Poarch Band of Creek Indians

Achieving Technical Capacity Goals with a Successful Operator Training and Certification Program

Executive Summary

The Poarch Creek Indians Utilities Authority (PCIUA) has evolved over the last two decades to meet the needs of their growing customer base. PCIUA believes a key aspect of their sustainable utility has been investment in employee training and a commitment to mentoring staff.

Implementing a standardized operation and maintenance training and certification program helped PCIUA strengthen their technical capacity. The utility's program ensures that PCIUA staff are qualified and highly-skilled, which enhances the utility's ability to maintain system compliance and protect public health. With their focus on employee training, PCIUA has developed an operation and maintenance program that provides safe and affordable drinking water and reliable wastewater service to customers while building the utility's capacity to meet future challenges.

Realized Benefits

- A high operator certification pass rate and well-operated facilities help instill consumer confidence in PCIUA.
- Cross-training and certification in both water and wastewater allow operators to work interchangeably between systems. This ensures adequate coverage of all facilities when operators attend trainings or take leave.
- Mentoring and peer support among operators has encouraged a team approach for solving challenges and creates a friendly work environment.
- Supportive management that allows time for trainings and encourages education beyond minimum certification levels shows employees they are valued by PCIUA, resulting in long-term retention of operators and high staff morale.

Background

The Poarch Band of Creek Indians Tribe, located in Atmore, Alabama, chartered PCIUA in the early 1990's. Since then, substantial growth has occurred in the area served by the utility. PCIUA initially operated as a purchasing drinking water system to the community of Freemanville. In 2007, PCIUA began working to accommodate the growth in their service area by developing their own drinking water sources to serve their customers. The utility also built treatment facilities for the new supplies of

PCIUA's Purpose and Value System

[Included in every job description]

Purpose: *We bring a reservoir of expert knowledge to secure the health, education, and well-being of all Tribal members today and in the future. We act as role models who go beyond the call of duty and leaders who instill confidence in the fairness and wisdom of government decisions and actions.*

Value System: *We act with fairness in all our decisions and policy application inspiring others to trust our intentions and our actions. This affirms our commitment to something bigger than any one of ourselves and encourages all to persevere when we confront challenges along the journey. The respect we show for the contributions of all to our common purpose creates the platform for open and honest interactions. This leads to collaborative relationships and openness to new ideas and growing levels of accomplishment.*

water. At that time, PCIUA was also pursuing expansion of their wastewater treatment system. The expansion would replace a simple lagoon system with a 0.5 MGD Sequencing Batch Reactor (SBR)[1] system. The new wastewater treatment facility would be classified by the State of Alabama as a Grade II facility[2].

Prior to these infrastructure expansions, PCIUA had only one certified operator for both the drinking water system and the wastewater lagoons. Having previous utility and management experience, PCIUA Executive Director knew that strengthening the utility's technical and managerial capacity were critical to its ongoing sustainability. The technical knowledge and abilities of certified personnel, along with clearly established responsibilities and policies for operation and maintenance of a system, can enhance a system's technical and managerial capacity.

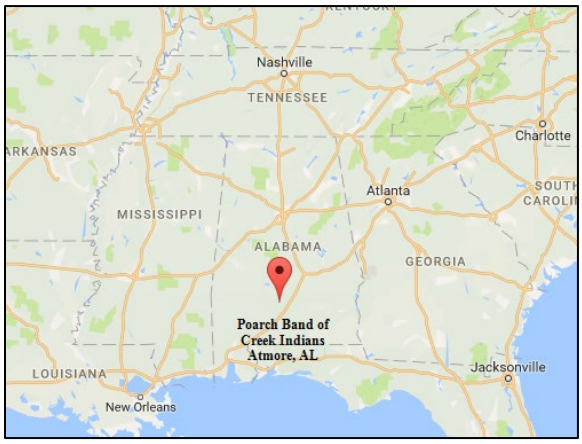

Figure 1. Location of the Poarch Band of Creek Indians

Building Sustainability through Operator Training and Certification

To hire and retain qualified personnel PCIUA developed a training and certification program for operations and maintenance staff. The program goal was to provide potential staff with a clear understanding of certification expectations and, once hired, sufficient support to meet those requirements. PCIUA's proposed approach was to clearly describe training and certification expectations in the job descriptions. Utility management brought this approach to their Board of Directors, who supported the decision. This strategy attracts applicants that are motivated to improve their skills and develop or further their career while on the job.

Figure 2. An operator monitoring equipment performance. *Photo Credit: PCIUA*

Benefits of Technical Capacity

- **Qualified Staff:** With the more complex treatment systems in place, staff with adequate technical knowledge and skills are critical to effective utility operations and maintaining compliance. Because PCIUA management understand the importance of adequately trained operators, they defined job expectations and demonstrated support for obtaining the necessary skills. This is also an important aspect of managerial capacity for sustainable utilities.
- **Protecting Public Health and the Environment:** Investing in the training and certification of personnel demonstrates PCIUA is committed to the protection of public health and the environment.

[1] SBR systems treat wastewater in batches using oxygen to bubble through the mixture to reduce the organic matter. The treated effluent may be suitable for discharge to surface waters or possibly for use on land.
[2] In the State of Alabama, a Grade II Wastewater Treatment Plant has a capacity of less than 1 million gallons per day (MGD) and is a trickling filter and/or biological contactor process plant or an activated sludge process plant.

Knowledgeable, motivated staff understand the importance of their jobs and can provide solutions to problems they encounter.

Certification Requirements

Operations staff responsibilities are focused on ensuring proper operation of the water and wastewater systems and ensuring regulatory compliance. Their duties include operational adjustments, sampling, and daily inspections of the system processes. Maintenance staff are responsible for maintaining infrastructure in the water and wastewater systems and maintaining vehicles and other equipment.

PCIUA's job description for operators specifies that applicants must possess or obtain a Grade II water operator certification within three years of being hired and a Grade II wastewater operator certification within four years of being hired. Maintenance employees that require certification have the same timeframe in which to achieve certification but must obtain Grade I certification for water and Grade Ic certification for wastewater. (See 'Certification Highlighs' box.)

For all PCIUA positions requiring certification, operators must be certified for both drinking water and wastewater. Requiring staff to spend time working in both the drinking water and wastewater systems promotes flexibility and cross-training so that if an operator is on vacation, at a training, or ill there are other staff who can perform that employee's duties.

Certification Program Highlights

- *PCIUA established as a state-regulated utility. Therefore, certifications are obtained through the State of Alabama. This allows operators to have a certification that is reciprocal in more places, including off the reservation.*
- *The utility has seven dual certified operators who have a certification test pass rate near 100%. There is also one operator currently in training to be certified.*

In addition, employees are encouraged to achieve a higher grade of certification than their current positions require. PCIUA management believes that this will improve their skills as an operator and offer them opportunities for promotion when positions open.

Training Program

To support new hires, PCIUA developed a timeline for obtaining the skills and training necessary for these certifications. The training guidelines, shown on page 4, allow for additional training and retaking of exams, if necessary, to ensure that the certification timeline requirements can be met. PCIUA management believes the training guidelines allow ample time to meet the job requirements for certification.

Figure 3. An operator collecting a sample. *Photo Credit: PCIUA*

Preparing for the SBR Wastewater Treatment Plant

Prior to building and operating the SBR Wastewater Treatment Plant, the utility sent employees to an SBR facility near Chicago. The operators were able to see firsthand the various processes and mechanics involved in this type of treatment system. The utility also sent staff to classroom trainings related to SBR treatment. Once the facility was built and operational PCIUA continued to receive support from the vendor, including process control support, so that the staff could secure a solid understanding of what the plant can do and how it operates.

Table 1. *Timeline for Meeting Operation Certification and Mainteneance Certification Requirements*

Operations Training Guideline						
0-6 Months	**6 months - 1 Year**	**Year 1-Year 2**	**Year 2-Year 3**	**Year 3-Year 4**	**Year 4-Year 5**	**Beyond Year 5**
Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training
Commercial Driver License Training	Occupational Safety and Health Administration (OSHA) Training	Laboratory Testing Wastewater	Continuing Education	Continuing Education	Continuing Education	Continuing Education
Field Testing	30-hour Water Class	Electrical Trouble Shooting	30-hour Wastewater Class	AUMA® Actuators	SBR Process Control	Equipment Specific Training
Flushing Program	Test Prep		Test Prep			
Daily Checks	Study Help		Study Help			
Weekly Checks	Grade II Water Test		Grade II Wastewater Test			
Monthly Checks	Study/Retake if Needed		Study/Retake if Needed			
Maintenance Training Guideline						
0-6 Months	**6 months - 1 Year**	**Year 1- Year 2**	**Year 2- Year 3**	**Year 3- Year 4**	**Year 4- Year 5**	**Beyond Year 5**
Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training	Weekly Safety Training
Commercial Driver License Training	Pumper License	Confined Space	Continuing Education	Continuing Education	Continuing Education	Continuing Education
Lift Station Checks	30-hour Water Class	Electrical Trouble Shooting	30-hour Wastewater Class	Pumps and Motors	SCADA	Equipment Specific Training
Equipment Operation	Test Prep Study Help		Test Prep Study Help			
OSHA Training	Grade Ic Wastewater Test		Grade I Water Test			
	Study/Retake if Needed		Study/Retake if Needed			

The utility also demonstrates support of a strong training program by:

- **Making a financial commitment for staff to obtain training**

  PCIUA Executive Director authorizes training and travel for operators. There is typically $10,000 in the annual travel and training budget. However, the utility also takes advantage of no-cost or low-cost training opportunities offered to tribal utilities. Those opportunities are provided by the Indian Health Service, Native American Water Association, United Southern and Eastern Tribes, and the Inter-Tribal Council of Arizona. Using these opportunities helps PCIUA maximize the amount of training that can be supported by their budget.

- **Having relevant and meaningful trainings**

  PCIUA staff can attend classes at the Coastal Alabama Community College. The college has an instructor who effectively teaches operations concepts in simple terms. The instructor operates a treatment facility for a local utility, has technical assistance experience, and is a dual certified operator so is able to convey a valuable and relevant perspective. The instructor also teaches a 90-hour combined course for the drinking water and wastewater certifications, with 45 hours dedicated to each sector. PCIUA management encourages employees to attend these or inhouse classes for the in-depth exposure to the material.

  In addition, PCIUA management encourages staff to have exposure to concepts in the classroom prior to encountering those situations in the field. With this approach, staff performing field work can apply their classroom knowledge in a practical setting.

Figure 4. Inspecting settings on a control panel.
Photo Credit: PCIUA

To achieve operator certification success, PCIUA management also encourages their operators to attend a "polishing" course within one week before taking an operator certification test. The polishing course is between 15 and 30 hours and provides a refresher for concepts covered on the test.

"Staff are happier when they know you're investing in them."

– Shaun Livermore
PCIUA Operations Manager

Training Program Highlights

- *The utility provides support to employees to pursue additional training and encourages employees to seek certifications above and beyond what is specified in their job requirements.*
- *When time permits, staff preparing for their test can study during work hours. Staff then have the opportunity to ask experienced staff questions about concepts they may need help with.*
- *PCIUA staff take the training program seriously and have a personal interest in ensuring that everyone succeeds.*

- **Requiring staff to meet Continuing Education Unit (CEU) requirements to maintain operator certifications**

  In Alabama, dual certified operators are required to complete 15 CEUs every 3 years for each certification (15 for drinking water and 15 for wastewater; 30 in total). Operators with a single certification are required to complete 24 CEUs every 3 years. After becoming fully certified, staff training needs shift to obtaining CEUs to maintain their certifications.

- **Encouraging mentoring**

  When time is available, the utility allows staff the opportunity to study at work, which encourages mentoring, building relationships, increased knowledge trasfer. This is beneficial if the employee has questions because they can seek help from any of the experienced operators.

Figure 5. Monitoring wastewater treatment processes using a microscope. *Photo Credit: PCIUA*

The Drinking Water and Wastewater Systems

PCIUA provides drinking water and wastewater treatment to approximately 250 customer connections on the reservation. They also manage and operate the drinking water systems for the towns of Canoe and Huxford, which together serve approximately 500 customer connections off the reservation.

Operators-in-Training gain experience with water treatment processes such as aeration, ultraviolet light (UV) disinfection, fluoridation and corrosion control (Figure 7). They also gain experience maintaining the system's two wells, the 1 million gallon and 0.2 million gallon storage tanks, and several miles of distribution system pipe.

Figure 6. Checking calibration of chemical feed equipment. *Photo Credit: PCIUA*

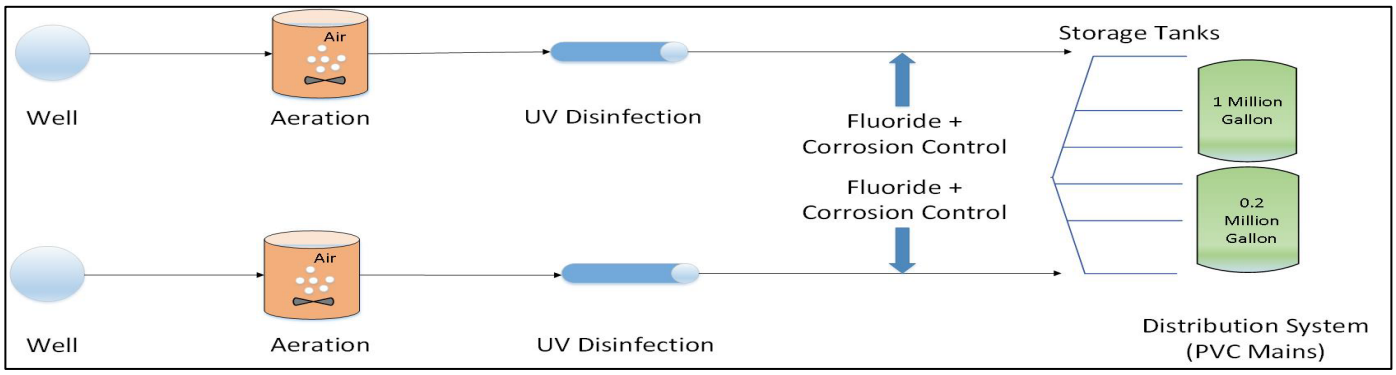

Figure 7. Drinking Water System Schematic

The reservation's 0.5 MGD wastewater system consists of the sewer collection system, 13 lift stations, screens, two SBRs, a flow equalization basin, a cloth media effluent filter, a chlorine contact chamber, dechlorination and aeration. Solids are handled through aerobic sludge digestion and a centrifuge for sludge dewatering (Figure 8). The level of treatment from this advanced wastewater treatment system provides for a high-quality discharge effluent, reducing the impact on surface water quality

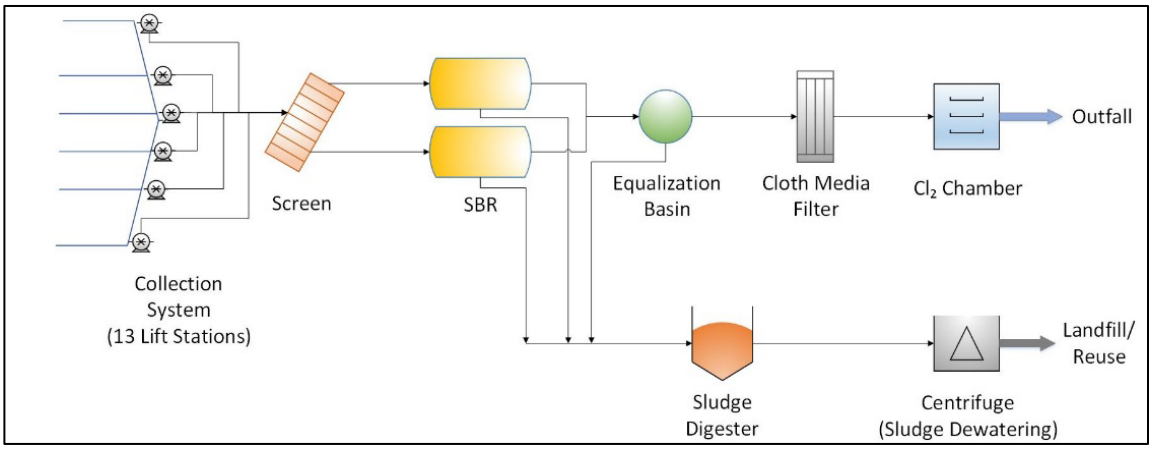

Figure 8. Wastewater System Schematic

Conclusion

PCIUA has built a successful operator training and certification program over the past decade which has significantly strengthened the utility's technical capacity. The notable aspects of the program include a rigorous but achievable schedule for obtaining the required certifications to operate and maintain the drinking water and wastewater facilities, funding to attend relevant and meaningful trainings to achieve those certifications and meet state CEU requirements, and staff mentoring. As a result, PCIUA has a competent staff that understand the complexities of the drinking water and wastewater systems and can maintain those systems to provide safe and affordable drinking water and wastewater services that protect public health and the environment now and in the future.

Figure 9. Staff gathered for the ribbon cutting ceremony for the wastewater treatment. plant. *Photo Credit: PCIUA*

EPA 810-R-20-003

EPA United States Environmental Protection Agency

MARCH 2019