IMCA Safety Flash 07/99

December 1999

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learned 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

1 Hydraulic hand pump (enerpac) hose failure

A member has reported that while extending an hydraulic arm on a tooling system using a (enerpac) hydraulic pump, rated for 10,000 psi (680 bar), the output hose burst next to the coupling at the end of the output hose. On investigation, it was found that the enerpac output hose was rated for 3,000 psi (200 bar) and had been damaged (kinked) prior to use. In addition to this, the enerpac pressure gauge was facing away from the pump operator, resulting in the operator not knowing what pressure the enerpac was generating. Fortunately in this case no injuries were sustained.

The contractor involved has issued the following reminder to its personnel:

- Equipment such as hydraulic hand pumps (enerpacs) and associated equipment should be visually inspected prior to use for damage, to ensure integrity and to ensure that pressure gauges, etc., are working correctly;
- Always use a gauge to verify system pressure;
- Be aware of the safe working pressure of all parts of the system - the output hoses may be rated at a lower pressure than other parts of the system;
- Full personal protective equipment (PPE) including eye protection should be utilised by all personnel in the area, not only the system operator;
- Risk assessments should be revisited.

2 Condition of container doors

One of our members has reported a failure of a container door on one of their vessels. The container door became unlatched during a period of moderate swell. The vessel motion caused the door to swing and this, coupled with corrosion around the door hinge, resulted in the door falling to the deck. Fortunately no-one was injured. The container had been in storage for six months.

This incident highlights the potential hazards when entering and exiting containers of any type.

The contractor involved has reminded its personnel to check all container door hinges as part of their regular maintenance schedule. This check should include the latching system and the area around the actual hinges themselves as they are exposed to both the environment and sea states.

3 Crane accidents

Two accidents have recently been reported during a lifting operation on a fixed installation.

The first accident happened during the lifting of a 13 tonne tank. When topping the boom to reach the right location to put the load on the deck, the boom suddenly started falling and the load fell down approximately three metres until it hit the top of two other stored tanks. These tanks were about two metres apart and the falling tank got jammed in between them. Fortunately no-one was hurt. The crane boom descent stopped when the crane operator put the boom operating joystick in neutral position which automatically activated the boom brake.

The second incident occurred half an hour later when it was attempted to lay the boom into its rest. To do this, the crane driver had to slew the crane about 45°. During this operation, the boom once again fell uncontrolled. The boom hits its rest so hard that it bent the boom rest. The connection bolts between boom sections 2 and 3 were sheared and the forward

part of the boom tipped down from the boom rest in a 90° angle. Only the whip wire rope prevented the forward two sections falling into the sea.

The immediate cause of the incident was found to be the collapse of the input gear (sun gear) between the main shaft from the hydraulic motor to the gearbox on the boom winch. All teeth were broken off. The most likely cause for this was the incorrect assembly of the sun gear. A washer had probably come out of position during installation and this has led to rapid wear of the sun wheel gear.

The key lessons identified were:

- to ensure adequate inspection and planned maintenance programmes for critical systems/components by persons adequately trained;
- the importance of clear and correct procedures and descriptions of work to be undertaken; and that these be understood and followed during disassembly and assembly of the gear box;
- the importance of the use of carrying out a safe job analysis before critical jobs and operations.

4 Crane whip line incident

We have recently learned of a crane whip line, on an offshore crane, parting when lifting a concrete mat weighing 4.5 tonnes from the vessel deck. The load being lifted was well within the safe working load of the wire and the crane. Fortunately no-one was injured and no damage was sustained.

After investigation it was concluded that the wire rope parted due to internal corrosion which had been generated from lack on internal lubrication of the first, approximately, 22m of the wire from the hook end. This allowed corrosion of the internal strands generating a fatigue failure of the internal wire and a tensile failure of the external wire which resulted in a contribution of fatigue and loss of metallic areas. This conclusion was further substantiated when the wire was visually inspected at the contractor's premises, where it was found that the first 16m was heavily corroded with its condition gradually improving to the 22m mark.

There had been inspection, greasing and destruct tests of the wire rope during its service. A 100% NDT inspection and high pressure lubrication of the wire had been undertaken a couple of months prior to the incident. It was subsequently found that, although the wire should have had a 100% inspection, NDT and high pressure lubrication, this was not achieved. When the wire rope was reeled off the crane onto a reel sited on the quayside and the NDT and pressure lubricating equipment positioned on the crane jib approximately 25m of the wire was omitted from the inspection. This was the section of wire that failed.

The company involved has contacted the inspection company to verify that it has changed its quality procedures to include a method statement to ensure 100% NDT inspection and high-pressure lubrication.

The planned maintenance for the inspection of vessel crane wires is to be reviewed to determine if the frequency and mechanism is sufficient to actively monitor the condition of crane wire ropes in use.

5 Forged diving certificates

We have recently learned of irregularities coming to light on a project whose scope included a small inshore diving element.

On audit, the diving company was discovered to have a number of certification inconsistencies including forged HSE diving certificates and medicals. The diving contractor involved had been operating in the area for the past two years.

This highlights the importance of having in place audit programmes for sub-contractor companies and their personnel.