Conveyor 8A metal detecting bag drop system

Tom Owen, Mark Gould | 1 Aug 2024 | ID431

Idea of the Month Competition Nominees

Closed with success by Tom Owen

Approver: Tom Owen
Implementation coordinator: Tom Owen
Plan: Quick Wins
Class: Waiting

Problem, context, environment, status

8A is our main feed belt that provides secondary with the stone from the surge pile. The surge pile does at times contain metal contamination from the primary plant, liner plates that have failed and broken apart, bolts that have been cut loose as part of maintenance that have fallen down and left within the plant, slag from welds on the plant, and even the occasional drill bit that has come loose during drilling operations. Where as these are usually small and harmless the larger pieces of metal if not detected are sent up to the secondary crushers and could potentially cause a lot of damage and downtime for repairs, smaller pieces could also end up going through the secondary plant and contaminate our stock piles.

8A is a long belt as seen on the photo attached and when previously stopped due to metal being detected the patrol man would be going in blind and have an area of belt 50M long to dig through to try and identify and locate the metal. This was a long process and often resulted in the metal not being found, a lot of downtime and the plant restarted.

Resources: 20240801_070021.jpg

20240801_070021.jpg

Description of the initiative

We have installed a metal detector with a bag drop system implemented into it, the idea being that when the system activates a bag is dropped at the point of where the fault was detected, this then gives the patrol man a visual as to where the metal was detected and an area of where to look to find the metal, the goal of this is to be more productive in finding the metal and ultimately to reduce the amount of downtime spent by the patrol man searching for the metal.

Resources: 20240801_070717.jpg, 1, 3, Length of the belt

20240801_070717.jpg

1

3

Length of the belt

Expected benefits

Reduce downtime.

This can be calculated relatively easily from our PR which is where we input all our figures from belt weights and log downtime.

July 2024 - 1 Jan 2024 - 8A Metal trips

364 Trips Average 8.6min Downtime

July 2023 - 1Jan 2023 - 8A Metal trips

266 Trips Average 10.8min Downtime

Average improvement = 2.2min faster

This evidence shows that the new system is detecting a lot of metal which ultimately reduces contamination within the stock piles and reducing the amount of time the plant has stopped searching for metal.

Financial analysis

Title	Impact distributed over time	Forecast amount
Increased production due to less downtime of plant Average downtime 2023 - 10.8Mins Average downtime 2024 - 8.6Mins 2.2Mins gain per trip. 364 Trips this year. 364 X 2.2 = 800.8 800.8 / 60 = 13.3 13.3 x 1000 (TPH) = 13,300T 13,300 x £14.92 (Average price per T) = £198,436 worth of stock added.	01-01-2024 – 01-08-2024	£198,436.0
ROI		**£198,436.0**

Tom Owen – 1 Aug 2024