Reservoir project completed twice as quickly thanks to Avery Weigh-Tronix scale system

After a series of fires in the Angeles National Forest, near Los Angeles, Calif., the San Gabriel Reservoir became home to 6.1 million cubic yards of forest fire sediment, reducing the reservoir's capacity by 40 percent. The San Gabriel Reservoir is essential to Los Angeles citizens, as the reservoir creates electricity, delivers fresh water, and provides protection from storms. The L.A. Department of Public Works enlisted the help of Barnard Construction Company, located in Bozeman, Mont., to return the reservoir to its prior capacity.

Each of Barnard's trucks would need to carry loads of sediment from the reservoir to an engineered fill located 2.5 miles away. After evaluating the degree of sediment deposited in the reservoir and the efforts needed to remove it, the company determined that the undertaking would take five years to complete.

"This wasn't a project we could work on continuously, due to the rainy winter season, and these projects are normally very time-intensive," said Gavin Tasker, project manager at Barnard Construction Company. "We originally had a five-year plan in place, but we were able to work more efficiently than expected, largely due to the Avery Weigh-Tronix scale system we had in place."

Barnard researched numerous scale providers and approached Avery Weigh-Tronix with their weighing need, which for this project consisted of the ability to process information from 200 to 300 trucks a day, each truck carrying loads of up to 25 tons of sediment at a time. The Avery Weigh-Tronix solution streamlined Barnard's efforts to the point that an average of 800 to 900 trucks were weighed each day, and some days where upwards of 1000 trucks were processed in a nearly non-stop weighing operation.

"We were able to complete the project in three years," Tasker added. "The L.A. Department of Public Works had an immediate need to have the reservoir cleared, and they were very excited when the project was completed two years ahead of time."

The Avery Weigh-Tronix scale system, suggested and sold by Avery Weigh-Tronix Territory Manager Al Beacher, consisted of a BridgeMont BMS DT-P 7011 portable truck scale, an E1310 indicator, and custom software designed to read and interpret data from RFID tags placed on Barnard's trucks.

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TECHNICAL

E1310 Indicator

- Programmable softkeys for one-button activation of application-specific routines
- Alphanumeric keypad for data entry and dedicated keys for frequently used functions
- Exceptional measurement capabilities including four programmable custom units of measurement
- Rugged stainless steel construction for long service life in extreme conditions
- Custom-configured dot graphic display for excellent readability in challenging lighting conditions

BridgeMont BMS Portable Truck Scale

- Easy, same-day installation with high durability for reliable long-term operation
- Robust steel construction for exceptional environmental resistance
- Patented Weigh Bar® weight sensors for excellent accuracy and reliability
- Sealed design for protection against moisture and premature corrosion
- Self-contained modular sections to eliminate costly site preparation

"Barnard wanted a way to track their trucks by number in order to verify how many trips each truck made a day, since that's how they determined how much to pay their truck drivers," Beacher said. "We developed a system in which RFID tags were placed on each truck, and we configured a tag reader at each scale. When a truck approached the scale, this configuration allowed all the information from each truck to be scanned and processed efficiently—without any need for intervention from a scale operator."

The E1310 indicator was an exceptional tool for this application, operating as the brain of the scale system and processing weight calculations and truck information quickly and in a convenient Excel format. All this data was collected and processed within three seconds of the truck entering the scale.

"Lots of times, truck didn't even need to stop completely," Gavin Tasker said. "Once we installed lights at the scale so trucks knew when to stop and go, the scale operator didn't need to run the lights or even talk to the truckers. The scale system was self-contained; it was able to operate on its own."

Along with the two years shaved off the project's original estimated timeline, Barnard also experienced significant cost savings—especially considering the unexpected severe increases in diesel fuel costs.

"When we estimated how much this project would cost, diesel fuel cost about a buck," Tasker said. "Immediately upon starting work on the project, fuel costs doubled—and since then, it's only gone up. The same thing happened with steel piping costs, along with price escalations in construction materials. Basically, every year we waited to finish this project, it would cost us that much more than we expected."

"The time we saved resulted in a major cost savings for us—and of course, overhead savings as well," Tasker added. "Plus, we were awarded the Marvin M. Black Excellence in Partnering Award from the Associated General Contractors of America for this project. It took working together in many ways for us to receive this honor, but if we hadn't had a robust scale that helped enable us to finish the San Gabriel Reservoir project two years early, we may not have been granted such recognition."

Due to a combination of determined workers and a rugged scale system, the San Gabriel Reservoir returned to fully functioning order three years after its restoration project began. And the scale that weighed 800 trucks a day and 6.1 million tons of sediment over that time still awaits its next project.

"This scale wasn't designed to handle weighing this many trucks in a day, but the only maintenance the scale needed throughout the entire three-year project was the replacement of two outer cover plates," Beacher said. "Originally Barnard wanted to sell the scale back to us after the job was completed, but they were so impressed that they decided to keep it for future projects."