OKI GROUNDWATER COMMITTEE
JUNE 19, 2019 - 10:00 AM
OKI Board Room
720 East Pete Rose Way (at the corner of Eggleston Avenue)
Cincinnati, Ohio 45202

AGENDA

1. **Welcome/Introductions** (3 minutes)

2. **Announcements**

3. **Update on Local Groundwater Management Efforts** (30 minutes)
   *TBD*

4. **OKI Staff Update** (5 minutes)

5. **“PDS Drone Program”** (30 minutes)
   *Ryan Herman, PDS*

6. **“Lytle Water Tower Painting Project”** (30 minutes)
   *Terry Morris, Springboro Utilities*

7. **“Recruiting and Training the Next Generation of Operators”** (30 minutes)
   *Brian Hall, Ohio EPA*

8. **Other Business**

ADJOURNMENT

Next Meeting Wednesday September 18, 2019
Bio:
Ryan Hermann
UAS Analyst
Planning & Development Services of Kenton County

As the UAS Analyst Ryan is responsible for all UAV/Drone projects (NKYdroneLAB) at PDS. This includes aerial photography collection, inspections, planning, emergency response, data processing, and analysis. Other responsibilities include: custom mapping, digital file organization, and delivering exceptional customer service. In addition, Ryan also facilitates the mapping and GIS needs for cities, citizens, police and fire, utilities, schools, planning, and the public across Northern Kentucky. Ryan earned a BA in Geographic Information Systems from Ohio University in 2013.

Title: Enhancing Field Work with UAV Technology
Springboro Lytle Water Tower
Interior Painting Project
2019

Presented By:
Terry Morris
Project Manager
Veolia NA Springboro W/WW
Class 3
Lytle Water Tower
Points for Consideration

- Preparation – What needs to be done prior to painting
- Outside Influences – How to schedule around the current and future projects
- Actual Painting period – How to plan for a tower being offline
- Inspection – Quality Control
- Sampling – Which tests need to be submitted before going back online
- Service – How are we going to fill 2,000,000 gallons
Preparation

- Installation of new VFD’s at Lytle Booster
- Switching and Testing the new PSI mode from Level Mode/fill & draw
- Testing of Interconnect PRV with Warren County
- Installing Blow-off valve on fire hydrant to control any high pressure spikes
- Removing Cathodic protection
- Communication with Fire Department, Warren County and City

Image: Installation of the new VFD’s at the Lytle Booster Station
Outside Influences

- **Weather**
  - Spring or Fall

- **Warren County Round-about project**
  - Estimated construction timeframe

- **Springboro Splash Pad**
  - Actual construction

*Image: Aerial view of ongoing construction for the Springboro Splash Pad*
Construction

- Seven Brothers Painting
  - Sandblast
  - Primer
  - Mud Valve
  - Stripe Coat
  - Intermediate Coat
  - Final Coat
  - New Cathodic Protection System

Image: Stripe Coat work
Inspection

- Dixon Engineering
  - Before
  - Intermediate
  - Holiday
  - Final

*Image: Contractor performing Holiday Inspection on the interior of the bowl*
Sampling

- Warren County / City of Springboro Interconnect
  - Compatibility
- Disinfection Process
  - Chlorination Method No. 3 (AWWA C652)
- Bacteria
  - Per EPA Regulation

*Image: Chlorination Method No. 3 (AWWA C652)*
Service

- Warren County / City of Springboro Interconnect
  - Fill entire tower – 2,000,000 gallons over 3 days of continuous fill
  - Tower to go live
    - Switching from PSI Mode to Level Mode via SCADA

Image: Springboro Warren County Interconnect
Video

- Power Wash
  - Power Wash.mov

- Final Coat
  - Top Coat Interior 2019.mov
Special Thanks To:

- Seven Brothers – Painting
- ADGO Engineering – Programming
- Dixon Engineering – Inspection
- Warren County – Water Supply
- corrpro – Cathodic Protection
- City of Springboro
- Rhule Excavating
- Clearcreek Fire Department
- Veolia
Questions, Comments

Terry Morris
Project Manager
Veolia
terry.morris@veolia.com
937-603-1035
Brian Hall has been Assistant Chief for the Division of Surface Water of Ohio EPA since 2005. His responsibilities include oversight of the Water Quality Modeling & TMDL, Ecological Assessment, Standards and Technical Support, Information Resources Management and Fiscal units.

Before becoming Assistant Chief, Brian was the Manager of the Information Resource Management Section in Surface Water. As manager of that section he oversaw permit issuance and compliance reporting operations. Prior to that Brian spent twelve years in the Northeast District Office in the NPDES program.

Brian has a Bachelor of Science in civil engineering from the University of Akron, is a professional engineer and has a class three Ohio wastewater operator’s license.

Brian Hall, Assistant Chief, Division of Surface Water
Ohio EPA
50 W Town St, Suite 700
PO Box 1049
Columbus, OH 43216-1049

phone 614.644.2033 fax 614.6442745 email brian.hall@epa.ohio.gov
Ohio Water Development Authority

Operator Workforce Development Summit

September 19, 2018

Ohio Environmental Protection Agency
Ohio Water and Wastewater Operator Workforce Development Summit

September 19, 2018
Operator Certification Program Background

- Ohio’s Water and Wastewater Certification Program was established in 1935
- 14 Classifications
- Exams
  - Historical
  - Modern Day
- Workforce Initiatives
  - Operators as Professionals
  - Veterans
  - Career Resources tab on website
Water Operators Eligibility for Retirement

- # Eligible for retirement < 5 yrs: 59
- # Eligible for retirement 6-10 yrs: 22
- # Eligible for retirement > 10 yrs: 19
## Water Operator Outlook by District

### Districts (# of operators)

<table>
<thead>
<tr>
<th># of years until retirement</th>
<th>NWDO</th>
<th>NEDO</th>
<th>CDO</th>
<th>SWDO</th>
<th>SEDO</th>
<th>Overall</th>
<th>Overall %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>75</td>
<td>118</td>
<td>84</td>
<td>152</td>
<td>65</td>
<td>494</td>
<td>21.9%</td>
</tr>
<tr>
<td>6-10</td>
<td>75</td>
<td>91</td>
<td>86</td>
<td>98</td>
<td>77</td>
<td>427</td>
<td>18.9%</td>
</tr>
<tr>
<td>&gt;10</td>
<td>242</td>
<td>224</td>
<td>256</td>
<td>393</td>
<td>218</td>
<td>1,333</td>
<td>59.1%</td>
</tr>
<tr>
<td>Total</td>
<td>392</td>
<td>433</td>
<td>426</td>
<td>643</td>
<td>360</td>
<td>2,254</td>
<td></td>
</tr>
</tbody>
</table>
Wastewater Operators Eligibility for Retirement

- # Eligible for retirement < 5 yrs: 56
- # Eligible for retirement 6-10 yrs: 25
- # Eligible for retirement > 10 yrs: 19

Ohio Environmental Protection Agency
### Wastewater Operator Outlook by District

<table>
<thead>
<tr>
<th># of years until retirement</th>
<th>NWDO</th>
<th>NEDO</th>
<th>CDO</th>
<th>SWDO</th>
<th>SEDO</th>
<th>Overall</th>
<th>Overall %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>111</td>
<td>168</td>
<td>44</td>
<td>126</td>
<td>66</td>
<td>515</td>
<td>24.6%</td>
</tr>
<tr>
<td>6-10</td>
<td>88</td>
<td>148</td>
<td>40</td>
<td>86</td>
<td>41</td>
<td>403</td>
<td>19.2%</td>
</tr>
<tr>
<td>&gt;10</td>
<td>249</td>
<td>295</td>
<td>94</td>
<td>364</td>
<td>177</td>
<td>1,179</td>
<td>56.2%</td>
</tr>
<tr>
<td>Total</td>
<td>448</td>
<td>611</td>
<td>178</td>
<td>576</td>
<td>284</td>
<td>2,097</td>
<td></td>
</tr>
</tbody>
</table>
## Statewide Water Operator Wages

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD1</td>
<td>$22.50</td>
<td>$8.30</td>
<td>$45.90</td>
</tr>
<tr>
<td>WD2</td>
<td>$25.79</td>
<td>$15.00</td>
<td>$41.32</td>
</tr>
<tr>
<td>WSA</td>
<td>$19.75</td>
<td>$14.50</td>
<td>$27.00</td>
</tr>
<tr>
<td>WS1</td>
<td>$22.89</td>
<td>$8.50</td>
<td>$48.69</td>
</tr>
<tr>
<td>WS2</td>
<td>$24.98</td>
<td>$15.75</td>
<td>$45.00</td>
</tr>
<tr>
<td>WS3**</td>
<td>$27.56</td>
<td>$9.40</td>
<td>$50.96</td>
</tr>
<tr>
<td>WS4</td>
<td>$37.52</td>
<td>$15.00</td>
<td>$61.00</td>
</tr>
</tbody>
</table>

**One Village indicated they paid their WS3 and WW1 operators $5.63 an hour. This is less than minimum wage. These values have been taken out of the average calculation.**
# Average Water Wages by District

<table>
<thead>
<tr>
<th>Village</th>
<th>NWDO</th>
<th>NEDO</th>
<th>CDO</th>
<th>SWDO</th>
<th>SEDO</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD1</td>
<td>$22.30</td>
<td>$23.69</td>
<td>$21.90</td>
<td>$23.75</td>
<td>$20.67</td>
</tr>
<tr>
<td>WD2</td>
<td>$25.51</td>
<td>$26.70</td>
<td>$28.87</td>
<td>$26.31</td>
<td>$23.03</td>
</tr>
<tr>
<td>WSA</td>
<td>$16.64</td>
<td>$19.88</td>
<td></td>
<td>$17.48</td>
<td>$22.15</td>
</tr>
<tr>
<td>WS1</td>
<td>$22.55</td>
<td>$22.58</td>
<td>$21.46</td>
<td>$23.71</td>
<td>$19.46</td>
</tr>
<tr>
<td>WS2</td>
<td>$23.11</td>
<td>$26.22</td>
<td>$23.10</td>
<td>$26.00</td>
<td>$20.64</td>
</tr>
<tr>
<td>WS3**</td>
<td>$25.98</td>
<td>$29.51</td>
<td>$31.10</td>
<td>$28.00</td>
<td>$23.44</td>
</tr>
<tr>
<td>WS4</td>
<td>$32.30</td>
<td>$39.75</td>
<td>$39.98</td>
<td>$38.02</td>
<td>$34.30</td>
</tr>
</tbody>
</table>

**One Village indicated they paid their WS3 and WW1 operators $5.63 an hour. This is less than minimum wage. These values have been taken out of the average calculation.
# Statewide Wastewater Operator Wages

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>WC1</td>
<td>$23.71</td>
<td>$15.03</td>
<td>$41.32</td>
</tr>
<tr>
<td>WC2</td>
<td>$24.84</td>
<td>$15.86</td>
<td>$33.40</td>
</tr>
<tr>
<td>WWA</td>
<td>$18.80</td>
<td>$15.00</td>
<td>$26.08</td>
</tr>
<tr>
<td>WW1**</td>
<td>$21.45</td>
<td>$10.30</td>
<td>$33.37</td>
</tr>
<tr>
<td>WW2</td>
<td>$22.90</td>
<td>$9.40</td>
<td>$38.00</td>
</tr>
<tr>
<td>WW3</td>
<td>$26.70</td>
<td>$14.33</td>
<td>$63.00</td>
</tr>
<tr>
<td>WW4</td>
<td>$36.35</td>
<td>$20.00</td>
<td>$61.00</td>
</tr>
</tbody>
</table>

One Village indicated they paid their WS3 and WW1 operators $5.63 an hour. This is less than minimum wage. These values have been taken out of the average calculation.
### Average Wastewater Wages by District

<table>
<thead>
<tr>
<th></th>
<th>NWDO</th>
<th>NEDO</th>
<th>CDO</th>
<th>SWDO</th>
<th>SEDO</th>
</tr>
</thead>
<tbody>
<tr>
<td>WC1</td>
<td>$25.06</td>
<td>$24.91</td>
<td>$22.32</td>
<td>$23.06</td>
<td>$21.40</td>
</tr>
<tr>
<td>WC2</td>
<td>$25.19</td>
<td>$26.98</td>
<td>$22.22</td>
<td>$24.53</td>
<td>$20.44</td>
</tr>
<tr>
<td>WWA</td>
<td>$16.06</td>
<td>$19.18</td>
<td>$17.48</td>
<td></td>
<td>$21.94</td>
</tr>
<tr>
<td>WW1**</td>
<td>$22.64</td>
<td>$21.83</td>
<td>$20.94</td>
<td>$22.84</td>
<td>$18.27</td>
</tr>
<tr>
<td>WW2</td>
<td>$22.47</td>
<td>$23.65</td>
<td>$22.19</td>
<td>$23.29</td>
<td>$21.06</td>
</tr>
<tr>
<td>WW3</td>
<td>$27.96</td>
<td>$26.63</td>
<td>$28.30</td>
<td>$27.60</td>
<td>$23.25</td>
</tr>
<tr>
<td>WW4</td>
<td>$29.08</td>
<td>$38.11</td>
<td>$38.01</td>
<td>$39.64</td>
<td>$25.21</td>
</tr>
</tbody>
</table>

**One Village indicated they paid their WS3 and WW1 operators $5.63 an hour. This is less than minimum wage. These values have been taken out of the average calculation.
Questions?
My full name is Andreas Robert Eddy. I am a Class II Professional Water Supply Operator and have been working at the City of Middletown Water Treatment Plant since December of 2017. I graduated from Ivy Tech Community College Summa Cum Laude. I am currently working towards earning my Bachelor's degree online through Oregon State University, majoring in Environmental Science with a concentration in Water Resources. I am passionate about environmental quality, sustainability, as well as the health and well-being of the public.
Biography:

Adam Lehmann runs the Stream Conservation Program for the Hamilton County Soil and Water District. The mission of the Stream Conservation Program is to restore and preserve the ecological integrity of Hamilton County’s local water resources. Adam approaches this mission by providing three primary services within Hamilton County: 1) strategic watershed planning and implementation of watershed restoration projects; 2) public education and involved in local water resource conservation; and 3) land owner consultation regarding water resource management.

Adam received bachelor’s degrees in geography and environmental science from Miami University in Oxford, Ohio in 2006. After graduation, he worked as a research scientist for USEPA, studying watershed management and headwater stream ecology. While working for USEPA, he earned a Master’s degree in environmental science from Miami University. Adam then worked as a consultant for five years helping clients comply with Clean Water Act regulations. He started working for the District in 2016.

Adam Lehmann, Stream Conservation Program Manager
Hamilton County SWCD
1325 East Kemper Road, Suite 115
Cincinnati, OH 45246
Phone: 513-772-7645 ext. 15
Fax: 513-772-7656
www.hcswcd.org/streams
Welcome/Introductions:  
Groundwater Committee Chair Bruce Whitteberry opened the meeting and requested introductions from all attendees.

Announcements:  
A reminder that the next meeting date is September 18th 2019.
Update on Local Groundwater Management Efforts:
Rick Fueston - Clermont County Water Resources

Rick provided an overview of Clermont County’s three drinking water treatment facilities, which serves one hundred and twenty thousand customers with a combined maximum daily capacity of thirty five MGD. All treatment plants use chlorination and pH adjustment. One of the facilities is called MGS, a two MGD groundwater plant that is located along the Little Miami River, with five wells. The MGS plant utilizes ion exchange because the water is harder in this location. The second facility is the PUB plant, with a fifteen MGD capacity and twenty wells. PUB is located on the Ohio River near the Beckjord Power Plant. PUB uses iron and manganese removal techniques in addition to utilizing aeration and oxidation, retention basins, and dual media gravity filters. The third facility, BMW, is a surface water plant that is rated at eighteen MGD. The BMW plant uses oxidation, flocculation, sedimentation, mixed media filtration, followed by granular activated carbon contactors. BMW draws its source from East Fork Lake. The distribution system in Clermont County has five different pressure zones and eighteen different elevated storage tanks in conjunction with four booster stations and pressure regulators. Each facility is monitored twenty four hours a day, with two of the three facilities manned twenty four hours a day. The PUB plant monitors the distribution system and controls the booster stations. All of the wells are monitored on a quarterly basis (via draw down performance), and if issues are found a contractor does float test. Last year four wells were tested and were in need redevelopment. Two of the wells needed liners because the wells were producing gravel pack. Two other wells needed equipment replaced. Experimental pressurized water test yielded no new information, and were costly. The newly installed liners caused some disc agitation. The project is ongoing with the other twenty wells to be analyzed moving forward. The SCADA update provided challenges for Clermont County, and the computer systems were down for two weeks forcing more load onto other plants. The old computer system in use was factory link. BMW staff has used new sampling methods to test for HABs and have reported some samples positive for microcystin.

Adam Lehman - Hamilton County Soil and Water Conservation District

Adam shared Hamilton County Soil and Water Conservation District’s mission to restore and maintain the chemical, physical and biological integrity of the surface water, which is impaired by hydrologic alteration. Ultimately the hydrological alteration affects the base flow of the streams which is a groundwater issue. The result of current flood management practices is high peak flows which contribute to the degradation of streams and cause flash flooding for residents. The Hamilton County Soil and Water Conservation District is concerned that the current storm water management practices are not feasible to mitigate intense rainfall events and the resulting impacts. It is not clear if the current green infrastructure is combatting the peak flow issues. Adam emphasizes the need for piezometer device placement in the ground to measure any drops in the water table. Cooper Creek Collaborative is a new project with half of the watershed controlled within this system. The creek is a tributary off the Mill Creek, primarily in Sycamore Township with contributions from Deer Park. The creek encompasses a little over a square mile area. Notable successes of the Cooper Creek Collaborative include the MS4 retrofitting. The MS4
A retrofit project will create a detention facility. Future projects include the creation of detention basins, tree planting initiatives, and incorporating roughness features in channels.

**Andreas Eddy - City of Middletown**

Andreas provided a summary of the City of Middletown’s water and sewer system, which serves fifty thousand customers with eleven wells and a capacity of twenty MGD. The plant is a lime softening plant. The City of Middletown is launching a project to include one more well with a capacity of five MGD and upgrade pump stations. The upgrade to the Kettington pump system will increase the pumping capacity of four MGD pumps to eight MGD in the intermediate services. The check valves for the high service zones have been replaced in this project as well. The City of Middletown also hopes to get the radios upgraded. Andreas mentioned the City of Middletown’s participation in the EPA Voluntary Action Program with Jacobson Engineering. The program allows the City of Middletown to mitigate leaching into the soil from an underground gasoline storage reserve. The potassium magnate is injected into the soil to combat the leaching of the gasoline in the soil. The lack of staff has caused the City of Hamilton to outsource their sampling to a third party group, 120 Water Audit, for their lead and copper water samples. The City of Middletown reports the results provided by 120 Water Audit to Ohio EPA.

**OKI Staff Update:**

Members were reminded to check the certificate box on the attendance sheet in order to receive certificates. No new responses to the survey about potential topics for future presentations have been received; OKI will be sending out the survey again to gather topics of interest and possible speaker’s. The water quality internship position is currently available at the OKI office. Environmental consultations are soon approaching and Margaret extended the invitation to attendees for the September webinar session.

**Presentations:** (For more information on each presentation check out the Groundwater Committee website at [http://www.oki.org/about-oki/committees/groundwater-committee/](http://www.oki.org/about-oki/committees/groundwater-committee/))

**Ryan Herman, PDS**

**“PDS Drone Program”**

Ryan is a member of the Planning Developmental Service (PDS) Link GIS in Kenton County. Link GIS manages the three northern counties in Kentucky: Campbell, Kenton, and Pendleton counties respectively. PDS is the managing partner of Link GIS. Two years ago Link GIS decided to add drones as a service to its partners and to its counties. Originally known as NKY Drone Lab, the company’s pilots hold licensed droned operator status. Over the last two years, PDS has accumulated two hundred miles of flight distance, which amounts to thirty three hours of flight time in the three Kentucky counties. Ryan presented the Yuneec Typhoon H., which is Yuneec hexacopter drone that runs multiple batteries. With charging batteries on the fly, PDS can do two hours of consistent flight time with this hexacopter. PDS uses ESRI based drone software, and drone to map. For photo and video manipulation PDS uses the Adobe Suite Illustrator. PDS is able to gather real time data, Ryan emphasizes that the sensors are built inside the drone itself. The static aerial photos are interpolated onto a GIS coordinate system for analysis after each flight.
The telemetry data includes; weather, latitude and longitude, humidity, wind bearings, and distance traveled. Ryan provided applications of the drone in water tank inspections, which are required on a frequency of once per year in Northern Kentucky. PDS has inspected twenty seven water towers within the three counties, which offered a return on investment. The cost to contract drone usage would be from twelve to fifteen hundred dollars for each water tower. Ryan explained how PDS has used drones during flood events, like Silver Grove. The telemetry data taken in real time by the drone is valuable in storm events when areas are deemed unreachable. Ryan briefly mentioned the Park Hills development and drone usage to help optimize the cut and fill operations. The drainage in Park Hills needed to be protected, and the developers planned to use culverts to maintain storm water levels. Ultimately PDS was able to use orthomosaic maps for this project. Ryan mentions the use of the drone in a grass fire in Campbell County in circumstances where first responders are at risk. The drone has also been used in already existing processes, like taking aerial images of the car placement in a parking lot. The PDS drone has also been useful in conservation projects, such as the Wolsing Woods dam installation. The local partners hope to add LiDAR to the drone program moving forward.

**Terry Morris, Springboro Utilities**

**“Lytle Water Tower Painting Project”**

Terry provided an overview of the Springboro Lytle Water Tower interior painting project for this year. The Veolia water and wastewater facilities includes a two million gallon water tower for distribution. The miniature submarine allowed the tank to be inspected internally for twenty five hundred dollars without drainage of the tower. In 2017 the exterior paint project was under way and the tank was drained which revealed chipping paint on the interior. The submarine inspection did not give an accurate view of the paint conditions, because the full tank had pressure built up which kept the paint adhered to the interior of the tank. The CIP for the interior painting project for the Lytle Water Tower was approved for 2019. New VFD’s at the Lytle booster station were installed to control pressure fluctuations with water demand. Through SCADA the new PSI mode at the Lytle Booster station was changed from level mode to fill and draw mode. By testing the PRV interconnect with Warren County, Springboro is able to further control water demand. The blow-off valve on the fire hydrant were installed to control high pressure spikes. After removing the cathodic protection and communicating with the fire department, the tank was ready to be painted. The City of Springboro was installing a splash pad which added pressure on the project to be completed before June. Additionally Warren County planned to begin constructing a roundabout in July making the project time sensitive. Seven Brothers Painting completed the interior paint project and Dixon Engineering completed the inspection after each coat was applied. Contacted the Southwestern EPA District office to see the compatibility comparison analysis necessary for the wells, which was similar enough to not need a compatibility comparison. The tank fill process used disinfection by chlorination and fill using the county water which took two days at a rate of one thousand gallons a minute. A new control PRV was placed at the interconnect alongside a pressure control valve to aid in the communication
between Warren County and the City of Springboro to ensure that the water demands are met. A mud valve was added to the tank to prevent back flow in the fill line moving forward.

**Brian Hall, Ohio EPA**

**Recruiting and Training the Next Generation of Operators**

Brian recapped the outcomes of the Operator Workforce Development Summit, which convened statewide groups of stakeholders to develop a plan for the retention of the operator workforce. The previous director suggested that the summit convened municipalities, regional assistant providers, educational institutions, and governmental policy managers to attract and retain the workforce for the water and wastewater field. The summit had a breakout session for four areas; marketing, education, succession planning, and a catchall group. Five work groups were created from these breakout sessions; marketing the profession, educational programs, succession planning, training, and shared resources. Ohio’s operator certification program used by Ohio EPA has been around for over eighty years. Ohio has fourteen classifications between water, wastewater, distribution and collection, and the various classes of operators. The historical exam is offered twice a year in Columbus, OH and now operators are able to go to district offices to take a computerized test. A concern of the operator certification test is that it lacks regional specificity. Ohio EPA did a survey that solicited input from operators which provided the statistics that a majority of water and waste water operators have more than ten years before they retire. Wages vary for municipalities, causing the qualified operators to migrate to larger areas which tend to pay more. Apprentice programs are two years long which can cause problems for smaller communities who are struggling to find operators. Brian highlights that the apprentice programs can still bring operators to communities. Brian closed with an overview of his shared resources workgroup. The small community environmental infrastructure group meets monthly to help fund small community water and wastewater projects.

**Other Business:**

The planned meeting dates for 2019 are September 18, and December 11. Bruce reminded members that any ideas for presentations can be emailed to himself or David Rutter.