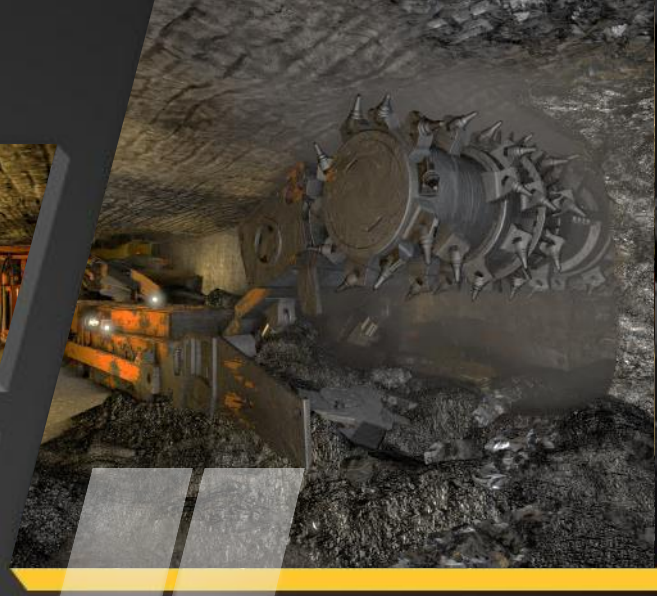
IMMERSIVE TECHNOLOGIES



INNOVATIONS IN ROOM AND PILLAR SAFETY

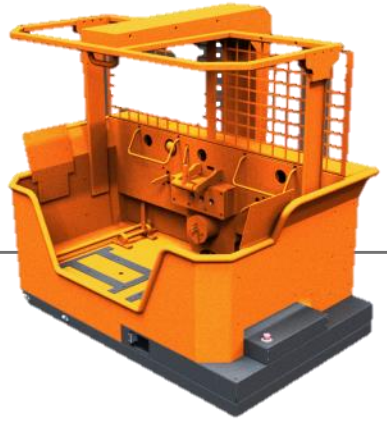
Greg Karadjian

Senior Product Manager – Underground Soft Rock

Simulation Overview

Platforms

Conversion Kits™

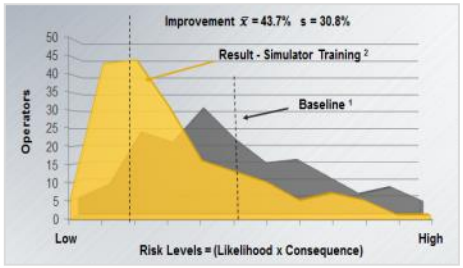


Simulation in Education

Simulation in Business

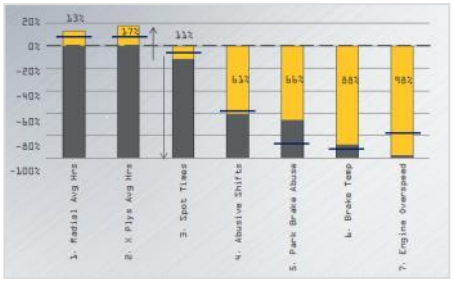
3 KEY DELIVERABLES

1
Manage Workforce Risk



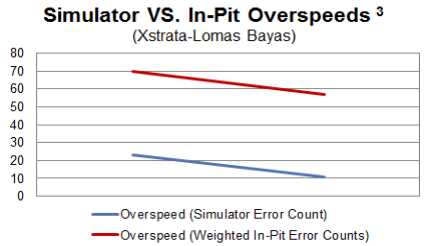
Quantify, Assess, Remove

2
Minimize Operational Cost



- Reduce Operator Cost Impact
- Efficiently Shorten Time For Operator Readiness

3
Production Productivity



Drive Continuous Improvement

Sustainable Production

Cause of Problem:

- Continuous Miner and Roadheader operators must achieve the maximum possible production distance to ensure production levels, or to prepare for the next longwall move.
- However, Continuous Miner and Roadheader operators are prone to deviating from plan, or leaving poor top and bottom for the next shift, in order to achieve production.
- Both production, and horizon control must be enforced to ensure sustainable production from the mine.

Affects:

- Productivity

Problem Impact:

- Seeking higher production, operators can leave a mess for the next shift, decreasing overall production.
- If production is significantly behind, revenue is down. If it delays a longwall move, production is significantly impacted.

Productivity Assessment

Cable Damage

Cause of Problem:

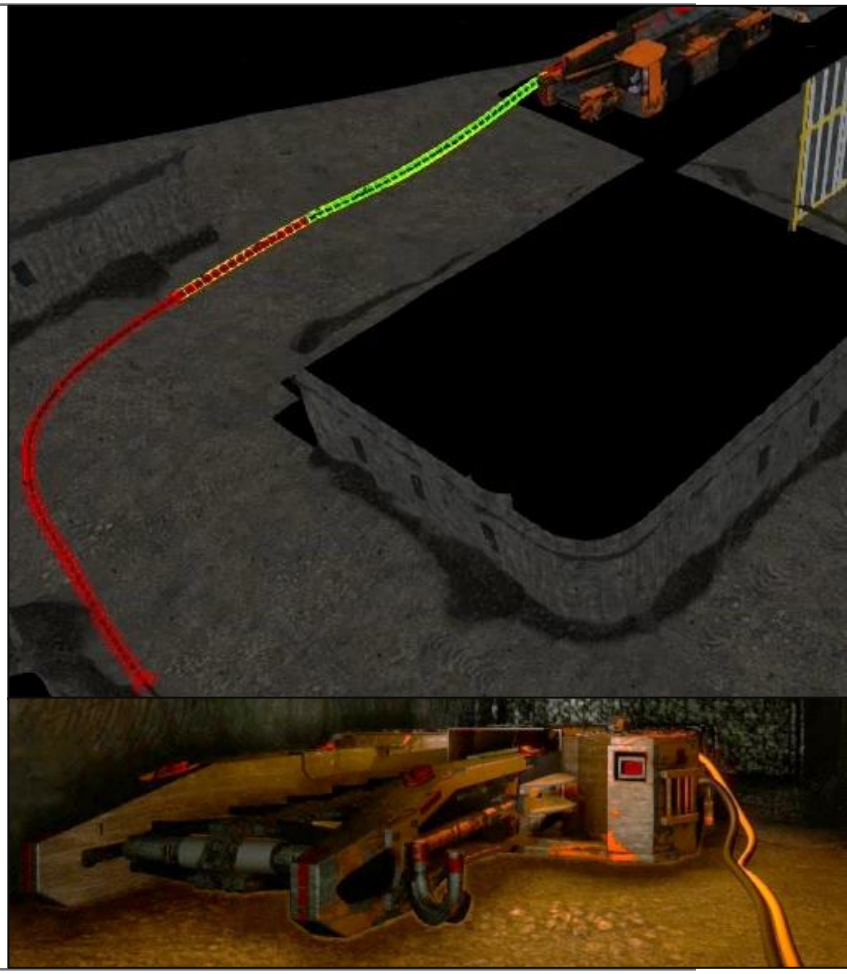
- Cable damage is a common, and entirely preventable cause of production losses.

Affects:

- Productivity

Problem Impact:

- The average price of Illinois Basin Coal for Aug-2014 was $44.00 per short ton.
- The average cable damage shuts down a section for 1 hour.
- Each minute of lost production is approximately 4.4 tons.
- On average, each damaged cable is costing the industry 4.4 tons x 60 minutes x $44.00 = $11,616.



Cable Management

Emergency Response

Cause of Problem:

- Emergency situations by their nature occur rarely, limiting opportunities to practice response.
- A theoretical knowledge of emergency response is not sufficient when making life or death decisions.

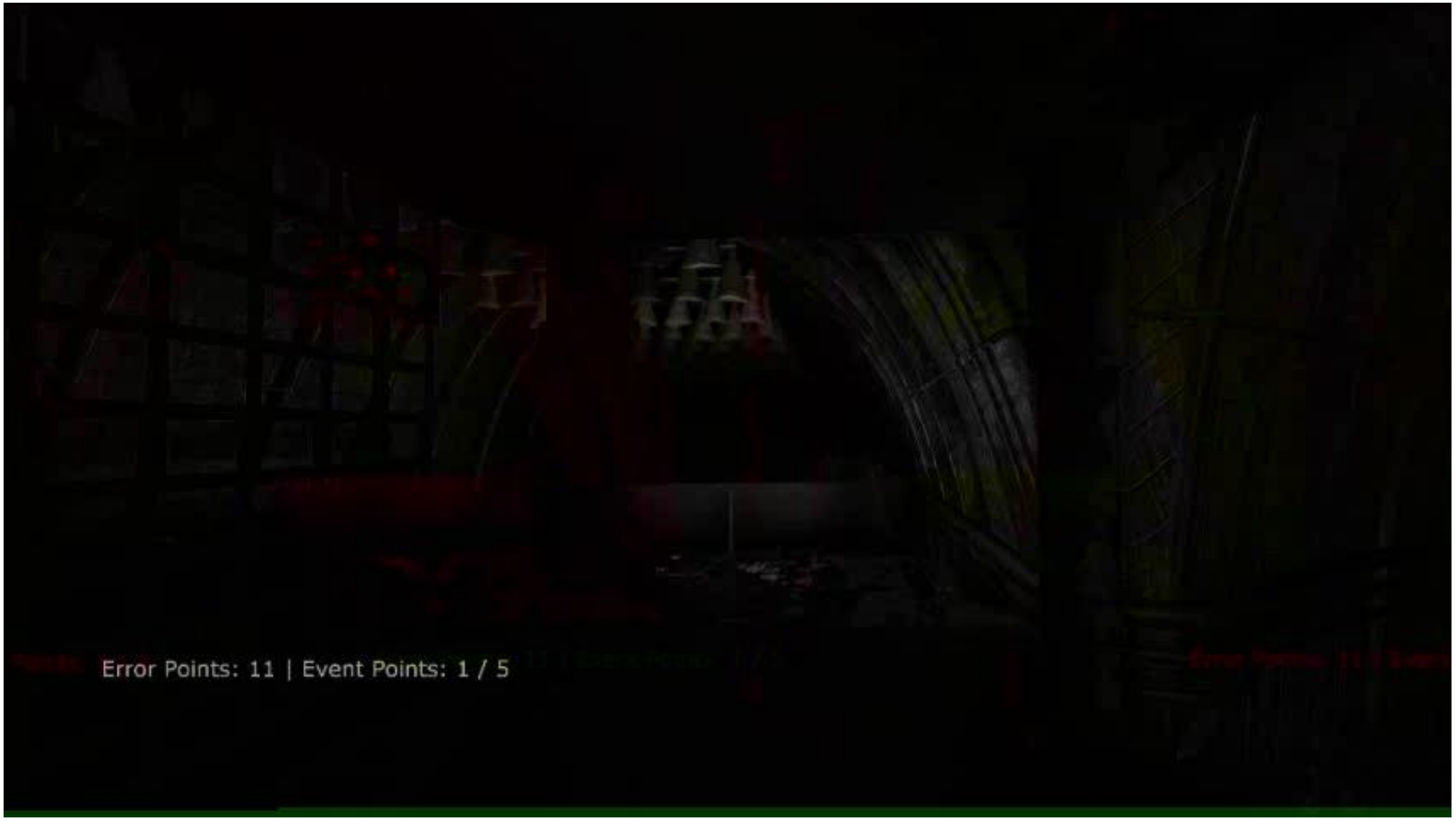
Affects:

- Safety

Problem Impact:

- When emergencies occur, an issue can quickly escalate from an issue, to a disaster.

Emergencies



Continuous Miner Proximity

Cause of Problem:

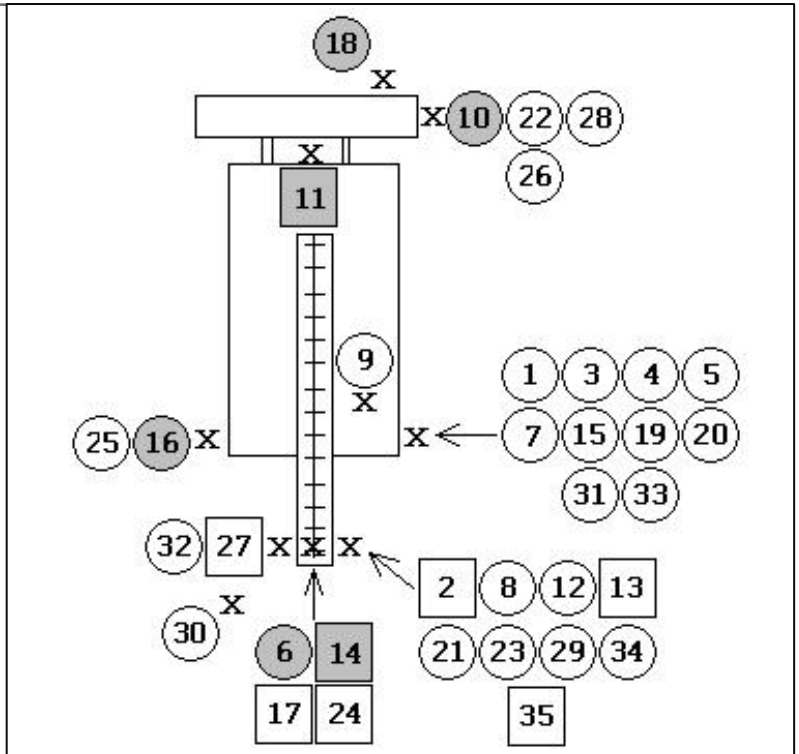
- Continuous Miner operators can position themselves in risky locations, between the Continuous Miner and the rib, to achieve better visibility and production.
- Proximity detection systems are being rolled out, but there is little training on how to operate a continuous miner when a proximity system is in place.
- There is no understanding of the side effects of proximity detection (e.g. overrides and lost production).

Affects:

- Safety, Productivity

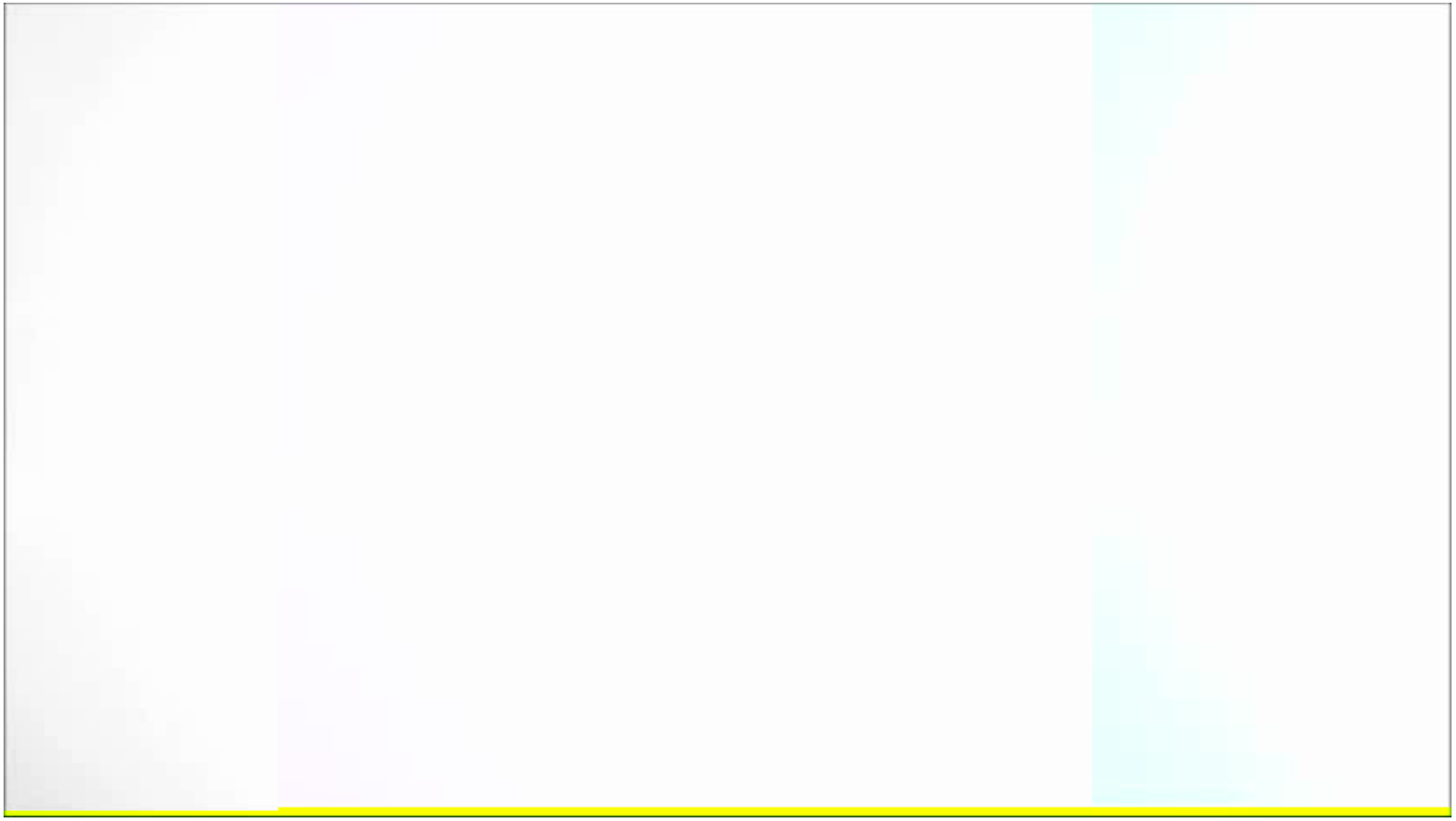
Problem Impact:

- Seeking higher production, operators may inadvertently stray into high risk areas, risking a fatality.
- Continuous Miner operators may significantly decrease productivity due to accidentally shutting down the machine, when proximity detection is installed. Alternatively, they may find loopholes, and operate less safely (e.g. leave cutting head running).



Key	Description
X	General Location of Fatality
■	Occurred during maintenance.
□	Victim not operating machine.
○	Victim operating machine.

IM360B– Continuous Miner



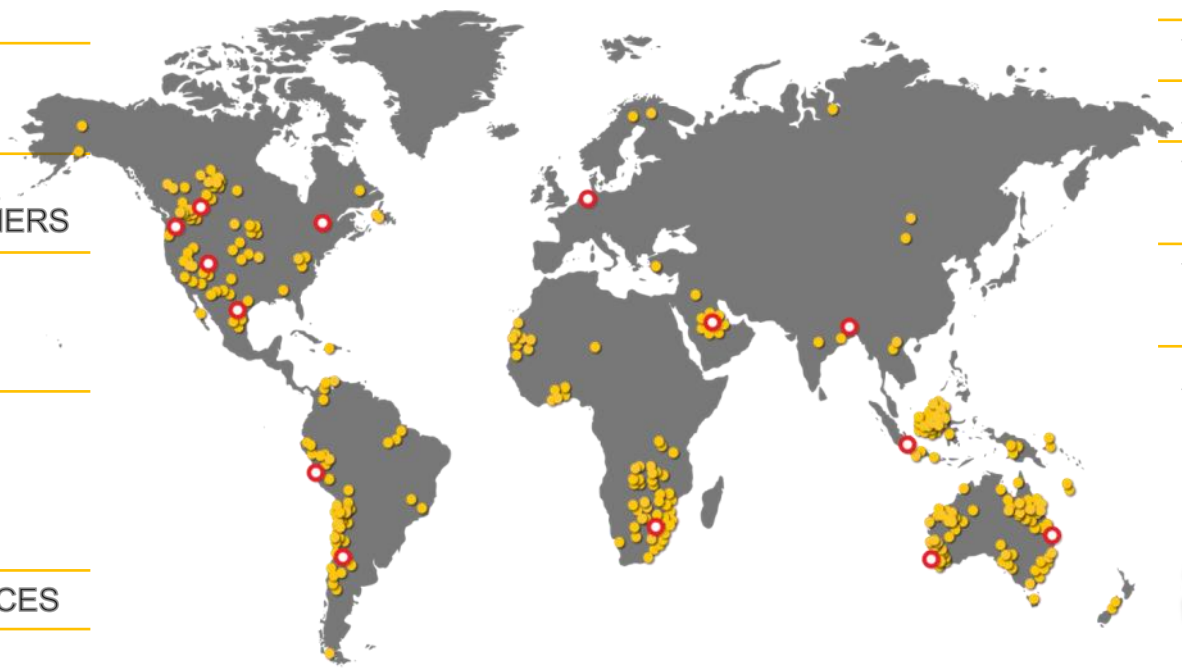
IM360B – Shuttle Car

Worksite Walk-About

Trusted Global Leadership

MINING FOOTPRINT

- **355+** DEPLOYED SIMULATORS
- **1635+** TRAINERS CERTIFIED
- **255+** GLOBAL MINING CUSTOMERS
- **858+** DEPLOYED SIMULATOR MODULES
- **100,000+** MINING EQUIPMENT OPERATORS TRAINED
- **14** GLOBAL OFFICES
- **3** COUNTRIES



REAL RESULTS

AVERAGE IMPROVEMENTS

- ▼ **14.2%** SPOT TIME
- ▼ **62.2%** BRAKE ABUSE
- ▲ **10.4%** TIRE LIFE
- ▼ **69.8%** ABUSIVE SHIFTING
- ▼ **54.5%** ENGINE OVER SPEED
- ▲ **6.85%** FUEL USE

ORIGINAL EQUIPMENT MANUFACTURER · EXCLUSIVE ALLIANCE · SUPPORTED & RECOMMENDED PRODUCT

Corporate Overview