Berm Monitoring System case study

BMS in its normal use

Dynamic Berms, also referred to as dynamic bunds or windrows, are a critical control found on tipping areas as highlighted in figure 1. The purpose of these berms is to prevent haul trucks from driving off the tipping edge. Berms are only successful in preventing such incidents if they comply to a specific height. The industry standard for berm height is half the diameter of the largest vehicle tipping in that area. This would vary depending on the tipping area, but is typically between 1.2m and 1.8m.

Figure 1 Dynamic Berms on an active tipping area

At present there is no efficient, real-time solution that provides a qualitative measure of the berm height across its entire length. The Berm Monitoring System (BMS) provides this solution. The BMS uses LiDAR data to determine areas of non-compliance along the berm as demonstrated in figure 2.

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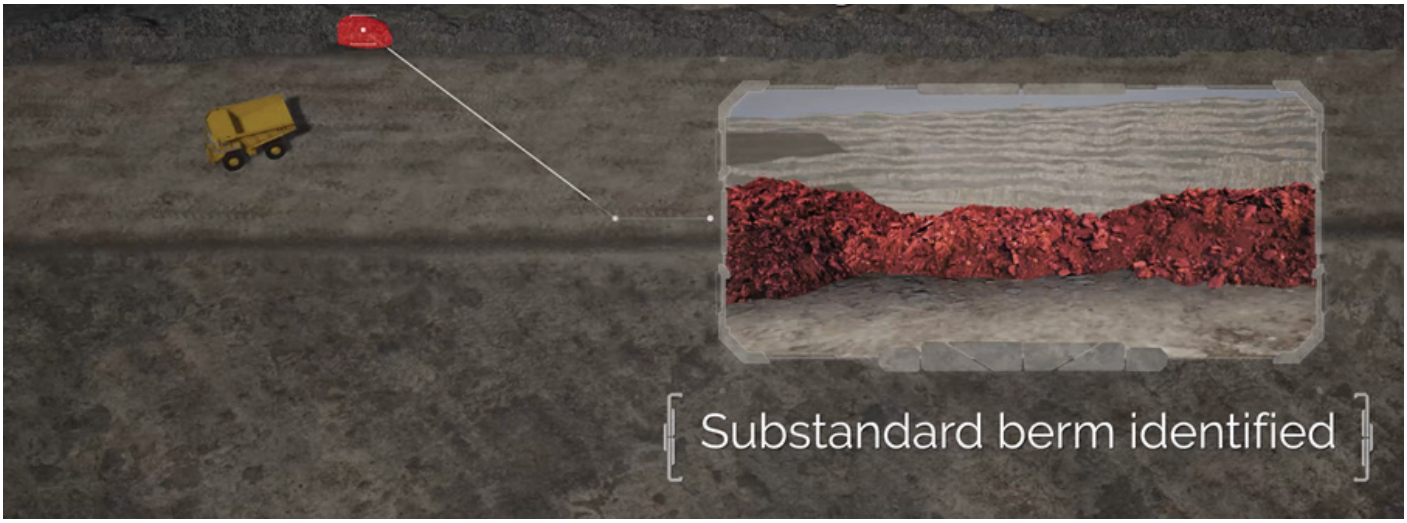

Figure 2 Substandard Berm Identified

An alarm is then triggered, beginning the control cycle of the BMS as shown in figure 3. This alarm allows the end-user to determine which areas of the berm require attention and take the appropriate action to fix areas of non-compliance. The BMS will then reanalyze the entire area of interest until full compliance has been reached.

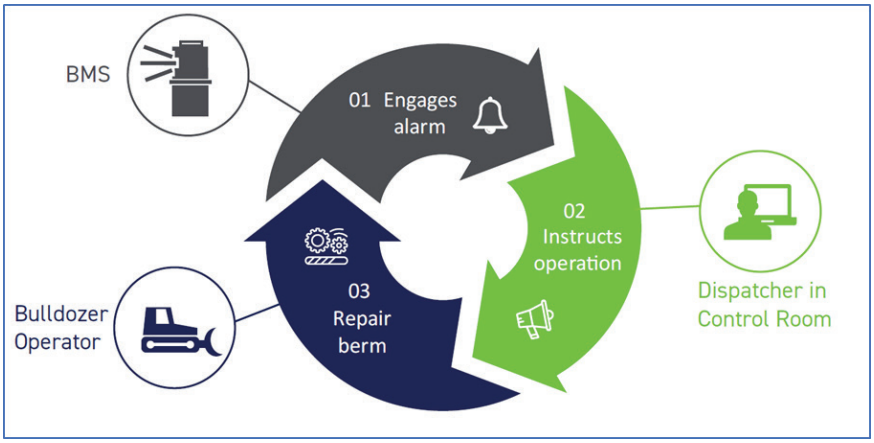

Figure 3 The BMS Control Cycle

The BMS solution is able to provide the end-user with a clear qualitative condition of their berms at any time and is able to ensure a safe tipping area. Previous methods of determining berm heights proved inadequate and are often dependent on site judgement and are based on visual inspections. The BMS is able to remove the uncertainty when determining berm heights and will provide the end-user certainty in determining the compliance of their dynamic berms.

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