

Specialized Training on Reverse Osmosis Offered at Douglas RWD No. 3, Hutchinson and Arkansas City

It was just one simple request. “We would like some training on Reverse Osmosis.” That set the stage for a great class in Berryton, Kan. in mid-October. It started simply with a KRWA staff member inquiring about what training needs were not being addressed.

Douglas Rural Water District No. 3 provided an excellent host and venue for “Reverse Osmosis Treatment System Basics”. There were 15 water operators representing five public water systems in attendance. This article focuses on the event at Douglas RWD 3; Additional RO training was to be held in Hutchinson and Arkansas City during the week of October 16.

Patti Adams, Water Process Associates, Overbrook, Kan., gave a great overview and introduction to RO systems. Going in-depth, and explaining that by concentrating on the analyte(s) the RO is to remove and relaying that desire to the system engineer helps ensure the RO is designed and engineered to remove the particular analyte. For instance, at Douglas RWD No. 3, an RO system was installed to control the hardness of the groundwater, to better match the water that is treated at the surface water treatment plant. Patti did a superb job explaining not just the RO as a singular unit, but rather a complete system in the water treatment process. She also went over how the pretreatment process can be a critical indicator of how well the RO units will work, as well as how the post-treatment process is dependent on how well the pretreatment process operates.

Benjamin Sloan, with Kronline-Harn out of Venice, Florida reiterated the key points made by Patti earlier in the morning. Ben elaborated on the intricate operations of the RO units. Ben discussed the pressure requirements to operate an RO unit, as well as the waste created by the RO units, and how to best calculate the projected loss. Ben did an excellent job going over not only how to run the RO unit, but how to operate the unit, and make it do the things you want and need it to do and if it is practical to even expect that from the unit.



Stuart Leak with Avista Technologies explains how reverse osmosis works to Dylan Chavez with WaterWise Enterprises (L) and Levi Brewer from the City of Haysville (R) during the Reverse Osmosis Treatment System Basics training session held at the Arkansas City Water Treatment Plant on October 17. The Water Treatment Plant hosted multiple training sessions during the month of October.

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Both Patti and Ben discussed the different types of particulates found in source water, and the best type of treatment process to remove them. They both did a great job explaining how trivalent particles are the largest and easiest to remove and move down in size to divalent to the smallest monovalent particles. The class was on RO, but the presenters did a great job explaining, that RO may not be the best fit for every situation, and by doing the upfront legwork and testing of the source, the best filtration system can be properly designed to fit the system's need in the most efficient manner.

A great noon lunch was provided courtesy of two local contractors, ARK Excavating and E4 Dirtworks.

Having lunch catered in not only provided a great meal for everyone but was just as enjoyable as it gave everyone extra time to socialize and network with other operators. It was

great seeing water operators from different plants, with different experiences all getting together and talking about the things that have happened at their different plants and the steps they took to remediate any issue. It was very interesting to hear how one water system was able to remove the final stage of their RO filters that had been in place for quite some time, by utilizing water pressure from their high-service pumps. That operator (and now I) of course did express caution in performing the maintenance task in this way as it offers some risk to the unit and the operators in the vicinity of the filters. In RO maintenance, it's necessary to review all the operation and maintenance procedures before you complete any routine maintenance on any equipment.

Albert Sherwood plant manager and Ryan Edmonds lead operator for Douglas RWD 3, finished out the classroom portion of the class. They review maintenance procedures and the type of RO system that Douglas RWD No. 3 utilizes.

Following the classroom portion of the training, a tour of the RO treatment facility was another positive aspect of the

event. Operators Albert Sherwood, Ryan Edmonds and Ben Sloan did an awesome job going through the entire plant, explaining what each different piece of equipment did in that facility. Not everyone retains information from reading a chapter in the textbook or hearing someone in front of the class break down that same chapter in a PowerPoint presentation. When reading about any topic and not just RO, taking that 2D understanding and applying a 3D visual, some of the information that was not understood was explained in greater detail in the plant setting. It was an exceptional experience, to learn about the RO process from Ben and Patti, and then to have the opportunity to see the different components in a working facility.

For operators who have never worked in an RO system, this was a great class to attend to get that introductory information to broaden the understanding of how different water systems treat different types of water. KRWA hopes to provide similar additional training events.

System operators wanting a particular type of or more specialized training are encouraged to contact KRWA – and just ask.



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Toni Kimmi, Technical Assistant, testing master meter.



Jason Soloman, Wastewater Tech, installing a new outfall structure.

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