

Kanga - Radio Controlled Loader

Dunmore Quarry



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Background



- Cleaning up spillage in areas with limited access around fixed plant is a difficulty that most quarries endure.
- This job is generally completed manually or alternatively with a stand on Mini digger type machine to reduce the risk of manual handling injury.
- In 2013 Dunmore Quarry encountered an incident on site with the stand up mini digger almost toppling with an overloaded bucket down a 6 metre rock face.



Concern



- Luckily the operator at the time escape unharmed, avoiding potentially serious or even fatal injuries.
- The incident resulted in the site being issued with a 158 notice from our Mines Inspector.



Review of the Issue



- After much consideration with the involvement of Operators, Trainers and the Department & Site Management the following criteria was required:
 - A similar type of machine is required due to its size and reach.
 - Controlled remotely in an attempt to eliminate the need to have a person on the machine.
 - Able to access the designated tipping points which were incorporate into the fixed plant with robust guarding.
 - A fail safe personal proximity device to comply with legislation and standards.
 - The versatility and potential for future upgrades such as attachments.
- Extensive research was undertaken to find the most appropriate machine and radio control system for the job.

Solution – The Kanga



- After trialling a number of possible solutions the selected option was the Kanga radio controlled loader.
- Its characteristics suggested that it was the right machine for the job as:
 - The size and capabilities of the machine were a perfect fit for access around the plant.
 - It would be effective in the cleaning of spills and aid in eliminating potential manual handling issues.
 - The radio control was extremely user friendly for the operator.
 - The machine has a number of attachments which can be used for a variety of applications.



Further Developments



- When the Kanga arrived at the site some additional features were required for compliance and to increase the safety of the operator.
- Before arrival to site it was noted by the supplier that the Kanga made use a proximity device. On delivery this was not the case as the Kanga failed to have any such device fitted. We were forced to park up the Kanga for over 12 months whilst sourcing a solution and consulting with industry experts.



Further Developments



- After several failed attempts to configure the remote, a proximity device was successfully set up to eliminate the hazard of an operator being struck by, being pinned or crushed by the mini digger.
- Once the machine comes within 6 metres of the operator it automatically shuts down prior to a series of warning alarms advising the operator that he is entering into the no go zone.
- It was decided that a magnetic field would be used instead of a radio frequency. This reduced the possibility of interference and was far more reliable system.

The Benefits



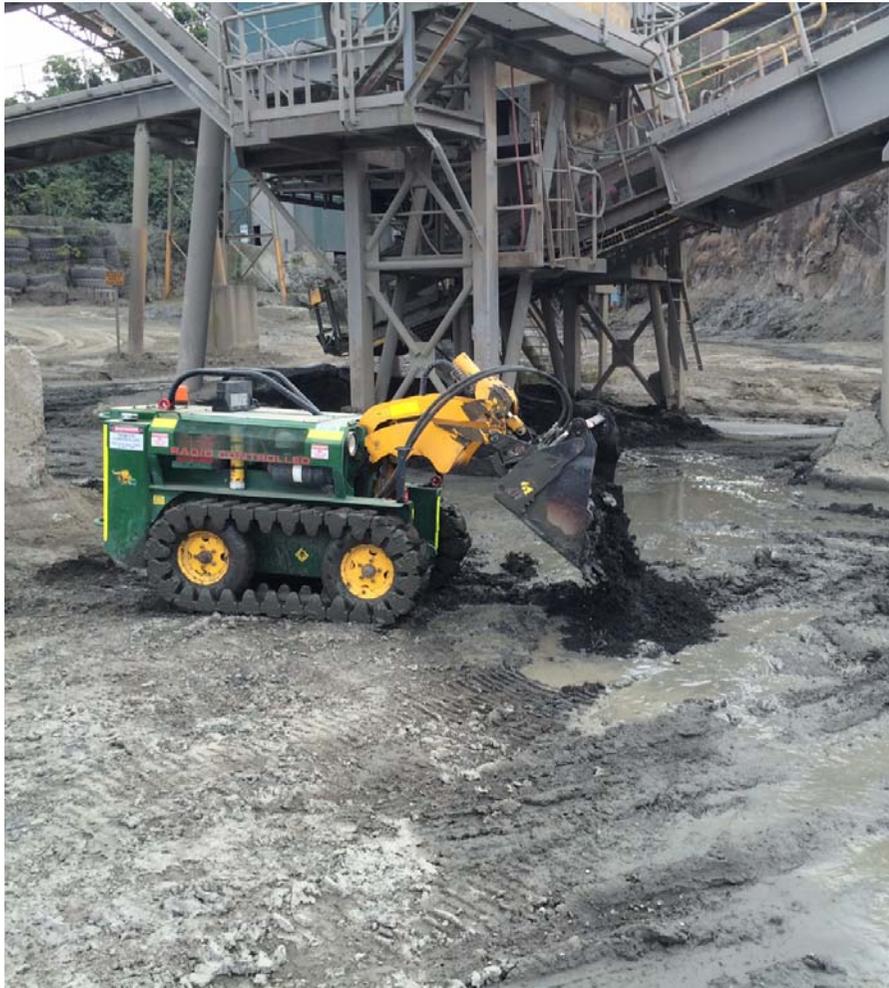
- We can now access areas that were previously having to be cleaned up by hand and sometimes not in the best conditions for our Employees as in the picture
- Apart from the gains in the efficiency of plant cleanup operations, the Kanga has also provided us with some peace of mind knowing that the machinery is now controlled remotely and has reduced the chance of manually handling injuries.
- The proximity switch and a man down function keep the operator well out of harms way.
- In regards to the impact of the solution on the overall company or other businesses is yet to be seen as this is the first of its kind that has been set up to the best of our knowledge.

Cost Analysis



- After the initial set up cost, the solution proved to be very cost effective in operation.
 - The reduced manpower and time saved cleaning up will get the plant up and running sooner. The machine has excellent digging capabilities and would take the place of a number of workers hand shovelling as done in the past.
 - Savings are also made through the reduction of potential manual handling injuries. Removing operators from hazardous scenarios will reduce potential manual handling injuries or possibly saving someone's life.

Idea Development



- The solution was developed in consultation with the Operators, Trainers, the Department and Management at Dunmore Quarry.
- The input of Industry experts in proximity devices with the latest and safest solutions, which are starting to gain momentum within the industry was also key in the development of the project.
- Due to the fact that this is a new concept it was a matter of trial and error whilst continually consulting with the site and governing bodies.
- We believe that the potential for remote control equipment will play a major role in the prevention of injuries in all industries in coming years.

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Todd Kalajzich
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