

YOUR SOURCE FOR HYDRAULIC SAFETY AWARENESS NEWS, TIPS & INFORMATION

News & Events

- **Saskatchewan Safety Council** is holding their 41st Annual Industrial Safety Seminar February 3-5, 2014, Saskatoon, SK Prairieland Exhibition Park.

HSAC is presenting Hydraulic Hazards in the Workplace

Tuesday February 4, 9:00am to 10:15am.

This presentation will identify how hydraulic systems are utilized in all industry sectors and provides a history of how hydraulic energy hazards have affected the safety of personnel, property and environment. It will also identify more specifically the types of hazards personnel are exposed to and the difficulties in controlling hydraulic energy for lockout. This presentation also identifies occupations that are at higher risk to hydraulic hazards including how new advancements in training and integration can eliminate hazards and reduce risk for personnel and employers.

➤ **WANTED**

The Hydraulic Safety Authority of Canada is offering opportunities for health & safety providers and consultants to expand their program portfolio and increase economic growth by offering HSAC courses and services. Please contact us for more information on becoming a partnered training provider.

- **Levitt-Safety** an authorized provider of HSAC Hydraulic Safety Training Courses has successfully delivered open enrollment in Edmonton, Oakville, Sudbury, Canmore, Kingston, Ottawa, London and Trenton. Contact training@levitt-safety.com, for additional course dates and locations.

➤ **Continued Education Units**

The Hydraulic Safety Authority of Canada Inc. is pleased to announce that Hydraulic Safety Training has 14 contact hours eligible for Certification Maintenance Points for CRSPs. Certified Registered Safety Professionals. Approved Continued Education Units for Certified Water Waste Water Operators in Ontario, Manitoba, Saskatchewan, Prince Edward Island, Nova Scotia and Alberta. Visit <http://www.hsac.ca/continued-education-units/> for courses and associated CEU values.

Visit us at www.hsac.ca. This new site is full of resources and information on hydraulic safety.

Leaders In Hydraulic Safety

Ensign Energy Services Inc. owns and operates one of the largest fleets of drilling and service rigs in the oil and gas industry. This Canadian-based company has more than 450 rigs, and it employs 7,000 people who meet the challenging demands of the crude oil and natural gas industry on seven continents.

Hydraulics is used extensively on each of Ensign's 450 drilling and service rigs, from its earlier rigs to its most modern automated rigs. Ensign's Health, Safety, and Environment department recognizes that hydraulic hazards exist on all these rigs. As a result, Ensign is establishing a hydraulic safety program, and by early spring, they will offer hydraulic safety awareness training to all Ensign employees.

The Hydraulic Safety Authority of Canada has been working with Ensign for the past 3 months compiling data for their training modules. Once completed, this training will greatly reduce the risk from hydraulic hazards. The oil and gas industry will soon follow Ensign's lead by using comprehensive hydraulic safety training that is geared to workers in the energy sector.



Refresher Training Stickers

2014 will be the refresher year for those who completed Hydraulic Safety training in 2011. Certificate holders can enroll in any of the HSAC hydraulic safety courses available online and instructor led.

THE ~~FATAL~~ FACTS ABOUT HYDRAULICS

Determining Root Causes

We have read hundreds of incident reports in which some were minor to several incidents that resulted in multiple fatalities. There are some very good investigators out there however there are very few investigators who are experienced enough with hydraulic systems and component to drill deep into the root cause. Language is a critical key in relaying the information to the reader which could be anyone from the manufacturer of the equipment to the prosecuting attorney. Technical terms must be correct and expanded to the length necessary for the reader to understand. A well written report made up of many details an contributing factors will greatly assist in preventative actions.

“Is this the actual root cause?” many factors lead to an incident and the use of the fish bone diagram is an effective assist tool in assembling the facts. Generally speaking a hydraulic incident will most likely but not always have a combination of the following contributing factors; component failure, failure to control hazardous energy, worker disregard, and unsafe machine design.

Being responsible for the best outcome an investigator should always dig and dig but foremost the investigator should always utilize subject matter experts.



If a root cause investigation was only conducted by one person we would have concern about how comprehensive the report may be. Company policy on incident investigations should include a “process of involvement,” meaning a minimum number of investigators and the knowledge each individual brings to the team. The team approach ideally is the most effective way to dig into root cause which can lead to preventive measures.

Winter Hydraulic Hazards

It’s that season again where cold weather is your hydraulic system’s enemy. Keep in mind it is your enemy as well. Hydraulic systems are affected by cold temperatures; primarily hydraulic fluid does not like to flow in the cold which results in slower responding control of hydraulic operated components. Systems that are designed for the cold will be equipped with heater circuits, heat tracing and fluid which are designed to flow at lower temperatures.

There are a few related hazards to keep in mind; Thermal expansion, hydraulic fluid will expand in volume as it rises in temperature and will also reduce in volume as the temperature declines. Hydraulic operated equipment which is cold and brought into a warm shop for repair or maintenance will be subjected to a dramatic temperature change. An example would be a snow plow. The temperature swing could be as great as 40 degrees such as minus 20° C to plus 20° C. Hydraulic fluid that is confined in a hose or cylinder can expand and if there is no place for the fluid to expand to, the fluid will build pressure. For every one degree of heat added the fluid can rise 50 PSI. So consider that trapped fluid in a 40 degree fluctuation could build 2000 PSI of pressure where out in the cold it was zero PSI. Now consider trapped fluid at 2000 PSI out in the cold then brought into a warm shop, this fluid could build as high a 4000 PSI.

Where no energy hazard existed out in the cold an energy hazards has developed from thermal expansion. Consider this for those who are exposed to equipment being moved in and out of shops over the winter season.



ONLINE SAFETY COURSES

HSAC is very pleased to offer many more online safety training courses. Visit www.hsac.ca

- Aboriginal Awareness
- Alcohol and Drug Awareness
- Arc Flash Awareness
- Backing Safety Fundamentals
- Bear Awareness
- Bloodborne Pathogens
- Bloodborne Pathogen Exposure
- Boiler & Pressure Vessel Design Registration
- Boom Truck
- Chainsaw Safety – Ontario
- Compliance, Safety and Accountability for Non-Drivers
- D.R.I.V.E
- Electric Safety Training
- Fall Protection Awareness
- Fall Protection Professional Series
- Firefighting Safety
- First Aid Awareness
- First Aid Interactive Refresher
- Forklift Fundamentals
- Forklift Operator Safety
- Four-wheel Drive Fundamentals
- GHS Hazcom 2012
- Goal Setting
- Hazard Assessment
- Lithium Battery Safety
- Lithium Battery Transport
- Personal Protective Equipment: Safe at Work
- Propane Cylinder Handling and Exchange
- Safe Slings and Rigging
- Safety Moments
- Sexual Harassment for Supervisors
- Scaffolding Safety: Construction
- Stand Up Forklift
- Shipping Dangerous Goods by Air
- Shipping Dangerous Goods by Sea
- The Effects of Stress on Driving
- The Supervisor: OH&S and the Law
- Time Management
- Traffic Control Person for Construction
- Transportation of Dangerous Goods TDG
- Trip Inspection
- Utility Bucket Rescue
- WHMIS
- Winter Driving
- Winter Driving Fundamentals
- Workplace Harassment- The Real Deal

Your company can now have a custom-branded system and access to an entire safety course library, there are more than 140 courses now available through HSAC.

Newly Released Course

Hydraulic Safety in Construction

“geared to sector training is a perfect fit”

Hydraulic operated equipment is used in all areas of construction and many workers are unaware of the associated hazards. Related injuries include crushing, fractures, dislocations, lacerations or skin punctures, amputation, burns and fluid injection. Not only has injury and death occurred, hydraulics have caused environmental damage from spills and property/equipment loss from fire and failure.

This sector geared course complements the internationally recognized High Risk Maintenance and Exposure level hydraulic safety awareness courses produced by the Hydraulic Safety Authority of Canada. This course contains over 800 visually related slides including numerous videos, animations, procedures and reference documents.

Currently available in instructor led and e-learning

Poster Campaign A Success

HSAC is pleased to hear many organizations are making awareness of hydraulic hazards through the use of HSAC safety posters. To view the free safety posters please visit us at www.hsac.ca/safety-posters/

All safety posters are available for printing from the HSAC website. Please forward this link to colleagues, supervisors and field personnel for posting on bulletin boards and for use in safety meetings.



Upcoming issues

- Hydraulic safety in Amusement Parks
- Hydraulic Safety in Oil & Gas
- Key to surviving hydraulic failure

FAQ

We encourage our viewing audience to send us questions which can be shared to assist others.

Q; Our steel mill produces hot roll coils of flat stock and everything is operated by hydraulics throughout the mill. When we shut down a machine to do maintenance we isolate the hydraulics to the machine using the ball valves which is the method we use for lockout. Is this a safe method?

A; Isolation ball valves are commonly used where the hydraulic power unit is used to supply hydraulic power to many machines throughout the mill. Hydraulic supply, return and drain lines to each circuit can be isolate while allowing other machines to function. There are many issues which increases risk with this method of isolation.

Let's start with leakage, ball valves are designed having seat seals which can fail therefore the control of hazardous hydraulic energy would be lost. Next issue is lockable ball valves; the locking mechanism must not allow any swing of the valve handle. I've seen small padlocks locked into mechanisms where it was possible to swing the handle enough to allow the valve to flow. Next issue, some bleed circuits for energy control in the isolated circuit may be affected if the circuit is not allowed to vent energy back to the reservoir if the drain or return line is blocked. Redundancy of isolation ball valves will reduce risk if this method of energy control is used.

Also it is very important that you verify zero hydraulic energy (flow creating pressure) beyond the isolation points. This means constant verification or a scheduled verification based on lapsed time over the period of the lockout. Be sure that the lockout procedure explains the importance of verification when using ball valves as a method of energy control.



What Am I Looking At?



Thread sealant can become a contaminant if not applied correctly and cleared when disconnecting and reconnecting.