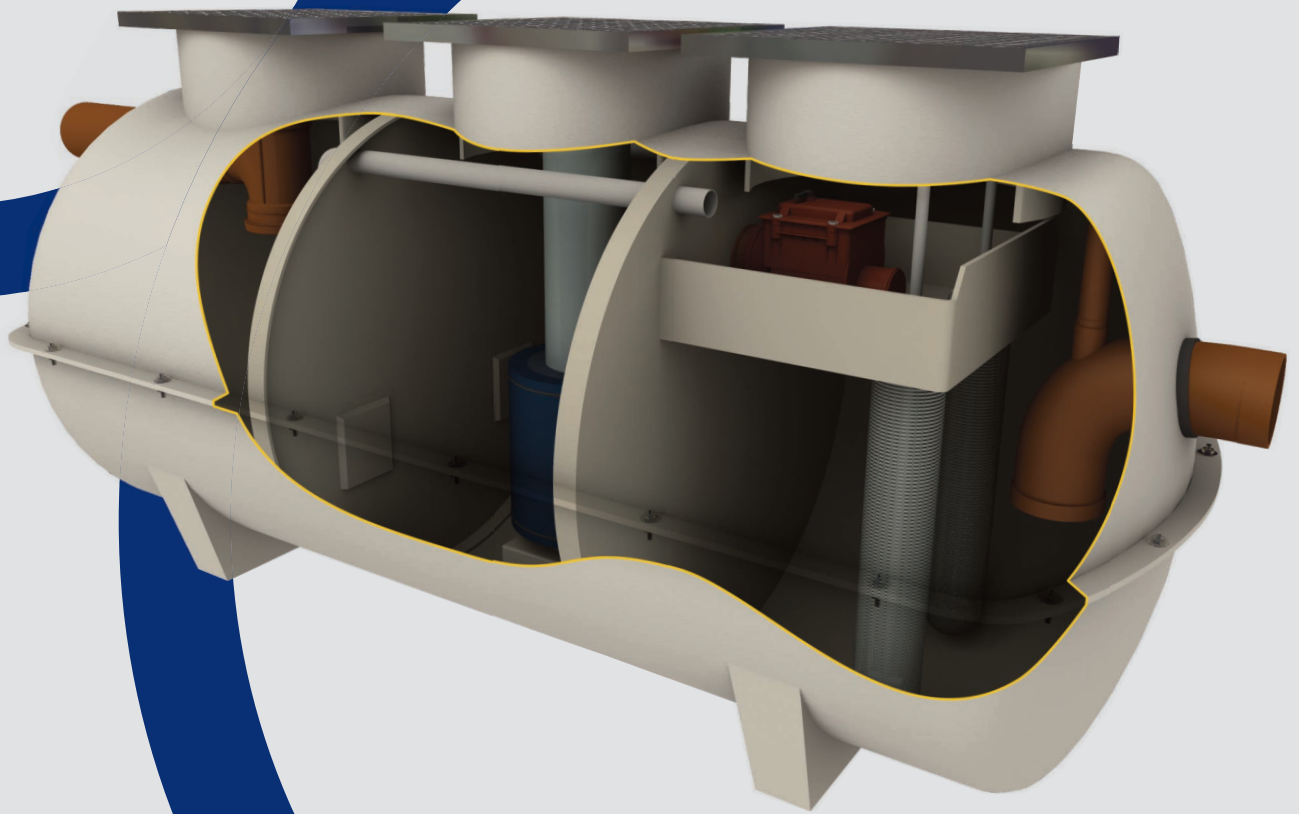


Marsh:Marator

Technical showcase

High-performance full retention oil
separators for critical applications



Industry-leading effluent performance $<0.1\text{mg/l}$
(Standard Class 1: $<5\text{mg/l}$)

Tested and approved to BSEN858

Capable of reducing PFAS and
other persistent pollutants



CE
Patent pending

Rethinking separation standards

The European Standard BS EN 858 was introduced to harmonise the design and testing of oil separators across Europe. While it provided much-needed regulation, it has changed little since its introduction in 2002.

Today’s environmental pressures demand more. Modern pollutants, including ultra-fine hydrocarbons, microplastics, and PFAS compounds, behave differently than the controlled laboratory conditions on which EN 858 is based. Yet, separators are still tested and approved under these limited scenarios.

The result is that most installed Class 1 units rarely achieve their certified performance, leaving a significant gap between the standard and environmental reality. See figure 1 – typical gravimetric separator.

The challenge with current EN 858 standards

Class	Discharge concentration	Description
Class 1	< 5 mg/l	For sites requiring high-quality discharge
Class 2	< 100 mg/l	For general protection applications

While these limits provide a baseline, real-world conditions—such as mixed contaminants, suspended solids, and

temperature fluctuations—cause performance to degrade significantly.

Moreover, the 5 mg/l Class 1 limit is no longer appropriate for environments where hydrocarbon contamination risks aquatic ecosystems or groundwater. Just five litres of oil can contaminate an area the size of five football pitches when spread in a thin film.

Understanding the environmental impact

Hydrocarbons are not the only concern. When bound to silt or metallic particles, pollutants such as lead, zinc, copper, and PFAS (per- and polyfluoroalkyl substances) can enter watercourses and persist for decades. These substances resist natural degradation and are increasingly recognised as ‘forever chemicals’ due to their persistence and potential toxicity.

Traditional gravity-based separators are not designed to handle such complex mixtures, particularly when pollutants are attached to sinking particles or bound to organic material.

The conclusion is clear: standards written more than two decades ago are no longer sufficient to safeguard the environment. See figure 2.

The Marsh Marator™ solution

The Marator redefines oil separation performance through advanced nanofiltration technology. This next-generation

Figure 1: Typical gravimetric separator

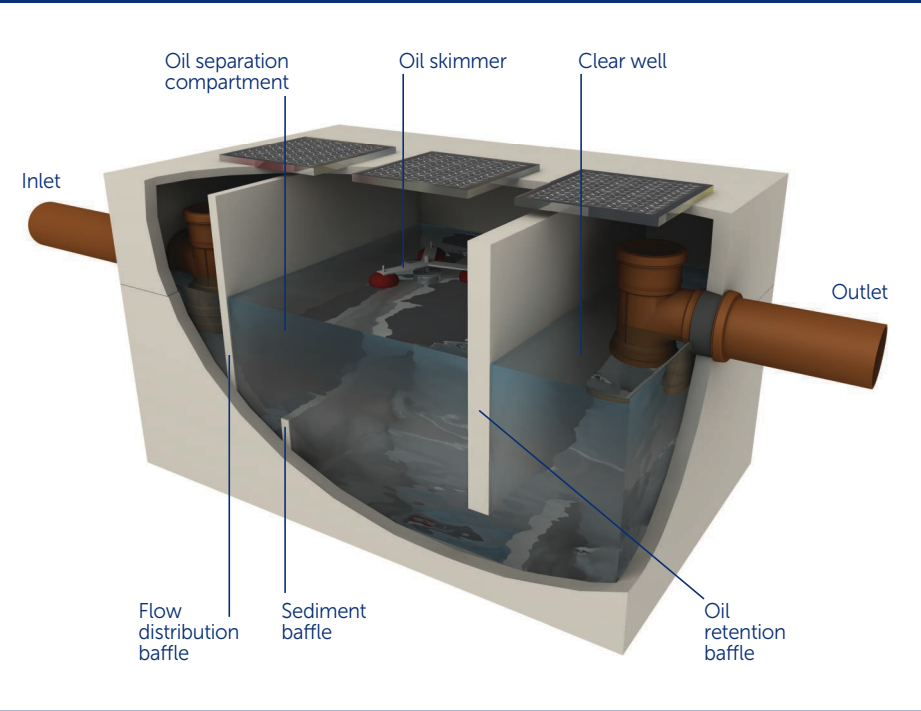


Figure 2: Toxic effects of stormwater contaminants (Source: Krenkel and Novotny, 1980)

Contaminant	Potential effect on humans	Recommended criteria (mg/l)	Aquatic toxicity (LC50)
Lead	Nephritis	0.05	0.01
Zinc	Metallic taste	5.0	0.01
Copper	Liver damage	1.0	0.01
PFAS	Bioaccumulation, endocrine disruption	<0.001 (emerging guidance)	Not yet established

Figure 3: Marator test results

Test sample	Result (mg/l)	EN 858 Class 1 limit
NS 6-1 to NS6-7	< 0.1	<5.0
Average	< 0.1	–

system combines traditional coalescing filtration with ultra-fine nanostructured media, enabling the removal of hydrocarbons, fine particulates, and persistent contaminants such as PFAS.

While PFAS are not yet part of EN 858 testing, internal trials using fluorinated hydrocarbon simulants have demonstrated the Marator's nanofiltration media can capture a significant proportion of PFAS-type molecules, preventing their migration into downstream systems.

This makes the Marator a future-ready separator, capable of addressing emerging regulatory requirements as standards evolve. See figure 3.

Technical design

The Marator incorporates a multi-stage separation process:

- 1. Inlet and flow distribution** — directs contaminated flow evenly through the vessel, ensuring optimal retention time.
- 2. Coalescing filtration stage** — promotes the aggregation and removal of light liquids and suspended solids.
- 3. Nanofiltration chamber** — captures sub-micron hydrocarbon particles and persistent organic compounds such as PFAS.
- 4. Oil retention and alarm systems** — automatically contain separated pollutants and signal when maintenance is required.
- 5. Surge control and anti-flood features** — prevent washout during high-intensity rainfall events.

See figure 4.

SuDS Safe

The Marator can be utilised in a SuDS setting. Offering exceptional Hydrocarbon capture and attainment of Mitigation Indices required in a high pollution environment. Marsh are able to support in the sizing of the product based upon catchment areas and flow rates.

Beyond compliance

The Marator™ range has been developed to exceed the limitations of EN 858 and address the real-world needs of environmental compliance.

Key advantages:

- Discharge concentration of <0.1 mg/l hydrocarbons
- **50x cleaner** than standard Class 1 performance
- Reduces PFAS and other persistent contaminants
- BS EN 858 certified and independently verified
- Designed for forecourts, logistics hubs, highways, and water-sensitive sites
- Integrated alarms, closure devices, and recovery systems
- Compact design for retrofit or new installations

Proven strength and safety

Structural integrity testing

Testing performed in accordance with EN ISO 179-1/1eA:2010-11 compared Marsh Industries' GRP construction against other GRP materials containing fillers. Marsh's virgin unfilled resin composite demonstrated 40% higher impact resistance, ensuring long-term durability and structural integrity under demanding site conditions.

Fire resistance testing

Fire tests to EN ISO 11925-2:2010 confirmed that Marsh Industries' GRP material meets ignitability and flame-resistance requirements for safety in high-risk environments.

Setting a new benchmark

The Marsh Marator represents a step-change in separator technology—moving the industry from basic compliance to environmental assurance. Where traditional systems meet the minimum, the Marator redefines what is possible:

Cleaner discharges. Stronger construction. PFAS capture. Uncompromising protection for our waterways.

Figure 4: Marsh:Marator full retention oil separator

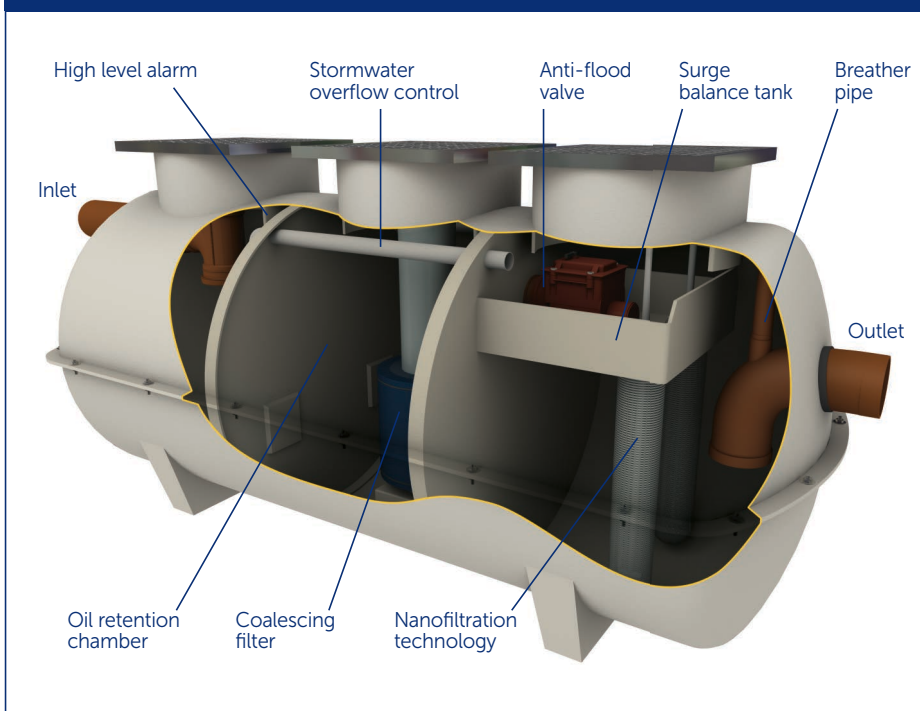


Figure 5: Marsh:Marator certification



Get in touch with us to discuss your oil separator projects:
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