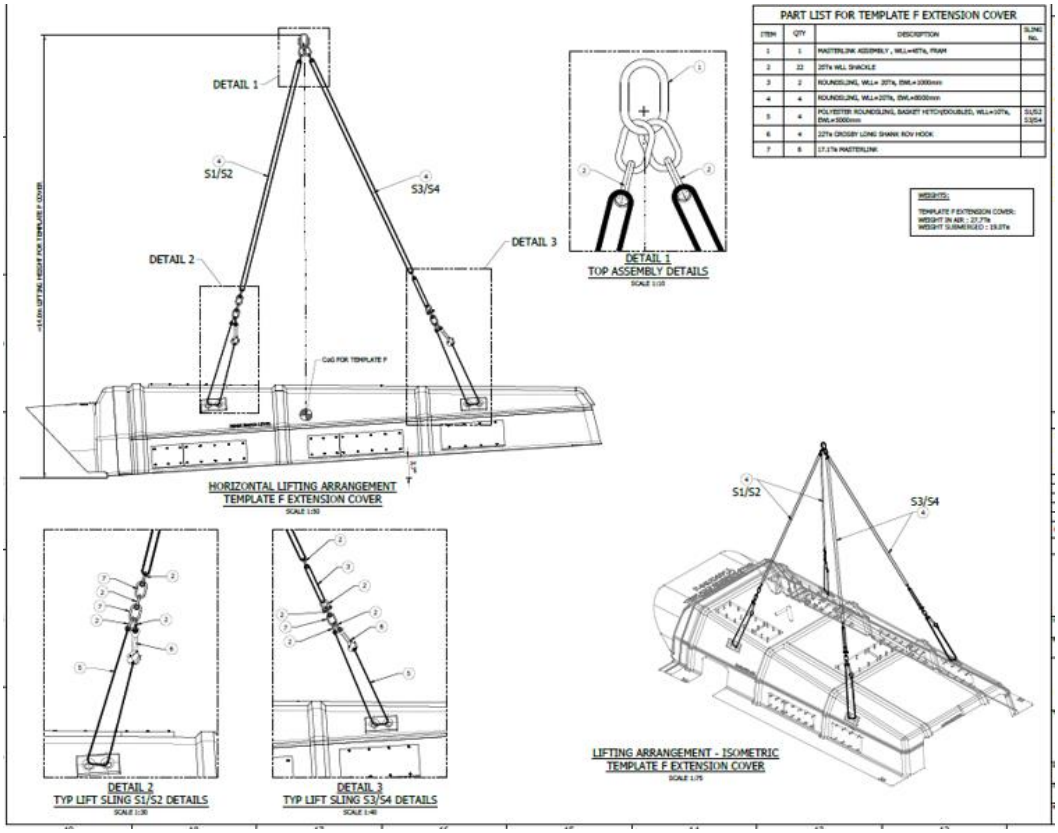
IMCA Safety Flashes summarise key safety matters and incidents, allowing lessons to be more easily learnt for the benefit of all. The effectiveness of the IMCA Safety Flash system depends on Members sharing information and so avoiding repeat incidents. Please consider adding safetyreports@imca-int.com to your internal distribution list for safety alerts or manually submitting information on incidents you consider may be relevant. All information is anonymised or sanitised, as appropriate.

1 Near miss: divers umbilical drawn beneath a load

What happened

Suction from a large GRP (glass-reinforced plastic) cover during lifting resulted in a diver's umbilical being drawn beneath the load. The incident occurred during hook-up of the GRP lift rigging, when unexpected movement of the cover led to suction which drew Diver 1's umbilical under the corner of the cover. The cover was lifted and the divers' umbilical was cleared. The soft nature of the seabed prevented damage to the umbilical. There was no interruption to any diver's services, and no injuries.



The GRP cover was in its "wet store" position – there were no associated subsea assets. The weather was within the operating envelope of the crane in terms of vessel motions (heave, pitch & roll). No alarms were present and the vessel was operating within her activity specific operating guidelines.

What went wrong?

During hook up of the cover, using crane active heave compensation, the vessel experienced heave which resulted in the cover being lifted in an unexpected way. This occurred when standing up the rigging in active heave

compensation (AHC) to ensure there were no twists prior to switching modes into auto tension (AT). At that moment the vessel took a disproportionally large heave and consequently partially lifted the GRP cover.

What was the cause?

Our member notes that large GRP covers (this one weighed over 20 tons) are notorious for the suction forces they create when being lifted, yet the diver needs to be close to enable the fine placement over assets.

Lessons learned

Although the diver and dive supervisor were not expecting the GRP cover to lift, and good umbilical management had been identified as a requirement in the risk assessment, the potential for this movement of the umbilical to be sucked under the structure had not been identified and the appropriate umbilical management fully recognized.

Members may wish to refer to:

- Near miss: diver's umbilical trapped
- Near miss: Unidentified differential pressure led to diver's umbilical getting trapped
- Diver trapped by Anchor Chain
- Fatal diver incident due to uncontrolled differential pressure

2 Incorrect as-built drawing configuration

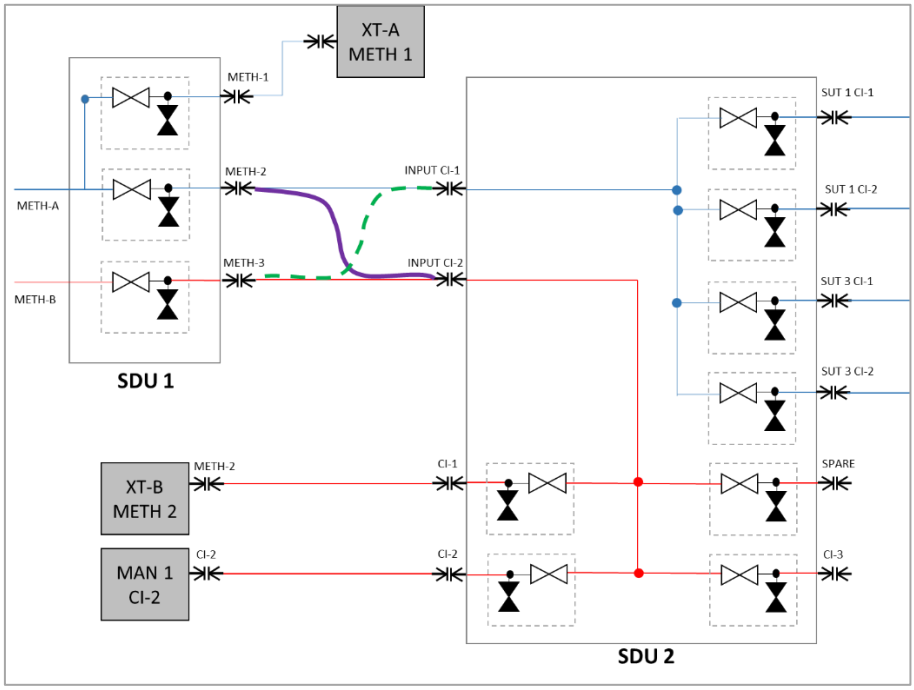
What happened

During leak investigations at a subsea manifold, divers carried out intervention on the system in accordance with approved procedures based on information provided by the client.

It subsequently became apparent during fault-finding that the subsea asset's actual jumper configuration differed from the data received from the client.

What went wrong

Divers carried out intervention on a system which actually only had a single unproven barrier in place.



What was the cause?

Incorrect information was provided by the client.

Actions

- Work was stopped until it could be ascertained that the system was safe for further intervention;
- The client was alerted and conducted a thorough internal investigation. They could not pinpoint how the error occurred. The drawings were redone with the amendments in place and formally approved.

Members may wish to refer to:

- Incorrect measurement and markings on divers umbilical
- Diver's worksite identification errors
- Unexpected movement of conductor during diver dredging operations
- Dropped object fell from crane – Poor communication/lack of awareness/control of work *[a job had to be left half-finished but this was not properly communicated or handed over – a causal factor was poor communication, particularly at shift handover.]*
- First aid injury: Electric shock *[the injured person mistakenly accessed the wrong transformer cabinet and got an electric shock. A lesson learnt identified was the importance of clear labelling and the ability of crew to differentiate between similar sets of co-located equipment.]*

3 Engine room fire on a ferry

The Bahamas Maritime Authority has published a report into an engine room fire on board the ferry *Pride of Hull* in October 2020.

What happened

A fire was detected onboard the "roll-on roll-off" passenger ferry *Pride of Hull* when it was outbound in the Humber Estuary, UK. The fire was detected in the vicinity of the thermal oil circulation pumps, part of the vessel's heat reclamation and transfer system. Shortly afterwards, the vessel lost electrical power and propulsion but used remaining headway to anchor safely.

The vessel's Hi-Fog fire suppression system activated automatically but did not operate as anticipated and could not control the fire, which was extinguished using the vessel's fixed CO_2 system. The vessel returned to port, under its own power, the next day. No one was hurt, damage was limited and there was no pollution.

What went wrong

The Bahamas Maritime Authority report noted the following:

- **Bearing failures:** examination of the thermal oil circulation pump identified that progressive bearing failures resulted in extreme frictional heating, generating temperatures in the order of 1,200°C, far in excess of the auto-ignition temperature of the thermal oil used in the system;
- **Compromised fire suppression systems:** Assessment of the fire suppression system identified that the system's effectiveness was compromised by pump output when multiple zones were activated and its dependence on a domestic fresh water pump to maintain supply for longer than two minutes. Additionally, the system's pumps were not connected to the emergency switchboard and therefore stopped when the vessel lost electrical power. These limitations were compliant with requirements but were not reflected in emergency response guidance.

Lessons learned

- Frequent failure of equipment generally indicates a weakness in the system. Identification of causal factors can facilitate a discussion with the equipment's manufacturers to identify effective remedial actions;
- Any engineering change or modification of equipment should be preceded by a management of change (MoC) assessment to ensure the modification does not have unwanted impact on the operation of the equipment or associated systems;
- Older fire suppression systems (from before 2010) installed in machinery spaces may not be as effective as those installed later. Check that the system design meets current requirements and ensure that contingency plans reflect any limitations;
- Fire suppression systems that are not connected to the emergency power supply will not work when the vessel loses mains power. Water mist systems do not work if their water supply is compromised. If the system is dependent on separate feed pumps, these should be connected to the emergency switchboard and activate automatically;
- Thermal imaging cameras are an excellent tool for identifying the seat of a fire, especially in reduced visibility;
- Re-entry into a space after CO_2 flooding carries a risk. CO_2 has a limited cooling effect on temperatures at the seat of a fire and does not remove fuel. Entering the space too soon may allow entry of oxygen and can cause the fire to reignite.

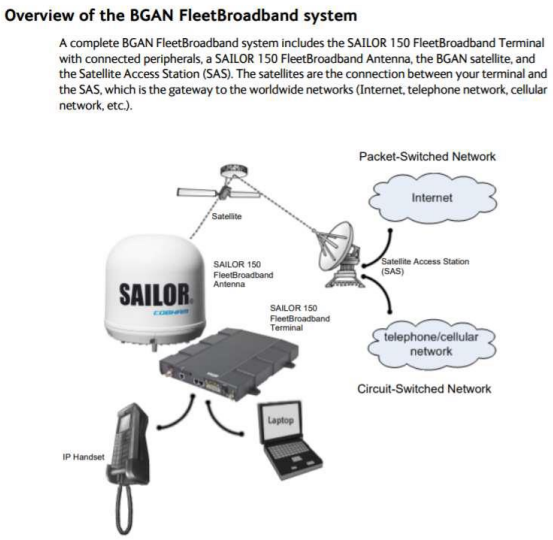
Members may wish to refer to:

- MAIB: Engine failure and subsequent fire
- Fire in engine room on platform supply vessel
- Engine room fire – a small rag left after maintenance

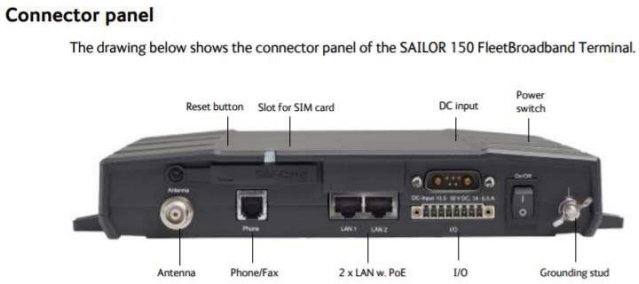
4 Radio interference from damaged equipment affects other vessels

What happened

On a pipelay barge, radio frequency interference to the vessel's GNSS systems was reported by a surveyor. There was only one other vessel alongside. This vessel was contacted with a request to switch off any transmitting devices.



Sailor 150 Fleet Broadband system



Sailor 150 Fleet Broadband connector panel

On that vessel, bridge systems with transmittal capabilities were switched off, and the pipelay barge GNSS functionality was restored. Vessel crew started troubleshooting, but the reason could not be identified and technical support from shore was requested.

What was the cause?

The shore service team used radio frequency (RF) detection and spectrum analysis equipment to detect and analyse RF signals transmitted by various sources, after which it was identified that the interference issue was caused by a factory-fitted SAILOR 150 Fleet Broadband which was not in use, but not disconnected.

The radio frequency interference came from a failed connector panel of SAILOR 150 Fleet Broadband System. This caused an outage of GNSS positioning systems for the surrounding vessels in close vicinity.

Recommendations

- Failed equipment can transmit a radio signal which can interfere with the communication or navigational equipment nearby;
- Check for any similar equipment onboard that is not in use, but not disconnected or powered down – removal may be worth consideration.

Members may wish to refer to:

- GPS antenna problems (2008)
- Potential interference of VHF-FM radio and AIS reception
- IMCA S 024 M 242 *Guidance on satellite-based positioning systems for offshore applications*
- Information Note id 1436 *GNSS interference, jamming and spoofing* [April 2019]
- Information Note id 1525 *GPS systems – Warning of interference* [October 2020]

5 Life raft lashing parted in rough weather

What happened

During rough weather on a vessel at sea, the lashing on a life raft gave way due to wear on stitching on the strap eye. The life raft fell into the water and became inflated.

Life raft lashing parted

Suggested lashing arrangement using wire lash strap

The life raft was recovered; the sea anchor was damaged, other equipment was found intact, but the shell of the raft was lost at sea.

What went wrong

- Lashing straps literally affected by “wear and tear” during poor weather condition;
- Inspection of the straps was not part of the vessel planned maintenance system.

Actions

- A “Y strap” wire lashing may be used (see illustration), given the approval of the manufacturer;
- Regular inspections and pre-checks before rough weather;
- Specific inspection of life raft lashings to be added to vessel planned maintenance system (PMS).

IMCA notes that consideration should be given to the possibility of corrosion and degradation, leading to failure of parts due to:

- Long-term exposure to the weather and to the sea air;
- Repeated stresses induced by the movement of the vessel;
- Accumulated damage or stress over very long periods between inspections - years;
- Difficulty in access for inspection.

Members may wish to refer to:

- Failure of life raft securing strap [2020]
- Dropped object near miss – crane boom bumper stop falls off
- Checking of safety helmets [plastic hats do degrade under UV, over time]