Western Canadian Spill Services Ltd.

Field Improvement Record

Program Year: 2019

Name of Initiative:

Use of double pulley vs traditional split pulley for trolley line installation.

Budget (if applicable):

$252.36

Issue (Background):

Currently WCSS maintains an inventory of split pulleys for trolley line instruction and installation (Photo 1). The split pulley is cumbersome and heavy to work with, whereas the aluminum double pulleys used in climbing applications are light-weight simple to operate. This field test was used to determine the effectiveness of the double pulley in comparison to the older and heavier split pulley.

Equipment required/used:

1) Petzl P21 SPE Tandem Pulley (Photo 2)
2) Petzl P63S PAW Small Rigging Anchor Plate (Photo 3)
3) 4 x Petzl M34ATL AM'D TRIACT Carabiners (Photo 4)
4) All other rope and equipment used with traditional trolley line installation

Location and Site Conditions:

The double pulley system was tested during a trolley line installation on the James River near Sundre, Alberta. The installation was completed during a scheduled WCSS exercise, rather than during a dedicated field improvement day. The water current was fast at approximately 8 km/h.

Strategy and Implementation:

The pulley system and trolley line was used to set 200 feet of fast water boom. Ropes were secured to each shoreline and the double pulley system was used to set the appropriate boom angle. The boom was anchored back to a Pedco skimmer (Photo 9).

Progress and/or Results:

Use of the double pulley was qualitatively assessed against the traditional split pulley based on previous experience of the WCSS instructors. The double pulley system was very effective during both installation and adjustment (boom angle) of the system. The rigging is very simple to install and withstood the forces imposed by the current and attached boom.

Lesson Learned:

The double pulley system is very lightweight yet able to withstand the forces encountered in a trolley system. The system is easy to use and extremely light in comparison to the current split-pulley in WCSS's inventory.

Potential application:

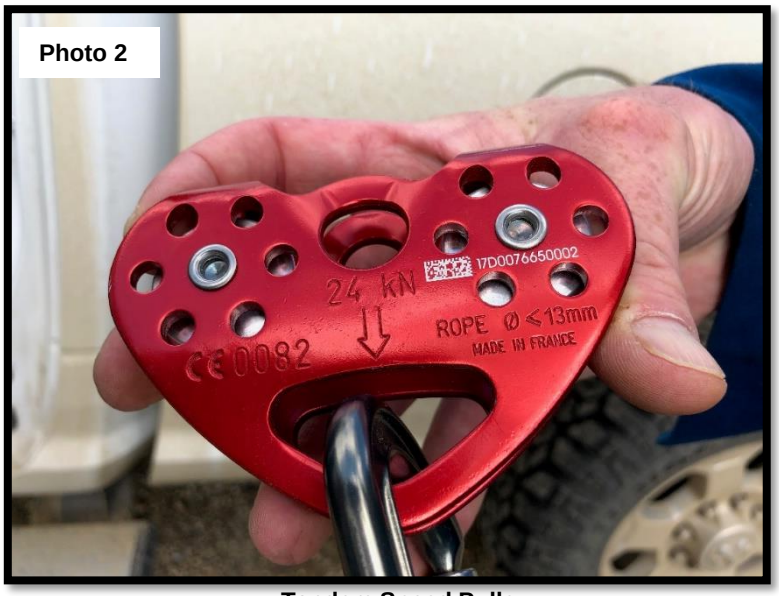
The double pulley system could be used in place of the current split pulley in order to replace the older and heavier design with a newer, lighter set-up.

Next steps:

WCSS will replace the split-pulleys with new double pulley trolley line kits in all Initial Spill Response Units and OSCARs.

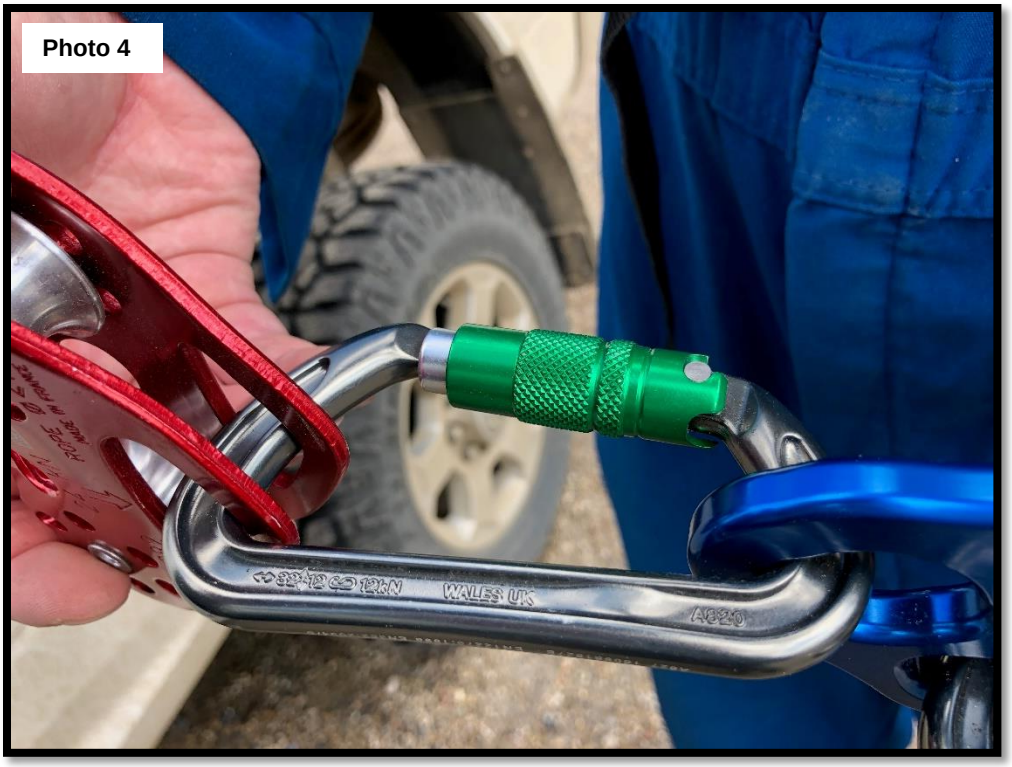
Photo Log or Video Link (if applicable)

Split Pulley

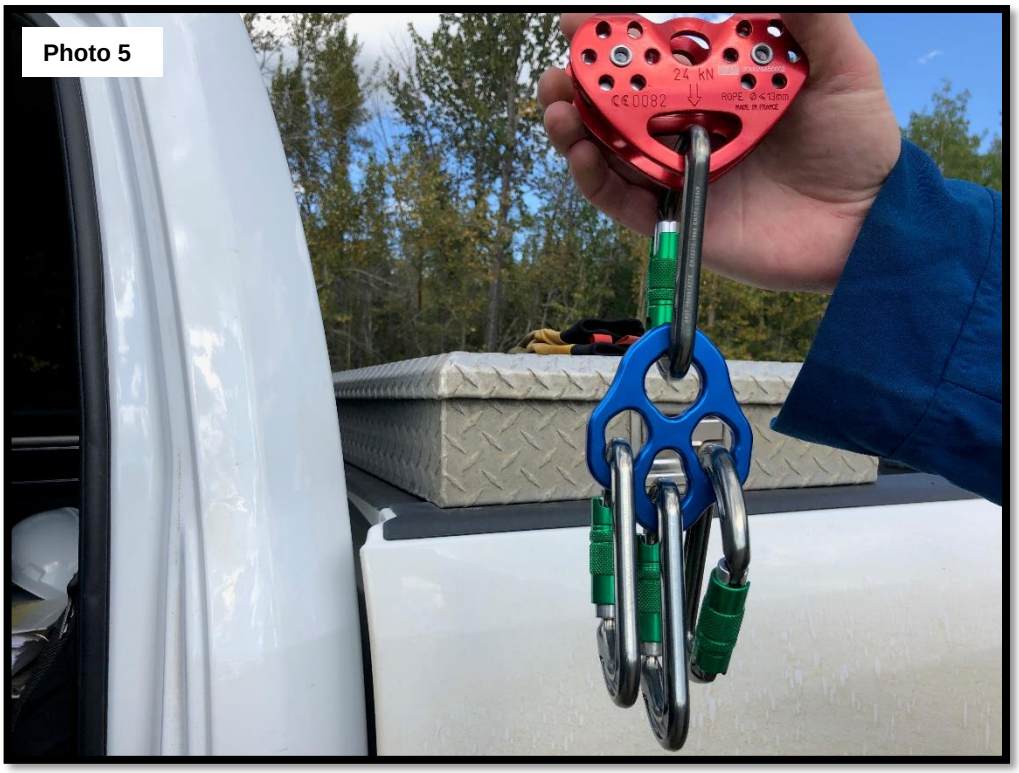


Tandem Speed Pulley

Rigging Plate



Carabiner



Complete Pulley System

Photo 6
Trolley Line

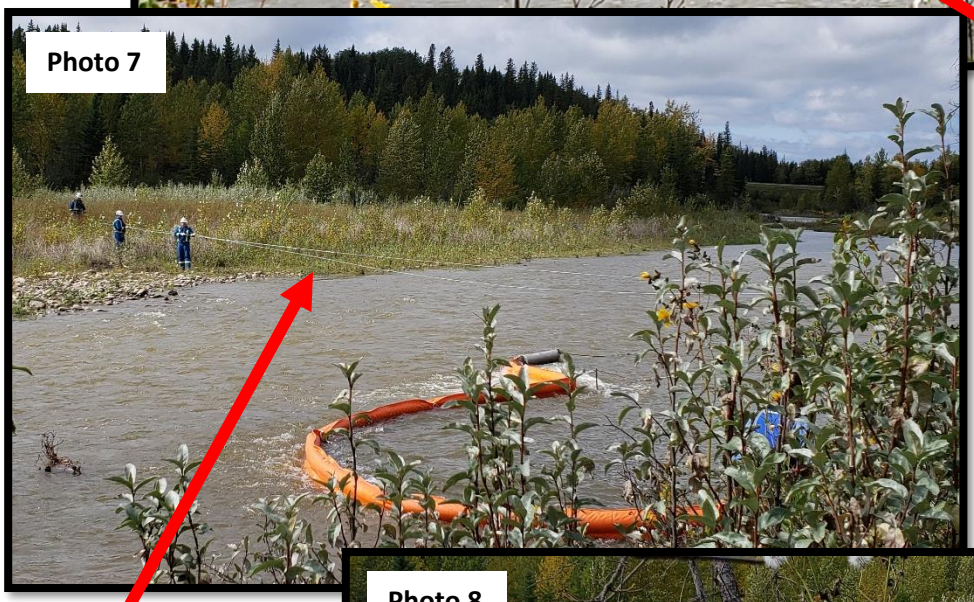


Photo 7
Trolley Line

Photo 8

Tandem Speed Pulley Trolley Line on James River