

North Carolina Waterworks Operators Association

August 2023 Volume 26, Number 2

Operator Spotlight A Conversation with Mike Filkins

Mike Filkins is the Supervisor / ORC (Operator in Responsible Charge) for the City of Concord's Coddle Creek Water Treatment Plant. Mike's duties include overseeing all of the plant operations (except for the laboratory), keeping track of chemical inventory and demand, and providing input into the preparation of the annual budget. He supervises 10 employees: 8 operators, 1 custodian, and 1 maintenance worker.

Mike got started in the water industry in 2005, after moving to North Carolina from Florida. As Mike explains, "I moved here from Florida with \$100. I lived with my sister for a year, saved my money, got a house. Then 4 years later, the company I was working for went bankrupt and I just started looking and filling out applications - trying to find some kind of work - and I had an Associates Science degree.



And I saw this job and I thought, 'This might come into play.' The degree I had in my back pocket. When I applied for it, I really thought that it was a maintenance job. I didn't know that it was an operator's job, until I got here for the interview." While Mike waited to be interviewed. the operator that was on duty that day explained the job duties to Mike. Mike says, "I actually remember thinking that this is over my head. Something that they're not going to hire me for. But here I am, you know?"

Mike holds an A-Surface certification. He worked on 3rd shift for 8 years as an operator, before moving to first shift and taking on some more responsibilities. When the previous supervisor announced he was retiring, Mike

The purpose of GO WITH THE FLOW is to keep you, the operator, informed of some of the training opportunities that are available for your certification needs (new and renewal). Events may be scheduled by: NCWOA, Public Water Supply Section, State Laboratory of Public Health, and other sources. This newsletter may also contain information on new regulations, news from the Certification Board, and important need-to-know

resource contacts.

Check out our website!

www.ncwoa.com

If you would like to nominate an operator for a spotlight article please contact Heather Cagle at heather@ncwoa.com.

Inside This Issue	
Operator Spotlight - Mike Filkins	1-2
Preparing for the Lead & Copper Rule: Long Term Revisions (Part 2)	3
Sponsors	4
Brunswick County Aims to Protect Public Health with a New Low Pressure Reverse Osmosis Water Plant Project	5-7
NCWOA Training Events	8
NCWOA Sectional Training	9
Membership Application	10
Board & Committee Members	11
Important Phone Numbers	12

was interested in the position. He was an operator for about 15 years, and has been the ORC / supervisor for about 2 ½ years. In November, Mike will have been with the City of Concord for 18 years.

Mike says he took the job to try to make things better. "I took the job for the operators. Not so much as me just wanting the job. I like creating a successful path for my employees and trying to help them advance, with their certifications and getting them all the tools they need. I like creating stuff for my employees, but I also like giving them recognition."

Mike thinks the biggest challenge of his job is "keeping a good, positive environment for them – conflict management. The operations side of it seems to be pretty easy. One challenge that we do face here, as far as treating the water, is the algae blooms here. Last year, we had an algae bloom where the pH got up to 9.9 coming from the reservoir, and so we've had to develop some strategies as to how we handle that. We are feeding extra alum and bringing our alkalinities down on our settling basins. So, really, the source water could be the biggest challenge for us."

Recently, they have experienced something they had never seen before. A month and a half ago, they got 10 inches of rain in 2 days in the creek that feeds their reservoir, "and that really stirred up a lot of stuff in our reservoir. The turbidity has been in the 50's, 40's. Normally, this stuff would settle out, but this stuff is not going away – real fine particles that don't want to settle out." Normal raw turbidities for the plant are around 10 or 20 NTU, but with this

rain event, the turbidity went up to 150 NTU, the highest that Mike has ever seen there.

igh Performance Living

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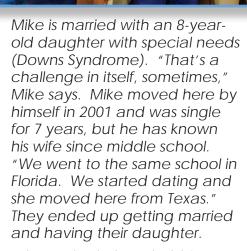
Mike doesn't feel that these changes at his plant are a bad thing; in fact, he enjoys it. He says,



"It definitely keeps you on your toes, and once you think you have it figured out, it can sucker punch you."

Another challenge is procuring chemicals. Mike explains, "There's been times when a vendor has called us two days before we were supposed to get bleach and tell us they can't bring it, and we only have a 3-day supply left. So, having a network and finding other resources for emergencies like that can be very challenging."

A third challenge of late, Mike believes, is employee retention. He notes, "The last couple of years, I feel like the industry has changed, as far as people coming and staying, being loyal. And the whole city is experiencing that. People are really jumpy now. If they can get a dollar an hour more (somewhere else), they are out the door."



When asked about hobbies outside of work, Mike laughs and says, "I don't have time for that anymore." But when he does have time, he enjoys playing golf and doing yardwork. He also enjoys having barbecues. "I have kind of an old-fashioned smoker that uses wood. You actually put wood logs in it." His favorite thing to grill? Brisket, "because it's the hardest thing."

Mike has no plans to take on a different job. He says, "As of right now, I don't have any desire to move up higher. It would be hard for me to actually get away from the water treatment."

Thanks, Mike, for the job you are doing for the water industry and for the City of Concord!

Preparing for the Lead and Copper Rule: Long Term Revisions (Part 2)

Brandon Garner and Becki Rosenfeldt - Hazen

October 16, 2024, is a date that many of us have seared into our memories at this point. It is the date that all systems in North Carolina must obtain initial compliance with the Lead and Copper Rule Revisions (LCRR), published by USEPA on December 16, 2021. While obtaining initial compliance is a daunting task, it is only the first step in what is meant to be an ongoing process that all utilities must comply with to further protect public health. In Go with the Flow from December 2022, we discussed aspects of initial compliance. With this article, we want to spend a bit more time making folks aware of what comes after October 16, 2024.

Lead Service Line (LSL) Inventory

The intent of the LCRR is the elimination of lead in public water supply systems. It is expected that water systems will continually work to reduce the number of unknown materials in their Lead Service Line (LSL) inventory. To reduce the number of unknowns, utilities must investigate service line materials on both the utility and customer-side of the service line. To investigate service lines, utilities can use methods such as historical records (i.e., specifications and plans from construction projects, historical plumbing codes, tap cards), identifying the age of installation, customer surveys, physical verification, or other means of positively identifying the material. If lead is encountered, instituting a replacement program, and having a policy of replacing the entire service line can gradually reduce the number of lead service lines. Updates to the inventory must be made annually.

Schools and Childcare Facilities

Recall that by October 16, 2024, systems must identify schools and childcare facilities constructed prior to 2014 that are at risk for having service lines that are lead or galvanized requiring replacement (GRR), lead solder, or fixtures containing lead. After this date, utilities are required to begin sampling identified schools and childcare facilities. All primary schools and childcare facilities must be sampled once within 5 years with a minimum of 20% of schools and childcare facilities sampled each year. Smaller systems with a relatively small number of schools and childcare facilities may opt to do all sampling in year one, whereas larger systems with many schools and childcare facilities may elect to sample at 20%/year. Secondary schools identified must be sampled upon request. Like primary schools, systems are only required to sample 20% of secondary schools that request

testing. The identified list of schools and childcare facilities list must be updated every five years.

Annual Notifications

There are several different types of notifications now required by the LCRR. In this article we will discuss a few of those notifications. For details on additional required notifications and more specific information on those discussed here, please refer to the LCRR.

Notification of Sample Results: Individual sample results must be reported to the customers served at that sample tap. For samples lower than the Action Limit (15ppb), sample results must be sent within 30 days of the Utility receiving the reports. For samples greater than the Action Level (AL), sample results must be sent within 3 calendar days. These notifications must include language on the health effects of lead and how consumers can reduce their exposure. Additionally, the Maximum Contaminant Level Goal (MCLG) and AL must be stated and defined.

Notification of Known or Potential Service
Line Containing Lead: Utilities are required to
communicate with all customers at service
locations that are lead, galvanized requiring
replacement, or unknown by sending a notice
within 30 days of submitting the LSL Inventory to
the State and again annually. These notices must
contain language explaining what type of service
line the customer has, health effects of lead, how
customers can reduce their exposure to lead,
and other information determined by service line
type. Refer to paragraph 141.85.e of the rule for
additional information or requirements of these
notifications.

Consumer Confidence Reports (CCRs): Instructions on how the publicly available LSL Inventory database can be accessed must be included in the CCR. This statement must be included even if the utility has proven that all their service lines are non-lead and have been certified as non-lead by the State.

Much more is included in the LCRR. This article and the previous article are meant to provide some basic understanding of portions of the new rules. For more information and to be prepared to meet compliance, system operators and managers should become very familiar with the rule and if necessary, reach out to available resources such as professional organizations or your system's consulting engineers.

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Heather Cagle, NCWOA Administrator (252) 764-2094 ext. 1

Email: heather@ncwoa.com

or check our website at www.ncwoa.com

Brunswick County's Northwest Water Plant is a 24 MGD surface water treatment plant that receives its raw water from the Cape Fear River just above Lock and Dam No. 1. The water system is large, bordered by the Cape Fear River to the East, South Carolina to the West, and the Atlantic Ocean to the South, the utility pumps water over 85 miles, with about 1,300 miles of distribution pipe to meet customer demands. Average production and population served by the plant is 17 MGD and 195,000, but that increases to over 24 MGD and 300,000 during the summer tourist season.

After the water plant receives its raw water from the Cape Fear River, it is treated with chlorine dioxide; however, if there is an algae bloom, it is first treated with powered activated carbon, then chlorine dioxide is added in the rapid mix along with coagulant (polyaluminum chloride). Next, the water moves into an upflow clarifier, or pulsator sludge blanket system. The water then goes into dual media gravity filters ("Greenleaf filters") and chlorine dioxide is added on top to control algae and microbials. Next, the water goes to the clear well, where more chlorine dioxide is added as the primary disinfectant. Finally, the water goes to the finished water pump station, where it is treated with chlorine and ammonia. to make chloramines for the distribution system.

Plant capacity has been increased incrementally over the years in phases.

Phase 1 began in 2008 to add 5.25 MG of finished water storage, increase bulk chemical storage, and lay some of the infrastructure piping necessary to expand capacity to 36 MGD. 2016 saw phase 2 of the expansion take place by adding a new finished water pumpstation, administrative office, and rehabilitation of the existing filter bottoms. Phase 3 was slated for 2020 but this was interrupted by the discovery of GenX PFAS compounds in the raw water supply. The county does not have an alternative water supply, so it decided to pilot several technologies for PFAS removal in conjunction with neighboring utilities in order to speed up data gathering. The end result was to add Low-Pressure Reverse Osmosis (LPRO) to Phase 3 of our expansion project. Glenn Walker, Water Resources Manager for Brunswick County, explains, "We piloted LPRO, in addition to GAC and ion exchange, but being a water plant that didn't have any advanced treatment to begin with, it was more cost effective and more beneficial to the protection of public health to go straight to reverse osmosis. So for clarification, the new process is going to be using the conventional plant just as we are today followed by the LPRO to remove PFAS."

Phase 3 of the expansion grew considerably, it involves doubling the plant capacity, from 24 MGD to 48 MGD, plus adding the LPRO system. Conventional treatment modifications include converting each clarifier from a pulsator to super pulsator and adding 8 additional Green-







RO building and Ancillary processes





Rapidmix and filters



LPRO feed pumps

leaf filters. Moving the water from the conventional process to the LPRO is no small task; 500 hp pumps were added to boost the water pressure from the Greenleaf filters to the LPRO skids. Due to

the nature of adding LPRO there are several necessary ancillary pieces of equipment that goes with adding such an advanced treatment process. Antiscalant, sodium bisulfite, lime slurry and carbon dioxide are all new processes that will be put into place to support the operation of the LPRO skids. The project is in its third year of construction, with a contractual completion date of May, 2024.

Adding the LPRO system was not as straightforward as one might expect. Walker explains the changes: "The LPRO we're using can sustain a 90-92% recovery rate, which is outstanding as far as LPRO treatment goes, but we were already pushing the conventional Phase 3 expansion to its limits at the original 36 MGD design. With the additional 8-10% of filtered water needed to make 36 MGD of LPRO drinking water, (because you're losing 8 to 10% across the LPRO process) it means the WTP has to produce 16% more on the

conventional side in order to meet 36 MGD. This had a domino effect of needing to build a new rapid mix structure and four additional Greenleaf filters over what we had anticipated during design of Phase 3.

There have been challenges during construction, the pandemic kept everyone from working closely together in person and the contractor had challenges obtaining materials during the global supply chain shortage. Public sentiment, as Walker notes, "As far as public sentiment, the public has been supportive but questions, 'How come you can't build it faster?' They are wanting good, clean PFAS free water sooner than later."

Due to the project, staffing at the plant will increase, adding one additional operator to each two-person team, and one additional maintenance person. Construction bid cost of the project is approximately \$129 million. CDM Smith is the designer of the system and is managing the engineering and inspection services during construction.

The project has received some skepticism due to concerns environmental groups have shared regarding the LPRO concentrate disposal. Walker explains, "People ask about the concentrate. The LPRO process, as I mentioned earlier, has about a 90-92% recovery. So, for every 10 gallons of water that goes into it, we're getting 9 gallons out as drinking water and one gallon out as concentrate. Some literature may call that one gallon a brine, but that's not correct, because the chloride levels are so low in the supply water. We're taking a glass of water from

the conventional treatment plant that you and I would drink today, and then running it through a reverse osmosis process. We're not removing any appreciable amount of salt or chloride because there's none in the water to begin with, as you would have with a brackish groundwater treatment plant or a sea water desalinization process. We're using virtually the same exact technology as a groundwater RO facility that you would find in the Outer Banks or in South Florida. It's just that we can run at a much lower pressure."

NCDEQ approved an NPDES permit, to discharge the concentrate back into the Cape Fear River, but Walker says, "To a lot of folks that sounds bad, because you're putting the concentrate back in the river. The process is not adding any new PFAS to the river, that wasn't already there and then if you think about where is this water going now? It is pumped across all of Brunswick County and customers are taking showers, doing laundry, and flushing it down the toilet where it eventually goes back to the wastewater plants that then discharges it back into the Cape Fear River or worse, it could go to another wastewater plant in a different river basin and now PFAS is being added there too. CDMSmith did modeling and research has shown the (PFAS) is back to background levels, ~100 feet downstream of our NP-DES discharge point. One huge benefit to the environment is the utility will not be spreading PFAS across Brunswick County anymore. The drinking water will not be a source of PFAS in biosolids, so it's going to be a big win for the 600 square miles that make up Brunswick County's water system. Once the project is completed

next year, customers will not have to worry about spreading it across their yards into gardens or passing it on to the wastewater treatment plants. It will simply be stopped at the WTP and returned to the same river where the polluters discharged it.

In the end Brunswick County has chosen a path that best protects public health and the environment for Brunswick County citizens.

Filter Gallery Construction





Line stop piping for LPRO tie in



NCWOA Upcoming Workshops & Training Events

(tentative schedule and could be subject to change)

All NCWOA training is pre-approved by the NCWTFOCB for treatment and distribution operators. Some of the training will also qualify for wastewater contact hours. Individuals that attend training will receive a Certificate of Attendance for credit applicable hours. Please see each individual training agenda or description for details. Training and locations are tentative and may be subject to change.

Fall Certification School A,B,C Surface and A,B,C Well

September 25-29, 2023

McKimmon Center - Raleigh, NC

Advanced Day - September 27 - 9am-5pm

Present and Future Challenges with Drinking & Waste Water Systems

Topics to Include: PFAS Analysis and Infrastructure, Funding Application Process Regulatory Updates, CCR Updates, Source Water Protection (6 hours water & wastewater credit)

More information and registration form available on our website at www.ncwog.com

Continuing Education

Our sectional training will be offered across the state in all sections. Advanced Day will be September 27 at the fall school in Raleigh. Virtual and in-person training options will be scheduled.



NCWOA 2023 Sectional Training

(tentative schedule and could be subject to change)

All sectional training will be offered from 9am-12noon (unless otherwise notated) and is open to anyone regardless of your particular section.

Training agendas and dates are tentative and may be subject to change.

Virtual and in-person training will be planned.

Western Sectional Training

October 19 - Lenoir

Questions/RSVP to Brendan Kelley at BKelley@ashevillenc.gov

North Piedmont Sectional Training

October 17 - TBD

Questions/RSVP to Blake Slaughter at <u>bslaughter@ci.reidsville.nc.us</u>

South Piedmont Sectional Training

October 5 - Charlotte

Questions/RSVP to Tena Mullis at (704) 920-5163 or mullistm@concordnc.gov

Northeast Sectional Training

October 10 - Greenville

Questions/RSVP to Dail Booth at Dail.Booth@cravencountync.gov

Southeast Sectional Training

October 11 - TBD

Questions/RSVP to Brittany Odom at Brittany.Freeman@faypwc.com

If you are interested in hosting or sponsoring a sectional training meeting please contact
Heather Cagle at (252) 764-2094 ext. 1 or heather@ncwoa.com

<u>Virtual Training Requirements</u>

Participants must have broadband internet access, computer audio with microphone (or the ability to dial in by phone) and a web camera. We must be able to see the participant at all times during the sessions.

Must be an active member to receive credit hours.

North Carolina Waterworks Operators Association MEMBERSHIP APPLICATION

MISSION STATEMENT: To provide knowledge, skills & educational opportunities for drinking water professionals; develop working relationships with other water treatment organizations; project a positive image and communicate the importance of safe drinking water.



Membership Application ANNUAL DUES ARE \$50.00 FOR 2023

First Name: Middle Initial:	Last Name:
Nickname: Social Security # (last 4 digits): xxx-	-xx If Renewal, what is your NCWOA Member #:
YOUR Individual Operator Certification #: (Issued by NCWTFOCB)	
Certificate(s) Held:	
A-Surface B-Surface C-Surface A-Well	B-Well C-Well D-Well
A-Dist B-Dist C-Dist D-Dist Cross-Coni	nection
Was	stewater #'s
None Yet You are not an Operator & do not plan to be	ecome Certified.
PLEASE SELECT YOUR PREFERRED ADDRESS (This is where confirm	nations & membership info will be sent.)
Home Address:	
City: State	_ Zip County:
Employer Name:	
MAILING Address:	
City: State	_ Zip County:
Work Phone :	
Home Phone: Cell Phone:	
Email Address:	
How would you like to receive your issues of Go With The Flow? Pos	stal Delivery <u>OR</u> Email
How would you like to receive your Section Meeting notices? Posta	al Delivery <u>OR</u> Email
NOTE: Memberships are based upon a calendar year. Membership membership number, and membership expiration date.	cards will be mailed with receipt. These cards will contain your name,
NOTE: Please make checks payable to "NCWOA" or "North Caroling Orders. Credit Card payments may be mailed, faxed, or scanned but	
CREDIT CARD PAYMENT	PLEASE SEND APPLICATION AND PAYMENT TO: Heather Cagle, NCWOA Administrator
Credit Card Type: Visa MC AmEx Discover	PO Box 5466 High Point, NC 27262
Name on Credit Card:	Phone: 252-764-2094 ext. 1 Fax: 252-764-2095
Credit Card Number:	Email: heather@ncwoa.com
Exp Date: Month Year Security Code from back of Caro	
Cardholder's Signature:	Over the Phone
	CC receipt be sent to?

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Important Phone Numbers & Websites

Main Phone # for Certification Board	919-707-9040	https://deq.nc.gov/about/ divisions/water-resources/ operator-certification/drinking- water-operator-certification/dw- operator-certification-wtfocb
Rebecca Sadosky, PWS Section Chief	919-707-9096	
Miranda Harper, Compliance Services Branch	919-707-9092	
Eric Hudson – Protection & Enforcement Branch	336-776-9665	
Bethany Goodwin, PWS – Consumer Confidence Reports	919-707-9079	
Public Water Supply Offices:		www.deh.enr.state.nc.us/pws
Central Office	919-707-9100	
Asheville	828-296-4500	
Mooresville	704-663-1699	
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Raleigh	919-791-4200	
Fayetteville Fayetteville	910-433-3300	
Washington	252-946-6481	
Wilmington	910-796-7215	
NC State Laboratory of Public Health	919-733-7308	
SDWA Hotline	800-426-4791	
EPA SDWA Website		www.epa.gov/safewater
EPA Microbial & DBP Data from Drinking Water Systems Website		www.epa.gov/enviro/html/icr
NC Waterworks Operators Association (NCWOA)	252-764-2094	www.ncwoa.com email: heather@ncwoa.com
NC Rural Water Association	336-731-6963	www.ncrwa.com
NC One Water	919-784-9030	www.nconewater.org

