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## SEEMP Part I template for shipowners and operators

A Lloyd’s Register guidance document

CONTENTS

[1 INTRODUCTION TO THIS DOCUMENT 3](#_Toc494272847)

[1.1 Template scope and purpose 3](#_Toc494272848)

[1.2 Template structure 3](#_Toc494272849)

[2 SEEMP PART I TEMPLATE 5](#_Toc494272850)

[2.1 Cover page 5](#_Toc494272851)

[2.2 Introductory page(s) 6](#_Toc494272852)

[2.2.1 Planning 6](#_Toc494272853)

[2.2.2 Implementation 6](#_Toc494272854)

[2.2.3 Monitoring 6](#_Toc494272855)

[2.2.4 Self-evaluation and improvement 6](#_Toc494272856)

[2.3 Energy-efficiency measures 7](#_Toc494272857)

[2.4 Appendices 10](#_Toc494272858)

[3 ALTERNATIVE TEMPLATES 11](#_Toc494272859)

[3.1 IMO template (contained within MEPC.282 (70)) 11](#_Toc494272860)

[3.2 Template A (used in this document) 12](#_Toc494272861)

[3.3 Template B (measures arranged by responsibility) 13](#_Toc494272862)

[3.4 Template C (measures arranged by order of priority) 14](#_Toc494272863)

1. INTRODUCTION TO THIS DOCUMENT

Template scope and purpose

The Ship Energy Efficiency Management Plan (SEEMP) Part I has been mandatory for ships over 400 GT since 1 January 2013. To assist clients with developing a SEEMP Part I that reflects IMO Guidelines (Resolution MEPC.282(70), hereinafter referred to as ‘the Guidelines’), Lloyd’s Register has prepared this SEEMP Part I template.

|  |
| --- |
| Examples are contained within the template in order to illustrate how an SEEMP should be completed. In all cases, the contents of the template should be replaced with measures that are specific and applicable to your ship. |

|  |
| --- |
| The template structure is not prescriptive and the aim of this document is only to give an illustration of what an SEEMP could look like; the actual SEEMP does not necessarily need to follow this format. |

In all cases, reference should be made to the Guidelines for specific advice on the technical aspects of the SEEMP Part I.

Template structure

This template is structured as follows:

Introduction (planning, implementation, monitoring, self-evaluation and improvement)

This section contains non-technical elements to ensure that the SEEMP Part I reflects recommendations contained within the Guidelines.

Energy-efficiency measures and practices

This section contains a list of typical energy-efficiency measures and good practices. It must be noted that the list is not exhaustive, and nor is it required that the SEEMP Part I includes all of the suggested measures. In many cases, the most effective SEEMP Part I documents contain a small number of measures, but the measures it does include are the ones that have the greatest impact on increasing energy efficiency. There is also a risk that too many measures may become unmanageable and difficult to implement.

* Energy-efficiency measures and practices can be separated into the following categories:
* Fuel-efficient operations
* Optimised ship handling
* Hull and propulsion
* Machinery and equipment
* Cargo-handling optimisation
* Energy conservation and awareness

To assist with developing the SEEMP Part I, a typical (non-exhaustive) list of measures for each category is provided below. Some of these measures are given as examples in this template.

|  |
| --- |
| SEEMP measures |
| 1. Fuel-efficient operations |
| * 1. Improved voyage planning   2. Weather routing   3. Just-in-time   4. Speed optimisation   5. Optimised shaft power |
| 1. Optimised ship handling |
| * 1. Optimum trim   2. Optimum ballast   3. Optimum propeller and propeller inflow considerations   4. Optimum use of rudder and autopilot |
| 1. Hull and propeller optimisation |
| * 1. Hull-resistance optimisation   2. Propeller management |
| 1. Machinery and equipment optimisation |
| * 1. Main- and auxiliary-engine optimisation   2. Equipment and systems   3. Heat recovery |
| 1. Cargo-handling optimisation |
| * 1. Cargo heating and insulation   2. Other measures for cargo-handling optimisation |
| 1. Energy conservation and awareness |
| * 1. Accommodation energy optimisation   2. Use of renewable energy   3. Use of shore-based power sources when at port (cold ironing)   4. Energy conservation investigation projects   5. Training and awareness |

Table : SEEMP categories of measures

For each selected measure, a list of implementation actions should be provided that should follow the SMART principle (Specific, Measurable, Attainable, Realistic and Time-constrained). Specific examples are given in this template.

1. SEEMP PART I TEMPLATE

Cover page

On this page, you may include the main vessel particulars and your company name and logo. For example:

[Company name] Ship Energy Efficiency Management Plan (SEEMP) Part I: Ship management plan to improve energy efficiency

|  |  |
| --- | --- |
| [Space for logos, stamps, etc.] |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Ship’s main particulars | | SEEMP details | |
| Ship name | Example ship | Date of development | DD/MM/YYYY |
| IMO number | 1234567 | Implementation period | From DD/MM/YYYY  Until DD/MM/YYYY |
| Hull number | XY123 | Planned date of next evaluation | 01/02/2012 |
| Port of registry | Example port of registry | Developed by | Example shipowner/operator |
| Ship type | Oil tanker | Implemented by | Example shipowner/operator |
| Deadweight | 75,000 |  | |
| Gross tonnage | 42,000 |

Introductory page(s)

Use this section for a short introductory statement about the SEEMP Part I. You may wish to state the purpose of this SEEMP and how it aligns with other company management systems (e.g. quality, environmental or energy).

Planning

Briefly describe how the planning process is going to be executed. For instance, in this section you can mention any specific goals you have set and whether they are made public (such as overall energy-efficiency improvement expressed in Energy Efficiency Operational Indicator (EEOI) terms by x% over the next y months). Also, you may wish to mention the criteria for assigning personnel (e.g. competence, role, experience and skills) to the actions within this SEEMP, and any training and human resource-related aspects.

Implementation

Briefly describe how the implementation process is going to be executed. For instance, you might state who is responsible overall for the implementation of the SEEMP Part I or any training you have provided to assist all responsible personnel with the implementation of the SEEMP Part I.

Monitoring

Briefly describe how the monitoring process is going to be executed at the top level. For instance, you can mention any specific monitoring tools and systems you are using (such as the EEOI). The monitoring of individual measures can be described in this section or within the measures section (as in this example).

Self-evaluation and improvement

Briefly describe how the self-evaluation and improvement process is going to be executed. For instance, describe the tools and processes in place for self-evaluation and improvement, and also how the results of this SEEMP Part I can be fed in for developing an improved SEEMP Part I for the next cycle.

|  |
| --- |
| The introductory part of the SEEMP Part I does not need to be extensive, as it is only aimed to demonstrate that the principles of the SEEMP Part I are being followed. It must be noted that the measures and implementation procedures contained within the following section represent the key information needed for the SEEMP Part I. |

Energy-efficiency measures

This section is the main part of the SEEMP Part I containing all the measures, implementation actions, monitoring and recording actions, and responsible personnel. The tables follow the structure mentioned previously. This section is filled out with some examples that are neither prescriptive nor applicable to each ship. Under each category of measures or action, a reference to existing company procedures and systems (e.g. SMS) can be added.

| 1. | Measures for fuel-efficient operations | Implementation actions | Monitoring and recording actions |
| --- | --- | --- | --- |
| **1.1** | **Speed optimisation** | 1. According to our charter party terms [Clause no], it is encouraged that the vessel is sailed at the optimum speed of [00.0] knots. At this speed, engine specific fuel consumption (SFC) is optimised. Sailing at other speeds is, however, permitted to enable the implementation of virtual arrival.  * **Responsible person(s): Master** * **Company procedures: [insert #]** | 1. Check [weather routing system] reports for voyages where virtual arrival was implemented, and report benefits on next SEEMP Part I review.  * **Responsible person(s): Head Office** |
| 1. Virtual arrival is implemented. Refer to [company operating manual] for details of implementation.  * **Responsible person(s): Master** * **Company procedures: [insert #]** |

| 2. | Measures for optimised ship handling | Implementation actions | Monitoring and recording actions |
| --- | --- | --- | --- |
| **2.1** | **Optimum trim** | 1. Trim is adjusted to the optimum values for the planned voyage speed and vessel draft according to the trim tables on board, as far as it is practical.  * **Responsible person(s): Master** * **Company procedures: [insert #]** | 1. From voyage reports, look at speeds under different legs and the voyage trim and check how long the ship is sailing under the optimum trim during sea passage. Sample fuel consumptions for similar legs/speeds and different trims to identify gains.  * **Responsible person(s): Head Office** |

|  |  |  |  |
| --- | --- | --- | --- |
| 3. | Measures for hull and propeller optimisation | Implementation actions | Monitoring and recording actions |
| **3.1** | **Hull-resistance optimisation** | 1. Hull condition is assessed on a quarterly basis during port stays, where this is practical, through in-water inspection.  * **Responsible person(s): Head Office** * **Company procedures: [insert #]** | 1. Keep records of in-water inspections and identify areas for underwater cleaning.  * **Responsible person(s): Head Office** |
| 1. In-water hull cleaning is performed on a one-year basis (during port stays where this is practical) on areas identified during inspections.  * **Responsible person(s): Head Office** * **Company procedures: [insert #]** |

|  |  |  |  |
| --- | --- | --- | --- |
| 4. | Measures for machinery and equipment optimisation | Implementation actions | Monitoring and recording actions |
| **4.1** | **Main- and auxiliary-engine optimisation** | 1. Auxiliary-engine utilisation is optimised by switching to one engine instead of using both engines at low loads.  * **Responsible person(s): Chief Engineer** * **Company procedures: [insert #]** | 1. Auxiliary-engine load factors are monitored.  * **Responsible person(s): Head Office** |
| **4.2** | **Heat recovery** | 1. Water washing is performed on the exhaust gas economiser during major repair periods.  * **Responsible person(s): Chief Engineer** * **Company procedures: [insert #]** | 1. Not required. |

|  |  |  |  |
| --- | --- | --- | --- |
| 5. | Measures for cargo-handling optimisation | Implementation actions | Monitoring and recording actions |
| **5.1** | **Cargo heating and insulation** | 1. Cargo is heated to discharge temperature prior to discharge according to [cargo heating programme]. During voyage, the cargo temperature is maintained at a safe temperature to avoid coagulation.  * **Responsible person(s): Master** * **Company procedures: [insert #]** | 1. Retain records of heating insulation and steam trap inspections to identify areas of repeated issues.  * **Responsible person(s): Head Office** |
| 1. The condition of cargo-heating insulation and steam traps is monitored on a six-month basis and any issues are rectified as soon as this is practical.  * **Responsible person(s): Chief Engineer** * **Company procedures: [insert #]** |

|  |  |  |  |
| --- | --- | --- | --- |
| 6. | Measures for energy conservation and awareness | Implementation | Monitoring and recording |
| **6.1** | **Accommodation energy optimisation** | 1. Tube fluorescent lamps (TFLs) are used in all accommodation areas.  * **Responsible person(s): N/A** | 1. Not required. |
| 1. Motion-activated light detectors are used in accommodation areas where lighting is not required at all times.  * **Responsible person(s): N/A** |
| **6.2** | **Use of renewable energy** | 1. Solar panels are successfully used to cover hot water requirements in accommodation areas.  * **Responsible person(s): N/A** | 1. Not required. |
| **6.3** | **Training and awareness** | 1. Energy-efficiency awareness training will be undertaken this year for senior engineers and deck officers.  * **Responsible person(s): Head Office** | 1. Review feedback from training, once delivered, and discuss benefits with course participants.  * **Responsible person(s): Head Office** |

Appendices

Use this section to include any relevant appendices. Items that can be included in the appendices are:

An overview of the legislative background with emphasis on what is required by the crew (e.g. to retain the SEEMP Part I on board or implement it).

Details of the calculation of EEOI or of any other energy-efficiency monitoring system that is being implemented.

A description of ship equipment and arrangements associated with energy consumption, especially those associated with the energy-efficiency measures contained above.

1. ALTERNATIVE TEMPLATES

The previous template is only one way of presenting a SEEMP Part I. There is no ‘right’ or ‘wrong’ way of structuring a SEEMP Part I; it is a matter of preference, consistency with other company documents and plans, and, ultimately, what works best in each case.

Some examples of how a SEEMP Part I could be structured are provided below. The options are unlimited and it is possible to combine elements from each template.

IMO template (contained within MEPC.282 (70))

1. MEASURES

|  |  |  |
| --- | --- | --- |
| Energy-efficiency measures | Implementation | Responsible personnel |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

2. MONITORING

Description of monitoring tools

3. GOALS

Measurable goals

4. EVALUATION

Evaluation procedures

Template A (used in this document)

1. INTRODUCTION

1.1 PLANNING (including goals)

Description of planning process and measurable overall goals

1.2 IMPLEMENTATION

Description of implementation system and overall responsibility for the SEEMP Part I

1.3 MONITORING

Description of monitoring system for measuring the effectiveness of the SEEMP Part I overall

1.4. EVALUATION

Evaluation procedures

2. MEASURES (by category, including monitoring of each measure)

|  |  |  |
| --- | --- | --- |
| Category of measures 1 | Implementation actions and responsible personnel | Monitoring and recording actions for each measure |
| Measure 1.1 | .... | .... |
| Measure 1.2 | .... | .... |
| ... | .... | .... |
| Category of measures 2 | Implementation actions and responsible personnel | Monitoring and recording actions for each measure |
| Measure 2.1 | .... | .... |
| Measure 2.2 | .... | .... |
| .... | .... | .... |

Template B (measures arranged by responsibility)

1. MEASURES (by responsible personnel/area)

|  |  |  |
| --- | --- | --- |
| Measures for bridge team | Responsible personnel | Implementation actions |
| Measure 1.1 | Master | .... |
| Measure 1.2 | Chief Officer | .... |
| ... | … | … |
| Measures for engine room team | Responsible personnel | Implementation actions |
| Measure 2.1 | Chief Engineer | .... |
| Measure 2.2 | Second Engineer | .... |
| ... | ... | .... |
| Common measures | Responsible personnel | Implementation actions |
| Measure 3.1 | .... | .... |
| Measure 3.2 | .... | .... |
| .... | .... | .... |

2. MONITORING

Description of monitoring tools

3. GOALS

Measurable goals

4. EVALUATION

Evaluation procedures

Template C (measures arranged by order of priority)

1. GOALS

Measurable goals

2. MONITORING

Description of monitoring tools

3. EVALUATION

Evaluation procedures

4. MEASURES

|  |  |  |
| --- | --- | --- |
| High priority | Implementation actions and responsible personnel | Savings target and deadline |
| Measure 1.1 | .... | .... |
| Measure 1.2 | .... | .... |
| .... | .... | .... |
| Medium priority | Implementation actions and responsible personnel | Savings target and deadline |
| Measure 2.1 | .... | .... |
| Measure 2.2 | .... | .... |
| .... | .... | .... |
| Low priority | Implementation actions and responsible personnel | Savings target and deadline |
| Measure 3.1 | ... | .... |
| .... | .... | .... |

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