

MV Sterkfjord, Port of Rotterdam

How a sensor failure became a €31,000 question — and why the answer cost €4,800

MARITIME ELECTRONICS

SITUATION MANAGEMENT

IMO BWM CONVENTION

PORT STATE CONTROL

HEAVY LIFT

CHARTER RATE

€31,000 / day

SCHEDULED DEPARTURE

Tuesday · 08:00

CARGO WAITING

900 t subsea module

PSC OFFICER

On board · 06:47

Heavy-lift vessel. 185 metres. Contracted to transport a 900-tonne subsea compression module from Rotterdam to a North Sea installation site. The client's project team is already on the quay. The charter party penalty clock runs from 08:00 regardless of whether the ship moves.

06:47 — BWMS CRITICAL ALARM. The UV treatment unit is reporting an out-of-range turbidity sensor reading. Under IMO BWM Convention regulations — mandatory for all vessels of 400 gross tonnes and above since 2017 — a BWMS fault with no documented corrective action in place is grounds for Port State Control intervention. Without confirmed treatment capability, the vessel cannot legally discharge ballast water. Without ballast adjustment, she cannot safely receive the module at the quay.

Who carries the cost? Under standard time charter clauses, owners warrant that the vessel complies with all mandatory ballast water requirements. A PSC detention caused by non-compliant equipment is an off-hire event — the vessel owner bears the daily rate. The owner then holds a potential claim against the equipment integrator. For NordSea Instruments AS, this means financial exposure, plus a PSC deficiency entry in the Paris MoU THETIS database that follows the vessel across every European port. Reputation does not have a daily rate, but it compounds.

73

MINUTES TO PENALTY CLOCK

SITUATION TIMELINE

Tue
06:49

FIELD REPORT · 1

The Situation is opened

The chief officer calls NordSea Instruments AS in Ålesund. QA manager Rune Lund answers on his phone. Before the call ends, he opens a **Situation** in the company's QMS — a structured, real-time incident workspace designed for the hours when a problem cannot wait, information is incomplete, and every party involved needs the same picture at the same time.

He sends a secure field report link directly to the chief officer's mobile. The chief officer photographs the alarm display and the sensor terminal block. Uploads from the engine room. Note added: **ambient seawater temperature at intake — 3.1°C.**

Four minutes after the alarm. The Situation has two linked events and a photograph of the fault before most people in Ålesund have had their first coffee.

Tue
07:05

NCR RAISED

RISK LOGGED

Root cause hypothesis — 16 minutes from alarm

Hardware developer Erik Solberg opens the field report on his phone. He recognises the alarm signature. The turbidity sensor — a third-party unit sourced through NordSea's supply chain from Delvex Marine BV — has a documented failure mode in cold port water below 4°C. The temperature compensation circuit drifts when ambient temperature drops rapidly overnight. The reading is almost certainly false. But the BWMS cannot confirm that, and IMO regulations make no exceptions for suspected false alarms.

An NCR is raised against the Delvex Marine sensor batch. A risk is logged: vessel detention at **€31,000 per day**, plus a formal PSC deficiency entry in the Paris MoU THETIS database — the record that follows the vessel and NordSea as system integrator across every European port. That entry does not disappear when the sensor gets fixed.

Erik posts his hypothesis in the Situation. One message. Visible to every involved party in real time.

Tue
07:18

QR ACCESS

The engineer who has never worked with NordSea before

NordSea has no field engineer in Rotterdam. Service manager Lars Bakke finds a certified marine electronics firm two kilometres from the berth: HarbourTech Marine Services BV.

Lars generates a **secure QR-code access link** in the QMS. Time-limited. Role-restricted. Read access to the Situation, the open field report, the NCR, and the sensor specification sheet. No account creation. No onboarding call. No briefing meeting. He sends it by SMS.

The HarbourTech engineer — who has never heard of NordSea Instruments before this text message, has never seen this BWMS installation — scans the QR code standing outside his office. He reads the field report, sees the sensor model number, the alarm log, Erik's diagnostic note, and the exact location in the engine room. He knows exactly what he is walking into before he reaches the gangway. This is the moment where the Situation either costs €5,000 or €31,000.

Tue
07:48

FIELD REPORT · 2

On board — diagnosis confirmed

The engineer photographs the sensor installation, cable routing, and the adjacent ambient temperature sensor: **2.9°C at the hull intake**. Three photos, uploaded directly into the Situation from his phone, standing in the engine room of a vessel he has never been on before.

In Ålesund, Erik sees the photos within seconds. Diagnosis confirmed: the temperature compensation resistor in the Delvex unit has drifted out of tolerance. Physical component failure — not firmware, not configuration. The sensor must be replaced.

Time from alarm to confirmed diagnosis: 61 minutes.

Tue
08:02

CORRECTIVE ACTION

Supplier confirmed — part ordered

Delvex Marine BV confirms the replacement unit is at a distributor in Rotterdam–Waalhaven. Lars logs the corrective action in the Situation — replacement sensor ordered, courier dispatched, ETA to vessel: 10:00. A supplier non-conformance is raised against the affected Delvex batch, linked back to the original incoming inspection record for that sensor serial number — traceable from the same Situation screen.

Situation timeline: 9 events · 4 parties · 3 cities · 73 minutes

Tue
08:14

PSC REVIEW

The PSC officer, the phone, and the decision

The captain brings the Port State Control officer to the bridge. Rune Lund, still in Ålesund, opens the Situation on his phone and shares his screen over video call. The PSC officer sees: an open NCR with documented root cause, a corrective action with a named assignee and a courier ETA, a supplier non-conformance, and a live event timeline — all timestamped, all linked, all traceable to the original alarm.

He does not sign the departure clearance. But **he does not raise a formal detention order**. He documents it as a managed non-conformance with corrective action in progress, and agrees to return at 11:30 for closure verification.

A formal PSC detention enters the THETIS database — accessible to every port authority in Europe, every flag state, every charterer conducting due diligence on a vessel. It does not expire when the sensor is replaced. The PSC officer could see this was being managed — not promised, not described over the phone. Managed. In real time. On a screen he was looking at while standing on the bridge.

Tue
10:38

CORRECTIVE ACTION · CLOSED

Sensor replaced — BWMS restored

Replacement unit installed. BWMS self-test: passed. Turbidity: within specification. Treatment sequence: unlocked. Second field report submitted — replacement sensor photographed in situ, control panel green, system log showing normal operation. Corrective action closed. Supplier non-conformance logged and linked.

Time from alarm to resolution: 3 hours 51 minutes.

Tue
11:44

CLEARED

Departure clearance signed

The PSC officer reviews the closed corrective action on Rune's phone. Two field reports. One NCR. One supplier non-conformance. One corrective action opened and closed within the same morning. A complete, auditable incident record. He signs the clearance.

12:09 — MV Sterkfjord departs. 4 hours 9 minutes late.

WITHOUT A LIVE SITUATION

€31,000

One full charter day. **Formal PSC detention order.** THETIS deficiency entry against vessel and flag state. Written confirmation required from flag state administration before departure authorised. Letter from client's project director. Insurer's questions at renewal. Next charterer's due diligence call.

WITH A LIVE SITUATION

€4,800

4 hours 9 minutes delay. **Managed non-conformance — no formal detention, no THETIS entry.** Complete audit trail delivered to PSC officer on a phone screen. Supplier non-conformance logged and traceable. Incident closed before the vessel cleared the harbour.

The difference between €4,800 and €31,000 is not the engineering.

The engineering was straightforward. A sensor failed in cold water. BIMCO's 2025 industry survey confirms that sensor faults and alarm cascades in ballast water management systems are "systemic and recurrent" across the global fleet. The failure was not exceptional.

The response was.

The diagnosis took 61 minutes because the third-party engineer on the quay had the same information as the hardware developer in Ålesund — before he reached the gangway. Not because someone sent a good email. Because the Situation was designed to make that possible, on a phone screen, in real time, across three cities.

"He knows exactly what he is walking into before he reaches the gangway."

The word "Situation" is deliberate.

Most quality management tools are built for the long game — document control, audit preparation, CAPA registers. They are designed for the work that happens **between** incidents.

A Situation is different. It is built for the incident itself. The hours when information is scattered, parties are in three time zones, decisions cannot wait for a meeting, and every minute has a number attached to it.

It is not a ticket. It is not a group chat. It is a structured incident workspace that pulls evidence, links records, and gives every party involved — including an engineer who received a text message seven minutes ago — exactly the context they need to act, on whatever device they are holding, wherever they are standing.

Time is money in heavy lifting.

Time is reputation in regulated industries.

A Situation cannot always be prevented. **How it is managed is what people remember.**

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described, the IMO Ballast Water Management Convention regulatory framework, Port State Control procedures, and charter party liability principles described are based on published IMO, Paris MoU, BIMCO, and maritime law documentation.