History

One of Ledcor Pipeline Limited’s recent initiatives and commitments in safety for cross country pipeline construction involves the implementation of a stability control system, or ROPS “Roll Over Protection System” system on all Pipelayers.

Following two significant “near misses” and as a result of a detailed and thorough investigation, Ledcor made a company wide judgment to dispose of or convert all pipe laying equipment that lacked the ROPS “Roll Over Protection System” system.

Fortunately, with regards to Ledcor’s near misses, no major injuries were sustained. However, during the course of the investigation, Ledcor did determine that there have been a number of recent fatalities directly associated with the lack of ROPS on pipe layers.

As a result of this accrued knowledge, Ledcor embarked on an initiative of promoting industry wide mandatory ROPS conversion on all existing and older pipelayer equipment.

Tom Lassu, President of Ledcor Pipeline Limited, continues to aggressively canvass other industry leaders and clients to follow suite and end the use of this unsafe equipment thereby creating a new industry practice.

Although equipment manufactures today are complying with current legislation that demanded the implementation of ROPS, a large number of “old technology” pipe layers still exist today. For a number of these Pipelayers, ROPS did not exist from the original equipment manufacturer. Ledcor chose to have them designed, engineered, certified and manufactured to meet the need.

Mechanics

The implementation of the ROPS system on a Pipe layer involved:

- Ledcor implemented three phases of implementation including design, engineering and testing;
- In closing stages the manufactured ROPS were put through load testing (See photos 1 & 2) to ensure specifications met the design criteria and were then installed.

Statistics

ROPS system used on the following pieces of equipment: (nearly 100 units)

- 561 C
- 572 E, F & G
- D7 G Conversion / Pipelayer
- 583 K
- D9K Conversion / Pipelayer
- 594 G & H
- D9H conversion / Pipelayer

Projects

ROPS system currently in use on the following major Project

- TransCanada Pipeline, Keystone Project, 100 Km of 30° in the Province of Manitoba and 271 Km of 30° in the Province of Alberta.
Appendix ‘A’

A) Ledcor Pipeline Limited understands the value that it has brought to the industry with its strong moral and significant financial commitment; to equip its entire fleet of Pipelayers with Roll Over Protection Structures (ROPS). ROPS are not currently a legislative requirement on older equipment in any jurisdiction in which Ledcor performs services nor similarly have ROPS been a requirement of any clients.

Many high potential or life altering and fatal accidents (see [http://employment.alberta.ca/documents/WHS/WHS-PUB_FR-2006-12-01.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_FR-2006-12-01.pdf)) have occurred when Pipelayers have overturned. The accidents may have been caused by inappropriate speed or application, terrain, inattention, lack of proper load handling or while loading or unloading the pipelayer on a trailer deck for transportation purposes.

A Roll Over Protection Structure is a reinforcement member(s) installed in to, or on to heavy equipment such as a Pipelayer or Sideboom with the intention of protecting the operator in the event of a roll over accident.

The use of rollover protective structures (ROPS) has saved many lives. The seat belted equipment operator is provided with an adequate amount of survival space to reduce the risk of head, neck/spinal, and upper torso injuries, ultimately preventing death. ROPS can generally limit a side overturn to ninety degrees (90°) and will provide an important safety/survival zone for the operator.

B) Ledcor was founded as a family owned company in 1947 and remains as such today. We have many examples of people and other members of their family, who have dedicated their working careers at Ledcor. If a company receives such dedication, surely it is not a great leap for the company in turn to recognize and understand that these people, all people in fact, are our most valuable asset.

It is upon this premise and with significant financial cost associated, that Ledcor senior management made the commitment to equip our entire pipelayer fleet of nearly 100 pipelayers, with roll over protection structures.

Ledcor management continues, through the circulation of our Position Paper and Pipeline Industry based as well as Pipeline Owner lobby efforts, to raise awareness of the importance of ROPS and to drive toward an end that will see not only industry wide implementation of ROPS but a consistent legislative requirement across all jurisdictional borders.

C) Ledcor believes that Industry wide implementation of Roll Over Protective Structures constitutes a step forward for Health and Safety in the Industry. There are numerous examples of ROPS currently being implemented both voluntarily and via legislative means outside of our industry. Ledcor believes that the Pipeline Industry should be cognizant of the need to embrace and implement ROPS as a required basic and minimum addtion on all Pipelayer equipment to further safeguard our people who work in our business. It is not only the safe thing to do; it is the right thing to do.

Examples outside of the Pipeline Industry:

In the United States, the National Institute for Occupational Safety and Health (NIOSH) believes that ROPS use on tractors can eliminate nearly all fatalities caused by tractor and lawn mower overturns. Provinces in Canada have also come to similar conclusions.

The potential benefits of applying ROPS to All Terrain Vehicles (ATV's) has also been studied based on a sample of 113 real ATV accidents which occurred in the United Kingdom and the United States.

http://www.worksafebkg.ca/files/sask_labor/rops.pdf

Recognizing a serious safety need and a void in legislative requirements, numerous private companies around the world have developed ROPS for specific applications, including for sports utility vehicles. An Australian based company sites that "34% of all fatalities involving four wheel drive vehicles in Australia are directly related to roll-overs" and further notes that "comprehensive statistical studies have confirmed that there is (a) direct correlation between roof crush and occupant injury." The company sites that there is currently no vehicle roof strength or ROPS legislation in Australia nor is there a recognized European standard.

The idea to protect the space around the occupant of a motor vehicle from incursion of the roof during a roll over occurrence is based on the same premise of providing Roll Over Protection for the operator of a Pipelayer or Sideboom.

Large corporations around the globe such as Ford, Mercedes Benz, BMW, Honda, Mitsubishi, Nissan, including military organizations embrace roll over protection structures as a strong tools to further protect human life and defend against unnecessary injury. Also recognizing the associated risk involved in operating heavy equipment Caterpillar, the leading supplier of Pipelayer equipment in North America, no longer offers this equipment for sale without roll over protection structures in place.

http://www.cat.com/equipment/pipelayers/large-pipelayers

D) Additional benefits include the that ROPS can also provide overhead protection from the risks associated with objects which may fall into the equipment operator’s seating area.

During the past winter season an accident occurred in Canada when a suspected equipment malfunction occurred involving the hydraulic bypass. The boom or ‘stick’ attachment was pulled over top of the equipment and operators seat. When the metal structure at the base of the boom (where it attaches to the tractor) broke due to stresses, the boom and the load blocks, landed on the equipment operator. If a roll over protection system been in place, it is likely that the boom and blocks would not have landed on the operator and he may have survived the accident.

Further additional benefits are also provided as ROPS allows operators to feel comfortable and safe to wear their seatbelts. Seatbelts or lap belts on equipment keep the operator seated during work activities and prevent them from being thrown when equipment movements are jarring. It is not uncommon to hear from pipelayer operators that they refuse to wear the manufacturer supplied seatbelts because they fear that if a pipelayer rolls over while they are operating, it is their perception that they want to be able to try to jump clear of the equipment so that they are not crushed. With a roll over protection structure in place the operators are comfortable in wearing their seatbelts and can therefore willingly participate in the additional safety that seatbelts are engineered to provide.

Photos 1 & 2 – Load Testing R.O.P.S.