

## Environmental Sustainability Bulletin 01/20

February 2020

These bulletins summarise key ideas and solutions to environmental and sustainability matters, allowing wider dissemination of lessons learnt from them. The information below has been provided in good faith by IMCA members and should be reviewed individually by recipients, who will determine its relevance to their own operations.

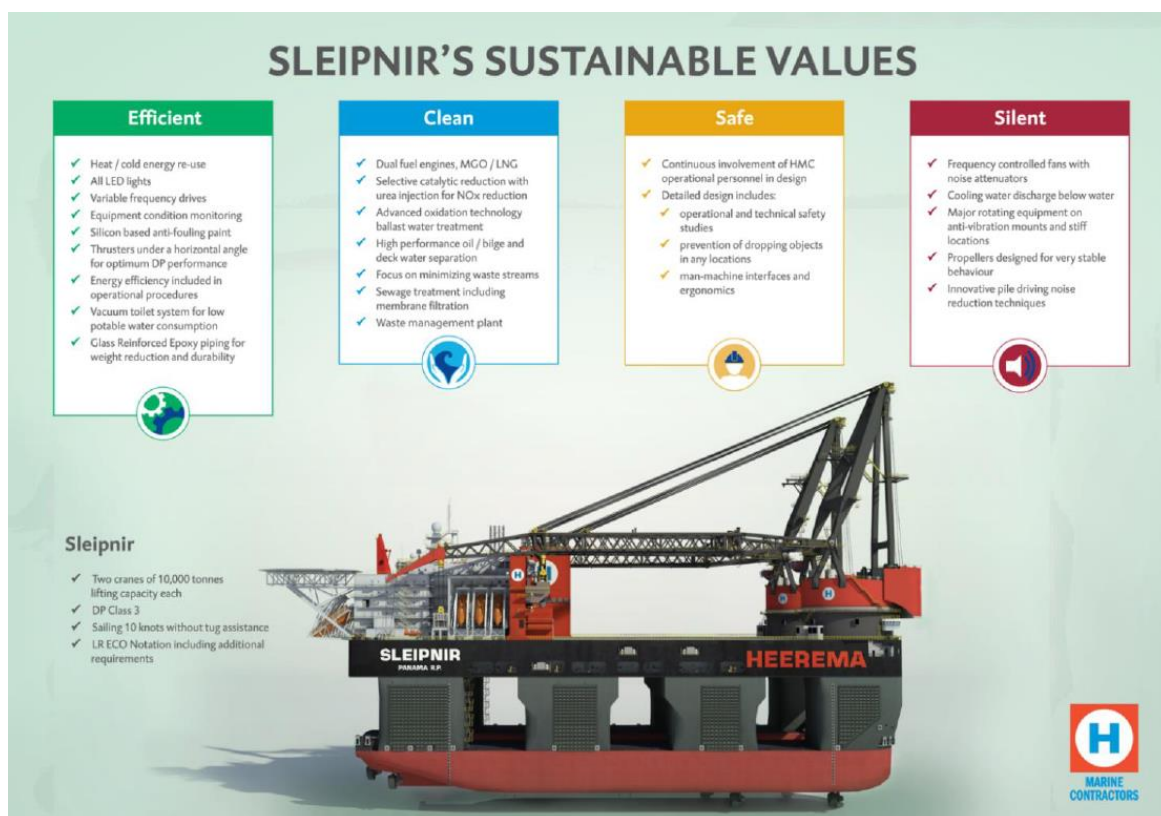
The effectiveness of these bulletins depends on receiving reports from members in order to pass on information and continue to present innovative solutions. Please consider adding the IMCA secretariat ([sustainability@imca-int.com](mailto:sustainability@imca-int.com)) to your internal distribution list for similar internal reports and/or manually submitting information on specific solutions that you consider may be relevant. All information can be anonymised or sanitised, as appropriate.

A number of other organisations issue environmental sustainability updates and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at [www.imca-int.com/links](http://www.imca-int.com/links). Additional links should be submitted to [sustainability@imca-int.com](mailto:sustainability@imca-int.com).

Any actions, lessons learnt, recommendations and suggestions in IMCA environmental sustainability bulletins are generated by the submitting organisation. IMCA environmental sustainability bulletins provide, in good faith, information for the benefit of members and do not necessarily constitute IMCA guidance, nor represent the official view of the Association or its members.

### **Sleipnir: The Most Sustainable Heavy Lift Vessel – Heerema Marine Contractors**

Heerema Marine Contractors is one of the leaders in the offshore construction industry, embracing LNG (Liquefied Natural Gas) as a marine fuel. The most recent addition to Heerema’s fleet – the *Sleipnir* – has numerous features that reduce its impact on the environment and increase sustainability, including the use of LNG as fuel.



**SLEIPNIR'S SUSTAINABLE VALUES**

- Efficient**
  - Heat / cold energy re-use
  - All LED lights
  - Variable frequency drives
  - Equipment condition monitoring
  - Silicon based anti-fouling paint
  - Thrusters under a horizontal angle for optimum DP performance
  - Energy efficiency included in operational procedures
  - Vacuum toilet system for low potable water consumption
  - Glass Reinforced Epoxy piping for weight reduction and durability
- Clean**
  - Dual fuel engines, MGO / LNG
  - Selective catalytic reduction with urea injection for NOx reduction
  - Advanced oxidation technology ballast water treatment
  - High performance oil / bilge and deck water separation
  - Focus on minimizing waste streams
  - Sewage treatment including membrane filtration
  - Waste management plant
- Safe**
  - Continuous involvement of HMC operational personnel in design
  - Detailed design includes:
    - operational and technical safety studies
    - prevention of dropping objects in any locations
    - man-machine interfaces and ergonomics
- Silent**
  - Frequency controlled fans with noise attenuators
  - Cooling water discharge below water
  - Major rotating equipment on anti-vibration mounts and stiff locations
  - Propellers designed for very stable behaviour
  - Innovative pile driving noise reduction techniques

**Sleipnir**

- Two cranes of 10,000 tonnes lifting capacity each
- DP Class 3
- Sailing 10 knots without tug assistance
- LR ECO Notation including additional requirements

**HEEREMA MARINE CONTRACTORS**

*Sleipnir* is the most sustainable heavy lift vessel in the world. Compared to a similar vessel using only heavy fuel oil, carbon emissions have been reduced by approximately 20%, while other emissions are reduced by at least 80%-95% and more. *Sleipnir* has numerous other features apart from the reduction of emissions due to the usage of LNG. Some of these are:

- ◆ Complete outfitting with LED lighting;
- ◆ Heat/cold energy recovery system;

- ◆ Variable frequency drives;
- ◆ State of the art silicon-based antifouling paint;
- ◆ Shore power ready in order to shut down generators in port, scheduled for late 2020.

As sustainability and innovative solutions often go hand in hand in the offshore industry, Heerema has used technology to achieve both outcomes, implementing innovative solutions and operational good practice throughout the fleet to promote responsible consumption, efficient operations and reduction of environmental impact.

These have included:

- ◆ Use of underwater bubble curtains to lower the noise level generated by underwater hammers during pile driving in order to protect wildlife;
- ◆ Introduction of LED lighting on-board vessels;
- ◆ Use of biodegradable oil in areas where there is oil-to-sea contact;
- ◆ Waste separation on-board vessels ensures waste can be recycled, incinerated or disposed of responsibly.

*Sleipnir* is the world's first offshore construction vessel to implement a dual-fuel system, allowing the vessel to use Liquefied Natural Gas (LNG) for power generation.

## **Environmental Sustainability Bulletins in 2019**

In 2019 IMCA published six Environmental Sustainability bulletins. These were:

- ◆ [Plastics: a briefing on biodegradability](#)
- ◆ [Plastic Pollution Inspections](#)
- ◆ [Saipem eco-operations program](#)
- ◆ [Lower emissions and a stronger bottom line through data analytics](#)
- ◆ [Biofuels](#)
- ◆ [Elimination of employee generated single use plastic](#)