



South Carolina
Office of Regulatory Staff

THE WATER WELLSPRING

A Flowing Source of Information for Water and Wastewater Utilities

Spring 2017

Workshop 2017

“Protecting the Future through Sustainable Planning”

The ORS water/wastewater workshop is scheduled for April 21, 2017, from 8:45 a.m. – 3:00 p.m. in the PSC’s Hearing Room. Topics include using GIS and Webmaps; preventing catastrophe in a flood; cybersecurity; customer communication planning; and planning for climate change and wastewater infrastructure resiliency. Speakers from CDM Smith, US Department of Homeland Security, Ni PMU, and Hazen and Sawyer will give presentations.

Advanced Metering Infrastructure Increases Resiliency, Improves Security

Advanced Metering Infrastructure (AMI) is the newest technology in Automatic Meter Readers (AMRs) that are mostly used for remotely reading water meters and customer billing. AMI technology can supplement Surveillance and Response Systems (SRSs) that help water utilities quickly detect drinking water contamination using real time data, remotely read meters on demand, open or close water meter valves, and incorporate data input from other sensors. The US Environmental Protection Agency (EPA) developed an SRS Application that can monitor water quality online, track customer complaints, monitor security of the system and public health, and detect contamination in water distribution systems to help strengthen operational resilience.

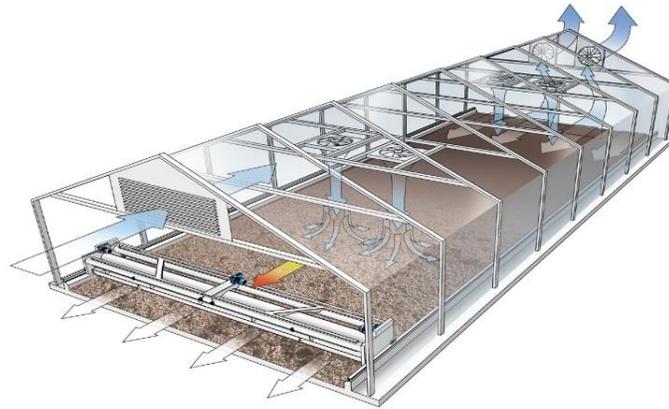
An AMI system is mostly used for customer billing, but it also has options to assist utilities in achieving their SRS goals. These options provide the ability to detect backflow issues to warn of an impending public health impact and provide early warning that someone has removed or disconnected a meter, which could potentially contaminate a system's water line or allow someone to bypass the meter and steal water from the utility. Another benefit these options provide is to detect customer leaks, which helps customers reduce their utility bills and helps the utility better manage their water supply.

AMI technology continues to improve, and the EPA will conduct AMI field testing in 2017 to further study the benefits of water security and system resiliency.

Reference: Mix, Nelson, Ken Thompson, and Alan Lai. "Advanced Metering Infrastructure Detects Contamination And Forges Operational Resilience". *Opflow* 2017: 22-24. Print

Huber Solstice Solar Dryer

The Huber Solstice Solar Dryer is a Biosolids dryer which uses free solar energy to provide the evaporated energy for the drying process. The drying process is typically used for volume reduction, pathogen reduction, or preparation for further processing. The Solstice design is an improvement on drying bed technology by adding a greenhouse covering, automated environmental conditioning, and a



sludge conveying (turning) device. The Solstice Solar Dryer is rectangular in footprint. Dewatered Biosolids are fed at one end of the greenhouse and typically discharged at the other end. The footprint of the greenhouses depends on the required water evaporation capacity, climatic conditions, and whether additional heat is supplied. A single greenhouse can have an evaporation capacity of up to $\approx 5,458$ tons ($\approx 4,950$ metric tons) per year where the site conditions are favorable. For higher capacity, several greenhouses are built side by side.

The dewatered Biosolids can be either supplied to the Solstice Solar Active Dryer in batches (e.g. with wheeled front loaders) or can be fed continuously (e.g. by a screw conveyor). If the mechanical dewatering process is located near the dryer, the continuous feed design provides an automated solution that does not require an operator to enter the drying zone during operation. Because the SOLSTICE is a linear feed design, dewatered sludge can be added to the drying floor as it is mechanically dewatered requiring no intermediate storage which is not possible with batch operated design greenhouses.

The key to the Solstice design is a turning and mixing device that automatically moves the sludge linearly from one end to the other as it is dried and aerated. Its S-shaped scoop rotates and shovels Biosolids from its front and drops them at its back. Because the turning device is travelling forward, the Biosolids are deposited a few inches forward from where they were scooped up which gradually moves

the Biosolids forward, through the greenhouse. The entire sludge layer in the greenhouse is turned over several times per hour without the need for an operator to enter the greenhouse for proper aeration and odor containment.

The turning device has an additional function: a portion of dry product is mixed with moist, freshly fed Biosolids. This forms a granular and porous sludge layer at the start of the drying process. This function is important to prevent anaerobic zones, a leading factor in odor generation.

Because sludge surface area is increased, the drying process is accelerated. The multi-function of the turning device allows the dried product to be removed at the opposite end of the dryer while also providing the option to bring a portion of the dried product back to the same point of the wet sludge feed. The system can be programmed for feed and extraction at one location by having the turning device bring back finished product on its return cycle. This provides the operator flexibility when faced with specific site restrictions.



Atmospheric control is automatically controlled via fans mounted at the “dry” end of the greenhouse. Louvers are provided at the opposite “wet” end. The ventilation of the greenhouse is controlled based on air temperature and humidity in the greenhouse and in the environment. Additional fans are installed under the roof and blow warm air vertically onto the Biosolids layer.

As the Biosolids are moved through the greenhouse, they are gradually dried until they reach the desired dryness. Based on site, climate conditions, and design of the SOLSTICE, it is possible to achieve results ranging from 75% and 90+% DSR at the discharge end of the dryer.

See the Huber Solstice Solar Dryer in operation at: <https://youtu.be/QdWhhrCOkug>

For additional information regarding the Huber Solstice Solar Dryer, please contact:

Huber Technology, Inc. | Chip Pless, Sludge Treatment Team Leader | Email: chip@hhusa.net

<http://www.huber-technology.com/products/sludge-treatment/sludge-drying/huber-solar-active-dryer-srt.html>

ADJUSTING FOR “KNOWN AND MEASURABLE” CHANGES

When companies file for a rate adjustment, a test year is used as the basis for the supporting financial information. The test year is a historical consecutive 12-month period showing the company’s financial operating experience. Since the test year is composed of historical data, companies will propose pro forma accounting adjustments to normalize the test year that must be **both** “*Known and Measurable*.”

How do we define “Known”?

- Event has occurred or been completed
- Verifiable

- Documented

How do we define “Measurable”?

- Quantifiable
- Able to calculate
- Supported with valid data

What information is needed to support “Known and Measurable” adjustments?

- General ledger verification
- Invoice support
- Mileage logs
- Wage Statements

What are examples of “Known and Measurable” adjustments made to normalize the test year?

- Remove plant in service that is no longer used and useful
- Adjust revenues to reflect normal customer level
- Remove non-regulated and non-allowable expenses

All of these can be “Known and Measurable” adjustments with the proper documentation.

- Annualized wage increase given during the test year
- Plant in service additions completed at end of test year or prior to ORS data cut-off date
- Postage increase
- Rate case expenses incurred and paid for a current case

If you have any additional questions, please contact Jay Jashinsky (803-737-1984) or Daniel Sullivan (803-737-0476) of the ORS Audit Department.

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