CONTROL UNION OFFICES

WHY SHOULD YOU CHOOSE CONTROL UNION?

We are interested in building long term relationships with our clients. As a family owned enterprise we have done this successfully over the past 60 years.

Our services are related to a wide range of activities, with a focus on:
- Implementation of certification schemes
- Supply Chain Management Support
- Carbon foot printing and LCA (Life Cycle Assessment)
- Sustainable Reporting

Control Union has a dedicated team of Green House Gas (GHG) specialists. Our activities related to carbon measurement are aimed at determining the carbon foot-print of a product or a company. The insights gained hereby support companies in making their processes more efficient and reducing their GHG emissions.

Control Union has, via its different subsidiaries, a long standing track record in the maritime sector, including inter alia:

- We conduct industrial inspections; providing testing and certifying services to the global players in the oil and gas industry.
- We offer a comprehensive range of safe, reliable and value added logistics solutions to the Energy Industry in the Dutch and British parts of the North Sea.
- Our US Coast Guard (USCG)-accepted Independent Laboratory conducts Type approval tests of Ballast Water Management Systems.
- We offer turn-key solutions for EPA's 2013 Vessel General Permit (VGP) Monitoring Requirements for Discharge of Ballast Water, Bilgewater/Oily Water Separator Effluent, Graywater & Exhaust Gas Scrubber Washwater.
- We are specialised in international transportation of large, heavy and/or high value cargo and worldwide container transport.
- We arrange just in time deliveries of bulk cargoes; directly from the vessel to the client or by using our own storage facilities as temporary storage.
- Our port agency services focus mainly on the tramp side of the business.
- Our Chartering services connect ship and cargo to ensure trustworthy transportation by sea.

We have a hands on and flexible approach and as such we are always looking for cost efficient solutions which are easy to implement.
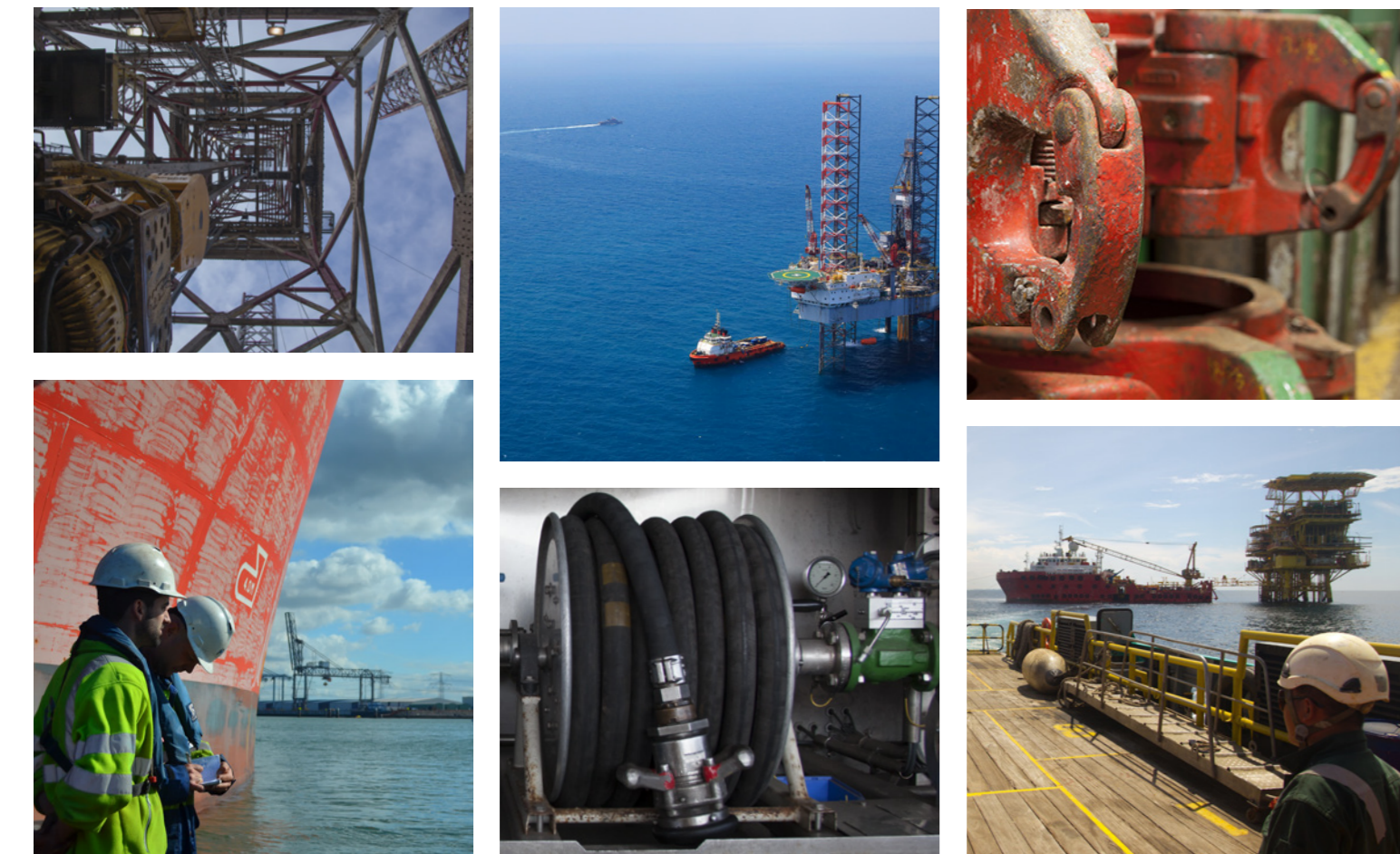
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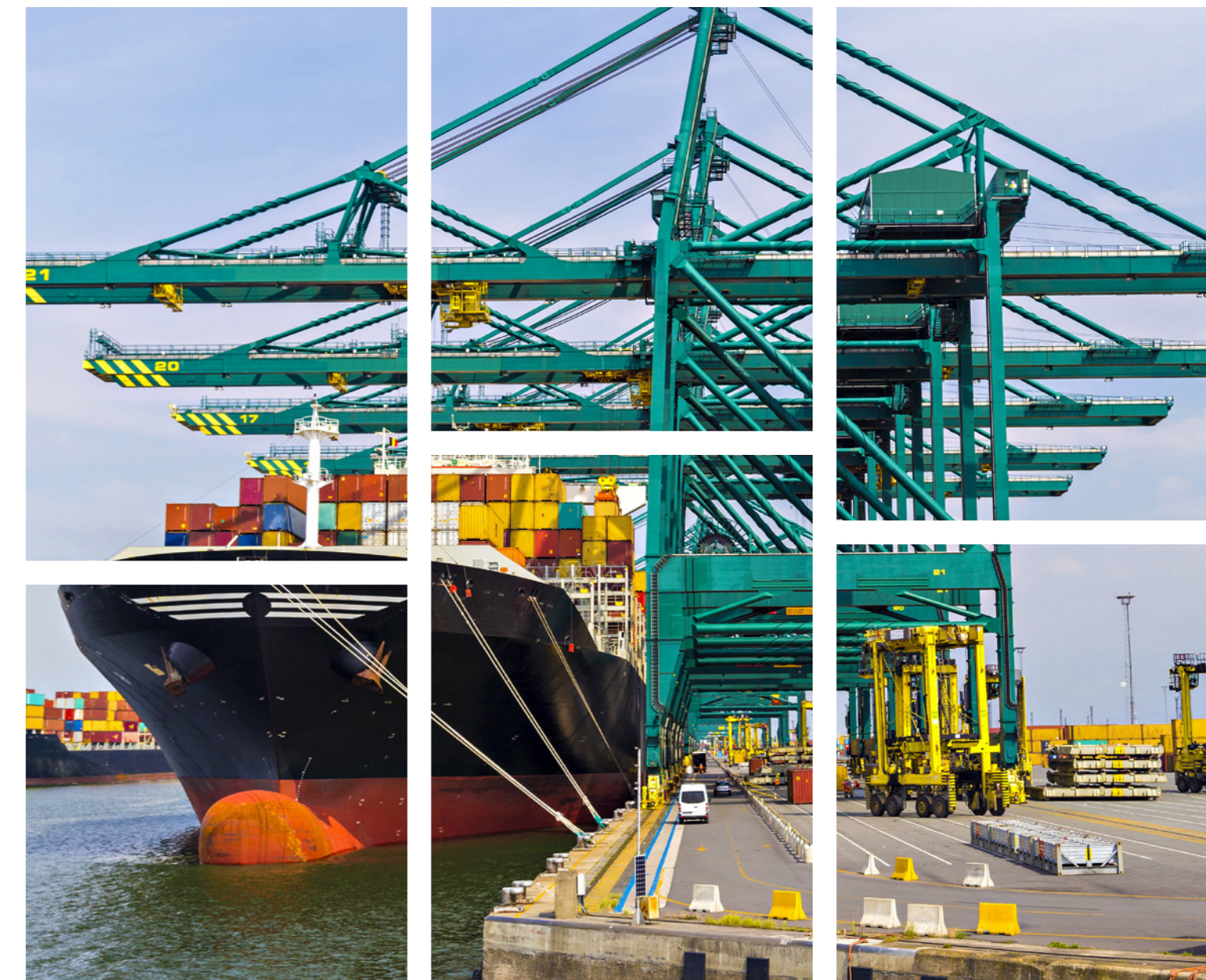
EU-MRV: MONITORING, REPORTING AND VERIFICATION OF CO$_2$ EMMISSIONS FROM MARITIME TRANSPORT

Over the past years, the maritime sector experienced pressure from policymakers at different levels to contribute its share to the overall commitment to reduce greenhouse gas emissions and ultimately limit global warming to 2 C.

BACKGROUND

Although the EU and its member states have a strong preference for a global approach led by the International Maritime Organization (IMO), no international agreement on this topic has been reached yet. Therefore, the EU has taken a proactive approach and decided to develop its own strategy to reduce CO_2 emissions in the maritime sector. This EU strategy consists of the following three consecutive steps:

1. Quantify CO_2 emissions from maritime transport by implementing a monitoring, reporting and verification (MRV) system
2. Define GHG reduction targets for the maritime transport sector
3. Introduce measures, including market based measures, to achieve these reduction targets

On 29 April 2015, the EU has taken the first step by adopting a regulation on the monitoring, reporting and verification of CO_2 emissions in the maritime sector.

EU MRV REGULATION 2015/757

The European Regulation 2015/757 on the monitoring, reporting and verification of carbon dioxide (CO_2) emissions from maritime transport (EU-MRV) has entered into force on 1 July 2015. The EU-MRV applies to ships of 5,000 GT or above (with

some exceptions) undertaking one or more voyages into, out of and between EU ports. Under this regulation, shipping companies shall for each of their ships monitor the CO_2 emissions and other relevant parameters on an annual and per voyage basis. The monitored emissions shall be reported to the European Commission (EC) and the flag state authority and, by 30 June of the year following the end of a monitoring period, ships shall carry on board a valid document of compliance.

MONITORING PLAN

The content of the Monitoring Plan is pre-defined by the EU-MRV. Under this shipping companies shall use standardized monitoring plans based on templates. However, the regulation does not address the setup and design of the electronic template and highly technical issues, such as the parameters for cargo carried, and these are to be determined by implementing and delegated acts. These issues are currently being discussed in one of the expert groups set up under the umbrella of the European Sustainable Shipping Forum (ESSF) and, by the end of 2016 at the latest, the EC shall determine the final setup of the Monitoring Plan by means of implementing acts.

The Monitoring Plan shall at least provide the following information:
- Basic data such as the identification of the ship and company information
- A description of emission sources on board of the ship and procedures, systems and responsibilities used to update the list of emission sources
- Fuel types used and emission factors for each fuel type
- A description of the procedures used to monitor the completeness of the list of voyages
- A description of the procedures for monitoring fuel consumption of the ship, including the method chosen
- Activity data per voyage including procedures responsibilities, formulae and data sources for distance travelled, time spent at sea and cargo carried
- A revision sheet to record all the details of revision history

The Monitoring Plan should also address the quality and availability of data and data gaps and the methodology that is used to these treat data gaps. The description of management activities, internal control systems and control activities, corrections and corrective actions is not mandatory but could support your EU-MRV compliance.

CONTROL UNION

| PERFORM GAP ANALYSIS/PRE-VERIFICATION | ASSESS MONITORING PLAN | | | VERIFY ANNUAL EMISSION REPORT | ISSUANCE OF DOCUMENT OF COMPLIANCE |

31 AUG 2017 · **1 JAN 2018** · **31 DEC 2018** · **30 APR 2019** · **30 JUN 2019**

SHIPPING COMPANY

| PREPARE MONITORING PLAN | SUBMITTAL OF THE MONITORING PLAN TO THE VERIFIER | START OF THE FIRST MONITORING PERIOD | END OF THE FIRST MONITORING PERIOD | PREPARE ANNUAL EMISSION REPORT | DEADLINE FOR THE SUBMISSION OF A VERIFIED EMISSIONS REPORT | DEADLINE FOR OBTAINING DOCUMENT OF COMPLIANCE |

METHODS TO BE USED

The actual fuel consumption shall be determined and calculated using one of the following methods or any combination of these methods:
- Bunker delivery notes and periodic stock takes of fuel tanks
- On-board fuel tank monitoring
- Flow meters for applicable combustion processes
- Direct CO_2 emissions measurements

ENERGY EFFICIENCY

The EU-MRV refers to energy efficiency as a part of the monitoring and reporting requirements. The average energy efficiency

will be determined by using the following indicators:
- fuel consumption per distance
- fuel consumption per transport work
- CO_2 emissions per distance
- CO_2 emissions per transport work

The determination of the average energy efficiency as defined in Annex II of the EU-MRV regulation shows similarities with the methodology to calculate IMO's Energy Efficiency Operational Indicator (EEOI). The EEOI is a voluntary monitoring tool which can be used to monitor the energy efficiency of ships in operation
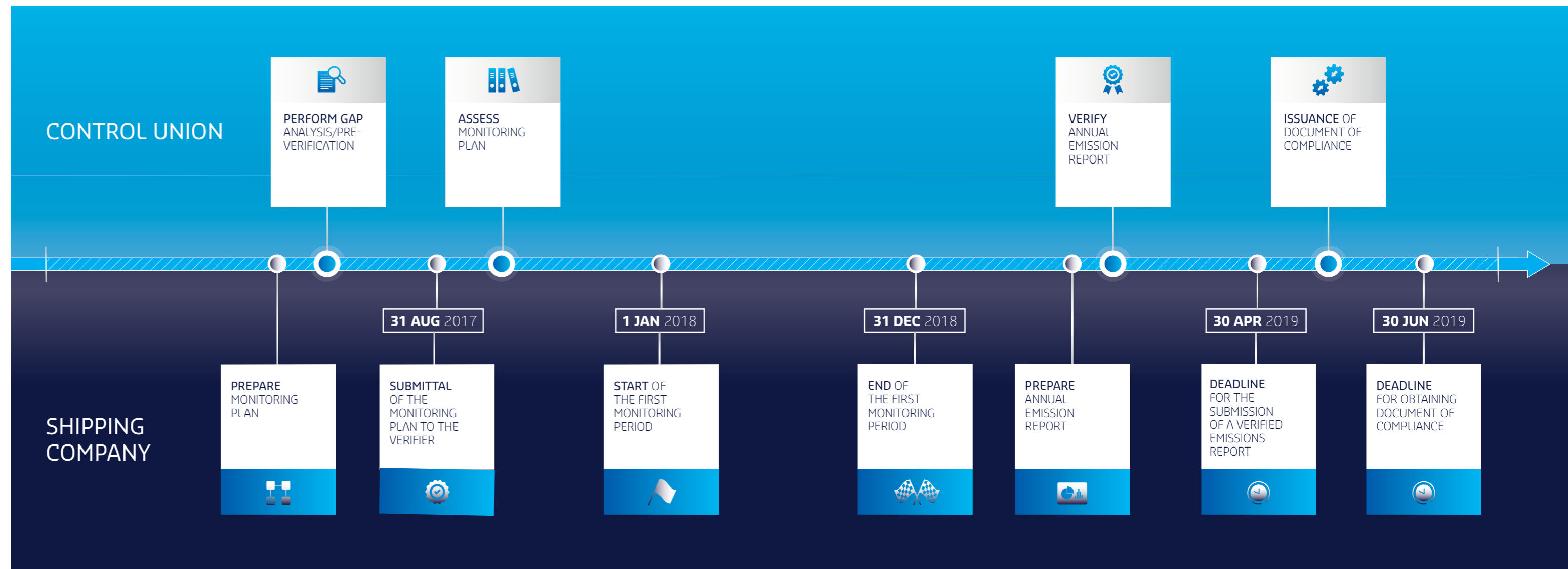
and fleet performance. The EEOI may be a part of the IMO's Ship Energy Efficiency Management Plan (SEEMP) which is mandatory for all ships. When you use the EEOI or a similar monitoring tool, it could support the monitoring process under EU-MRV since many of the data to be monitored is already available.

VERIFICATION

Accredited independent third party verifiers, such as Control Union Certifications Germany, are responsible for the approval of the monitoring plan, verification of the emission report and the issuance

of a document of compliance. Shipping companies must submit the monitoring plan to the corresponding verifier for each of their ships. The verifier shall assess the conformity of the Monitoring Plan with the requirements laid down in the EU-MRV regulation. Furthermore, the independent verifier shall assess the emission report and, if the report is free of material misstatements, issue a document of compliance stating that the emission report has been verified as satisfactory. The verifier will inform the EC of the issuance of this document.

CONTROL UNION'S VERIFICATION PROCESS

PHASE 1
- PREPARATION
- STRATEGIC AND RISK ANALYSIS
- VERIFICATION PLAN

PHASE 2
- VERIFICATION PROGRAMME
- SAMPLING AND DATA ANALYSIS
- REPORTING

VERIFICATION STATEMENT