



**MER**  
SOLUTIONS

# Vetting and Inspection Programmes

October 2022



# MER SOLUTIONS

Manages of risk in the maritime environment and is a multi-disciplinary professional practice offering specialist maritime, energy, resource, and shipping solutions.

#### Key Divisions of MER Solutions:

- Superintendence and representation
- Inspections (exclusively accredited for BVIQ inspections)
- MER Vet
- Tailored Consultancy
- Incident Management
- Engineering Studies
- Project management
- MER SeaServe



# MER INNOVATE

Pioneering innovation and digital solutions for the maritime and shipping community.

#### Key Divisions of MER Innovate:

- MER Ship self-assessment suite of products
- Terminal Vetting Arrival Questionnaire (TVAQ) and Terminal Departure Report
- MER IQ platform infrastructure for self inspections
- MER Vet platform infrastructure
- Digital based maritime data custody, analysis and statistic results presentation

# ISO Accreditation



MER Solutions has an implemented Quality and Safety System which has been externally accredited to ISO9001 and ISO45001 standards.

The accreditation covers:

- MER's superintendence
- BVIQ inspections
- Project management and consulting services
- Customer service quality and safe work practices



# Positive and Transparent Vetting



## MER Vet

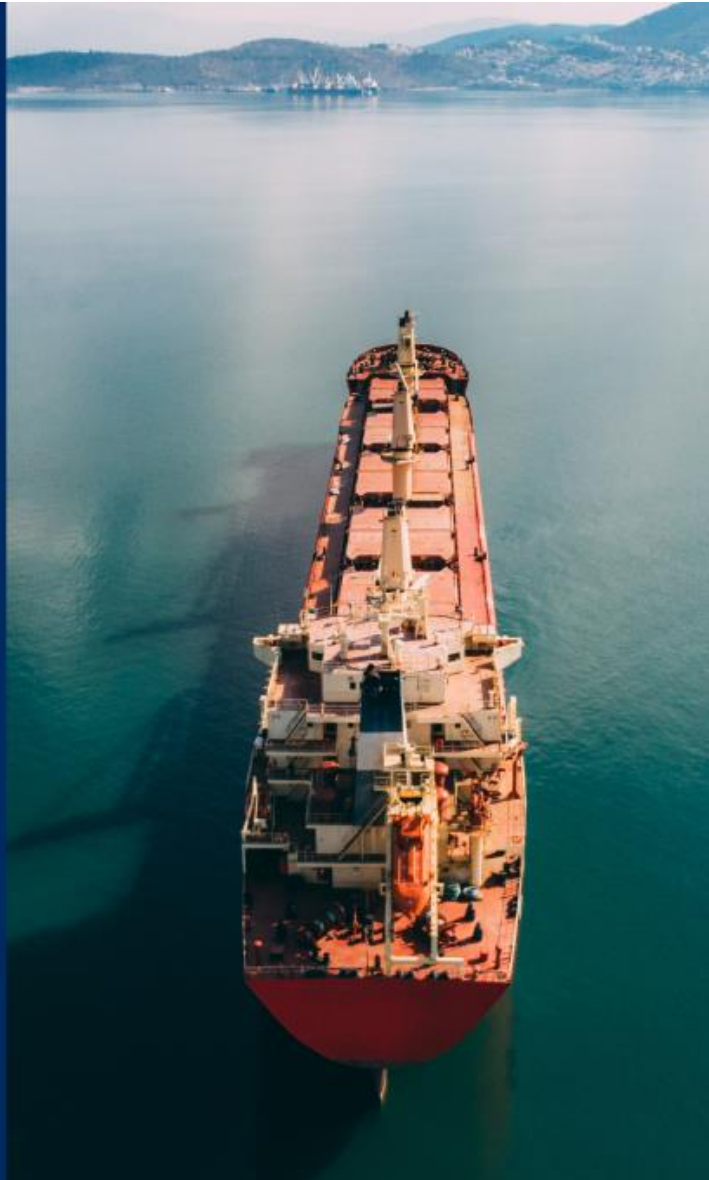
### Request a Vet

Vessel IMO

Client Email

DOC Email

Request a Vet



MER is implementing an industry acceptable vessel suitability and vetting program called “MER Vet”.

# MER Vet Dashboard



A screenshot of the MER Vet Dashboard interface. The top header is dark blue with a white bird icon and the text "&lt;Vessel Name&gt;". Below this, a teal bar contains navigation tabs: Home, Vessel Performance, Event Timeline, Environmental Compliance, Ships Staff &amp; MLC Compliance, Vessel Details, and Port State Control. The main content area is white and contains a large text input field with the placeholder text "Please provide a reason for the status given". To the right of the input field are three stacked buttons: a green "ACCEPTED" button, an orange "PENDING" button, and a red "NOT ACCEPTED" button. The footer is dark blue with the text "© 2022 MER Solutions".

An industry acceptable suitability and vessel risk assessment platform based on regular BVIQ inspections, emphasis on effective close outs, verification principles and with a key aim to embrace positive and transparent vetting processes.

Secure vetting dashboard for the Vetting Superintendent to centrally administrate and control the vetting process and maintain an audit trail from commencement until the end suitability status decision.

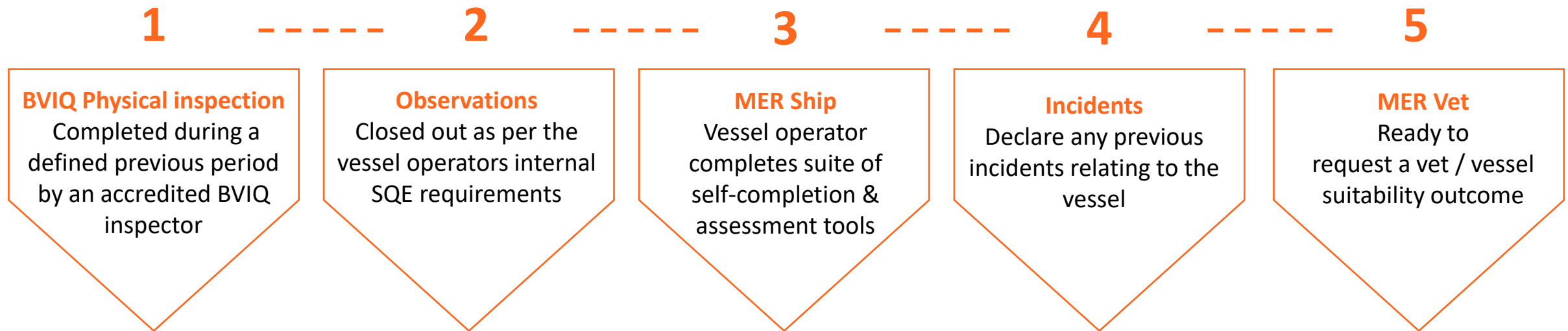
# Vetting Process



For a vessel to commence the MER vetting process towards a viable acceptable vet result the following five (5) main steps must be completed by the vessel operator.

The attending MER Vetting Superintendent will review and verify the below stages and make suitability decision based on follow MER Vet documented processes and best industry acceptable practice.

An emphasis is placed upon Close Out management. In particular for high-risk observations focus will be on corrective and preventative controls of three (3) main areas: 1. Technical fixes, 2. Procedural fixes, and 3. Organisational fixes.



# Vetting Status



A MER Vet report will be issued by the Vetting superintendent upon completion of the program giving a vet status suitability of Acceptable or Not Acceptable. An interim vet report maybe be requested giving the reason for remaining in Pending status.

## Acceptable

Vessel has met the MER Vet requirements and an Acceptable MER Vet report will be issued stating the vessel is suitable for use.

## Pending

Vet still in progress pending actions by vessel manager or inspection, reason for pending will show.

## Not acceptable

Vessel has not met the MER Vet requirements and an Not Acceptable MER Vet report will be issued along with reasons.

# MER Vet Report

## MER Vet assessment criteria compliance summary:

	Date of report:	Date of MER review/verification:	Compliant (Yes/No)
Viable MER Vet candidate status met:		14/10/2022	YES
BVIQ Inspection requirement met:	23/08/2022		
BVIQ observation close outs requirements met:	1/09/2022	14/10/2022	YES
TVAQ completed (optional):	4/10/2022		
Class status report review requirements met:	10/10/2022	14/10/2022	YES
Previous PSC requirements met:		14/10/2022	YES
Previous reported incidents closed out:		14/10/2022	YES
MER Ship self-declaration completed by vessel:	15/08/2022	14/10/2022	YES
Environmental compliance requirements met:		14/10/2022	YES
MLC compliance requirements met:		14/10/2022	YES

## MER Vet Vessel Suitability:

Acceptable



## MER Vet Report

[vet@mer-solutions.com](mailto:vet@mer-solutions.com)



**Huahine**

IMO 9587257 Bulk Carrier 206037 DWT Year of Build 2013 MT Class society BV

As requested, a MER Vet vessel suitability assessment has been completed for above vessel.

Requested by: TMS Dry Ltd Date requested (dd/mm/yyyy): 14/10/2022  
 DOC company: TMS Dry Ltd Unique Report number: 2022001  
 Date of Vet report (dd/mm/yyyy): 15/10/2022

## MER Vet assessment criteria compliance summary:

	Date of report:	Date of MER review/verification:	Compliant (Yes/No)
Viable MER Vet candidate status met:		14/10/2022	YES
BVIQ Inspection requirement met:	23/08/2022		
BVIQ observation close outs requirements met:	1/09/2022	14/10/2022	YES
TVAQ completed (optional):	4/10/2022		
Class status report review requirements met:	10/10/2022	14/10/2022	YES
Previous PSC requirements met:		14/10/2022	YES
Previous reported incidents closed out:		14/10/2022	YES
MER Ship self-declaration completed by vessel:	15/08/2022	14/10/2022	YES
Environmental compliance requirements met:		14/10/2022	YES
MLC compliance requirements met:		14/10/2022	YES

## MER Vet Vessel Suitability:

Acceptable

## Validity:

Ninety (90) days from date of MER Vet report or until any of the below reciding events:

- Six (6) month anniversary since the last BVIQ inspection,
- Change of vessel DOC manager,
- PSC detention,
- An incident significantly affecting safety, performance or operations,
- An incident significantly affecting safety, performance or operations,
- Unsatisfactory close out by manager to any subsequent incident or any adverse Terminal Performance Report,
- Failure to report any subsequent incident to MER Vet,
- Expiry of any conditions required to maintain viable MER Vet candidate status

Requestors or stakeholders who require this vet may define or reduce their own validity period requirements.

## MER Vet Comments:

Very positive BVIQ inspection

Vetting Superintendent: PM  
 Report issued: 1530 hrs 15/10/2022

Uncontrolled when printed. MER Vet validity can be verified by contacting: [vet@mer-solution.com](mailto:vet@mer-solution.com)

All parties parties participating with MER Vet and relying upon the information and opinions in this report are deemed to have read and agreed to the terms and condition [\(add link\)](#)



# BVIQ

## Bulk Vessel Inspection Questionnaire

Our flagship BVIQ product is a standardised inspection tool for verifying of the condition, operation and safety performance of vessels. A proactive digitised tool which identifies areas of improvement in a mutual stive towards maritime safety.

- Over 2500 BVIQ inspections undertaken to date
- 250 questions divided into 11 elements, each with supporting guidance notes
- Physical and remote options available globally
- MER Superintendents positively coach crew and encourage transparent reporting
- Emphasis of results is focus on encouraging effective close out of observations
- Quality and Safety approved and certified ISO accreditation process
- BVIQ inspections are the main prerequisite to commence a MER Vet process



BVIQ.NET



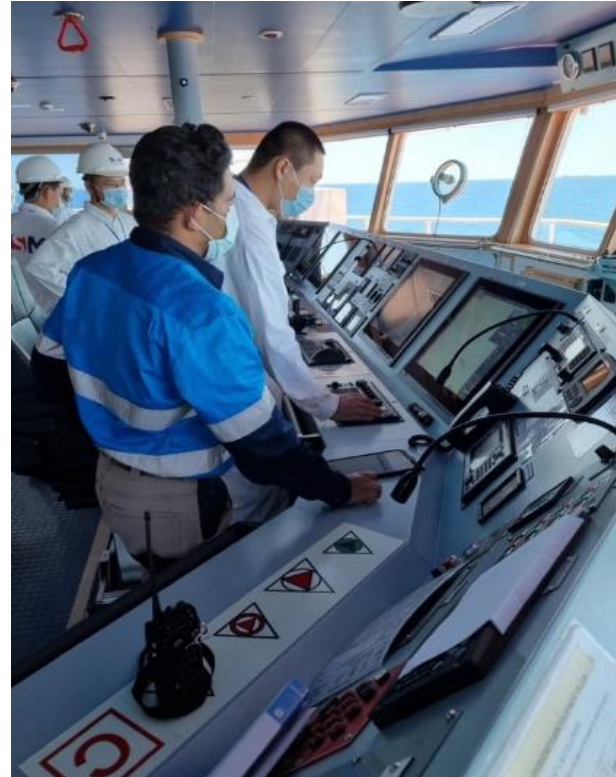
# MER BVIQ Inspectors



Hold a Class 1 Certificates of Competency (Deck or Engineer) and/or hold equivalent maritime tertiary qualifications or previous Class Surveyor experience.

Accredited MER BVIQ inspectors available to all Australian Ports plus Singapore and North and South China and Europe.

Formalised training and accreditation training consists of a number of accompanied inspections with check inspection.



Regular auditing of inspections are independently conducted by a senior BVIQ/SIRE inspector.

Inspection audits are carried out to ensure the framework and the guidelines are being implemented

The attending vetting superintendent must not have been the BVIQ inspector on the vessel being reviewed for suitability



Agreement, training and accreditation has commenced with two international SIRE inspection company networks, to further expand our network and capability for perform inspections in China, South Korea, Hong Kong, Japan, India and US/Canada.

# Observations

## Close out process

- A “No” answer activates an Observation close out process requiring corrective and preventative control actions with supporting documentations / photos
- Encourages operators to transparently engage with observations and take them onboard as improvement initiatives
- MER Superintendents are positive and helpful in delivering any observation
- A MER Vetting Superintendent can review the closeout action and accept or reject during the vetting process
- Observations not closed out will reflect poorly during a MER Vet

A screenshot of a web application interface for vessel observations. The top navigation bar includes a vessel name, IMO number, vessel type, DWT, year of build, and class society. Below this is a secondary navigation menu with options like Home, Vessel Performance, Event Timeline, Environmental Compliance, Ships Staff & MLC Compliance, Vessel Details, and Port State Control. The main content area shows a list of observations on the left and a detailed view of a specific observation on the right. The detailed view includes a guidance note, an observation text, observation images, a closeout action, and supporting documentation. A green button at the bottom of the detailed view indicates "MER CLOSEOUT ACCEPTED".

<Vessel Name>

IMO 9488705 Bulk Carrier 93,145 DWT Year of Build 1999 KR Class society ABS

Home Vessel Performance Event Timeline Environmental Compliance Ships Staff & MLC Compliance Vessel Details Port State Control

Engine Room **OPEN**

7.4 Are the Engine Room fan stops and fire dampers operational?  
**Observation:** The fire dampers were found to have filler material which has no evidence to be fire retardant, the filler material need to be removed and the fire dampers need to be adjusted to be fully closing.

Decks **CLOSED**

7.4 Are the Engine Room fan stops and fire dampers operational?  
**Observation:** The fire dampers were found to have filler material which has no evidence to be fire retardant, the filler material need to be removed and the fire dampers need to be adjusted to be fully closing.

Nav - Comms **MER ACCEPTED**

7.4 Are the Engine Room fan stops and fire dampers operational?  
**Observation:** The fire dampers were found to have filler material which has no evidence to be fire retardant, the filler material need to be removed and the fire dampers need to be adjusted to be fully closing.

Arrival **OPEN**

7.4 Are the Engine Room fan stops and fire dampers operational?  
**Observation:** The fire dampers were found to have filler material which has no evidence to be fire retardant, the filler material need to be removed and the fire dampers need to be adjusted to be fully closing.

Mooring **CLOSED**

7.4 Are the Engine Room fan stops and fire dampers operational?  
**Observation:** The fire dampers were found to have filler material which has no evidence to be fire retardant, the filler material need to be removed and the fire dampers need to be adjusted to be fully closing.

7.4 Are the Engine Room fan stops and fire dampers operational?  
**Guidance Note:**  
The fire dampers were found to have filler material which has no evidence to be fire retardant, the filler material need to be removed and the fire dampers need to be adjusted to be fully closing.

**Observation:**  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec in rhoncus tellus. Pellentesque euismod erat nec tempor ultricies. Ut vel tincidunt nisi. Interdum et malesuada fames ac ante ipsum primis in faucibus

**Observation Images:**

**Closeout Action:**  
Fire dampers repaired correctly and now fully fire retardant.

**Supporting Documentation and Photos:**

Document link example here (to be defined by Sam & Iain)  
Document link example here (to be defined by Sam & Iain)

**MER CLOSEOUT ACCEPTED**

Showing 1 of 5 of 85 items

1 2 3 4 5 ... 17

© 2022 MER Solutions

Physical BVIQ - Port Hedland Macquarie - 2021-03-07

Guided BVIQ - Darwin Longer name - 2021-12-01

Guided BVIQ - Darwin - 2021-12-01

Physical BVIQ - Darwin - 2020-01-20

**Physical BVIQ - Port Hedland - 2021-03-07**

Guided BVIQ - Geelong East Port - 2021-12-01

Physical BVIQ - Port Kerumbra North- 2020-01-20

Physical BVIQ - Port Portsmithers McSmithers - 2021-03-07

Guided BVIQ - Darwin - 2021-12-01

Physical BVIQ - Darwin - 2020-01-20

36

Total Observations

33

Observations Rectified

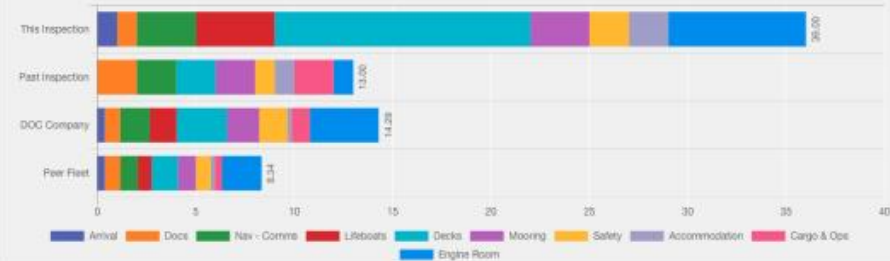
3

Open Observations

Vessel Benchmarking

Observations by Element

Per Inspection



View full report

View observation report

Observation closeouts

Showing 1 to 10 of 85 items

1 2 3 4 5 ... 17



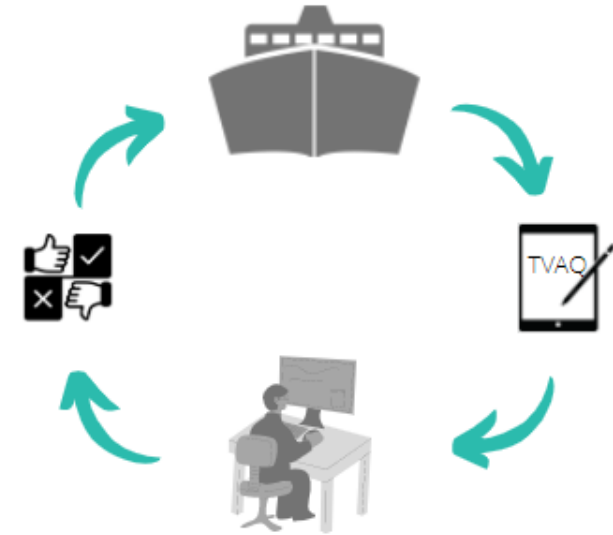
Analytics provide analysis of the number of observations broken down into the elements.

Benchmarking vessels performance during inspection against the past inspection, DOC Company and Peer Fleet.

# TVAQ

## Terminal Vetting Arrival Questionnaire

- Pre arrival Screening tool for terminals to place requirement upon vessels to complete
- Vetting & verifying the physical condition, operation & safety performance of vessels
- Identifying early non-compliance and eliminate potential risks to the port
- Encourages accurate and transparent reporting
- Promoting best practice guidance for long-term results
- Fully automated and digitised through MER platform
- 50 questions divided into 7 elements, each with supporting guidance notes
- The questionnaire can be custom depending on the terminals risk focus areas.
- Any pre-arrival or vessel suitability checklists can be integrated into the platform.



# Terminal Performance Report

## Terminal Feedback

- Terminal feedback submitted once the vessel has departed the port
- The questions reference back to the TVAQ for cross checking
- Any negative feedback is reported back to the vessel for satisfactory close out
- Terminal feedback is an important aspect of MER Vet for future reference



**Demonstration Physical BVIQ dont delete** mer.admin M

IMO 1234567 Bulk Carrier 205000 DWT Year of Build 2015 Class society ABS

Home Vessel Performance Event Timeline Environmental Compliance Ships Staff & MLC Compliance Vessel Details Port State Control

### Terminal Departure Report for TVAQ - Test - 27/07/2022

1.01 Did the vessel comply with the Pre-Arrival requirements?	YES ✓
2.02 Was the vessel's Documentation satisfactory?	YES ✓
3.03 Did the vessel's Mooring Lines meet terminal guidelines?	YES ✓
4.04 Did the vessel's Mooring Operations meet terminal guidelines?	YES ✓
5.05 Did the vessel's Deck Operations meet terminal guidelines?	YES ✓
6.06 Did the vessel's Cargo Operations meet terminal guidelines?	YES ✓
7.07 Was the vessel's Helicopter Operations compliant?	YES ✓

**100% positive**

Category	Satisfactory	Unsatisfactory
Pre-Arrival	100%	0%
Docs	100%	0%
Mooring Lines	100%	0%
Mooring Ops	100%	0%
Deck	100%	0%
Cargo	100%	0%
Helicopter	100%	0%

# MER Ship



- Self-declared vessel inspection tools for proactive ship operators
- Simplified and streamline processes with a modularised solution
- Supports management of vessels in technical, operational and compliance aspects
- User-friendly software, no training required, minimal time to capture data onboard
- Online client area for all reports
- Provides a strong foundation for vetting verification
- *'You do, we verify'* methodology by MER Superintendent during BVIQ inspections



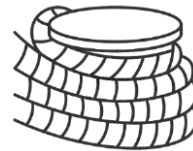
## **MER IQ Self Inspections**

Inspection template for self assessment and preparation



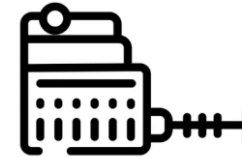
## **MER Render**

Online mooring winch calculator



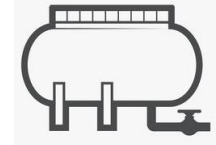
## **MER Line**

Online mooring line management register



## **MER Maintain**

Online engine maintenance program



## **MER Gas**

Online carbon intensity management tool

# MER Render

The ability for a ship's mooring winch brakes to "Render" when the tension in the ship's mooring system reaches a pre-determined value is a crucial safety system on board vessels. MER Render program serves to offer guidance for:

- Operating mooring winches
- Undertaking mooring winch brake render tests
- Recording the test results include taking photos of the hydraulic jack gauge mooring brake render activation points



Winch Drum Style: **Conventional**

Brake Rendering Load: **50 Tons**

Jack Area: **95 cm<sup>2</sup>**

Diameter of Rope Drum: **50.8 cm**

Winch Safe Work Load: **30 Tons**

Minimum Breaking Load: **60 Tons**

Max Brake Holding Capacity: **47 Tons**

Dist. Between Winch and Jack: **110 cm**

Minimum Mooring Furniture (SWL): **35 Tons**

[EDIT](#)

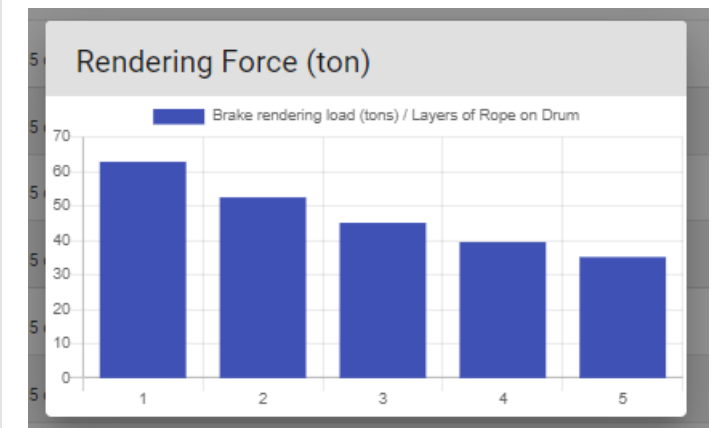
! Max brake holding capacity could be exceeded when only single layer on drum.

⚡ Brake rendering load was not in the 60% to 80% range of the minimum breaking load.

⚠ Winch render exceed on safe work load.

Winch Location	Winch Number	Diameter of Rope	L1	Load Applied by Jack	Required Jack Pressure	Mooring Line SWL			
HEAD	1	100 cm	275.4 cm	125.2 Ton	1317.9 Kg/cm <sup>2</sup>	20 Tons	DELETE	CHART	!
BREAST	2	7 cm	42.9 cm	19.5 Ton	205.3 Kg/cm <sup>2</sup>	500 Tons	DELETE	CHART	! ⚠
BREAST	3	7 cm	42.9 cm	19.5 Ton	205.3 Kg/cm <sup>2</sup>	20 Tons	DELETE	CHART	! ⚠
FWD SPRING	4	7 cm	42.9 cm	19.5 Ton	205.3 Kg/cm <sup>2</sup>	20 Tons	DELETE	CHART	!
FWD SPRING	5	7 cm	42.9 cm	19.5 Ton	205.3 Kg/cm <sup>2</sup>	20 Tons	DELETE	CHART	!
AFT SPRING	6	7 cm	42.9 cm	19.5 Ton	205.3 Kg/cm <sup>2</sup>	20 Tons	DELETE	CHART	!
STERN	7	7 cm	42.9 cm	19.5 Ton	205.3 Kg/cm <sup>2</sup>	20 Tons	DELETE	CHART	!

[+ ADD A WINCH](#)





# MER Line



Online Mooring Line Management Register provides a complete overview. Assist ship operator's requirements for the management of mooring line maintenance, inspection and retirement during the operational phase of the mooring line lifecycle. The register covers:

- Mooring Lines in use, spare lines and tails
- Upload Mooring Line Certificates
- Scheduled Replacement Date

Vessel Name: Sea Poseidon      Vessel Number: 9423061      [EDIT](#)

[IN USE](#)   [SPARE LINE](#)   [TAILS & SPARE](#)

Line Location	Line Number	Line Type	Length	Diameter	Cert Date	Cert on Board	Date of Installation	Minimum Brake Load	Date Mooring Line end to end	Schedule Replacement Date	Date of Last Inspection	Condition		
HEAD	1	POLYPROPYL...	100 mtrs	90 mm	2022-04-08	<a href="#">UPLOAD</a> No Image	2020-07-06	71 tons	2022-06-01	2031-06	2022-07-01	GOOD	<a href="#">DELETE</a>	<a href="#">DUPLICATE</a>
BREAST	2	POLYPROPYL...	300 mtrs	75 mm	2022-09-11	<a href="#">UPLOAD</a> No Image	2022-09-12	73 tons	2022-09-12	2022-07	2022-09-04	BETTER	<a href="#">DELETE</a>	<a href="#">DUPLICATE</a>

[+ ADD A MOORING LINE](#)

[SAVE MOORING LINE](#)

# MER Maintain

An engine maintenance system that allows ship operators to record engine and generator running hours, maintenance, and servicing based on maker approved intervals or condition-based monitoring.



Investing in the protection of engine assets and optimizing engine management.

**Maintenance Record System**

**Engine**

[EDIT](#)

Running hours this month:

Total running hours:

**Piston Ring Renew (8000)**

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
1015	9650	9211	9921	8922	7553

**Piston Complete O/H (16000)**

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
1015	9650	9211	9921	8922	7553

**Generators**

[ADD NEW PART](#)

<b>NO1</b>	<b>NO2</b>
Running hours this month: 201	Running hours this month:
Total running hours: 48732	Total running hours:
Cylinder Head Since Last O/H (3000) 3000	Cylinder Head Since Last O/H (3000)
Crankpin bolts since last renew (20000) 7534	Crankpin bolts since last renew (20000)
<a href="#">EDIT</a> <a href="#">DELETE</a>	<a href="#">EDIT</a>

**Purifiers**

**Generators - NO1** [X]

**Running hours:**

Running hours this month: 201

Total running hours: 48732

**Cylinder Head Since Last O/H** [X]

Running hours: 3000

**Crankpin bolts since last renew** [X]

Running hours: 7534

**New item:**

Name:

Period O/H type:  Period O/H:

[ADD ITEM](#)

[SAVE](#)

# MER Gas

An online tool for carbon intensity management. From 2023, vessels must calculate Carbon Intensity Index (CII) with a required rating of C or better. The attained CII is the CO2 emitted per capacity transport work during a calendar year. MER Gas can assist vessels in achieving target ratings.

## Voyage Summary

Total fuel consumption (MDO)during voyage: **0 MT**  
Total fuel consumption (LSFO)during voyage: **28 MT**  
Total fuel consumption (HSFO)during voyage: **0 MT**  
CO2 emission in tonnes: **88.23 MT**  
Attained Carbon Intensity Index **1.51 grCO<sub>2</sub>/DWT-mile**  
Total distance travelled: **389 NM**  
Deadweight: **150,000 MT**

	Carbon Intensity Rating
Average 2022	<span>A</span>
Projected 2023 base on current 2022 average	<span>A</span>
Projected 2024 base on current 2022 average	<span>A</span>
Projected 2025 base on current 2022 average	<span>A</span>
Projected 2026 base on current 2022 average	<span>A</span>

Date	Wind Force	Distance Travelled	Main Engine HSFO Consumption	Main Engine LSFO Consumption	Main Engine MDO Consumption	Generator HSFO Consumption	Generator LSFO Consumption	Generator MDO Consumption	Boiler HSFO Consumption	Boiler LSFO Consumption	Boiler MDO Consumption					
2022-10-02	3	32	NM	MT	1.50	MT	MT	MT	0.60	MT	MT	MT	0.10	MT	MT	DELETE  DUPLICATE
2022-10-02	5	79	NM	MT	5	MT	MT	MT	0.60	MT	MT	MT	MT	MT	MT	DELETE  DUPLICATE
2022-10-04	6	278	NM	MT	18.30	MT	MT	MT	1.90	MT	MT	MT	MT	MT	MT	DELETE  DUPLICATE

+ ADD A DAILY GAS CONSUMPTION

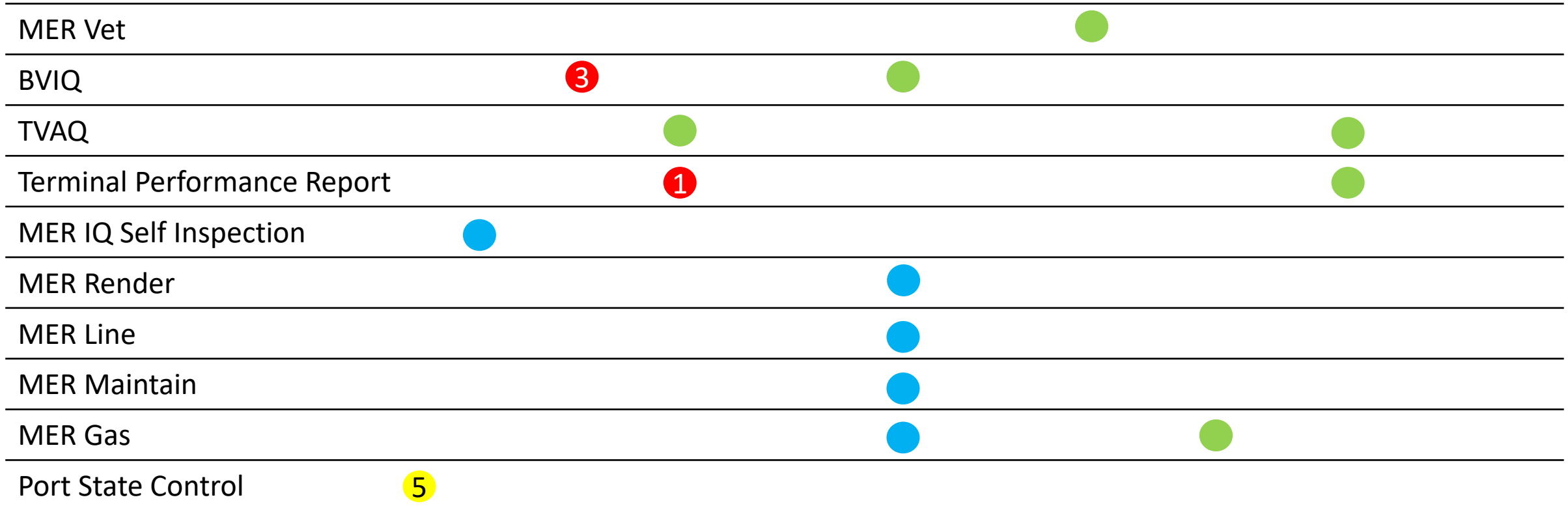
SAVE DAILY

VIEW VOYAGE SUMMARY

# Event Timeline



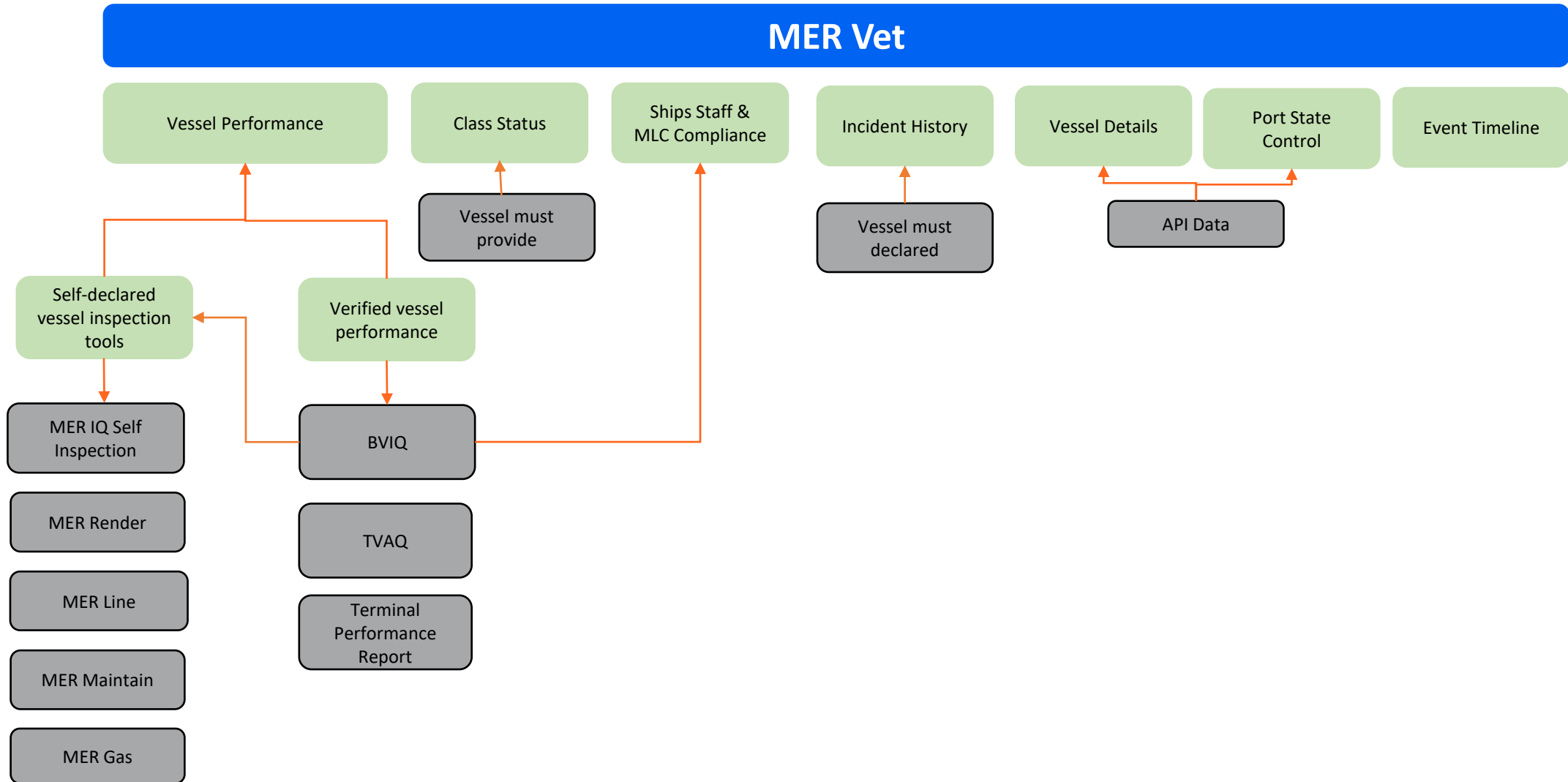
- Accurate ship inspection data and effective close outs is the core of a vetting process
- Evaluation is supported by relevant data from Port State Control



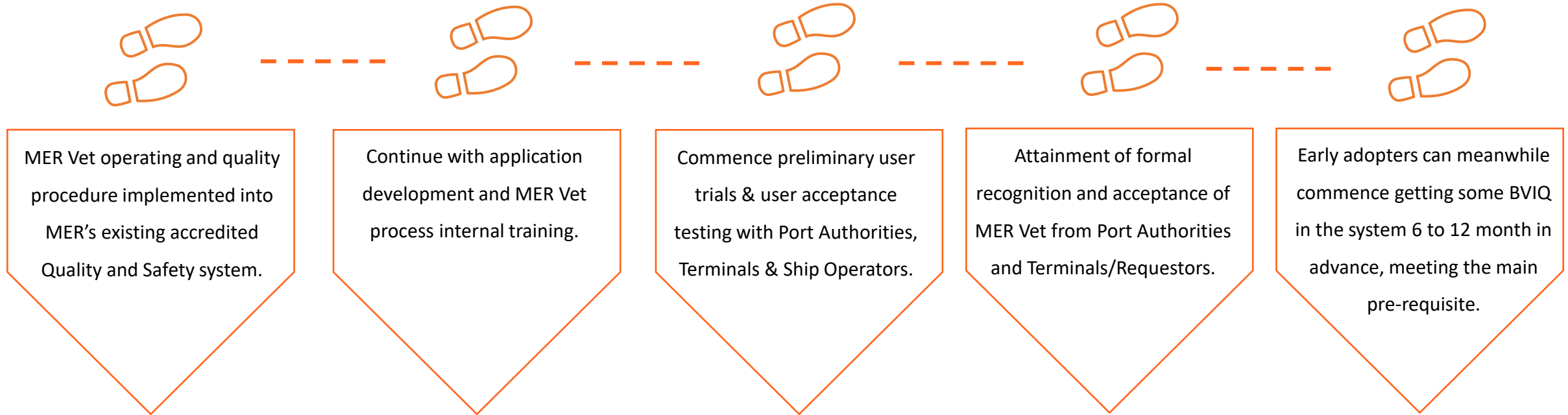
# Re-cap overview



A range of data inputs are reviewed and documented within the platform during the vetting process to assist in properly making informed decisions during vessel vetting.



# Next steps and conclusion



**Under development and Regulatory Approval...  
Planned release date February 2023.**

# Thankyou!



To discuss how our vetting and inspection programmes can benefit your organisation, please contact us.



Paul Mitchell & Steve Ainscough  
MER Solutions & Innovate Directors  
[info@mer-solutions.com](mailto:info@mer-solutions.com)

Renou Farrington  
MER Solutions - BVIQ inspections  
[ops@mer-solutions.com](mailto:ops@mer-solutions.com)

Megan Suurenbroek  
MER Innovate - MER Ship &  
TVAQ Subscriptions  
[info@mer-innovate.net](mailto:info@mer-innovate.net)