

LIFT Scholarship Exchange Experience for Innovation & Technology (SEE IT)
Sponsored by: WRF, WEF, and NACWA

TRIP REPORT

SCHOLARSHIP UTILITY: *City of Boise, Boise Idaho*

SCHOLARSHIP UTILITY CONTACT: *Ron Gearhart, Wastewater Process Manager,
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ATTENDEES: *Ron Gearhart, Austin Carnes*

TRIP DATES: *August 5th-8th, 2019*

UTILITIES/SITES VISITED: *HRSD (Nansemond, SWIFT, York River, James River, and Atlantic) Virginia; Marlay Taylor, Lexington Park Maryland; Moorefield, West Virginia*

TECHNOLOGIES/INNOVATIONS SEEN:

- SWIFT Aquifer recharge
- ABAC Ammonia controlled aeration
- Deamon and Anitamox side stream de-ammonification
- Thermal Hydrolysis for anaerobic digestion
- Automation and Controls
- BioMag (Marlay Taylor)
- NUVODA MOB -Mobile Organic Biofilm (Moorefield)

TRIP BACKGROUND and RATIONALE: *Boise has recently incorporated the EBNR process into both of our Water Renewal Facilities and we are anticipating a 1 Billion Dollar CIP and Utility Improvement Portfolio over the next 20 years. Identifying cost effective and efficient processes to meet sustainability goals and meet new permit limitations were key factors in selecting HRSD as our destination. HRSD has a wide variety of processes and innovative research projects that directly address upcoming focus areas within our Utility. The SWIFT Aquifer recharge project is particularly exciting as Boise looks for potential avenues to reuse our WRF effluents and maximize our sustainability efforts to make Boise Lasting, Innovative, and Vibrant (LIV). We were able to obtain first hand knowledge of the listed processes, all of which will be evaluated by the City of Boise as potential improvements to our Water Renewal Facilities. In addition to HRSD, we were able to extend our stay to visit Lexington Park, MD to learn more about BioMag and Moorefield, WV for the MOB process.*

TRIP SUMMARY (1 page max. Please include 10 photos and a 1-2 minute video montage from the trip. The video does not need to be professional, however if you have the means to create a professional video feel free to do so):

Why did you select the specific utility and technology for the visit?



HRSD has a wide service area and multiple treatment facilities that discharge to the Chesapeake Bay, a sensitive discharge waterbody that has given rise to an organization that is looked to as a leader in our industry, innovative in their approach to maximizing treatment capacities, and evidencing a culture of forward-thinking environmental stewardship. By visiting HRSD, we not only look to increase our knowledge of treatment technologies to improve our operations and make better decisions for our future but hope to develop a long-term collaborative relationship that will help Boise to maintain our momentum in becoming a leader in environmental practices and utility management. We also made it a priority to visit Lexington Park Maryland and Moorefield West Virginia, as these two facilities represent the largest plants utilizing their respective secondary enhancement processes (BioMag and MOB) in the country. This was a unique opportunity to visit directly with the plant managers and obtain vital information that will be used to make immediate decisions on our future for secondary processes at our Lander Street WRF.

on your visit, do you think this technology/approach works for your utility?

Several of the control and automation techniques reviewed with HRSD will immediately be incorporated into our short-term improvement plan. The Ammonia Based Aeration Control (ABAC) has significant importance as we strive to maintain extremely low ammonia permit limits but also control energy costs and improve our EBNR performance. The SWIFT (Sustainable Water Initiative for Tomorrow) program will also provide vital information that will help us in our decision-making process. Side-Stream De-Ammonification will be further reviewed to see how this can be incorporated with our Struvite Production Facility.

How useful was the trip in your decision-making process?

We believe, that in our industry, collaboration is vital for all utilities to learn from and support each other. Being able to meet directly with professionals working at the WRF's, seeing the process in action, and learning specific control variables about each process is invaluable in our learning and how best to utilize this information to make sound decisions. We will be reviewing everything learned within the utility within a month of our return, and some of the information obtained will help form decisions in the next few weeks.

What were some of the trip highlights and takeaways?

Observing the inner workings of these organizations and identifying the cultural traits that allow them to be so successful were extremely exciting. All three of these utilities employ processes that are innovative and unique and that show how dedicated people can make such a difference for their communities. The SWIFT project at HRSD was the star of the trip, as we look to maximize our investment and improve the environment, we all live in. HRSD intends to construct 5 fully functional facilities in the next 10-12 years, returning up to 120 Million Gallons per Day of water back into the aquifer to enhance the sustainability of the region's long-term groundwater supply and help address environmental pressures such as Chesapeake Bay restoration, sea level rise and saltwater intrusion. As of our visit, HRSD had returned over 132 Million Gallons back into the aquifer. Yes, we drank the water and it was delicious!