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 Main bell wire rope damaged

Applicable Life Saving Rule(s)

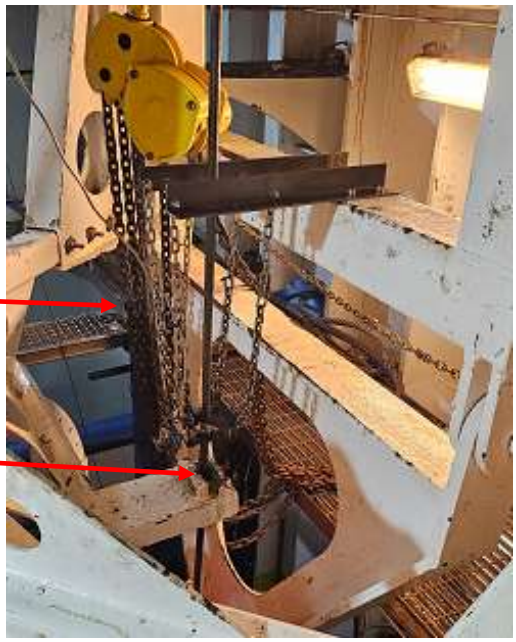
Energy Isolation

Safe Mechanical Lifting

What happened?

At the end of a saturation dive, a main bell wire was damaged by the proximity switch bracket (chandelier) being picked up by a single broken strand on the main bell wire rope. The incident occurred during a bell recovery procedure performed by the winch operator. The Moonpool operator stopped the winch operator from further recovery of the bell after noticing that the proximity switch bracket (chandelier) was in the bell launch and recovery sheave. Dive technicians freed up the chandelier from the sheave, and the bell was safely recovered.

Main Bell wire rope



Proximity sensors and chandelier were relocated attaching it to a solid suitable point on the static side of clump weight wire rope

The main bell wire rope was three years old, had been visually inspected, and destruction tested with a positive result of 8:1 factory and above the maximum allowable 10% reduction of MBL as per IMCA D018, two weeks before the incident.

What went right

- When the problem was spotted during bell recovery procedure an “All Stop” was called by one of the moonpool operators and all personnel involved supported it;

- There was a focused and swift reaction from operators to remove the chandelier from the bell wire rope sheave. This helped to save time during the bell recovery procedure, this was paramount to a safe bell lock on.

What went wrong

A single outer wire rope strand, broken from the bell main wire rope, lifted the chandelier with the proximity switch into the bell main wire rope sheave.

What was the cause?

Our member noted the following:

- **Root cause of the incident: Failure of design**. The chandelier was a tight fit which allowed movement when the broken strand passed through. The bell main wire rope ran through a narrow space within the chandelier allowing a single broken outer strand to be caught up.
- **Direct cause of the incident: Equipment damaged.** A single outer strand broken from the bell main wire was enough to lift the chandelier with the proximity switch into the bell main wire rope sheave.

Actions

- The proximity sensors and chandelier were relocated attaching it to a solid suitable point on the static side of clump weight wire rope. This eliminated the risk of reoccurrence. See image on right above;
- After cut back of damaged length of the bell wire rope, Classification Society witnessed load test being performed;
- A dive trial was conducted with an empty bell to working depth to double check suitability and length of bell main wire rope.

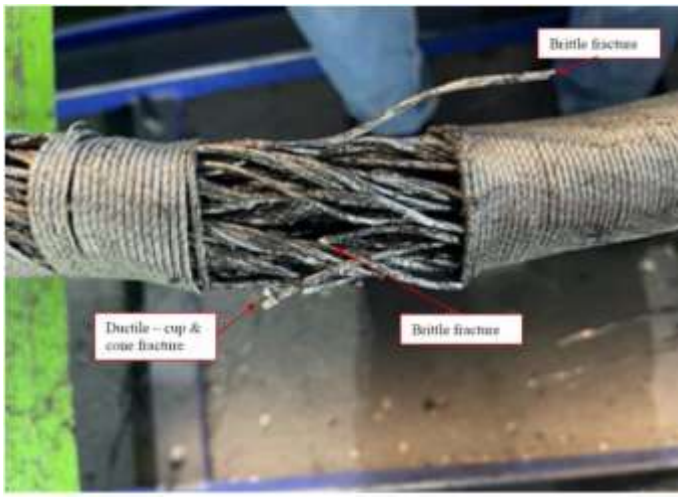
Members may wish to refer to:

- Near miss: Single wire strand protruded from original lay
- Near-miss: Fault spotted in subsea lifting wire
- Partial parting of a bell main lift wire

2 Main bell wire rope failed destructive test

What happened

A main bell wire rope sample from a DSV failed to an adequate safety factor after 245 bell runs since installation. Following this failure of the annual breaking load test the DSV reported a premature retirement of the main dive bell wire rope after it had been in service for approximately eighteen months from March 2021 to October 2022.



Showing fracture point of destructive test

IMCA D018 *Code of Practice for the Initial and Periodic Examination, Testing, and Certification of Diving Plant and Equipment* guidelines are to perform visual inspection every 6 months and perform destructive tests (DT) upon installation and on an annual basis. IMCA D018 guidelines allow up to 10% reduction in minimum breaking load (MBL). Visual inspection and DT were carried out on board in line with IMCA guidelines.

The scheduled maintenance annual breaking load test completed in October 2022 achieved a breaking load of 99.9 tonnes (980 kN) 30% below MBL. In accordance with IMCA guidelines, a second test was permitted and achieved a breaking load of 108.6 tonnes (1065 kN) 24% below MBL.

Findings

A purchase order was raised by the DSV owners in December 2020 to procure the bell wire rope when the vessel was reactivated. The purchase was made without consultation with the company's wire rope integrity management team, without an approved company wire rope specification, and from a non-approved supplier.

From the review of the wire fractures at the rope destruction test, it was apparent there was a number of shear fractures present indicating poor ductility. A reduced ductility was also apparent following individual wire testing as part of the investigation. Component wires of reduced ductility cause a lack of elongation in the complete wire rope, resulting in a reduced load bearing capacity.

The lack of ductility was explained by the phenomenon of strain aging, which is a change in steel microstructure leading to a change in wire properties including a reduction in ductility. The occurrence of strain aging is initially influenced by steel chemistry and manufacturing methods and is then dependent on a time and temperature relationship which can be influenced by storage conditions.

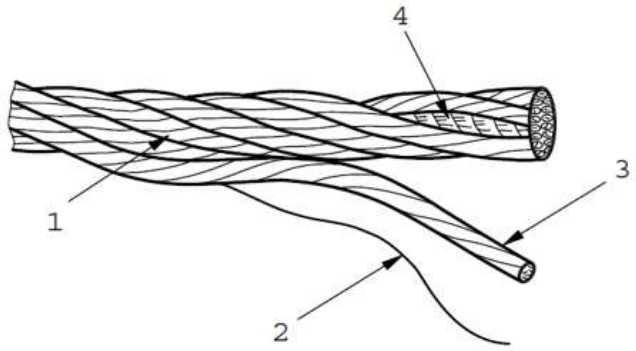
Actions to be taken

- Ensure wire rope integrity management requirements are followed at all times;
- Ensure sufficient and appropriate management and oversight of chartered third-party vessels.

Members may wish to refer to:

- Crane wire parted during offshore operations

IMCA notes: the above two flashes have been amended to reflect correct terminology with respect to the components of a wire rope: see diagram below. However, for purely practical reasons relating to internet links, the links to previous safety flash incidents relating to wire rope incidents, have not been amended.



Key

1	Wire rope	3	Strand
2	Wire	4	Core

Components of a wire rope

3 Lone worker collapsed at onshore site

What happened?

A person collapsed at a workshop facility due to a non-work related, pre-existing medical condition. The person was unable to call for help and was not discovered until the following day. While carrying out routine activity at an onshore operational site, the worker collapsed in a workshop facility. The person was working alone, and despite having a phone, was unable to call for help.

Workshop area: X marks the spot where the person collapsed

Disused office area to which the injured person was able to move

Following collapsing, the person was able to move from the general workshop area into a disused office area. The person was not discovered until the following day, when a colleague entered the workshop and heard a call for help. First aid was given, prior to a transfer to a local hospital.

Our member asked the following questions:

- **What did you expect to happen?** In the event of a medical emergency, the individual and/or team would be able to raise alarm and call for help without delay;
- **What actually happened?** After collapsing in the workshop, the person was unable to raise the alarm and was not found until the next working day;
- **What was a surprise?**
  - The length of time it took for the person to be discovered;
  - No measures were in place to track personnel movement when working unaccompanied for significant periods of time;
  - Security patrols did not identify the person, and the sign-in/out system was not consulted to confirm that all personnel had left the site at the end of the day.
- **What prevented this from being worse than it was?** Another person went into the workshop to use the lathe and heard a call for help.
- **What went well, and why?** Once the person was discovered the alarm was quickly raised and the first aid protocol worked as intended;
- **What did we learn that could help others?**
  - The importance of suitable arrangements to monitor and track lone workers, inclusive of security patrols/checks;
  - Ensuring robust pre-employment medical screening and health surveillance measures to identify personnel who may be classed as vulnerable.
  - Consideration of the use of fall alarms for lone workers, which can automatically alert on-call service in the event that an individual falls or collapses.

Actions

- Fully understand what “lone working” is – a “Lone “Worker” is someone who works unaccompanied for significant periods of time, either without close or direct supervision, contact with other personnel or who work alone in a remote work area;
- Ensure lone working is subjected to a task risk assessment which addresses the following areas:
  - Foreseeable emergencies e.g., illness and accidents;
  - Access and egress (entry and exit) arrangements;
  - Risk of violence;
  - Vulnerable persons or young workers if they work alone;
  - Local legislative requirements;
  - The level of supervision required;
  - Experience level of employee who may need to be accompanied at first until they are confident and competent in the activity.

Members may wish to refer to:

- UK HSE INDG 73 *Protecting lone workers: How to manage the risks of working alone*

4 A reminder on watertight doors

Applicable Life Saving Rule(s)

Bypassing Safety Controls

What happened

Watertight doors that ought have been secured shut, were observed open during a safety walkaround. It’s worth reiterating the importance of watertight doors – the clue is in the name. Watertight doors are special types of doors found on vessels, which prevent the ingress of water from one compartment to other during flooding or accidents, and therefore act as a safety barrier limiting the spread of water inside the vessel.

SOLAS regulations mandate that watertight doors should be kept closed at sea except when in use – i.e. when there is the need for crew to pass through them. (SOLAS: Chapter II-1, Part B-4, Regulation 22). The company’s own rules

mandated this also: *All watertight doors, scuttles, and fittings below the main deck shall always remain closed except when in use.*

What was the cause

- It was noted, after further investigation during review of similar cases on two other fleet vessels, that watertight doors were left open after the regular engine room walk around, as this was a regular activity and there was "no point to open and close each time";
- It was found that some crew were not aware of the relevant SOLAS and SMS requirements or the importance of keeping watertight doors closed at sea in case of emergency.

IMCA notes: In this case, it seems easy and simple to leave the watertight door open – and thus do things in an unsafe way. What could we do in this case to **make it difficult** to work in an unsafe way? Is there a way here to make it easy and simple **to work in a safe way?**

Lessons

- Look out for yourself your colleagues and others around you;
- Take 5 seconds to think about a task before you start;
- Don't take shortcuts in safety to get the job done faster;
- If it's unsafe – **STOP THE JOB!**

Members may wish to refer to:

- Watertight doors and hatches routinely left open at sea
- Maintenance and control of fire doors
- Fire door left wedged open
- Only a centimetre – an emergency exit hatch blocked by mooring ropes
- Disabled audible alarm on fire alarm panel

5 UK HSE: worker injured by falling stack of batteries in Flexible Intermediate Bulk Containers

What happened

Applicable Life Saving Rule(s)

Bypassing Safety Controls

Line of Fire

The UK Health and Safety Executive (HSE) have issued a press release relating to a case where an employee was severely injured after batteries weighing at least 300kg fell onto him. The person was working with two colleagues when he was struck by the batteries. The three workers had been restacking the batteries, which were stored in Flexible Intermediate Bulk Containers (FIBCs), after the stack had toppled over.

However, the FIBCs started to rip in front of them leading to the batteries falling on to one of the workers. He suffered a double compound fracture to his lower right leg, a fracture to the left tibia, a fractured right collar bone, some bruising to his ribs and a cut on his forehead.

What went wrong

The HSE's findings were that the site was overstocked, bags of batteries had been stacked in an unsafe manner and there was no specific documented risk assessments or safe systems of work for the correct stacking and storage of batteries. This was not an isolated incident.

Image: https://www.global-pak.com/fibc-safe-handling-instructions

IMCA members sometimes use FIBCs and incidents of this sort have occurred within the membership, which is why this alert is being passed on as a reminder.

Members may wish to refer to:

- Safe use of FIBC (Flexible Intermediate Bulk Container)
- Dropped object – intermediate bulk container (IBC)
- Lifting operation resulting in dropped objects from flexible intermediate bulk container
- Wrapped cargo slipped during loading and fell