

## Turning Lime Storage into an Operational Advantage

*Improving water treatment efficiency with an integrated silo, feeder and dust collection solution*

The residents of Woodville, Ohio, rely on the town's water treatment plant for pure, high-quality water. Plant operators rely on hydrated lime treatment to deliver on that promise. To maximize efficiency, the town approved a major upgrade of their hydrated lime system and plant controls, moving from a manually operated system to fully automated control.

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Keith Kruse, Village Administrator  
City of Woodville, Ohio

One aspect of the project was the installation of a new dust collector on top of the existing lime silo. However, deeper inspection of the silo by the general contractor revealed that its aging structure—built in the 1940s—would not support the dust collector. The decision was made to replace the silo. Integrity Municipal Systems (IMS) was selected to provide a 25-ton,

1,450-cubic-foot hydrated lime storage silo, feed system and dust collector.

### Accommodating the schedule

The pre-assembled IMS silo arrived fully piped, wired and factory tested, accelerating installation. Unfortunately, changes to the project schedule pushed the silo installation back three months. IMS agreed to store the silo at no charge during this period.

“That was an added value offered to us,” says Keith Kruse, Woodville’s Village Administrator, noting that this avoided the added expense of storage, loading and transporting the silo from a storage site.

### Silo-to-plant integration

A key aspect of the installation was integrating the IMS silo and equipment with the in-plant treatment system, provided by UGSI Chemical Feed, Inc. The IMS team worked closely with the general contractor and with UGSI Chemical Feed technicians to create seamless connectivity between the silo

and the plant’s internal systems, including the supervisory control and data acquisition (SCADA) system. The IMS team customized the logic from the silo to meet the needs of the Woodville plant.

“The process went smoothly. When any issues arose, the IMS team worked to resolve them,” Kruse says, noting that the IMS silo communicates well with the UGSI Chemical Feed systems.

### Proactive alerts

One of the most important advantages of the new IMS silo was the unit’s integrated level detectors, providing accurate data on the lime level in the silo.

“With the old silo, we would have to literally go out and beat on the side of the tank to gauge the quantity of lime in the silo and try to calculate how much we had used. There were times when we got it wrong and ran out of lime,” Kruse explains, noting that the IMS silo provides alarms for high level, low level, and to indicate a malfunction with the feeding system into



*Woodville upgraded their aging hydrated lime container, shown left, with a new IMS silo featuring integrated level detectors and seamless connectivity with their chemical feed system.*

the plant. It also provides alerts when it's time to reorder lime and when a lime delivery is loaded into the silo. "Having the integrated level indicator and alarms has really made a huge difference."

The 25-ton capacity of the IMS silo also provided an important benefit when reordering lime.

"Our old silo had an 18-ton capacity, so we were walking a fine line determining when to reorder product. The supplier would deliver 18 or 20 tons of lime and we would be pushing the max on that silo," Kruse explains. "With the new silo, we can order 20 tons ahead of time and know that we'll have room for that product. It's one less thing to worry about."

### Smart dust collector

The dust collector—where the silo project started—has also delivered "huge" benefits, Kruse says.

"Our previous antiquated system wasn't effective and we would end up dusting the neighborhood. The IMS dust collector works really well." He explains that the dust collector is configured to communicate with the ducting fan system venting lime and soda ash from inside the plant. This ensures the dust collector is activated only when it's required, saving energy and reducing wear and tear.

### A supportive partner

In the months since the IMS silo was installed, Kruse reports that operation has gone smoothly. When the silo first went online, there was a hiccup with the feeder's fluffing/vibration function.

"The IMS team came out and resolved the problem quickly. Since then, it has worked fine," Kruse says. "IMS has been very responsive. Whenever we've had a question or concern, it's been nice to know they are there to help. That's been very reassuring."

While the new silo was not originally part of the plant upgrade plan, Kruse says it was a great addition. The data from the silo is contributing to achieving the Woodville plant's goal of fully automated, "hands off" operation.

"Before, if there was an issue with the plant, we might not find out until after the fact. I would have to send someone in to assess the problem and make a repair. Now we know when the plant is not operating at the typical parameters and be proactive in addressing any issues," he explains.

"Given our experience, I would recommend IMS," Kruse says. "They really know what they're doing."

