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| **Topic** | Safer maintenance and housekeeping |
| **Entry number (MPA Ref)** | 202432 |
| **Title of Entry** | Feed Hopper Tipping Grid Improvement |
| **Name of Company** | Tarmac |
| **Location** | Dunain Mains Quarry |
| **Video**  **(if yes, please include URL for video)** | No |
| **Other resource X (if yes, please include description)** | 5 images |
| **Fatal Theme (tick boxes that are applicable) 1  2  3 X 4**  **5  6** | |
| **BACKGROUND** | |
| The wash plant at Dunain Mains had a live head feeding arrangement which was fed from a wheeled loading shovel. This exceeded noise levels and required ear protection to be worn in the vicinity. It also entailed regular maintenance activities, including screen renewal and welding repairs. This involved working at height and hot works which the site deemed high-risk activities. These maintenance tasks were also causing the site productivity and downtime issues.  The process involved the wheeled loading shovel operator having to exit his cab to ground level to clear the grid as the lifting mechanism of the live head was at ground level. The site was keen to reduce the access & egress movements of the operator.  These issues were raised at weekly maintenance meetings and safety briefings. Site management had noticed the majority of Permit to Work documents raised were related to the live head for working at height and hot work tasks.  An engineering solution was sought to eliminate the need for continuous working at height and hot works.  Fatal 6 – Working at height | |
| **MANAGEMENT OF PROCESS** | |
| The local team wanted to reduce the noise levels and eliminate the requirement for working at height. The frequency of the operator having to access & egress his machine was another factor to consider.  The local management team held meetings with the maintenance team to consider all viable engineering solutions to combat the issues. The N&S engineering team were also involved in the discussions.  It was decided that the live head unit be removed from service and replaced with a non-vibrating tipping grid, lifted by two heavy duty rams. The tipping grid would be activated by remote-control from inside the wheeled loading shovel reducing access & egress risk.  The lead fitter sourced a tipping grid that was positioned on a 694 screen that was no longer required and the correct size with minor alterations to be made. A local electrical contractor was tasked with sourcing a suitable remote-control system that could activate the tipping grid from inside the cab of the wheeled loading shovel.  A meeting was held on site to plan install works, and a robust risk assessment & SSOW were created. All personnel involved in the install were included in the discussions. The works were carried out with all the issues raised resolved with engineering solutions. Maintenance tasks on the equipment have been significantly reduced and the access & egress issue eliminated.  The install and solution were deemed best practice and was shared within the company as “What Good Looks Like” | |
| **BENEFITS** | |
| Access and egress from the wheeled loading shovel to activate the tipping grid has been eliminated, and the operator can activate the grid from inside the cab.  Operator was exiting the cab an average of 4 times p/d  Average access & egress movements:  Live head configuration 960 movements p/a  Tipping grid configuration 0 movements p/a  High risk maintenance tasks that include working at height and hot work activities have been significantly reduced. Working at height is highlighted in “The fatal 6”  Maintenance teams were repairing live head at least once p/m for a duration of approximately 2 days.  Reduction of at least 24 working at height tasks & 24 hot work tasks p/a  Noise levels have been reduced significantly:  Live head configuration 90 db (A)  Tipping grid 56 db (A)  Productivity and site morale has been boosted as the requirement of changing screen meshes has been eliminated, and the maintenance on the tipping grid has been greatly reduced. | |
| **INNOVATION** | |
| The site collectively re-engineered an issue that was resulting in operatives carrying out high risk activities. Although these activities were controlled and risk assessed, elimination of the problem is a better solution. Local teams with experienced mechanical and electrical engineers resulted in a permanent fix to a problem. | |
| **DEVELOPMENT & TRANSFERABILITY** | |
| The issues have been engineered out and the process is working well.  This idea could work in most sand & gravel feed processes. The idea has been shared within the company and hopefully local teams can adopt a similar approach to fully engineer out a problem and eliminate potential hazards. | |
| **NB if document has embedded images try and include these**  **If other documents provided say additional information available.** | |