

# Camera systems prove themselves in collision management at Kidd Creek, and improve productivity

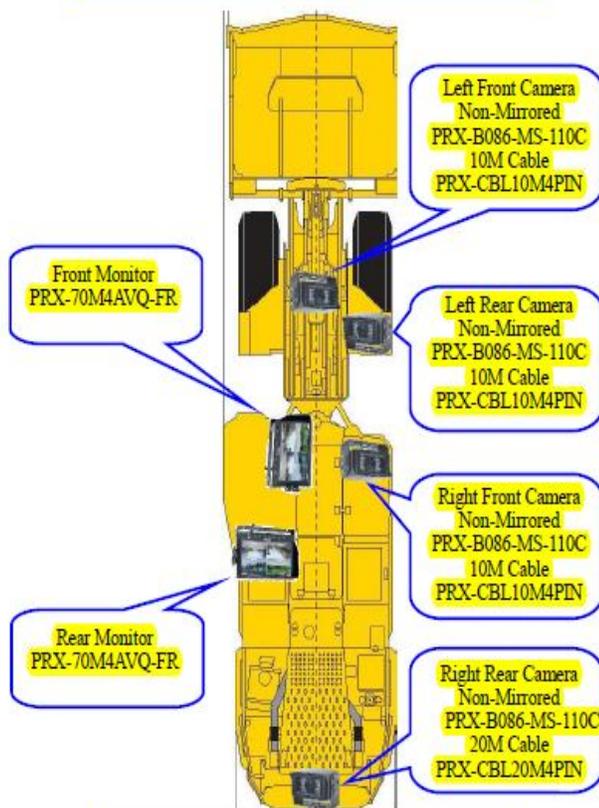
Last month's underground communications article also covered proximity awareness and various systems to avoid underground vehicles colliding with each other or with people working underground. An interesting system has recently been developed for Xstrata Copper's Kidd Creek mine.

The installation involved designing, testing and deploying a robust video camera system that does not require or allow any operator input. The developers integrated the camera system into the electrical control system to ensure that all mobile equipment operational and maintenance standards were met. The mine worked with PROVIX to design the camera system and once the prototype was ready to deploy, Laurentian University analysed the effectiveness of the camera system through established LOS testing methods. Working with Sandvik, an interface panel was developed to standardise connection to any type of equipment.

Winsted Group Inc., 6436 Hwy 89 RR2, Alliston, ON 1-866-542-1343

## PRX-SYS-2M4C

Dual View Split-Screen Kit, Dual 7" monitors, 4 IR cameras, requires PRX-ENC-2M4C panel



Note: Front and rear cameras are interchangeable

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The cameras are positioned on the machines, LHDs in particular, to minimise damage and maximise the field of view. Blind side cameras are positioned to maximise coverage over direction of travel. The front camera is positioned on a light bar or the cab roof to achieve maximum forward visibility. The rear camera provides a full field of view behind the equipment.

How the LOS has been improved - greatly:

- LOS to ground level has been greatly improved based on two-dimensional visual plots presented in the Laurentian report and operator observation. Specifically, blind areas to the opposite-side of the machine from the operator's position have been eliminated
- LOS to ground level has been improved from values of 40 m to <4 m around the perimeter of the machine when the LHD bucket is down
- LOS to a standing operator in front of the machine when operating with a full bucket has been reduced from more than 60 m to <20 m
- LOS to a standing operator height is excellent for the entire 1 m testing boundary around the machine.

PROVIX says the "camera systems are not intended to encourage operators to drive more quickly." However, they do provide operators with more situational awareness and enhanced vision through expanded sight lines, and "operators who have expanded vision and heightened situational awareness, do not have to reduce speed as often. Decreased travel and trip times are the result."

So, overall, increased productivity with safer equipment operation around personnel is the excellent result.

There are additional benefits for remote LHD operation in that the camera system is enabled for wireless video transmission to a safe operator station. Remote operation requires additional camera(s) deployed on the operator cab side. An integrated camera system that is suitable for both remote and manned operation reduces lost time when changing between the two operating modes. Obviously, the cost associated with single system deployment is reduced.

Kidd Creek has completed a 12 month pilot project to analyse the effectiveness of the PROVIX camera system. The mine deployed the PROVIX camera system on LHDs, a breaker and a haul truck as part of the pilot project. Kidd Creek is now in the process of equipping all loaders, haul trucks and breakers with the camera system.

Elsewhere in Canada, Goldcorp Hoyle Pond, Red Lake and Campbell mines are in the process of installing PROVIX camera systems on Cat 1600G LHDs.

[www.PROVIX.NET](http://www.PROVIX.NET)