

THE ART OF SMART TECH

Alyssa Stevens, Stockpile Reports, USA, explains how smartphone technology is changing the way the aggregate industry operates.

Aggregate companies are embracing new technologies to improve their operations and profitability year on year. Great Lakes Aggregates has improved its inventory measurement process using a device that over 100 million people have in their pockets – an Apple iPhone.

In 2013, the company set out to solve an inventory problem that plagued the industry: how to cost effectively measure inventory frequently enough to make operational decisions and improve customer satisfaction. This was not an easy task for a company with a 3 million tpy limestone quarry, five fixed-site concrete recycling yards and four portable concrete recycling plants. Chris Kinney, President of Great Lakes Aggregates, and Keith Childress, Quality Control Manager,

teamed up to find an inventory solution with three criteria in mind:

- The measurement tool needed to be easy enough for any employee to use.
- The tool had to be safe to use.
- The results needed to be accurate enough for operations and finance teams to use.

Laser instruments are expensive, time consuming to operate and create potential safety hazards while traversing stockpiles. They also limit how often measuring can occur. “We wanted the flexibility to measure our 70+ stockpiles on-demand,” Childress commented.



The company knew it had found a solution to the problem when it discovered that it could measure its stockpile inventory using an iPhone. This solution put the power of inventory measurement in the hands of all employees. Whether an executive or a mechanic, as long as they had an iPhone, they could take measurements. Plus, over 100 million people already have an iPhone in their pocket, and a majority of Great



Figure 1. Measuring a stockpile using the Stockpile Reports Apple iPhone app.



Figure 2. Flying a drone to capture aerial imagery for stockpile volume reports.



Figure 3. Great Lakes Aggregates in Michigan (USA).



Figure 4. Great Lakes Aggregates.

Lakes Aggregates' employees already had one. This meant that the company did not need to invest in expensive hardware and that most employees were already comfortable operating these devices.

Reallocating labour hours

Great Lakes Aggregates chose Stockpile Reports, a technology company based in Redmond, Washington (US), because of its proprietary iPhone inventory measurement solution. It gave them what they needed from a flexibility and cost savings standpoint, while also helping to improve their customers' confidence and satisfaction by providing on-demand, third party measurement data.

The increased efficiency of inventory measurements has allowed the company to do monthly reconciliations of its inventory. Multiple employees can measure inventory across all sites monthly in less than 5% of the time that it took in the past. The company has seen a major reduction in its inventory measurement time and the solution has allowed it to measure more frequently, more efficiently and with greater accuracy.

Adopting, implementing and encouraging engagement with digital tools can enable companies to streamline processes and leverage those efficiencies by reallocating resources to higher value objectives. Great Lakes Aggregates has been able to reallocate hundreds of hours per month by using an iPhone for inventory measurement and management. Childress said: "The company has reallocated hours that used to be spent on inventory. It can focus on operations and sales instead of spending time travelling between sites to do inventory. It has become the norm and it has enabled the company to do more for our customers."

Sales and production

Companies often have to guess at how much inventory they have on the ground. When a sales order comes in, it is not unusual for employees to lack confidence regarding whether there is enough to meet the demand, which can result in the overproduction of materials. Likewise, companies can overestimate how much inventory they have on hand, potentially resulting in underproduction, missed deadlines and unhappy customers.

At Great Lakes Aggregates, the employees use iPhones to measure the materials that are currently on hand, to spot check deliveries, confirm production volumes and measure production before and after shifts.

The devices allow the company a window into its inventory at a moment's notice, offering the knowledge of how much there is, or is not. Sales and production can take a measurement on-demand, giving them near real-time inventory insights for better quoting, forecasting, and planning.

Childress said: "All of our employees are trained on the app. It saves me hours of time driving between sites to take measurements. I can just make a call and see the measurements in the dashboard within a few hours."

Customer confidence

There are a few inventory-based scenarios that impact the customer experience with a company. Not having enough inventory on hand to meet demand, missing order deadlines

and over-delivering (or under-delivering) on orders, to name a few. These are all things that aggregate companies deal with on a daily basis.

Providing assurances to improve the sales satisfaction has been of value for Great Lakes Aggregates' customers. The app has the ability to take stockpile measurements on-demand, which can be shared with customers. This has been a bonus to the company's four mobile recycling plants. It is able to provide a third party volume verification, which can speed up agreements with the client and turn revenue faster. The same is true for aggregate deliveries, as the company can take delivery measurements, which helps eliminate disputes.

The solution has not only saved time on taking measurements, but it has also improved the company's ability to serve their customers on a timely basis and help give them confidence. In a competitive industry, it is important for companies to build and retain a loyal customer base.

Measurement variables

Traditionally, lasers have been the benchmark tool for stockpile measurements in the aggregates industry, but there are specific situations where they do not work. For example, rain, snow and fog have the potential for causing false readings and reduced accuracy of the data produced. Battery power is also a limitation for laser instruments – if the battery dies during measurement, a company would have to restart the process and would lose valuable hours of work.

In Michigan, US, where Great Lakes Aggregates is located, it rains 131 d/y. That is nearly 19 of 52 weeks that the company is not able to measure its inventory with confidence when using a laser. With the iPhone, it is able to measure stockpile inventory in almost all weather conditions.

Workplace risks

Previously, the company used a laser instrument that required employees to walk on piles to get the most accurate measurements. The iPhone enables employees to walk around piles, eliminating the risks associated with climbing on stockpiles. Employee injuries are greatly reduced because the iPhone allows users to keep their feet on the ground. The company can measure all of its plants in a few hours and employees are much safer with the iPhone solution.

From a business perspective, a worksite injury can destabilise a company in several ways. It can result in

downtime, extensive inspections, lost production time, healthcare and employee compensation costs, and declining company morale. Avoiding these injuries is an important goal for many operations and plant managers in the industry.

Moving towards digitisation

Great Lakes Aggregates aims to invest in solutions that improve productivity, leverage efficiency and allow it to improve its worksite safety. It is not the only company in the industry that is taking advantage of digital tools and solutions to improve its bottom line.

The aggregates industry is a US\$21 billion industry with opportunities for digital solutions. These solutions help to solve problems, from measuring inventory to automating deliveries to reducing paper and administrative errors. **DB**



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