Safety Lessons Learned

URS

Attachment 049-6 NA
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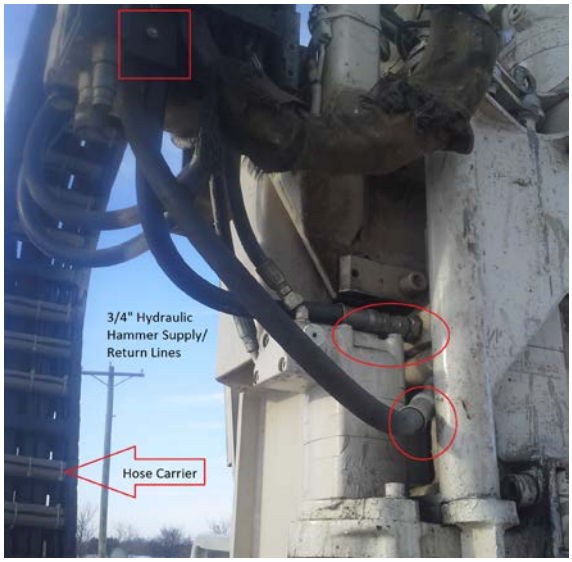
Potential Hydraulic Line Break

HSE Observation Summary

While conducting soil sampling activities using a Geoprobe 7730DT with hammering function, a URS drilling subcontractor became aware of two hydraulic lines that were being worn. The two ¾" hydraulic lines were the main hammer supply and return hoses, which operate at a hydraulic pressure of 2,450 psi, and a flow rate of 40 gpm. Up to 35 gallons of hydraulic fluid are held in the reservoir tank on the rig.

Prior to identifying the worn hoses, excessive vibrations were experienced, likely due to drilling through fine sand and gravel deposits on the project site. While drilling, the subcontractor noticed the worn hose, which was tucked behind the metal hose carrier clamp.

Close-up of the metal clamp that holds the two hydraulic lines that were observed to be worn.



Geoprobe 7730DT rig showing the hose carrier and location of the two ¾" hammer supply and return lines.

Photos taken by URS

The drilling subcontractor immediately stopped work and notified the URS Site Safety Officer (SSO) of the situation.

The Task Safety Environmental Analysis (TSEA) prepared prior to commencing field work listed the possibility for a potential hydraulic leak, and as a preventive measure, a spill kit was located in the nearby vehicle. However, as the subcontractor remained vigilant of the rig during drilling activities and timely identified the worn hose, no fluids were leaked. The Geoprobe was taken off-site for repairs.

What Went Wrong?

- Vibrations from the hammering caused the metal clamp to wear through the hydraulic hose almost to the point of a hydraulic fluid release.
- The worn hoses were not identified in the daily inspection prior to use.

What Went Right?

- The potential for hydraulic fluid leak was identified on the TSEA and the crew awareness prevented a potential leak.
- The drillers became aware of the worn hose during operation and immediately stopped work.
- The Geoprobe rig was safely demobilized and taken off-site for repair.
- The URS SSO notified internal URS personnel and the client in a timely manner.

Lessons Learned

- Daily equipment inspections must include all areas of hydraulic hose; even underneath the hose carrier clamp.
- Continuous monitoring of equipment during use can identify faulty equipment and trigger a stop work during the task.
- Performing drilling in extremely cold conditions can cause additional wear and tear on equipment.