



OVERALL EVENT PROGRESS

40.3%



Goal Zero Shifts

49

Money Raised for Charity

\$24,500

NO HARM (Site)

| | | |
|-----|-----------|---|
| FAC | 21-Apr-23 | Worker strained leg when stepping onto a rig mat |
| FAC | 25-Apr-23 | Worker struck in face by retractable lanyard when it released from getting caught |
| FAC | 26-Apr-23 | Worker using cold cutter felt pain in shoulder |
| FAC | 27-Apr-23 | Worker over-extended leg stepping over scaffold rail |

Weekly Safety Topic - May is Motorcycle Safety Awareness Month.

As the weather gets warmer, the number of those driving motorcycles will increase, and with that, all drivers on the road must be more aware of their surroundings to prevent accidents.

MOTORCYCLE RIDERS

ALWAYS WEAR SAFETY GEAR.

It is crucial to wear a helmet to prevent head injuries if an accident occurs.

BE VISIBLE.

Use your headlight day and night so you are easier to see.

GIVE YOURSELF SPACE.

Drive defensively by giving yourself time and distance to account for other motorists' driving

STAY IN YOUR LANE.

Make sure to remain in your lane. Do not weave ... and out of lanes.

WATCH THE WEATHER.

When riding, make sure you have a plan of action if bad weather occurs.



OTHER MOTORISTS

ALWAYS CHECK TWICE.

Before changing lanes, check to make sure you didn't miss a motorcyclist who could have been in your blind spot.

USE CAUTION.

When passing or changing lanes, make sure there is enough room to do so.

PAY ATTENTION.

Pay attention while driving at night for motorcycles; they are smaller, so they may not be as easy to see as a car.

KEEP A SAFE DISTANCE.

When driving behind motorcycles—or any other vehicle—ensure you have enough space to stop safely if an accident or problem occurs.

DRIVE DEFENSIVELY.

Always drive defensively to avoid accidents and account for other drivers' actions.

| TURNAROUND STATS | LAST 24 HRS | OVERALL |
|----------------------------|-------------|---------|
| No Treatment Case | 4 | 11 |
| Occupational Illness | 0 | 1 |
| First Aid | 2 | 6 |
| Medical Aid | 0 | 0 |
| Recordable | 0 | 0 |
| Life-Saving Rule Violation | 0 | 4 |
| Near Miss | 0 | 1 |
| Motor Vehicle Incident | 0 | 4 |
| Dropped Object | 0 | 0 |
| Hi Potential Incident | 0 | 0 |
| SIF | 0 | 0 |
| Env (Other/Spill) | 0 | 3 |
| LOPC (<100kg) | 0 | 0 |
| LOPC (>100kg) | 0 | 0 |
| Environmental Non-Comp. | 0 | 0 |



SCOTFORD GOAL ZERO WEEKLY AND TURNAROUND TIMES MONDAY, APRIL 17, 2023



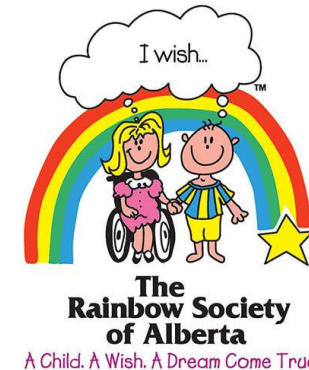
The UPGS 2023 TA has a Leadership Team that are making a difference! You can see a level of Comradery, Trust, and Fun that have affected how every other level in the TA are interacting. You go into the units, and you see diverse groups - multiple trades, ops, leads - and they are working together, having fun, and caring about each other. **Sounds like a formula for Success!!**

The UPGS 2023 TA night shift Leadership Team heard concerns regarding housekeeping and stop the drop issues and stepped up to help positively change the direction of the ship. Their messaging to their teams and constant support of safety in a testament to the strength of their leadership. **Thank you for your consistent and unwavering dedication to Goal Zero!**



“I would like to nominate the **Night Shift Compass Cleaning crew at West Park South** for the great attitude and superb job they are doing to keep everything clean in the trailers. They are friendly and have a positive attitude throughout the night.”

Thanks for taking care of everyone and for your Awesome Attitudes!



A very big Thank You to the Rainbow Society Reps who came and inspired many of our TA Folks to work safely. Also, Thank You to the folks who presented on behalf of the Rainbow Society to the TA folks who couldn't be in the bubbles or who were on nights!

Go & Engage – HIGH PRESSURE (HP) STEAM LEAKAGE

HSSE INVESTIGATE AND LEARN

RISKS POSED BY SLUG FLOW IN STEAM LINES; CP-AW-202303

CHEMICALS AND PRODUCTS

FEBRUARY 2023

TARGET AUDIENCE

- Site Technology and Engineering Managers, Mechanical and Material & Corrosion Engineers, Material & Corrosion Engineers, Process Engineers/Technologists, Production Specialists and Supervisors

WHAT HAPPENED

High pressure (HP - 100+Barg) steam is distributed from steam producers to steam users via number of headers and branched connections. A steam leakage was noticed on 24 March 2022 in an Olefins Cracker unit in one of the headers, leading to an unplanned shutdown of the unit.

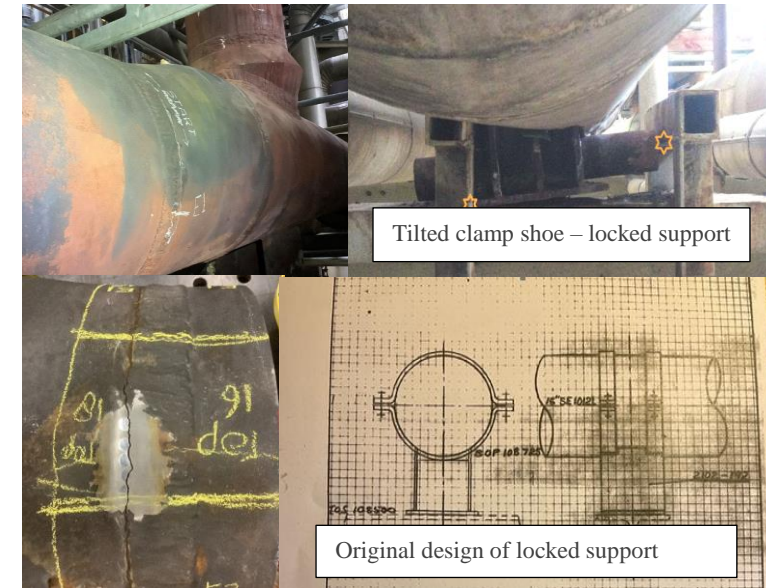
WHY IT HAPPENED

The steam leak in the high-pressure steam system was from a crack at a reducer. The crack was in the weld's heat affected zone and was initiated at the outer surface of the 16" weld of the 16"x 18" reducer. This crack was caused by locking of the first support upstream of the reducer in combination with thermal growth of the header. This support was intended to be sliding but locking of this support has prevented the pipe part with reducer to freely expand, thereby developing too high thermal expansion stresses in the reducer.

The support was locked because (a) the support was modified from the original design and (b) the entire steam header had moved. The original design of the support was pipe shoe resting on frame. However, it was modified and two side frames were added that hold down two trunnions welded to the pipe shoe. No evidence could be found when and why this modification was carried out, but this modification certainly played a role in locking of the support. Second cause is movement of steam header which could be causally linked to slug flow/hammering conditions during start and stop cycles.

Slug flow can introduce significant, uncontrolled forces on piping systems causing physical movement and relocation of lines. This support was located at height, with no visibility from ground level.

Metallographic examination of the failed component showed local plastic deformation of grains and ductile tearing, thereby confirming mechanical overloading. Microstructure confirmed no creep or caustic cracking related degradation. Indications of fatigue (either thermal or mechanical) could not be observed.



Go & Engage – HIGH PRESSURE (HP) STEAM LEAKAGE

HSSE INVESTIGATE AND LEARN

INSIGHTS

1. MOC process should be followed while making pipe support modifications and risk of locking of supports should be considered in case of lines where condensate induced water hammer (CIWH) or slug flow is possible.
2. Piping is visually inspected on a regular interval; however, there is limited visibility on supports due to lack of access at height (no walkways in pipe bridges).
3. Piping is designed to handle start-up and shutdown cycles along with normal operating conditions (confirmed also by modelling). Piping is, ordinarily, not designed to handle CIWH or slug flow type of conditions and these need to be prevented by adequate draining of steam lines and a slow/controlled start-up process.
4. A steam trap is, typically, not an effective barrier to prevent CIWH. The key control is an effective operational procedure.

REFLECTIVE LEARNING POINTS - ENGAGEMENT QUESTIONS

1. Do you have piping operating in high temperature with potential slug flow conditions?
2. Are there any piping supports in such systems that could be prone to locking?
3. Is the inspection of piping support effective, especially if this is done from a distance or when supports are not fully visible?
4. How is slug flow or condensate induced water hammer (CIWH) prevented during start-up? Are there sufficient drain locations and steam traps in your steam system(s)?
5. Is there a potential to create dead legs during start-up of steam system(s)?

KEY TAKEAWAYS

- The MOC work process should be followed when making changes to pipe support arrangements and the risk of locking of supports should be considered in case of lines where condensate induced water hammer (CIWH) or slug flow is possible.

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