

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

**TRIP REPORT**

**SCHOLARSHIP UTILITY:** *Charlotte Water, Charlotte, NC*

**SCHOLARSHIP UTILITY CONTACT:** *William Rice, Project Manager, WRice@CharlotteNC.gov*

**ATTENDEES:** Keith Purgason, Joseph Lockler, Darrell Dewitt

**TRIP DATES:** September 10<sup>th</sup>-12<sup>th</sup>

**UTILITIES/SITES VISITED:** Chicago (IL), Rockford (IL), Madison (WI), Fond du Lac (WI), Green Bay (WI)

**TECHNOLOGIES/INNOVATIONS SEEN:**

- Ostara Nutrient Harvesting
- AquaAerobics Granular Activated Sludge Pilot
- Multiform Harvesting Nutrient Harvesting
- Airprex Pilot
- Various CHP installations

**TRIP BACKGROUND and RATIONALE (250 WORDS):** *What technology did you select to visit? What is the problem you are trying to address? How did you envision the LIFT SEE IT scholarship trip helping your utility?*

Charlotte Water is intending to implement a Nutrient Harvesting technology at our largest wastewater plant. We have previously visited a facility in Virginia and were interested in seeing more facilities and talking more with treatment plant operators. This trip was mainly for the purpose of finding out operational constraints and lessons learned after construction has taken place.

Charlotte Water does not currently have a budget for taking research trips such as this, so the LIFT SEE It program provided the funding source for taking this trip. Going forward, we now have a better understanding of what it takes, logistically and cost-wise, to arrange and execute such a trip.

An additional benefit was to see all the other ways that “Resource Recovery” is happening in the Midwest, which has a strange set of drivers that seem to result in this area being at the forefront of innovation.

Our final site list ended up being...

Ostara Nutrient Harvesting facility in Chicago, IL

AquaAerobics Granular Activated Sludge Pilot facility in Rockford, IL

Ostara Nutrient Harvesting facility in Madison, WI



Combined Heat and Power Facility in Madison, WI  
Combined Heat and Power Facility in Fond du Lac, WI  
AnaMox Sidestream Treatment Basin (under construction) in Fond du Lac, WI  
Multiform Harvest Nutrient Harvesting (under construction) in Green Bay, WI  
Combined Heat and Power Facility (under construction) in Green Bay, WI

We had intended to spend more time at Green Bay and in Stevens Point, but the hurricane caused us to cut our plans short so we could get back before it hit North Carolina.

**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?

There seemed to be a high density of treatment plants in the IL/WI/MN area that were either in the planning, piloting, or implementation phase, or were already operating nutrient harvesting facilities. Since Charlotte Water has decided to do nutrient harvesting as its next resource recovery project, travelling to the Midwest made the most sense. Our first priority was to see existing facilities to learn about O&M. Secondly, we wanted to see what changes staff would have made if they were doing it again. On a bigger picture, we wanted to poll utilities about what they were planning to do and/or what decisions they had made and “why” in terms of technology selection.

Based on the visit, do you think this technology/ approach works for you?

Yes. We had already decided we would be doing nutrient harvesting, and seeing it in action at a few different scales, further encourages us in believing it’s feasible and effective to go down that road.

How useful was your trip in the decision making process?

Our trip was useful in seeing how a facility should be laid out. Having plant operators along on the trip as well further gave them comfort in being able to really “put their hands on” the equipment and better grasp the scale of a full facility.

What were some of the trip highlights and takeaways?

In general, it’s always interesting to see how other treatment plants work. Wastewater treatment plants, with differing quality and quantity of influent, different treatment requirements, and different weather, all are unique snowflakes. Seeing how everyone tackles their own specific problems in their own ways is always interesting.

More specifically, configuration arrangements and understanding more about operations was our biggest value as part of this trip. Ergonomics often is pushed to the back burner and not really



thought much about, but with nutrient harvesting being a fairly straightforward chemical process, material handling looks like the biggest opportunity for a headache.

One of the interesting discoveries was that for some of the plants that had already built something, they had differing drivers for why they chose to remove P in their sidestream. For many, it was for stronger permit compliance for treated effluent and risk reduction in terms of biosolids P loading and land application. For CLTW, chemical savings is going to be our largest value proposition.