	
	HFO (C_f: 3.114)	
	LFO (C_f: 3.151)	
	Diesel/Gas Oil (C_f: 3.206)	
Hours underway (h)		

Distance Travelled (nm)		
Power output (rated power) (kW)[8]	Auxiliary Engine(s)	
	Main Propulsion Power	
Ice class[7] (if applicable)		
EEDI (if applicable)[6] (gCO_2/t.nm)		
DWT[5]		
NT[4]		
Gross tonnage[3]		
Ship type[2]		
IMO number[1]		
End date (dd/mm/yyyy)		
Start date (dd/mm/yyyy)		

Form of Confirmation of Compliance and Statement of Compliance

SAMPLE FORMAT FOR CONFIRMATION OF COMPLIANCE

CONFIRMATION OF COMPLIANCE – SEEMP PART II

Issued under the provisions of the Protocol of 1997, as amended, to amend the International Convention for the Prevention of Pollution by Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

. . . . . .

(full designation of the Party)

by . . . . . .

(full designation of the competent person or organization authorized under the provisions of the Convention)

Particulars of ship*

Name of ship . . . . . .

Distinctive number or letters. . . . . .

IMO Number† . . . . . .

Port of registry . . . . . .

Gross tonnage. . . . . .

SEEMP part II date of revision, as applicable . . . . . .

THIS IS TO CONFIRM:

Taking into account the *2016 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP)* adopted by resolution MEPC.282(70), the ship's SEEMP has been developed and complies with regulation 22.2 of Annex VI of the Convention.

Issued at: . . . . . .

(place of issue of Confirmation)

Date (dd/mm/yyyy) . . . . . .
(date of issue)

. . . . . .
(signature of duly authorized official issuing the Confirmation)

(seal or stamp of the authority, as appropriate)

* Alternatively, the particulars of the ship may be placed horizontally in boxes.

† In accordance with the *IMO Ship Identification Number Scheme*, adopted by the Organization by resolution A.1117(30).

STATEMENT OF COMPLIANCE – FUEL OIL CONSUMPTION REPORTING

Issued under the provisions of the Protocol of 1997, as amended, to amend the International Convention for the Prevention of Pollution by Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention") under the authority of the Government of:

. . . . . .

(full designation of the Party)

by . . . . . .

(full designation of the competent person or organization authorized under the provisions of the Convention)

Particulars of ship[7]

Name of ship . . . . . .

Distinctive number or letters. . . . . .

IMO Number[8] . . . . . .

Port of registry . . . . . .

Gross tonnage. . . . . .

THIS IS TO DECLARE:

1. That the ship has submitted to this Administration the data required by regulation 22A of Annex VI of the Convention, covering ship operations from (dd/mm/yyyy) through (dd/mm/yyyy); and

2. The data was collected and reported in accordance with the methodology and processes set out in the ship's SEEMP that was in effect over the period from (dd/mm/yyyy) through (dd/mm/yyyy).

This Statement of Compliance is valid until (dd/mm/yyyy). . . . . .

Issued at: . . . . . .

(place of issue of Statement)

Date (dd/mm/yyyy) . . . . . .

(date of issue)

. . . . . .
(signature of duly authorized official issuing the Statement)

(seal or stamp of the authority, as appropriate) "

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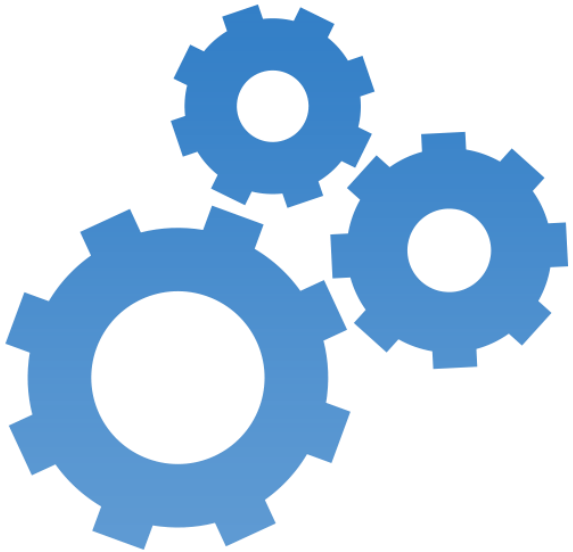
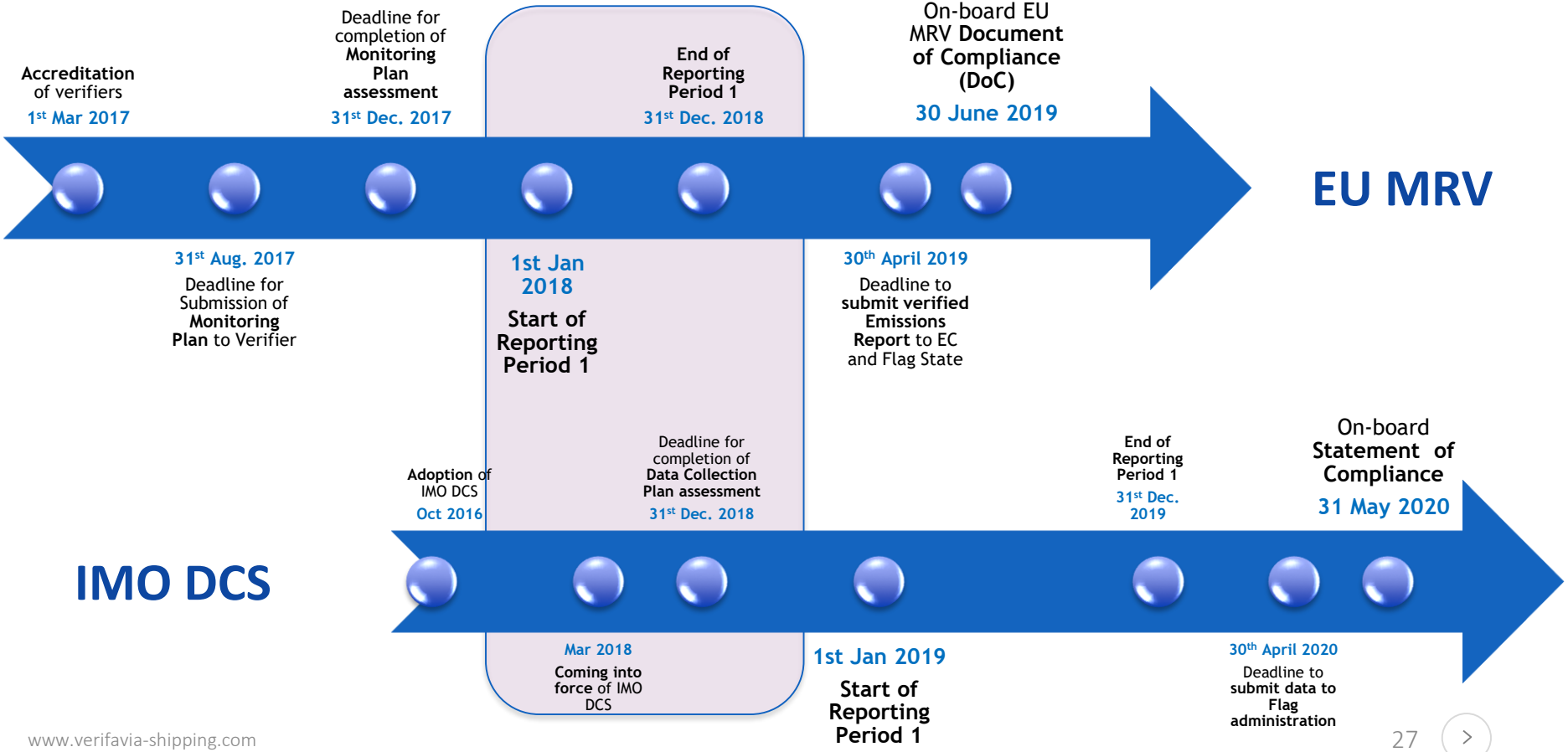


Timeline Comparison



Which ships are concerned by the EU MRV and IMO DCS?

EU MRV

- All ships above 5000 GT
- Regardless of Flag or country of ownership
- Calling at an EU port from 1 January 2018
- And carrying cargo or passengers for commercial purposes

IMO DCS

- All ships of 5000 GT or above
- Regardless of Flag or country of ownership
- Performing international voyages
- Platforms, including FPSOs, FSUs and drilling rigs excluded

Who is the accountable entity?

The accountable entity is the **Ship**

Every ship must:

EU MRV

- ✓ Develop a Monitoring Plan and have it assessed
- ✓ Monitor and report emissions and activity data
- ✓ Have the Emissions Report independently verified
- ✓ Carry on-board a Document of Compliance (DOC)

Every ship must:

IMO DCS

- ✓ Develop a Data Collection Plan and have it assessed
- ✓ Monitor and report fuel, distance and hours underway
- ✓ Have the Data verified
- ✓ Carry on-board a Confirmation of Compliance (CoC) and a Statement of Compliance (SoC)

Who is responsible for compliance?

The responsible entity is the **Company**

EU MRV & IMO DCS

The **Company** means ‘the shipowner or any other organisation or person, such as the manager or the bareboat charterer, which has assumed the responsibility for the operation of the ship from the shipowner’

>>> ISM Manager

Which parameters must be monitored and reported?

EU MRV

- Fuel Consumption at Sea
- Fuel Consumption at berth
- Time at Sea
- Distance Sailed
- Cargo On-board
- Transport work
- Energy Efficiency parameters

IMO DCS

- Total Fuel Consumption
- Hours underway
- Distance Travelled

! *Hours underway and distance travelled shall be considered while the ship is underway under its own propulsion*

! *Fuel consumption shall be considered regardless of whether a ship is underway or not*

! *Distance travelled is distance over ground, e.g. distance travelled measured using satellite data*

Which are the monitoring methodologies available?

VERIFAVIA shipping

EU MRV

Method A
BDN and periodic stocktakes of fuel tanks

Method B
Bunker fuel tank monitoring on board

Method C
Flow meters for applicable combustion processes

Method D
Direct CO2 emission measurements

IMO DCS

Method 1
Bunker Delivery Notes (BDN)

Method 2
Flow meters

Method 3
Bunker fuel tank monitoring on board

Direct CO2 emission measurements

EU MRV & IMO DCS

- Main engines
- Auxiliary engines
- Boilers
- Gas turbines
- Inert gas generators

EU MRV & IMO DCS

Type of Fuel	IMO Values MEPC.245(66) (t CO2 / t fuel)
Heavy Fuel Oil	3.114
Light Fuel Oil	3.151
Diesel/Gas Oil	3.206
Liquefied Petroleum Gas (Propane)	3.000
Liquefied Petroleum Gas (Butane)	3.030
Liquefied Natural Gas	2.750
Methanol	1.375
Ethanol	1.913

IMO DCS Data Collection Plan (1)

VERIFAVIA shipping

1 Ship particulars

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

Same as EU MRV

2 Record of revision of Fuel Oil Consumption Data Collection Plan

Date of revision	Revised provision

Same as EU MRV

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	(…)	

Same as EU MRV

IMO DCS Data Collection Plan (2)

VERIFAVIA shipping

4 Emission factor

C_F is a non-dimensional conversion factor between fuel oil consumption and CO_2 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 CO_2 is calculated by multiplying annual fuel oil consumption and C_F for the type of fuel.

Fuel oil Type	C_F (t-CO_2 / 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
Methanol	1.375
Ethanol	1.913
Other (……)	

Same as EU MRV

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

Same as EU MRV

IMO DCS Data Collection Plan (3)

6 Method to measure distance travelled

Description

Same as EU MRV

7 Method to measure hours underway

Description

Specific to IMO DCS

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

Description

Specific to IMO DCS

9 Data quality

Description

Same as EU MRV

EU MRV and IMO fuel data system compared - Summary

	EU MRV	IMO DCS
Entry into force	1st July 2015	1st March 2018
Scope	Ships above 5’000 GT Voyages to / from EEA ports of call	Ships 5’000 GT or above International voyages
First monitoring period	2018	2019
Procedures	Monitoring Plan (37 sections)	Data Collection Plan (SEEMP Part II) (9 sections)
Compliance (procedures)	Assessment Report (no need to be on-board)	Confirmation of Compliance (must be on-board)
Reporting	Fuel consumption (port / sea) Carbon emissions Transport work (actual cargo carried) Distance sailed Time at sea excluding anchorage	Total fuel consumption Distance travelled Hours underway Design deadweight used as proxy
Verification	Independent accredited verifiers	Flag administrations or Authorized Organizations
Compliance (reporting)	Document of Compliance (June 2019)	Statement of Compliance (May 2020)
Publication	Distinctive public database	Anonymous public database

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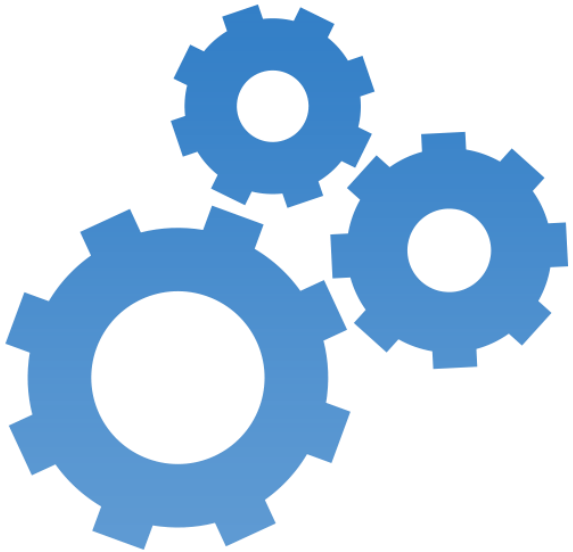

- **Implement your assessed EU MRV Monitoring Plan** on all voyages that call an EU/EEA port of call from 1st January 2018

- **Register your ships in THETIS MRV** and decide how the data will be reported (four options)

- **Agree with your verifier how the data will be submitted for verification**
  - At Verifavia Shipping, we accept any electronic format as long as the content is complete without the need of any specific system

- **Challenges:**
  - Specific complex data exchange format requested by some verifiers
  - Understand and comply with THETIS MRV data exchange format

IMO DCS – Take aways & Challenges

- **Use EU MRV Monitoring Plan** data and information to complete IMO DCS Data Collection Plan
  - If valid for EU MRV >>> likely to be valid for IMO DCS
- **Streamline procedures** to ensure common and consistent set of procedures valid for both EU MRV and IMO DCS
- **Upgrade IT tools** to ensure data is collected for all ships worldwide consistently
- One **common IT platform / data collection process** >>> two separate reports:
  - EU MRV Emissions Report
  - IMO DCS Fuel Data Report

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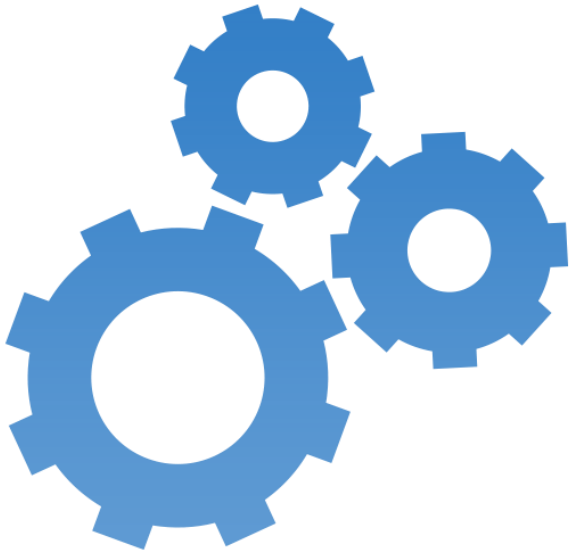

Who are we?

VERIFAVIA shipping

VERIFAVIA
aviation | airports | shipping

Verifavia is the first and only global independent accredited EU MRV verification body with dual accreditation, and the first IMO DCS verifier for Panama, Liberia and Antigua & Barbuda.

More than 170 ship operators trust Verifavia Shipping for EU MRV, IMO DCS, CCWG or CSI independent audits. This represents more then 1 600 vessels.

Verifavia aims to be the maritime transport's first choice for the provision of efficient, flexible, and competitive EU MRV, IMO DCS, CSI and CCWG verification for shipping companies worldwide.

Verifavia Shipping is the first and only global accredited EU MRV verifier with **dual accreditation, and the first and only IMO DCS verifier in Panama!**

Our ISO 14065 accreditation allows us to assess and verify **any ship anywhere in the world regardless of country, Flag State or class.** *The MRV accreditation used for the project will be **UKAS (N° 4599)**.*

Verifavia is also approved by the **Clean Shipping Index (CSI)** and the **Clean Cargo Working Group (CCWG),** and is authorized by the **Panama Maritime Authority**, the **Liberia Maritime Authority** and the **Antigua & Barbuda Department of Marine Services and Merchant Shipping (ADOMS)** for the IMO DCS

4599

Accreditation n° 4-0596

Scope available on www.cofrac.fr

Our verification services for maritime transport

EU MRV Emissions Report Verification

EU MRV Monitoring Plan Assessment

EU MRV IT System Certification

IMO DCS Verification

CCWG Verification

CSI Verification

EU MRV references – Legal Assessments of Monitoring Plans and Verification of Emissions Reports (Greece)

VERIFAVIA shipping

Verifavia Shipping is one of the leading providers of EU MRV verification services in Greece

CHIOS NAVIGATION (HELLAS) LTD

ENESEL S.A.

LOAD LINE MARINE

Attica Group

SUPERFAST FERRIES

Blue Star Ferries

AFRICA MOROCCO LINK

AUG. BOLTEN Wm. Miller's Nachfolger

LYDIA MAR SHIPPING Co. S.A.

LEMISSOLER

ΑΠΑ

Aegeus Shipping S.A.

Alcyon

DALEX SHIPPING Co. S.A.

LAMDA MARITIME

UNION MARINE ENTERPRISES SA

SEAPIONEER

KAROS SHIPPING & BROKERAGE CO.,LTD.

DRASTIRIOS SHIPMANAGEMENT

Oceanstar Management Inc.

Eurotank Maritime Management SA

FSM S. Frangoulis Ship Management LTD

SEA DESTINY SHIP MANAGEMENT Inc.

KOUROS MARITIME ENTERPRISES INC

ACA SHIPPING CORP.

CCL – CRETA CARGO LINES – SHIPPING COMPANY

TRIMARINE

EU MRV references – Legal Assessments of Monitoring Plans and Verification of Emissions Reports (Scandinavia)

VERIFAVIA shipping

Verifavia Shipping is the leading independent providers of EU MRV verification services in Scandinavia

WALLENIUS WILHELMSEN MARINE

CLIPPER

KRISTIAN GERHARD JEBSEN SKIPSREDERI
PART OF THE KRISTIAN GERHARD JEBSEN GROUP

Ultragas

HÖEGH LNG

LAURIN MARITIME

DFDS

NORDEN

ESL Shipping

UECC

VIKING LINE

EIMSKIP

HH Ferries Group

TALLINK

LAURITZEN KOSAN

fjordline

SILJA LINE

Færgen

EU MRV references – Legal Assessments of Monitoring Plans and Verification of Emissions Reports (other Europe)

VERIFAVIA shipping

Verifavia Shipping is the leading independent providers of EU MRV verification services in Europe

SOCATRA

ROLLDOCK

oldendorff

CORSICA linea

augustea tecnoservice srl

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ENGIE GAZOCEAN

E.R. SCHIFFAHRT

CARISBROOKE SHIPPING

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ARMADOR SHIP MANAGEMENT

ATLANTIC SHIP MANAGEMENT

ASM MARITIME

Schiffahrtsgesellschaft Oltmann mbH & Co. KG

EU MRV references – Legal Assessments of Monitoring Plans and Verification of Emissions Reports (rest of the world)

VERIFAVIA shipping

Verifavia Shipping is the leading independent providers of EU MRV verification services in Asia-Pacific and North America

EAGLE BULK

WALLEM Shipmanagement

CHINA NAVIGATION

SWIRE

ADK

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BERGEBULK moving mountains

友聖航運股份有限公司 UNISON MARINE CORP.

OSG Overseas Shipholding Group, Inc.

EU MRV references - EU MRV IT system certification audits

Verifavia Shipping is the world's market leader working with global ICT providers in the independent certification of EU MRV IT systems

Certified EU MRV IT systems

VAF INSTRUMENTS
MeteoGroup
danaos
Navgathi
BASS Streamlining Maritime Operations
MARORKA
COACH
StormGeo
DYNAMARINE
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ENERFORCE Solutions & Consulting
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Setel Hellas Your Global ICT Partner
TRESSOLUTIONS DATA • INSIGHTS • SOLUTIONS
VISWA LAB
KYMA

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POLE STAR
Vertex infosoft

Q&A