

Pontoon Pump Leveling Skid

Xstrata Coal Queensland – Newlands Northern Underground

The Problem or Initiative

a) Identified problem

- The aggregation of ground water adjacent to underground mining activities presents a risk to both production and personnel safety if not controlled.
- Over the last few years, Newlands Coal has received a significant amount of rain during the wet season, meaning that adjacent opencut pits have to be dewatered.
- The current process and solution increases the vehicle interaction and vehicle to pedestrian interaction through the use of earthmoving equipment, and therefore increases the risk of safety incident and injury.

b) How the improvement opportunity was identified

- The issue was identified through a mine management review.
- The original opportunity was to reduce the cost involved in the earthworks required to develop a level pad for each time the pump installation was required to be moved close to the water's edge.
- From a safety perspective, this movement requires new earthworks to be undertaken which present an increased risk to the personnel.
- Dewatering of adjacent open cut pits to the underground workings requires the installation of additional pump arrangements. These systems are traditionally shore mounted pontoons. These installations are positioned at the waters' edge where the ground is sloping due to the open cut profile.
- As the pumps are required to operate in a horizontal position, significant earthworks are required to set an installation up. As the pit is dewatered, the water recedes and the pump installation must be repositioned closer to the waters' edge.
- This was a significant non-value adding task.

c) What health and safety consequences were to be addressed

- To reduce vehicle interaction and vehicle pedestrian interactions.
- To minimise the requirement for the use of mobile equipment.
- To consecutively reduce cost, downtime and safety hazards.
- To reduce exposure to working near bodies of water.

The Solution

a) Strategies and initiatives developed to identify and address the problem

- The team designed, manufactured and installed a leveling skid for skid base diesel pump.
- Using the leveling skid, diesel powered dewatering pump systems can be positioned to eliminate the requirement for earthmoving equipment to rebuild new pads each time the pump is repositioned closer to the water's edge.
- This allows the skid mounted pump to be moved on an incline without the need for a level pad to be made by earthmoving equipment
- The cost of earthworks to develop a sufficient pad is approximately \$10k per pad
- There are typically a large number of repositions across the course of a wet season.
- The cost of a skid is approximately \$20k and this innovative solution requires less labour to reposition as the water increases and decreases.

b) Internal and external resources used

- Site fitters, the outbye engineering department and Glenden Hardware (local fabrication company) were utilized to develop the innovation.

c) Methods used to trial and test

- The sleds were trialed in the workshop to determine usability and safety.
- Once confirmed they were the correct design for the task, they were implemented and used around the site.



d) Implementation process

- A Design review was undertaken by the Northern Underground Engineering department.
- The Management of Change process was applied to this innovation.
- Communication to workforce was conducted as part of the Change Management Process.

e) Demonstrate how hierarchy of control has been applied

Benefits / Effects / Outcomes

a) Safety and occupational health benefits

- The initiative reduces vehicle interaction and vehicle pedestrian interactions.
- The solution minimises the requirement for the use of mobile equipment.
- The solution consecutively reduces cost, downtime and safety hazards associated with earthworks.

b) Supporting data

- The skids are currently in use and have shown a significant time saving in pump moves.
- The associated reduction in risk is also noted.

c) Extent of deployment

- The skids are currently being used at major water catchments on the surface.
- Presented at the 2012 Xstrata Coal Sustainable Development Forum where it was selected for the Xstrata Coal Chief Executive Innovation Award.

Transferability

a) Potential for innovation to be used, modified, transferred across the industry

- The solution can be used at any operation operating shore mounted pontoon pumps.
- All areas – surface, underground and wash plant – can benefit from this application.
- The sled can be adjusted to suit any ramp grade and can be towed or pushed into position, making it suitable for most environments.

Innovation

a) Originality of the innovation

- This design is unique to Newlands Northern Underground.
- This innovation was selected as the winner of the Xstrata Coal Chief Executive Innovation Award for 2012.

Approximate Cost

a) Statement of approximate cost, if known

- Cost of sled is approximately \$20,000.

