

IMCA Safety Flash 16/15

October 2015

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

The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat (imca@imca-int.com) to your internal distribution list for safety alerts and/or manually submitting information on specific incidents you consider may be relevant. All information will be anonymised or sanitised, as appropriate.

A number of other organisations issue safety flashes 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. Additional links should be submitted to webmaster@imca-int.com.

I Older "Norfolk Range" Powder Extinguishers from Before 2009

The UK Health and Safety Executive (HSE) has published the following alert regarding a fault in older "Norfolk Range" large dry powder fire extinguishers, manufactured in the United Kingdom before 2009. These extinguishers may be affected by moisture ingress at a threaded joint at the base of the unit, rendering the unit inoperable. The problem may not be identified during routine service inspections.

Users should identify if their extinguishers are likely to be affected. If yes, and the extinguisher has been left exposed to adverse conditions since its last extended service, the condition of the elbow joint at the base of the unit should be examined by a competent service engineer.

If you are unsure if your extinguishers are affected by this safety alert, you may wish to consult your supplier.

More detailed information is available from the UK HSE: <http://www.hse.gov.uk/safetybulletins/norfolk-large-wheeled-dry-powder-fire-extinguishers.htm>.



Type of large dry powder extinguisher affected

The remaining incidents in this safety flash focus on personal injuries.

2 Cargo Contamination Causing LTIs during Clean-Up

A member has reported an incident in which there was contamination of liquid cargo on an offshore support vessel. The incident led to a week-long cleaning operation in which a number of crew became ill and had to take time off work to recover. The incident occurred during loading of 50 cubic metres of calcium chloride brine. As loading started, it was swiftly noticed that no cargo was being received into the tank. The manual valves in the brine system were checked, and it was verified that they were open as they should be. When the loading line was connected to another (amidships) manifold to attempt loading from there into the tanks, the same situation was experienced and no cargo received into either tank. The suspicion arose that the line might be blocked, and it was decided that the loading had to be stopped. To assess the problem, dismantling of the line was started. When the lines were opened it was found that the calcium chloride brine had turned into a crystallized white mass, in some places completely packed in, and further into the line system, at the aft crossover line, a gel-like mass, blue-greyish in colour, was discovered, which in a tray formed a thicker mass setting to the bottom with a more fluid version on the top.



Crystallised white mass



Blue-grey gel-like mass



The opened lines revealed a crystallized white mass that blocked the system

The subsequent unexpected task of dismantling, cleaning and reassembling the pipes took over one week, involving work from both vessel crew and outside contractors. It had a negative but temporary impact on the health of some personnel involved. At the end of the cleaning period, some of the vessel personnel involved in the dismantling of the line system reported the following symptoms:

- ◆ Nausea;
- ◆ Fatigue;
- ◆ Respiratory problems – specifically, it was noticed that some persons were breathing strenuously, two of them even during normal speech while sitting down. Further, one of the individuals with prior light symptoms of asthma, though normally independent of his “inhaler”, subsequently reported that use of the “inhaler” had become necessary during this period;
- ◆ Discoloured (darkened) urine;
- ◆ Kidney pain.

Four persons had to take sick leave resulting in lost time injury (LTI). It is anticipated that all the sick persons will make a full recovery, though some months off work were necessary in some cases.

Our member undertook a thorough investigation which noted the following:

1 With regard to the clogging of the cargo system:

- ◆ The vessel was relatively new and this was only the third time the brine loading system had been in use;
- ◆ On the two previous occasions the cargo had been a silica product known as Sildrill;
- ◆ There were trace quantities of the silica product Sildrill left in the brine loading system after discharging the Sildrill;
- ◆ It was confirmed that the conditions found in the ship's brine loading system formed near perfect conditions for a reaction between the trace quantities of Sildrill and the calcium chloride brine;
- ◆ The crystallisation in the pipe came about because of chemical changes when the brine came into contact with the silica product Sildrill. These chemical changes caused a gel or solid substance to form in the pipes.

The **immediate** causes of the clogging of the cargo system were found to be:

- ◆ Chemical changes arising from inappropriate mixing of trace quantities of previous Sildrill cargo with calcium chloride brine;
- ◆ There was a machine failure in that there was an erroneous indication of the valve in the aft crossover line being closed while it was 45% open – this led to the flow of cargo going into areas from which it would normally be blocked. This contributed to the clogging.

The **root** causes were found to be:

- ◆ Lack of experience and knowledge of this type of cargo – officers involved in the previous two loadings of the Sildrill were unfamiliar with what the substance actually was and had no prior experience in dealing with it;
- ◆ Lack of familiarity with the chemical components of the two different types of cargoes:
 - Officers would not have been able to foresee the chemical reaction that occurred when Sildrill and calcium chloride brine came into contact with one another
 - To both officers and crew, the perception was that both cargoes were “*some sort of brine*” and also both cargoes were considered “*harmless*”;
- ◆ Inadequate or incorrect information supplied to the vessel:
 - They were informed by the company logistics department that the cargo was a “brine-like material”
 - Whilst instructions were given to wash the tanks and lines, there was no explicit emphasis on the importance of this washing, and, hence, the system was washed to “brine standard” as per company procedures
 - As a result of this, trace quantities of Sildrill were left in the system;
- ◆ Company procedures or standards for cleaning cargo pipework were not adequate.

2 With regard to the subsequent ill-health of the crew involved in the clean-up operation:

- ◆ Chemical analysis by an independent third party of the blend of substances removed from the brine loading system revealed some presence of metals, of which the highest level was the metal Chromium;
- ◆ How this metal got into the pipe system was not confirmed (and confirmation was sought from the manufacturer of the pipes that it did not originate from the pipework itself), but notwithstanding that, this metal is a known irritant to the human respiratory system.

The **root** causes were found to be:

- ◆ There was a common understanding on the vessel regarding the “*complete harmlessness of this cargo*”, in spite of existing information in the Material Safety Data Sheets. As a result there was inadequate adherence to procedures:
 - Appropriate risk assessment did not take place, nor was there any toolbox talk before dismantling and cleaning operations started
 - There was no Permit to Work (PTW) sought.

Our member took the following corrective actions:

- ◆ Improved communication/instruction programme – ensured vessel crew had better awareness regarding cargo properties;
- ◆ Made improvements to cargo system washing facilities;
- ◆ Made improvements to communications between vessel and logistics department.

Members may wish to refer to the following incident (search words: *cargo, bulk*):

- ◆ IMCA SF 16/14 Incident 4 – Near miss: *Incident involving dry bulk pressure system*

3 Line of Fire injury – Man Struck in Face by Hammer

The International Association of Drilling Contractors (IADC) has published a safety flash regarding an incident where a man was struck inadvertently in the face with a hammer, leading to “recordable” injuries to his face. Two crew members were hammering up bolts on equipment at a well-head. During the pre-job meeting the two men had anticipated getting hit with the hammer while holding the hammer wrench. As a defence they tied an 8cm long piece of rope around the hammer wrench so that one employee could hold a bind on it while the other man swung the hammer. As the two men worked their way around the stack the man holding the rope ended up in the line of fire as he pulled the rope. On one of the swings the hammer glanced off of the top of the hammer wrench. Before the employee could stop the forward momentum of the hammer, it made contact with the man holding the rope striking him in the mouth resulting in injury.

Causes: lack of situational awareness, remaining “in the line of fire”.

See <http://www.iadc.org/wp-content/uploads/2015/07/SA-15-07.pdf> for further details.

Members should be reminded of IMCA’s “*In the line of fire*” video which can be viewed on-line or downloaded from <http://www.imca-int.com/safety-environment-and-legislation/safety-environment-and-legislation-videos/sel-036.aspx>. It is also available on request in DVD format.

4 RWC – Caught Between: Finger Smashed by Tooling

IADC has recently published a safety alert in which a crewman suffered multiple fractures on his right ring finger. His hand was caught in the jaws of a tong latch device used to handle drill pipe.

The immediate causes of the incident were found to be:

- ◆ Inappropriate or incorrect tools used for the job;
- ◆ Procedures not followed – handles (green in illustration) were provided but were not used;
- ◆ Complacency – no Job Hazard Analysis (JHA) was performed as the task was seen as “routine”;
- ◆ The tooling was so placed such that the supervising driller could not see what was going on.

The report can be downloaded from <http://www.iadc.org/wp-content/uploads/2015/07/SA-15-05.pdf>.

Members may wish to review the following similar incidents (search words: *caught, finger*):

- ◆ IMCA SF 04/12 Incident 1 – *Lacerated finger during rigging operations*;
- ◆ IMCA SF 05/15 Incidents 4, 5 and 6 all relate to hand injuries.

Members should be aware that IMCA has a pocket safety card on this topic, *Watch your hands – you’ve only got one set!* <http://www.imca-int.com/media/102527/imcaspc08.pdf>.

Watch your hands - You've only got one set

Your hands...



... the best set of tools you'll ever be issued with and the only ones you can't replace

- ◆ Don't put your hands where you can't see them
- ◆ Don't expose your hands to hazardous substances
- ◆ Don't use tools for the wrong purpose - use the right tool for the job
- ◆ Do wear gloves or PPE as appropriate
- ◆ Do stop or rearrange the job if your hands are at risk

No. 8 in a series of pocket safety cards issued by the International Marine Contractors Association
 Issue 1 - April 2005



Watch your hands - You've only got one set

THINK

What are you about to do?

- ◆ Do you know how to do it?
- ◆ Do you know when to do it?
- ◆ Do you need to tell anybody that you're going to do it?
- ◆ Think about the risks to your hands:
 - jewellery, pinch points, sharp objects
 - stored energy, line of fire, hazardous substances

CHECK

Have you made the necessary checks?


- ◆ Is it too heavy? Is it too high? Is it too dangerous?
- ◆ Do you need a permit to work (PTW)?
- ◆ Are you using the correct equipment?
- ◆ Have you got the correct PPE?
- ◆ Is it safe to proceed?

If in doubt - STOP!

- ◆ Follow best practice and remain within the limits of your authority. If the task changes, reassess the risk

Remember: Remove jewellery
 Wear gloves whenever safe and practical
 Watch where you put your hands

For more information on IMCA's safety-related initiatives, please visit our website at www.imca-int.com



5 Everyday Activity, Unwanted Outcome: Poor Manual Handling Leads to Back Strain

A member has reported an incident in which a member of the shore staff injured his back due to the incorrect lifting of a heavy box from above head height. The person was working alone in a container unit onshore, searching for a spare part for an engine by individually removing boxes from the shelves to look inside them.

On the top shelf (2m high) there was a box with a turbocharger in it, which weighed approximately 20kg. Although the contents were clearly labelled on the box, the person was not expecting the weight of the box to be that heavy and had not prepared his stance ready to correctly accept the weight.

When the box was removed from the shelf, it fell to waist height; to avoid damaging the equipment he held on tight to it. This caused a jolt and strain to his back. Having hurt his back he continued with light duties for the rest of the day. He had previous experience with back strain and did not require to visit an external medical unit.

Our member noted the following:

- ◆ The box was subsequently repositioned on a lower shelf;
- ◆ Self-applied haste caused the person to not check the label on the box before lifting it off the shelf. If he had taken the time to read the label he would have been warned to position himself in such a way to be able to accept the heavy load correctly and without injury;
- ◆ Heavy items should never be placed on the top shelves; they should always, where possible, be stored at waist height shelves to promote safer manual handling.

Members may wish to refer to the following incidents (search words: *cargo, spill, leak, container*):

- ◆ [IMCA SF 11/08 Incident 2](#) – *Incorrect lifting equipment used* [leading to spillage of 45l of ethylene glycol];
- ◆ [IMCA SF 09/15 Incident 1](#) – *“Routine” task, non-routine result: batteries stored sideways leak battery acid.*

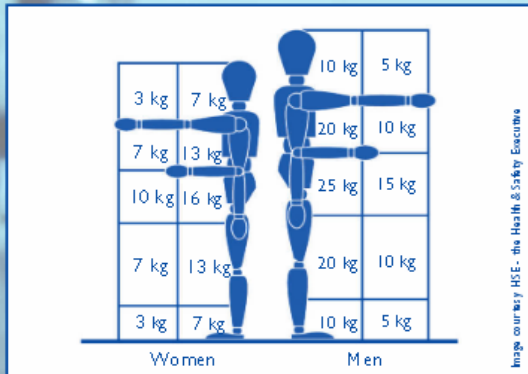
Members should be aware that IMCA has safety promotional material covering manual handling:

- ◆ [IMCA SPC 01](#) – *Manual handling.*

Manual Handling Safety Guide

- ◆ Can you **avoid the need** to manually lift the item?
- ◆ Can you **reduce the risk** of injury by using mechanical aids, two-man lifts, etc.?
- ◆ Have you conducted a job safety analysis and toolbox talk?
- ◆ Have you **checked**:
 - the task?
 - that co-workers understand the plan?
 - load and weight known?
 - working environment and route?

Some guidelines for maximum loads when lifting and lowering manually are:



No. 1 in a series of pocket safety cards issued by the International Marine Contractors Association

Issue 1 - September 2003

Manual Handling Safety Guide

Basic Handling Steps



Stop, check and think



Position your feet close to the load and shoulder width apart



Adopt a good posture - bend at the knees and keep your back straight



Get a firm grip of the load



Keep the load close to your body



Move or change position with your feet - do not twist or stretch your back

For more information on IMCA's safety-related initiatives, please visit our website at www.imca-int.com



Manual Handling

WATCH YOUR BACK

Manual handling is a major cause of injury

Back pain is suffered by one in five of those who suffer work-related ill health - bad for people, bad for business



Minimise or reduce risk:

- ◆ Stop and think
- ◆ Take account of sea conditions when carrying loads
- ◆ Use risk assessments
- ◆ Can the job be avoided or done differently?
- ◆ Use handling aids
- ◆ Get help

Avoid back pain - don't strain:

- ◆ Don't risk injuring yourself
- ◆ Protect your back
- ◆ Use correct posture when pulling and lifting
- ◆ Do not lift more than you can handle
- ◆ Don't twist when carrying heavy loads



No. 1 in a series of safety posters issued by the International Marine Contractors Association.
For more information on IMCA's safety-related initiatives, please visit our website at www.imca-int.com

Sheet 1 - June 2014