



Mining Industry Occupational Safety & Health



TRANSPORT & MACHINERY LEADING PRACTICE ADOPTION

**AMRE Safety Seminar
19 July 2011**



Transport & Machinery Leading Practice Description



Title: Function selection and adoption guidance tool for implementing Proximity detection systems for underground hard-rock and coal mines.

The tool will consist of the following:

- A detailed description of the minimum set of PDS functions
- Guidance notes including behavioural communication and leadership behaviour plans that need to be customized for implementation at mines to facilitate/enable sustainable implementation of the PDS at the mine
- The training that needs to be provided to operators, engineering support and supervisory staff at mines will be outlined

Recent Activities



- **T&M Interviews**

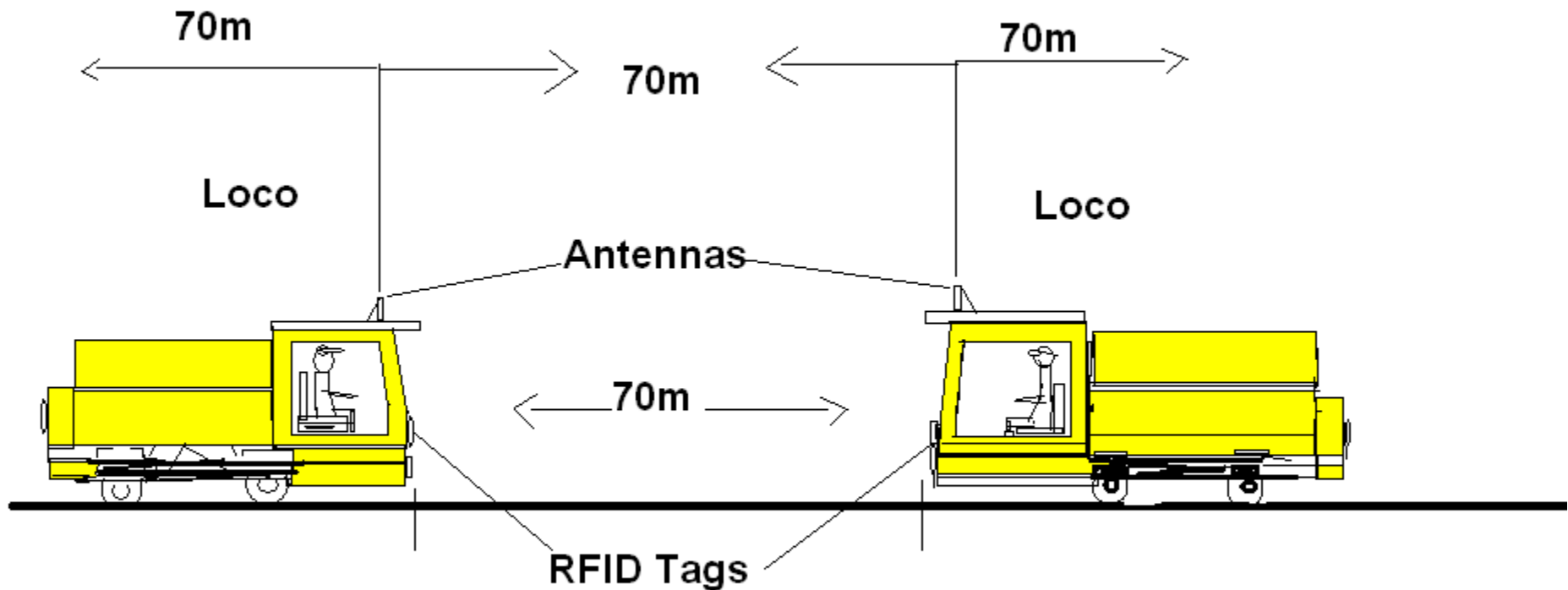
- Purpose of the interviews: to gain an understanding of the mental models of stakeholders with respect to adoption of the proximity detection system leading practice
- Interviews (x 67/81) were conducted with key adopters and decision makers of the PDS leading practice in the mining industry
- Stakeholders ranged from Operators to General Managers in hard rock rail-bound, hard rock trackless & coal trackless operations
- Behavioural communication and leadership behaviour plans currently being developed for use at the demonstration mine and potential adoption mines

Recent Activities



- **Updating of PDS Functions Matrix**
 - Meeting held with key hard-rock (T&M team) members to refine and update the PDS functions of the locomotives (Diesel locos added to the classifications)
- **Source mine investigations and report**
 - Investigations completed at Doornkop (hard rock rail-bound PDS), Mponeng (hard rock trackless PDS) and Twistdraai (coal trackless PDS) mine
 - Operational & technical aspects of the practice were investigated
 - Leadership behaviour and behavioural communication plans utilized to enable successful adoption of the PDS practice at the source mine were documented

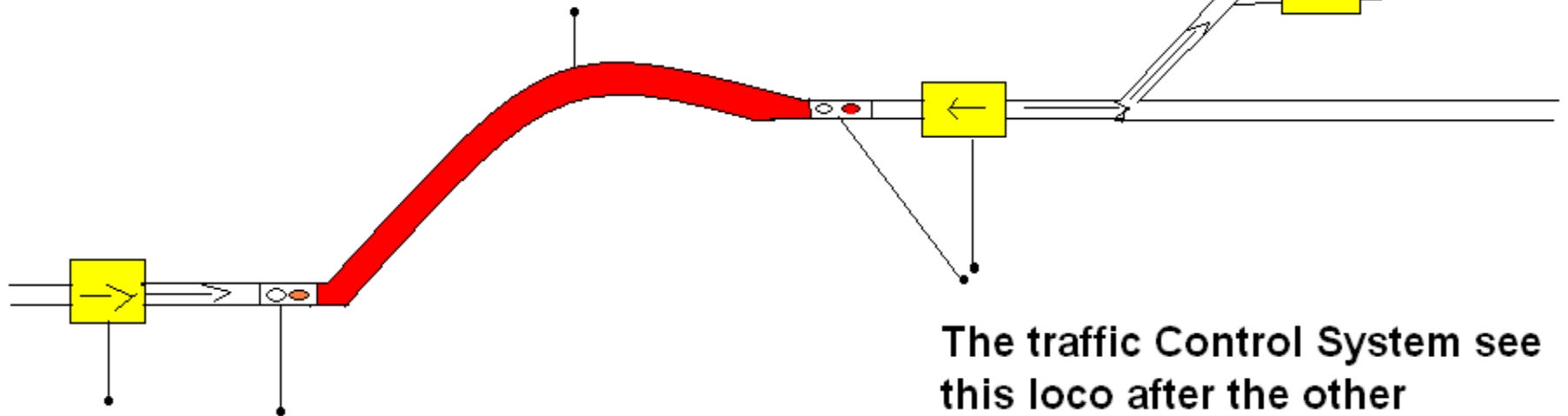
CSI: Loco Detection System Approaching Locos



- The Reader units in the locos will activate: All Transactions gets Recorded**
- Locomotives will go into creep speed.
 - Audio Alarm and Visual LED Light in the cab will warn the driver

A bend is always a danger zone
the loco will go into creep speed
into a bend and stay in creep
until out of the bend

Loco get out of the
way of the first loco



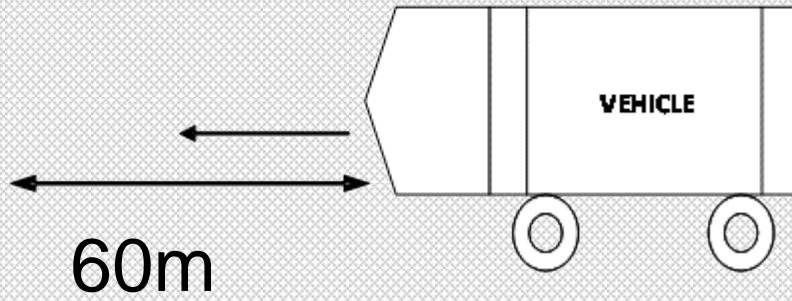
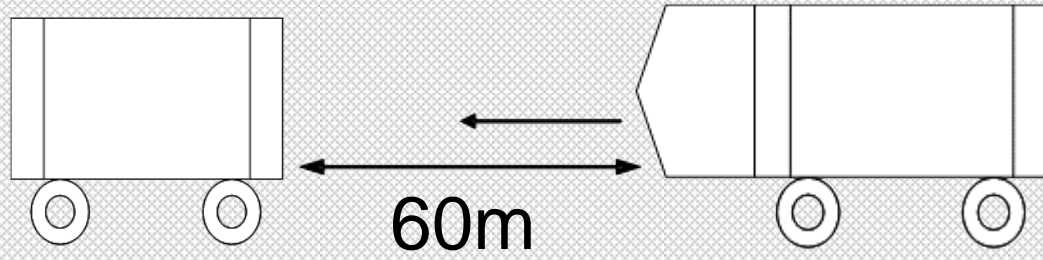
The Traffic Control System
see this loco First so he
will get a amber signal to
continue

The traffic Control System see
this loco after the other
approaching loco he will get a
red signal and have to move
out of the way of the first loco
after the first loco has passed
he will receive a amber signal
to continue

Current Status

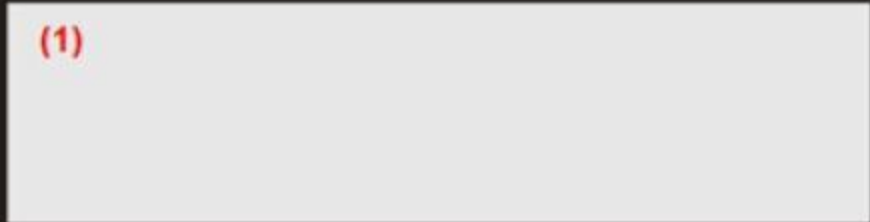


- **Proximity Detection System (PDS) Investigation at Angloplats Tumela mine**
 - Tumela mine has been labeled as a source mine for the Locomotive PDS subsequent to the visit to the mine on 13 June to view the operation of the system
 - PDS functions as follows:
 - Warning given to loco operator in the event locos are approaching each another (60m)
 - Operator needs to acknowledge the alarm and retard the loco
 - Failure to act accordingly will result in the loco tripping
 - The time period given to the loco operator to react is a function of the speed of the loco; the faster the loco, the quicker the retard/trip is required





Driver Information System Locomotive Unit



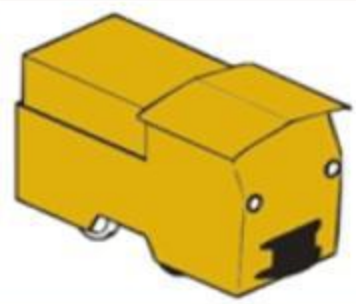
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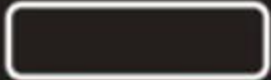
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Way Forward



- **Source mine report and demonstration mine activities**
 - The source mine report to be finalized before end July and will then be utilized as an input to the demonstration mine activities
 - The demo mine has been selected to be Khutala colliery
 - Demo mine project to commence early August 2011
 - The first adoption mine for the hard rock rail-bound and hard rock trackless PDS will be given special attention by the T&M team as if it is a demo mine
- **Potential PDS adoption mines**
 - Names of potential adoption mines are required from industry – please liaise with the relevant T&M team member to provide the names of mines (hard rock)
 - Names of adoption mines to be finalized by end of July



QUESTIONS & COMMENTS