Landfill Case Study
Study start date June 2015

Project – The Ottawa County Landfill (Republic Services) in Coopersville, Michigan.

Background

The Landfill cells are bonded at the desired slope levels and expected to maintain specified tolerances. An independent engineering firm is contracted to establish and inspect the slopes. The Landfill is required to maintain a 3:1 slope. In the past, the Landfill employed engineering firms to accurately stake the Cells for correct slope requirements.

Typically, Landfills use either a simple slope meter, GPS or engineering grade stakes. The costs associated with these methods are as follows: $350/unit installed and requires 2 per machine. GPS has a cost associated of $60,000+/ machine and requires a mother station. Republic Services uses a third party engineering firm, Field Technology Services (FTS). If the landfill is utilizing survey staking the cost is $500-$700/ visit for re-staking.

Solution

The Johnny Ball Leveling Platform allows heavy equipment operators to manage indicated slopes in a true 3D format. Base cups for the Johnny Ball were installed on two CAT D6T Dozers so the Johnny Ball could be moved between both pieces of equipment. It was expected that by utilizing the Johnny Ball operators would be able to set and maintain the slope without the use of time-consuming grade checks that require the operator to exit the machine. It also reduces the amount of time it takes for an engineer to inspect the slope. Managing compound slopes with Johnny Ball is possible.

Results

Operators could manage slopes without concern of lost grade stakes. The JohnnyBall provided continuous confirmation of slope and grade requirements. The result, on average, was (6) operator hours per month at $98/ hour, a $588/per month cost reduction. ***The operator was able to continue operating rather than checking grade***. It has allowed the Landfill to save an average of $600 per visit in engineering costs as the engineer did not need to confirm slope requirement or re-stake the cells.

The savings for using the JohnnyBall at this landfill site is a reduction of: 1 engineering visit and 6 hours of operator's time per month as well as increased productivity. The result is an average reduction of *$1,188 per month, $14,256 per annum*.
The cost of the Johnny Ball *was recovered in just three months.*