ANDERSON REGIONAL
JOINT WATER SYSTEM

998 Hunters Trail Anderson, SC 29625 Phone: 864-332-6534 Fax: 864-224-6116

# BOARD AGENDA

## Board of Commissioners
## September 2021

### I. Minutes August 25, 2021

### II. Informational Reports

1. Executive Committee Meeting Summary
2. Finance and Administration Report
3. Operations Report
4. Engineering Report
5. Staff Member Focus

**Future planned Board meeting dates are:**

| | |
|---|---|
| ~~July 28, 2021 (No Meeting Planned)~~ | ~~August 25, 2021 (Regular Board Meeting)~~ |
| ~~September 22, 2021 (No Meeting Planned)~~ | October 27, 2021 (Regular Board Meeting) |
| November 24, 2021 (No Meeting Planned) | December 22, 2021 (Regular Board Meeting) |
| January 26, 2022 (No Meeting Planned) | February 23, 2022 (Regular Board Meeting) |
| March 23, 2022 (No Meeting Planned) | April 27, 2022 (Regular Board Meeting) |
| May 25, 2022 (No Meeting Planned) | June 22, 2022 (Regular Board Meeting) |

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MINUTES OF THE
ANDERSON REGIONAL JOINT WATER SYSTEM
August 25, 2021

LET THE MINUTES SHOW THAT THE MEDIA WERE NOTIFIED OF THIS MEETING IN ACCORDANCE WITH THE SOUTH CAROLINA FREEDOM OF INFORMATION ACT.

A QUORUM OF THE BOARD IS PRESENT.

COMMISSIONERS PRESENT: Benjie McGill, City of Clemson; Patrick Jackson, Starr-Iva; Tommy Phillips, Broadway; Dyke Spencer, Powdersville; David Rogers, Town of Williamston; Chuck Cortez, Big Creek-Hammond; Phillip Mishoe, Town of Central; Douglas Locke, Broadway; Jeremy Gillespie, Sandy Springs

ABSENT: Dwight Edwards, West Anderson; Larry Harrell, Homeland Park; Mitch Ellenburg, Belton-Honea Path; Evan Link; Town of Pendleton

OTHERS PRESENT: Scott Willett, ARJWS; Jeff Caldwell, ARJWS; Lisa Evatt, ARJWS; Natalie Whitaker, ARJWS; Kendall Cleary, AJRWS; Christopher Weber, ARJWS; Jodi Logan, ARJWS; Trey Burns, ARJWS; David Gailey, ARJWS; Billy Bolger, Clemson Univesity

Chairman Dyke Spencer called the Board meeting of Anderson Regional Joint Water System to order at 11:49 a.m. on August 25, 2021.

Chairman Dyke Spencer asked for any Commissioner comments. Mr. Spencer made a recommendation to change the Board Agenda start time to reflect the start time of the meetings. Mr. Jackson thanked Mr. Willett and the ARJWS staff for the time spent working with the Corps of Engineers. Mr. Cortez stated Big Creek-Hammond has had several staff members quarantined with Covid.

There were no public comments.

Mr. Jackson made a motion to approve the June 17, 2021 minutes and Mr. Rogers seconded. Motion carried.

**I. Consent Calendar (Old Business)**

None

**II. Items requiring immediate action**

None

**III. Discussion (New Business).**

1. ARJWS Interagency Communication Plan

Mr. Caldwell presented the Communication Plan to Member Agencies. He discussed Why to Communicate, What to Communicate, and How to Communicate. Mr. Caldwell stated that when an event affects all the Member Agencies, it would be in the best public interest that everyone is communicating the same information. Mr. Caldwell asked for additional member agency contacts with email address and cell phone numbers.

2. Strategic Plan Review for FYE 2021

Mr. Caldwell presented the ARJWS Strategic Plan Update for FYE 2021. He discussed the Critical Objectives which included Brand, Operations and Asset Sustainability, Financial Viability, Staff Retention, and Communication and Partnership. Mr. Spencer made a recommendation to include metrics for the strategic plan goals. Mr. Cortez thanked Mrs. Evatt for including member agencies in the monthly safety training and encouraged member agencies to take advantage of the trainings.

3. Executive Director's Report (Oral)

Mr. Willett gave an update on the Reallocation Study of Lake Hartwell. Mr. Willett should have the allocation contract to present to the Board in less than a year. Mr. Caldwell is working with EPA consultants on the Water Infrastructure Needs Survey. Greene Finney, LLP will be on-site Monday to conduct the Annual Audit for FYE 2021. A full report will be presented at the October Board meeting.

**IV. Informational Reports**

1. Finance and Administration Report
2. Operations Report
3. Staff Member Focus

These reports are for information and for each Member to review as written. A copy of each report is attached to the file copy of these minutes.

**V. Adjournment**

With no further business, Mr. McGill made a motion to adjourn at 12:51 p.m. and Mr. Mishoe seconded. Motion carried.

Respectfully submitted,

Phillip Mishoe
Town of Central

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# COMMITTEE SUMMARY

**Executive Committee**

**September 20, 2021**

**11:30 am**

## I. Discussion Summary

### 1. Water Age Study Planning & Coordination - Chris Weber

ARJWS will be conducting a fluoride tracer study during late October/early November to better inform our understanding of water age in the transmission system. This will involve collecting samples at pre-determined intervals and measuring the fluoride concentration. Member agencies are invited to collect samples in their own distribution systems if they would like to improve their own understanding of water age in their systems. ARJWS will communicate and coordinate with interested members.

### 2. FYE 2021 Financial Report & Audit Update – Kendall Cleary

The audit for fiscal year 2021 is complete and there were no issues or findings to report. Net position for ARJWS increased by $2.27M for fiscal year 2021. Waiting for the final report from the auditors. David Phillips is scheduled to present the audit at the October Board meeting.

### 3. Source Water Protection Week – Trey Burns

Sep 26th - Oct 2nd is designated Source Water Protection Week by the American Water Works Association (AWWA). Submitting an editorial for publication in the Sunday (9/26) Independent Mail. The system will be highlighting Lake Hartwell in their #ShowYourSource social media contest.

### 4. Infrastructure Analyses & Grant Funding – Jeff Caldwell

ARJWS is working with consultants hired by EPA to determine the drinking water infrastructure needs for the next 20 years. EPA will submit a final report to Congress that will be the basis for allotting DWSRF monies to each state.

ARJWS submitted an RIA grant application seeking $500,000 toward the anticipated Transfer Manifold Improvement Project.

### 5. Water Supply & Lake Hartwell Reallocation – Scott Willett

Ardurra is updating our Lake Hartwell Reallocation Study from 2011. This report analyzes the feasibility of allocating a total of 13,226 acre-feet (AF) of storage in Hartwell Lake to provide a dependable yield of 47.3 million gallons per day (MGD) average daily flow rate.

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# BOARD MEMORANDUM

September 10, 2021

**Subject**

Finance and Administration Report

**Discussion**

*Billing*

Meters were read on August 31, 2021, with usage up 9.44% from last month (for the same number of days) and down 1.12% from last year (for the same number of days).

| AGENCY | PREV.YR SAME MONTH | LAST MONTH | CURRENT |
|---|---|---|---|
| **# of Billing Days** | **28** | **29** | **33** |
| Anderson | 145,914,936 | 136,475,393 | 135,379,148 |
| Big Creek | 26,400,000 | 23,400,000 | 31,000,000 |
| Broadway | 21,433,495 | 18,370,026 | 26,176,587 |
| Clemson | 59,283,575 | 55,748,815 | 75,778,296 |
| Clemson University | 24,745,539 | 26,075,500 | 39,705,354 |
| Hammond | 67,510,305 | 61,478,189 | 89,118,272 |
| Homeland Park | 20,043,017 | 18,954,312 | 22,486,079 |
| Pendleton | 11,426,491 | 9,533,120 | 13,016,040 |
| Powdersville | 6,146,237 | 7,948,744 | 10,100,131 |
| Sandy Springs | 69,924,667 | 57,919,347 | 75,759,222 |
| Starr-Iva | 30,282,352 | 33,313,498 | 37,717,932 |
| West Anderson | 39,064,266 | 38,985,698 | 51,429,713 |
| Williamston | 13,534,706 | 13,062,193 | 16,606,991 |
| TOTAL | **535,709,586** | **501,264,835** | **624,273,765** |

*Safety Training*

**August and September: Safe Handling of Sodium Hypochlorite**

Jack Holmes came on 3 scheduled visits onsite to teach employees on the following:

- Company and Employee Responsibilities
- Basic Chemical and Physical Properties
- Proper Terminology
- Testing Procedures
- Safe Storage and Processing
- General Safety Practices for Handling Sodium Hypochlorite
- Delivery Procedures
- Periodic Inspections

**October:** **AED Training**

Prepared by: Kendall Cleary, Accountant
Approved by: Jeff Caldwell, Deputy Director

Attachments: Profit & Loss Summary – Budget, Actual and Forecast

ANDERSON REGIONAL
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**Profit & Loss**
**For the Month ending August 31, 2021**

Ideal Percentage: 17%

| | Annual Budget | YTD Budget (2 months) | YTD Actual | 2+10 Year End Projection | % of Budget Used | YTD Variance | |
|---|---|---|---|---|---|---|---|
| **Operating Revenue** | | | | | | | |
| Operations and Maintenance | 5,363,635 | 893,939 | 897,012 | 5,366,708 | 17% | 3,073 | |
| Capital Charges | 5,221,245 | 870,208 | 870,208 | 5,221,245 | 17% | - | |
| Renewal and Replacement | | | | | | | |
| Water System | 1,498,635 | 249,773 | 262,411 | 1,511,274 | 18% | 12,639 | |
| Pump Station | 67,738 | 11,290 | 12,060 | 68,509 | 18% | 771 | |
| Miscellaneous | 51,105 | 8,518 | 41,247 | 83,835 | 81% | 32,730 | A |
| Total Operating Revenue | 12,202,358 | 2,033,726 | 2,082,938 | 12,251,569 | | | |
| **Operating Expenses** | | | | | | | |
| Salaries and Wages | 1,650,100 | 275,017 | 238,941 | 1,614,024 | 14% | (36,076) | |
| Payroll Taxes and Employee Benefits | 645,700 | 107,617 | 68,114 | 606,197 | 11% | (39,503) | |
| Operations and Maintenance | | | | | | | |
| Administrative Expenses | 417,435 | 69,573 | 28,497 | 376,360 | 7% | (41,075) | |
| Operations Expenses | | | | | | | |
| Lab Supplies/Uniforms/Safety Equipment | 136,700 | 22,783 | 9,049 | 122,965 | 7% | (13,735) | |
| Chemicals | 572,000 | 95,333 | 147,564 | 624,231 | 26% | 52,231 | |
| Sludge and Chemical Disposal | 150,000 | 25,000 | - | - | 0% | (25,000) | |
| Utilities and Security | 1,105,600 | 184,267 | 267,544 | 1,188,877 | 24% | 83,277 | |
| Maintenance Expenses | 299,200 | 49,867 | 61,560 | 310,893 | 21% | 11,693 | |
| Professional Fees | 110,000 | 18,333 | 3,970 | 95,637 | 4% | (14,363) | |
| Insurance | 94,900 | 15,817 | 2,939 | 82,022 | 3% | (12,878) | |
| Debt Expenses | 5,221,245 | 870,208 | 870,631 | 5,221,668 | 17% | 423 | |
| Junior Lien Bond Payments | - | - | 36,000 | 36,000 | 100% | 36,000 | |
| Source Water Protection | 51,000 | 8,500 | 329 | 42,829 | 1% | (8,171) | |
| Miscellaneous Expenses | 131,000 | 21,833 | 23,162 | 132,328 | 18% | 1,328 | |
| Total operating expenses before depreciation | 10,584,880 | 1,764,147 | 1,758,299 | 10,454,032 | | | |
| **Net operating income** | 1,617,478 | 269,580 | 324,639 | 1,797,537 | | | |
| **Raw Water** | | | | | | | |
| Raw Water Income | 58,223 | 9,704 | 35,609 | 84,128 | 61% | 25,905 | |
| Raw Water O&M Expenses | - | - | 30,458 | 30,458 | 100% | 30,458 | |
| **Raw Water Operating Income** | 58,223 | 9,704 | 5,150 | 53,670 | | | |

| | Cash Balances | Days Cash on Hand |
|---|---|---|
| Operating Cash | 1,949,521 | 67 |
| Capital Project Fund | 3,131,284 | |
| R&R Funds (Restricted) | 697,195 | |
| | 5,778,000 | |

A: Over budget due to the annual Pioneer payment of $40,000.

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# BOARD MEMORANDUM

September 8, 2021

**Subject**
Operations Report

**Discussion**

***Operations***

As of September 8th, 2021, Lake Hartwell's surface elevation was 660.02 ft., 0.02 ft. above full pool. Raw water is being drawn from the top gate of the intake structure. Water temperature at the top gate is 85.28°F. The Joint Water System reached 100% of settled water turbidity goals for the month of August. Raw water pH levels are relatively constant. Settled and Finished water pH levels are normal. The maximum day for August water production was 48.9% of Finished water capacity.

In addition to water quality sampling for the Lake Hartwell Water Treatment Plant, Joint Water System staff processed 158 Total Coliform distribution samples for local entities during the month of August.

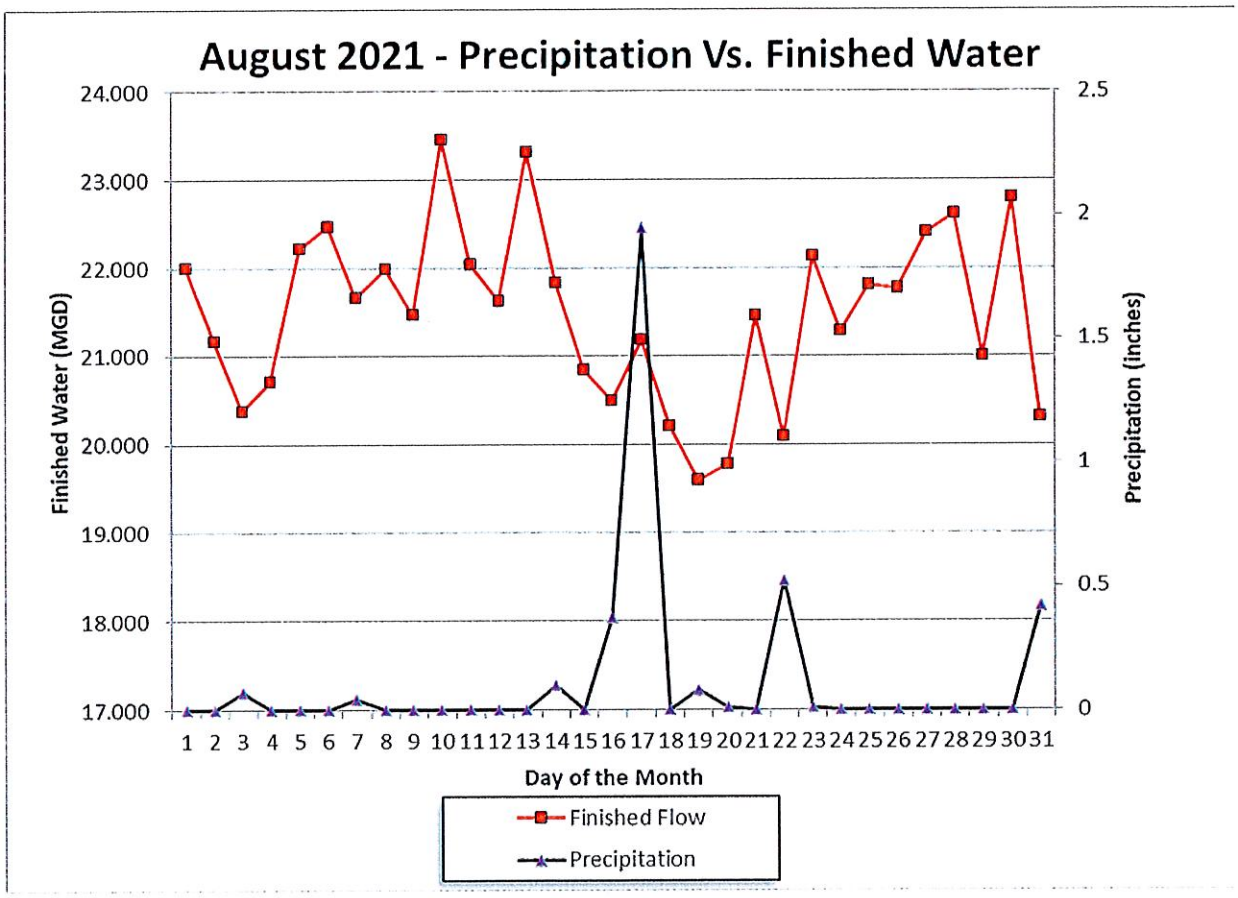
**Weather Data**

| | Minimum | Maximum | Total |
|---|---|---|---|
| Rainfall | 0.00 in. | 1.95 in. | 3.57 in. |
| Temperature | 65.7° F | 96.2° F | N/A |
| Humidity | 38% | 100% | N/A |

**Water Production Data**

| | Average | Minimum | Maximum | Total |
|---|---|---|---|---|
| Raw Water (MG) | 21,333,000 | 18,877,000 | 24,522,000 | 661,309,000 |
| Finished Water (MG) | 21,483,000 | 19,585,000 | 23,459,000 | 665,967,000 |
| Finished Max Capacity | 44.8% | 40.8% | 48.9% | 44.8% |

NOTE: Percentages are finished water capacities.




**Water Quality Data**

| | Raw | Settled | Finished |
|---|---|---|---|
| pH | 6.85 | 6.76 | 7.12 |
| Turbidity (NTU) Range | 1.10 to 3.90 | 0.30 to 0.67 | 0.04-0.04 |
| Turbidity (NTU) Average | 1.53 | 0.38 | 0.04 |
| Turbidity (NTU) Exceedance | - | 0.00% | 0.00% |
| Total Organic Carbon | 1.55 | - | 0.86 |
| Fluoride Average (ppm) | - | - | 0.26[‡] |
| Residual Disinfectant (ppm) | - | - | 1.63 |
| TTHM (DBP) | - | - | 11.3 ppb |
| Methylisoborneol (MIB)* | 29.2 NG/L | - | <1.0 NG/L |
| Geosmin* | 3.4 NG/L | - | <1.0 NG/L |

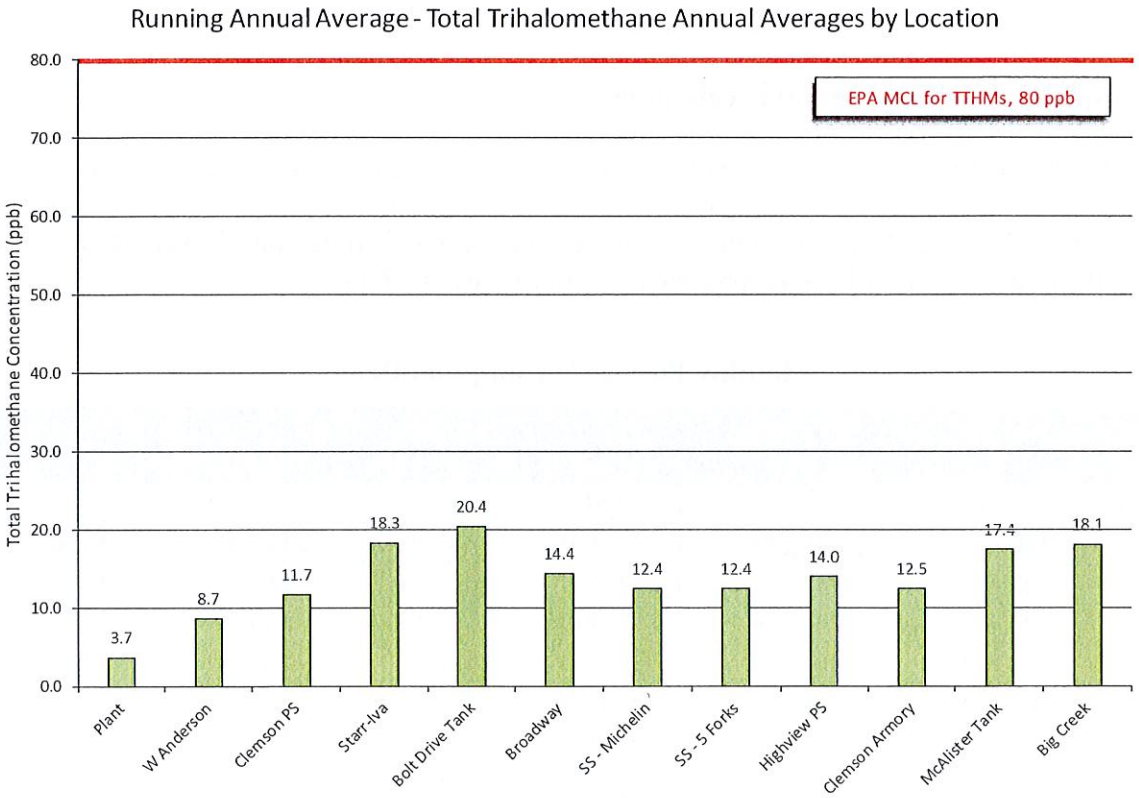
*Note: For the general population, detection of MIB & Geosmin occurs at 10 NG/L.

**Note: DHEC has encouraged all water treatment plants to maintain Fluoride levels between 0.60-1.00 ppm. ARJWS will comply with this request, which will be reflected on future water quality data summaries.

## Total Trihalomethane Discussion

Trihalomethanes (THMs) are one type of disinfection byproduct that can form during the treatment process and within the distribution system. THM concentrations vary primarily as a function of total organic carbon (TOC), temperature, disinfectant type, and residence time. THMs can have adverse health effects at high concentrations, and the EPA has established compliance criteria for these compounds in aggregate, termed Total Trihalomethanes (TTHMs). These criteria are established in Stage 2 of the Disinfection Byproduct Rule, which has a numerical MCL of 80 micrograms per liter (or parts per billion, ppb) based on a Locational Running Annual Average. The Operations Staff at ARJWS collect monthly, one-time samples, as a spot check for TTHM formation in the distribution system. The table below displays this month's readings, along with annual maximum, minimum, and overall averages at the designated sample locations.

Disinfection Byproduct Analysis Report



## Water Quality Strategic Planning Discussion

For the month of August, the following Water Quality Strategic Planning goals were met:

- Finished water pH was held within the designated 7.1-7.2 range
- Finished water Chlorine residual was maintained above a 1.2 ppm leaving the facility
- Non-detect for taste and odor was achieved, despite detectable concentrations at the source
- Achieved settled water turbidity goal < 1 NTU for the entire month

## Corrosion Discussion

Metal pipe naturally corrodes based on the chemical properties surrounding it. Corrosivity of water is directly related to pH. Lower pH concentrations, less than 7.0, are considered acidic, and therefore increase corrosion to metal piping. For this reason, The Lake Hartwell Water Treatment Plant adds lime to increase the pH levels to non-corrosive levels. In addition, orthophosphate is added to create a protective barrier on the inner linings of all distribution and premise piping. The added orthophosphate barrier keeps water from contact with bare metal.

## Orthophosphate corrosion inhibitor technique

The Lake Hartwell Water Treatment Plant has determined to adjust the baseline numbers for Orthophosphate to a running annual average to establish a consistent dose rate. During the month of August, the Lake Hartwell Water Treatment Plant Finished water running annual average dose rate is within the desired 1.0 ppm to 1.6 ppm protective barrier range at 1.6 ppm.

### Monthly Power Consumption Data

| Month | On Peak kW | Off Peak kW | Total kW | Finished Water MG | $/ MG | 12 month Average |
|---|---|---|---|---|---|---|
| Aug – 20 | 259,200 | 1,137,600 | 1,396,800 | 675.3 | $115.59 | $101.75 |
| Sep – 20 | 230,400 | 1,060,800 | 1,291,200 | 643.4 | $112.53 | $101.83 |
| Oct – 20 | 208,800 | 945,600 | 1,154,400 | 619.7 | $88.86 | $100.45 |
| Nov – 20 | 201,600 | 914,400 | 1,116,000 | 561.8 | $84.53 | $99.14 |
| Dec – 20 | 172,800 | 864,000 | 1,036,800 | 550.6 | $81.30 | $97.43 |
| Jan – 21 | 208,800 | 856,800 | 1,065,600 | 595.9 | $86.81 | $96.62 |
| Feb – 21 | 194,400 | 871,200 | 1,065,600 | 530.6 | $92.36 | $96.48 |
| Mar – 21 | 168,000 | 787,200 | 955,200 | 559.9 | $75.67* | $94.39 |
| Apr – 21 | 194,337 | 880,130 | 1,074,467 | 571.7 | $89.46 | $94.23 |
| May – 21 | 215,996 | 909,415 | 1,125,411 | 662.4 | $74.97* | $92.58 |
| Jun – 21 | 218,574 | 1,098,505 | 1,317,079 | 667.4 | $94.20 | $94.16 |
| Jul – 21 | 271,224 | 947,223 | 1,218,447 | 649.6 | $122.47 | $94.06 |
| Aug - 21 | 281,251 | 974,455 | 1,255,706 | 666.0 | $116.14 | $94.99 |

*Noting that the March and May bills from Duke Energy were lower than historical normal.

**Monthly Power Consumption Update**

For the month of August, ARJWS treated 665,967,000 gallons of water at a power cost of $116.14 per million gallons produced. This includes the power needed to produce Ozone continuously for effective taste and odor removal for the system. The 12 month Running Annual Average is currently at $94.99.

**August Operations Highlights**

- Ozone generator #2 was brought back online on 9/2 and is now operational
- Bulk hypochlorite usage began successfully with the first bulk delivery on August 25th
- Trinity Manufacturing gave a great safety training on the safe handling of sodium hypochlorite

Prepared by: Chris Weber, Operations Manager
Approved by: Jeff Caldwell, Deputy Director

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# BOARD MEMORANDUM

September 22, 2021

**Subject**

Engineering Report

**Discussion**

***Grant Funding***

ARJWS submitted a Rural Infrastructure Authority grant application for the Transfer Pump Station Reliability Upgrade project. The transfer pump station discharge header has been identified as a single point of failure in the system's ability to reliably deliver treated water to the ground storage reservoirs. This project would provide a redundant discharge header, add a 7,000-gpm vertical turbine pump, reorient and connect three transfer pumps to the new discharge, and provide greater operational control of the ground storage reservoirs which will lead to higher water quality leaving the plant.

***Asset Management***

The new asset management software, NextService, rolled out staff training on the mobile app on September 1st. The maintenance team is using the new system to create and complete work order and preventative maintenance activities. As data is generated, subsequent tasks will begin to accurately schedule of PM tasks, compile reports, and generate trends. This will provide the necessary data to development the future CIP.

***Disinfection Changes***

Dependability issues with the current MIOX generators due to availability of replacement parts and ability to make adequate product during peak summer usage, staff completed the switch over to bulk hypochlorite on August 25th. This project was a team effort between the management, maintenance, and operations staff. The 12.5% bulk product is diluted to approximately 3.5% and injected via the existing feed system. Current plans include returning to MIOX generation when demands decrease in October.

***Lagoon Dredging***

Bio-nomics mobilized on August 27th to begin the 2021 solids removal operations from Lagoon #1. On September 7th, dewatering operations began via dredge and belt filter press. As of this report, a total of 385.56 wet tons have been removed and hauled to the Anderson Regional Landfill. The system has documented an average of 17% dewatered solids to date.

Prepared by: Jeff Caldwell, Deputy Director
Approved by: Scott Willett, Executive Director

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# BOARD MEMORANDUM

September 05, 2021

**Subject**

Personnel Report: Staff Member Focus

**Discussion**

Anderson Regional Joint Water would like to introduce William "David" Gailey. David was hired in August 2012, as a Maintenance Technician. Within 6 months of employment, David became a Maintenance Technician II. After the retirement of Eddie Makison, David was promoted to the Maintenance Supervisor position in August 2019. David has 34 years of experience in water transmission and distribution systems. David maintains both a level "A" Water Treatment and level "A" Water Distribution. In March 2021, David passed the Utilities Management Certification Program.

David resides in Anderson with his fiancee, Angie Ginn. When David's not working you will find him riding his Harley Davidson, fishing in his pond, or playing with his grandbabies.

David enjoys the challenge of working at ARJWS because his day is never the same. He also loves working with the ARJWS staff.