

## MONTHLY ENGINEER'S REPORT

**DATE OF MEETING:** APRIL 17, 2024  
**CLIENT:** BACA GRANGE WATER & SANITATION DISTRICT (BGWSD)  
**SUBJECT:** MONTHLY ENGINEER'S REPORT **NEW ITEMS IN BOLD**

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### **GENERAL ENGINEERING (PROJECT NO. 0001)**

The district's discharge permit expires on November 30, 2024. A discharge permit application must be filed six months prior to the termination of the permit. Therefore, the permit application is due on May 30, 2024. Element will assist the district with the discharge permit application. Currently the district has an individual permit. If it is possible, Element recommends the district apply for a general permit as there are several benefits of a general over an individual. We are currently reviewing if the district is eligible for a general permit.

We are currently working on the general permit renewal application and plan to have that sent to the district for review by the end of February.

Element is assisting the district with an application for the FY2024 Water Smart grant. This application will be written in support of a project to replace outdated water meters and install meters and meter pits where meters are located in homes. The grant is due by February 22<sup>nd</sup>.

**The Water Smart grant application for meter replacements was submitted. Element continues to work with the district on compiling the discharge permit renewal application and associated documentation.**

### **WATER AND WASTEWATER MASTER PLAN UPDATE (PROJECT NO. 0009)**

The Water and Wastewater Master Plan Update document has been finalized in draft format and provided to the BGWSD staff and board for review.

The master plan was approved by the district board in September 2022. The district approved Water and Wastewater Master Plan culminated in recommendations for water and wastewater system improvements. These recommendations are being included in the Wastewater Treatment Plant Improvements (Project No. 0010) and Water Treatment Plant Improvements (Project No. 0011) projects. Status reports on these projects are presented under their respective project numbers.

The master plan also included recommendations for water loss reduction. Reporting on progress for this item is listed under General Engineering (Project No. 0001). As the master plan document itself has been approved, and action is being taken on the master plan recommendations, no additional updates will be included on this project number.

### **WASTEWATER TREATMENT PLANT IMPROVEMENTS (PROJECT NO. 0010)**

Element has provided the district with a proposal to complete a Wastewater Treatment Plant (WWTP) Improvements Preliminary Engineering Report and Environmental Report. The report will be assembled for United States Department of Agriculture (USDA) Rural Development (RD) funding of a new or



upgraded/expanded WWTP. A preliminary schedule for the proposed project is shown below. Note that this schedule may vary widely based on review time by CDPHE and USDA as each entity reviews and processes the required submittals.

- Compile and submit Preliminary Engineering Report (Includes ER and RD Apply funding application) December 2022
- USDA review and funding/underwriting (Note this timeline is assumed and is shown conservatively long) January 2023 – July 2023
- USDA Letter of Conditions Coordination July 2023 – September 2023
- Design, CDPHE and local permitting September 2023 – August 2024
- Bidding November 2024
- Construction March 2025 – March 2026

Element was approved on the wastewater PER/ER in the district's September special meeting. We intend to meet the deadline for the PER/ER of the end of December 2022.

The PER was submitted to district staff for review in December of 2022. We are working to schedule a staff review meeting prior to updating the draft for submittal to the board for review. It is expected that the PER will be submitted to the board for review in late January or early February.

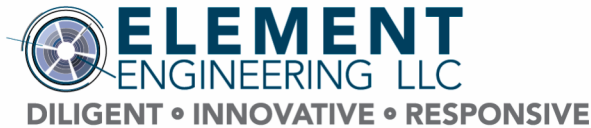
The PER was reviewed with staff on January 23, 2023. An updated PER has been provided to the district along with a PER summary handout. A work session to review the PER has been scheduled for Thursday February 23<sup>rd</sup>. USDA has informed Element that, based on the suggested project scope, an Environmental Report is required. Our original goal was to demonstrate that this was not required due to the fact that the disturbance would all occur at existing project locations, however, after review USDA has required the ER to be compiled and submitted as part of the project. Our current proposal has funding for this work but excludes State Historic Preservation Act site surveys. If a survey is required, we will let the district know and pass that on with no markup.

After review of the PER by the board, and any necessary updates, the PER and ER will be submitted to USDA, along with the RDApply application to finalize the grant and loan funding request.

The PER was reviewed at a board special meeting on February 23<sup>rd</sup>, 2023. The board approved moving forward with the project and completing the RDApply application. Element is in the process of compiling the required Environmental Report. The Environmental Report and RDApply application will be completed by the end of April 2023. Please note that the Environmental Report requires 30 and 45-day review periods for various state, federal, and tribal agencies for review and comment on the project scope.

The Environmental Report (ER) has been drafted. We are waiting for final responses from the State Historic Preservation Office (SHPO) and other agency responses to finalize the ER. The RDApply application is being processed and drafted by Element and district staff.

The RDApply application and Preliminary Engineering Report have been finalized in draft format. The Environmental Report is nearly complete. We are finalizing correspondence with the State Historic Preservation Office (SHPO). Further environmental compliance reporting may be required, and we are



scheduling a meeting with SHPO to determine the necessary scope of this additional work, if any. It is anticipated we will finalize our conversations with SHPO by the end of May.

The USDA funding application has been completed. The PER and ER have been submitted to USDA. We are now waiting for the USDA underwriting process to be completed. USDA will generate a letter of conditions that outlines the funding package grant/loan combination.

USDA provided their review comments of the PER and ER. Element has completed the comment responses and resubmitted the reports. The comments were minor and did not necessitate major changes to either report.

At the December meeting it was requested that Element provide a proposal to complete an updated evaluation of the alternatives (improvements to existing facility and replace existing secondary unit processes). This was based on newer data showing that a facility expansion may not be necessary. A proposal for this evaluation is attached to this board report.

We are finalizing the updated alternatives analysis. It is expected to be completed by the end of February for staff review followed by presentation at the district's March meeting.

We have been informed by USDA that the funding application will be processed approximately 45-days after a budget is passed by the United States House of Representatives. Currently the House is operating under a continuing resolution. Until a budget is passed, no funding can be processed.

**A draft of the alternatives analysis was submitted to district staff and a meeting held to review and discuss. The updated alternatives analysis memorandum has been completed and submitted to district staff. This document was reviewed with the district at the board retreat. It was recommended that the WWTP should be put on hold based on the most recent influent loading data.**

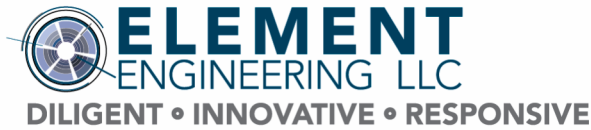
#### **WATER TREATMENT SYSTEM IMPROVEMENTS (PROJECT NO. 0011)**

The Water and Wastewater Master Plan Update recommended a water project be completed including the following:

- Integrate the Motel Well and Booster Pump Station into the large BGWSD system.
- Increase Water Treatment Plant (WTP) Pumping Capacity
- Add Administrative Building for district.

It is recommended that these projects be funded through the Colorado Department of Health and Environment (CDPHE) State Revolving Fund (SRF) Loan Program. Upon completion of the WWTP PER and ER the funding process for the water system improvement project should begin. A preliminary schedule for the proposed project is shown below. Note that this schedule may vary widely based on review time by CDPHE.

- |   |                          |
|---|--------------------------|
| • Compile and submit pre-qualification form (CDPHE funding) | December 2022            |
| • Compile and submit Project Needs Assessment               | April 2023               |
| • CDPHE review and design and engineering grant execution   | July 2023                |
| • Design, CDPHE permitting                                  | August 2023 – March 2024 |



- CDPHE funding coordination and loan execution
- Bidding
- Construction

February 2024 – April 2024

April 2024

June 2024 – December 2024

The pre-qualification form was submitted in December of 2022. A pre-qualification meeting has been scheduled with CDPHE, DOLA, BGWSD, and Element staff on Tuesday January 31<sup>st</sup> at 10:00. The pre-qualification meeting is the next step in the CDPHE funding process where all entities discuss the proposed project and review the steps in the funding process.

The prequalification meeting was held to discuss the CDPHE funding process specific to the BGWSD water project. The district qualifies for a planning grant of \$10,000 to support compilation of the Project Needs Assessment. The planning grant requires a local match of \$2,500, for total funding of \$12,500 for the Project Needs Assessment. The Project Needs Assessment (PNA) is an engineering planning document similar to the PER but compiled in a format and form acceptable to CDPHE. Element has compiled a proposal to complete the PNA on behalf of the district.

The draft PNA is nearly complete with an internal (Element) review by the middle of April. We are on target to provide the draft to district staff by the end of April.

CDPHE has provided a pre-qualification review letter after our January pre-qualification meeting. The review letter (dated April 19, 2023) is attached to this report. This letter clarifies that the district is eligible for a planning grant (already obtained), a design and engineering grant, and Bipartisan Infrastructure Law (BIL) funding.

Element finalized a draft of the PNA and transmitted it to district staff on May 9, 2023. It is recommended the district board schedule a work session or special meeting to review the final PNA during the month of June. In the meantime, Element and district staff will work to resolve any initial questions and/or comments.

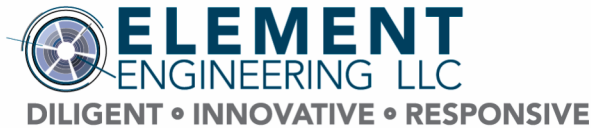
The draft PNA is scheduled to be reviewed by the district at an August 23<sup>rd</sup> meeting. A handout summarizing the PNA has been transmitted to district staff for board distribution.

The district approved submittal of the PNA at the August 23<sup>rd</sup> meeting. Element has coordinated with district staff and the PNA has been submitted to CDPHE. We are awaiting CDPHE review of the document. Element will respond to any questions or CDPHE comments.

The PNA has been approved. See the attached approval letter.

We have been exchanging email correspondence with CDPHE regarding the district's potential Design and Engineering grant (D/E grant) for the drinking water project. The proposed budget from the US Congress is significantly cutting the EPA capitalization grants to the various state SRF programs. Therefore, CDPHE is unsure if they will have D/E grants available and may not know the available amount until September of 2024.

CDPHE will, however, allow the district to recoup funds spent on design and engineering costs from the construction loan, when it is issued to build the project. This would mean funding the design of the project



upfront and recouping the costs at the time of construction. The district may apply for a DOLA grant to fund up to half of the design related costs. Therefore, the two options moving forward are as follows:

1. Self-fund the design of the water project and reimburse yourself with funds from the construction loan when the project design is completed and goes to construction. In this case we could potentially apply to DOLA for a 50/50 match grant for design.
2. Wait to see if D/E grant funds become available later in the year and proceed accordingly if one is awarded. If those funds are not available, re-consider item number 1 above.

The design and engineering costs associated with the water system project is \$108,370.00. Therefore, the district could apply for a DOLA grant in the amount of \$54,185.00, which would be a Tier II grant. The upcoming DOLA cycle begins accepting applications on March 1 and closes on April 1. Awards are estimated to be made by July of 2024. Note that if the district intends to use this grant, no work can begin until the grant contract is executed.

The district has selected to apply for a DOLA grant during the March 1 – April 1 application period to support design. Element will assist the district in completing the grant application.

**This application has been submitted by the project team.**

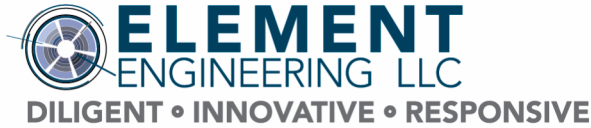
### 2023 WATER LOSS PREVENTION PROJECT (PROJECT NO. 0013)

Element staff are periodically working with district staff in developing a water loss prevention program. It is likely that this prevention program will take several months to collaboratively develop prior to presentation by district staff and Element to the board. Element is assisting the district in assembling cost estimates for PRV vault and water main replacement program. Our initial meeting has identified the following items to focus on:

- PRV Vault Cost Estimate
- Metering Vault Cost Estimate
- Cost Estimate 1,000 Feet of Main (General)
- Meter Inventory (Ages, Visual Inspection)
- Unmetered Service Survey
- Testing Meters
- Leak/Break Fix Map
- Water Main Replacement Program

District staff is interested in applying for Saguache County grant funds to potentially pay for relocation of PRVs and installation of flow meter vaults to study. Potential uses for this grant money is installation of metering vaults, PRVs, and water shutoff valves to better isolate for breaks. Also, money could be used for leak detection equipment. A cost estimate of a PRV and metering vault has been provided to district staff for review.

Element has been released on design services of the PRV relocation, new PRV installation, and two new meter vaults. Element is completing design and bidding documents so the project can be publicly bid. We



are currently waiting for the field survey work to be completed in order to finalize our draft documents for internal review.

We have received the survey and are finalizing the water loss prevention project deliverable design documents for review by district staff.

We created a cost estimate for replacement of the receiving manhole of the Wagon Wheel Lift Station with a polymer manhole that is corrosion resistant.

We have finalized the water loss prevention plans and met with district staff to review. Upon approval of the drawings the next step is project bidding. The project may be advertised and bid in early 2024 if desired by the district.

The project plans have been finalized and approved by the district. The following bid schedule for this project is as follows:

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| • Advertisement Published         | Week of January 22 <sup>nd</sup>      |
| • Plans/Specifications Available  | January 26 <sup>th</sup> at 4:00 PM   |
| • Bids Due (via email to Element) | February 19 <sup>th</sup> at 4:00 PM  |
| • Review Bids at Board Meeting    | February 21 <sup>st</sup>             |
| • Notice of Award                 | February 23 <sup>rd</sup> (estimated) |

Bids for the project will be presented at the district's February 21<sup>st</sup> board meeting.

Element and district staff requested that Cooley and Sons revise their bid to only include the two meter installations and the required mobilization. The revised bid table is attached to this report. This will allow the project to fall within the district's budget and gain valuable data to dial in water loss by geographic area.

**Element is currently working with Cooley and Sons to nail down a delivery date for the equipment, specifically the water meters and determine a final installation date.**



## **District Manager Report – April 17, 2024**

### **Saguache County Grant - Water Loss Prevention Project (Capital Project)**

- Bids were due on 02/19/2024 – Present to BoD for selection
- Bids were well over the budgeted amount
  - The \$180k meter project was awarded to Cooley & Sons
  - Currently facing delays up to 12 weeks for meters to arrive

### **United States Fish and Wildlife Service (USFWS) – Water lease negotiations**

- USFWS reply was received on 12/20/2023
  - Need to come to agreement on pricing, handling of administration costs, process for working together during drought conditions, and compensation for retiring some of the water rights.
- Next step – In person meeting with USFWS
  - Scheduled for March 14<sup>th</sup> in Alamosa, CO
- Met with eight representatives from USFWS to negotiate the lease agreement
  - Progress was made, but will need to discuss some issues further, including pricing.
  - Counsel will be drafting the new agreement
- Management will start defining “drought” conditions
  - Outline restrictions for irrigation and use of MHE Well in a drought

### **Town of Crestone (ToC) – Sewer Service Negotiations**

- Received response from ToC on 02/07/2024 – Will be discussing today and responding ASAP
  - Tap Fees
- The District did not receive a response in relation to the Discharge Permit.
  - Will need to follow-up with the next attorney representing the Town.
- No update for April
  - The Discharge Permit was on the agenda of that last trustee meeting

### **Aspen Wastewater Treatment Facility (AWWTF)**

- Still waiting to hear back from USDA on funding application
- Loading data suggests additional capacity may not be necessary – Averaging 40% capacity (have not exceeded 60% capacity since 11/2022)
  - More frequent sampling
  - EQ Basin cleaning program
  - Auto samplers
- Some issues are present – Health or Safety hazards prioritized
  - Structural engineer inspection of foundation
  - Industrial safety inspection

### **Grant Opportunities**

- Bureau of Reclamation – Planning and Project Design Grant
  - To help with planning the next phases of water loss prevention



- Up to \$400,000 – Will apply by 05/2024
- DOLA Energy and Mineral Impact Assistance Fund (EIAF)
- Application submitted on 03/29
- Request was for \$54k or 50% of the design and engineering for MHE Well tie in

### **Personnel**

- COVID – No cases to report
- Interviewed several candidates for the Operations and Administration Positions
  - One Operations position was filled
  - The Administration position has been filled – start date 4/15/24
- Working on drafting job descriptions and corresponding salary ranges
- Working on succession planning and Continuity of Operations Plan





## Administrative Monthly Report

April 17<sup>th</sup>, 2024

### Board of Directors Meeting

#### UTILITY BILLING ACTIVITY FOR THE MONTH OF MARCH (BILLED IN APRIL)

Customer Utility Billing		
Billing Category	Number of Accts	Amount Billed
Usage Customers Billed - SEWER	823	\$40,331.92
Usage Customers Billed - WATER	845	\$46,246.55
ON/OFF Service	4	\$175.00
LATE FEE	54	\$1,000.00
TRANSFER	12	\$4,200.00
CONSOLIDATIONS	0	\$.00
EQR	27	\$785.75
NSF FEE	1	\$30.00
TAP FEE	1	\$10,000.00
WATER & SEWER HOOK UP	3	\$9,000.00

#### MARCH - XPRESS BILL PAY TRANSACTION ACTIVITY

Product / Service Description	Qty	Unit Price	Line Total
EFT Web Transactions	256	\$0.64	\$163.84
Credit/Debit Card Web Transactions	405	\$0.49	\$198.45
Online Banking - Bank Bill Pay Transactions	28	\$0.25	\$7.00
Lock Box Service Transactions	193	\$0.58	\$111.94
Toll Free Operator Assisted Transactions	6	\$1.25	\$7.50
Toll Free IVR Transactions	16	\$1.25	\$20.00
Support, Maintenance, Hosting - Fee	1	\$100.00	\$100.00

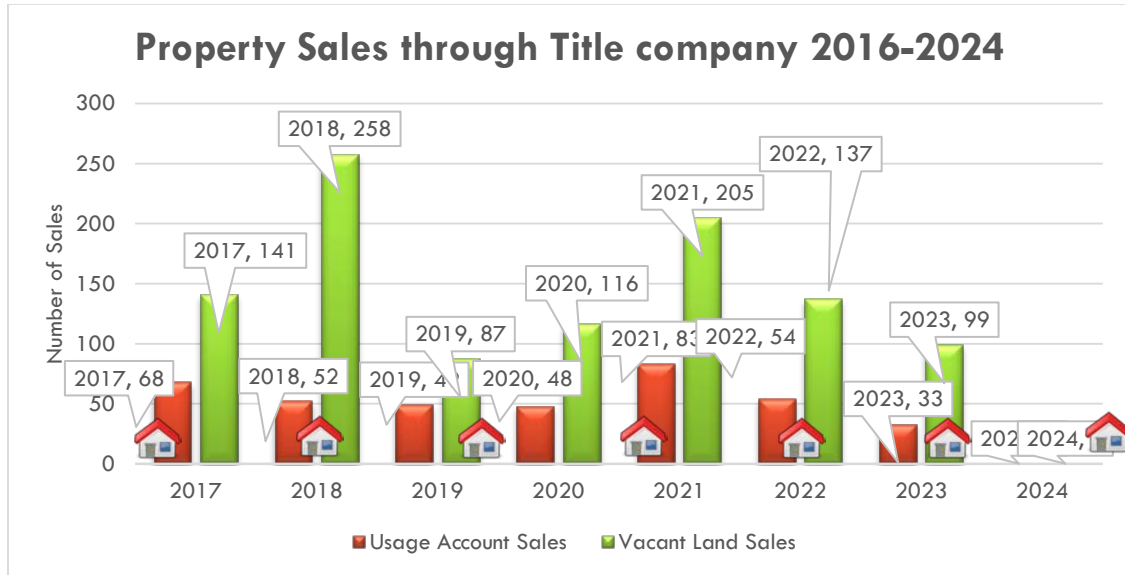
# Town of Crestone Sewer 2024

## Town of Crestone Sewer Billing - 2024

Date	Monthly Total	Monthly Flow	Flow Charges	Average Daily BOD	Monthly BOD	BOD Charges	Paid	Balance Due
January	418,898	3,309,294.20	\$ 3,309.29	37	1221	\$ 1,210.01	Check #13917	02/28/2024- \$4,519.31
February	379,458	2,997,718.20	\$2,997.72	38	1140	\$1,129.74	online	03/31/2024- \$4,127.46
March	351,472	2,776,628.80	\$2776.63	72	2016	\$1997.86		04/30/2024- 4,774.48
April								
May								
June								
July								
August								
September								
October								
November								
December								
<b>2024 Totals</b>	<b>1,149,828</b>		<b>\$9,083.64</b>	<b>147</b>	<b>4377</b>	<b>\$4,337.61</b>	<b>\$17,647.62</b>	

**New Rate 10/2022**  
**Rate per 1,000 Gallons of Flow: \$7.900 / 1,000**  
**gallons**  
**Rate per Pound of BOD: \$0.991 /**  
**pounds BOD**

## March - 2024- Property Sales: 6- Homes, 3- Lots

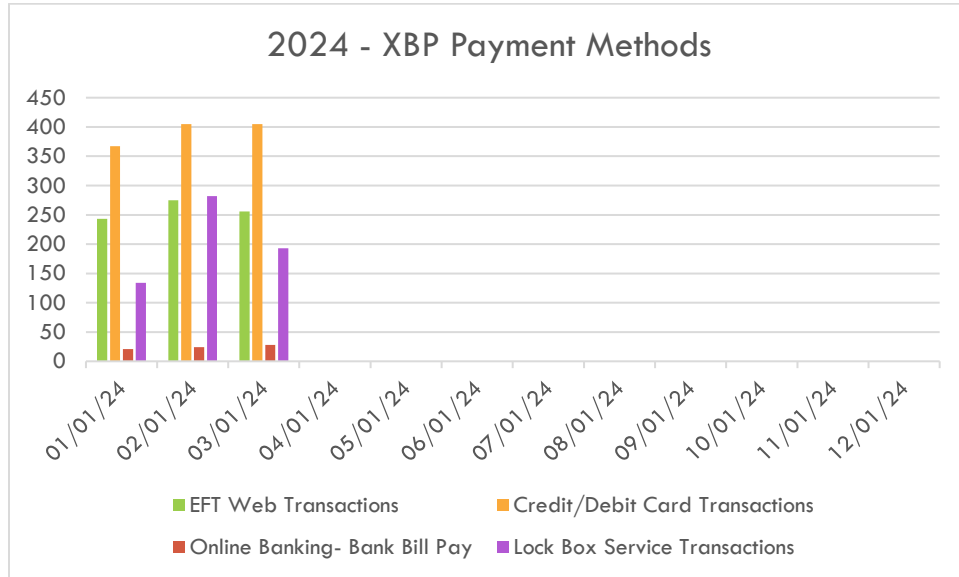


## March - 2024 – Other Sales Statistic Including Name Changes Only

Prepared by Jennifer Jenkins:

Type	Vacant Lot	House	Total Charges
Quit Claim Deed	4	2	\$0.00
Warranty Deed	2	0	\$700.00
Treasurer's Deed	4	0	\$1,400.00
Bargain & Sale Deed	0	1	\$0.00
Contract for Deed	0	0	\$0.00
			<b>Total: \$2,100.00</b>

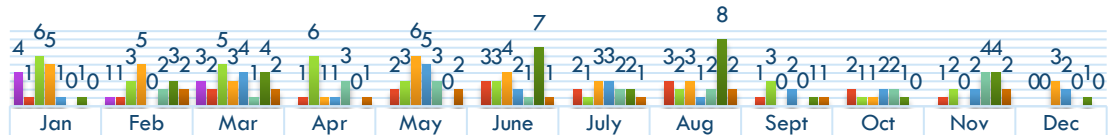
## 2024 - Xpress Bill Pay Customers Transactions Activity



## 2024 - Water and Sewer Hook up Applications

3 - Application (s) received in March. – 8 Total application (s) received in 2024

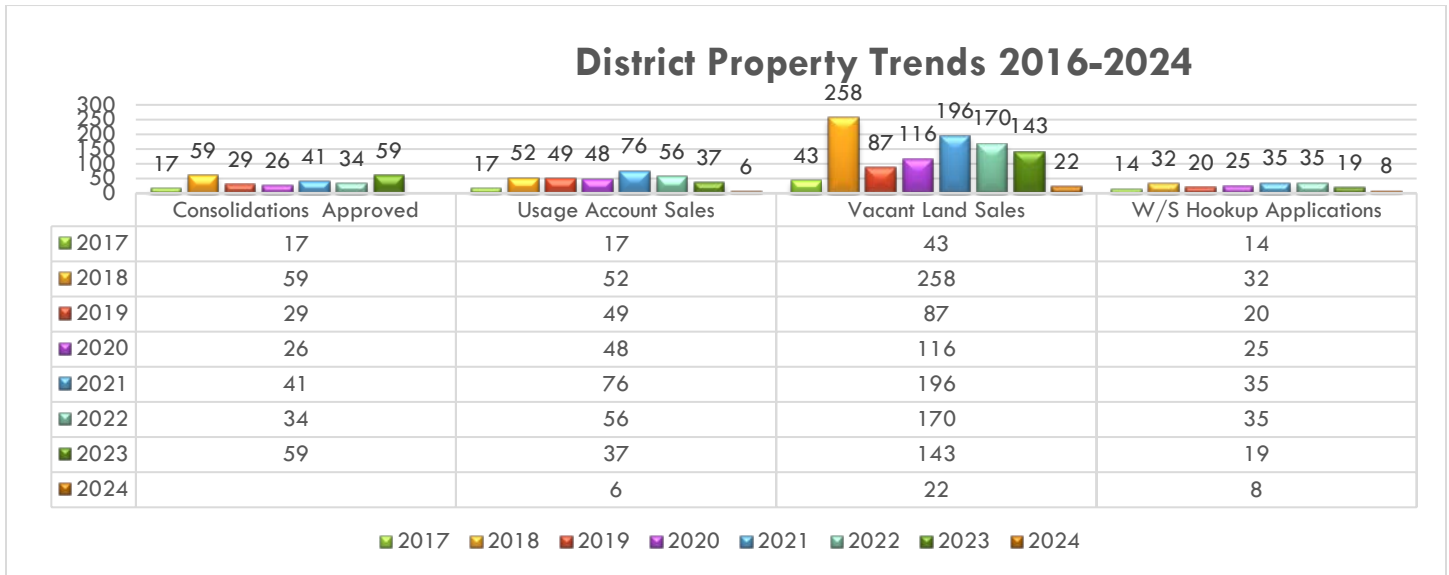
### Water-Sewer Hookups 2016-2024



	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2024 = 8 applications	4	1	3									
2023=19 applications	1	1	2	1	2	3	2	3	1	2	1	0
2022=35 applications	6	3	5	6	3	3	1	2	3	1	2	0
2021=35 applications	5	5	3	1	6	4	3	3	0	1	0	3
2020=25 applications	1	0	4	1	5	2	3	1	2	2	2	2
2019 = 20 applications	0	2	1	3	3	1	2	2	0	2	4	0
2018= 32 applications	1	3	4	0	0	7	2	8	1	1	4	1
2017= 14 applications	0	2	2	1	2	1	1	2	1	0	2	0

■ 2024 = 8 applications   
 ■ 2023=19 applications   
 ■ 2022=35 applications   
 ■ 2021=35 applications  
■ 2020=25 applications   
 ■ 2019 = 20 applications   
 ■ 2018= 32 applications   
 ■ 2017= 14 applications

## 2016-2024 PROPERTY TRENDS



**AOS Billing:** Due date – June 30th, 2024.

**CSPLP Safety and Loss Prevention Grant 2024:** the funds can be used to reimburse up to 50% of eligible safety and loss prevention purchases. Baca Grande Water and Sanitation District Current Balance: \$7,521.16.

**PILOT:** We received all PILOT payments for the year, from Colorado College, Pundarika and Shumei.

**Saguache County Tax Sale Grant application:** No further updates at this time.

**Personnel:** We have filled out administrative position, and we are happy to welcome Greg Hess to the team.

**Website verification project:** Website tap status and AOS verification project continue to be in progress. Admin staff are working to ensure the information displayed on the website remains accurate and up-to-date. Meanwhile we highly recommend that our customers contact our office to verify the information found on the website.

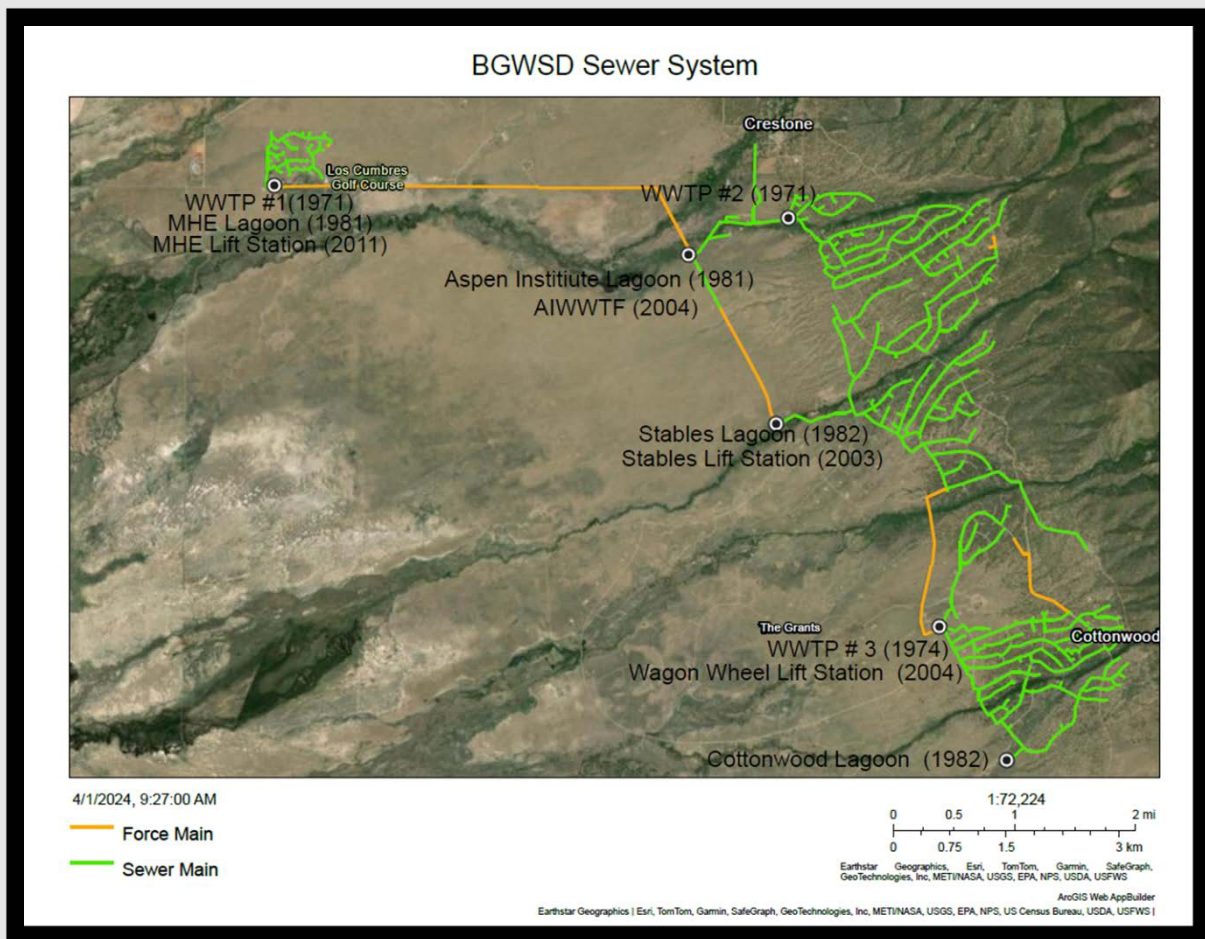
**Billing Message:** Stay Connected With BGWSD! PHONE: 719-256-4310 EMAIL: info@bacawater.com. Always notify our office of any change of address or contact information. Whether you have moved to a new address, or changed your phone number or email address, it is important to keep the District office informed. And if you are renting or leasing your home, it is also important to provide our office with a Tenant Notification Form, which can be found on our website under the Popular Forms section.

**File Organization & Archiving project:** files organization, scanning and archiving project is ongoing.

# Baca Grande Water and Sanitation District Monthly Operations Report

April 17<sup>th</sup>, 2024

## BGWSW Wastewater Treatment History Map



## Facilities and Staff Updates

In Service

Repaired  
last month

Out of  
Service

Water Facilities											
Well 18		Moonlight Transfer Station		Ridgeview Transfer Station		Fallen Tree Transfer Station		Pinecone Booster Station		Shumei Booster Station	
Pump 1	Pump 2	Pump 1	Pump 2	Pump 1	Pump 2	Pump 1	Pump 2	Pump 1	Pump 2	Pump 1	Pump 2

Wastewater Facilities									
Aspen WWTP		Stables Lift Station		Wagon Wheel Lift Station		MHE Lift Station		Dharma Ocean Lift Station	
Pump 1	Pump 2	Pump 1	Pump 2	Pump 1	Pump 2	Pump 1	Pump 2	Pump 1	Pump 2

Service Vehicles				
Truck 1	Truck 2	Truck 3	Truck 4	Truck 5

Equipment				
Vactor Truck	Dump Truck	Backhoe	Skid steer	Excavator

- **Mini Excavator**
  - We received our new Bobcat Mini-Excavator
  - New excavator will be enroll in Bobcat’s municipal lease program
- **Accidents**
  - Happy to report no accidents in March!!



## Operations Updates

### ➤ Aspen Wastewater Treatment Plant

- I am currently working with Element engineering to renew the discharge permit which expires in October 2024.
- Operations staff is collecting additional data for the permit renewal application.

### ➤ Annual Reports

- Biosolids Report-Complete
- Nutrients Report-Complete
- Consumer Confidence Report-In Process
- Backflow Prevention Report- In Process

### ➤ New Lead and Cooper Rule Revision

- Historical tap data entry is complete for the residential accounts
- Still need to work on non-residential accounts
- Working on a plan to tie this project together with water loss reduction.
- The plan is to prioritize excavations for service line material verification with services that have the meter in the house.

### ➤ Personnel

- We still have one vacant operations position we are trying to fill
- We will also be advertising for two summer temporary position

### ➤ Projects

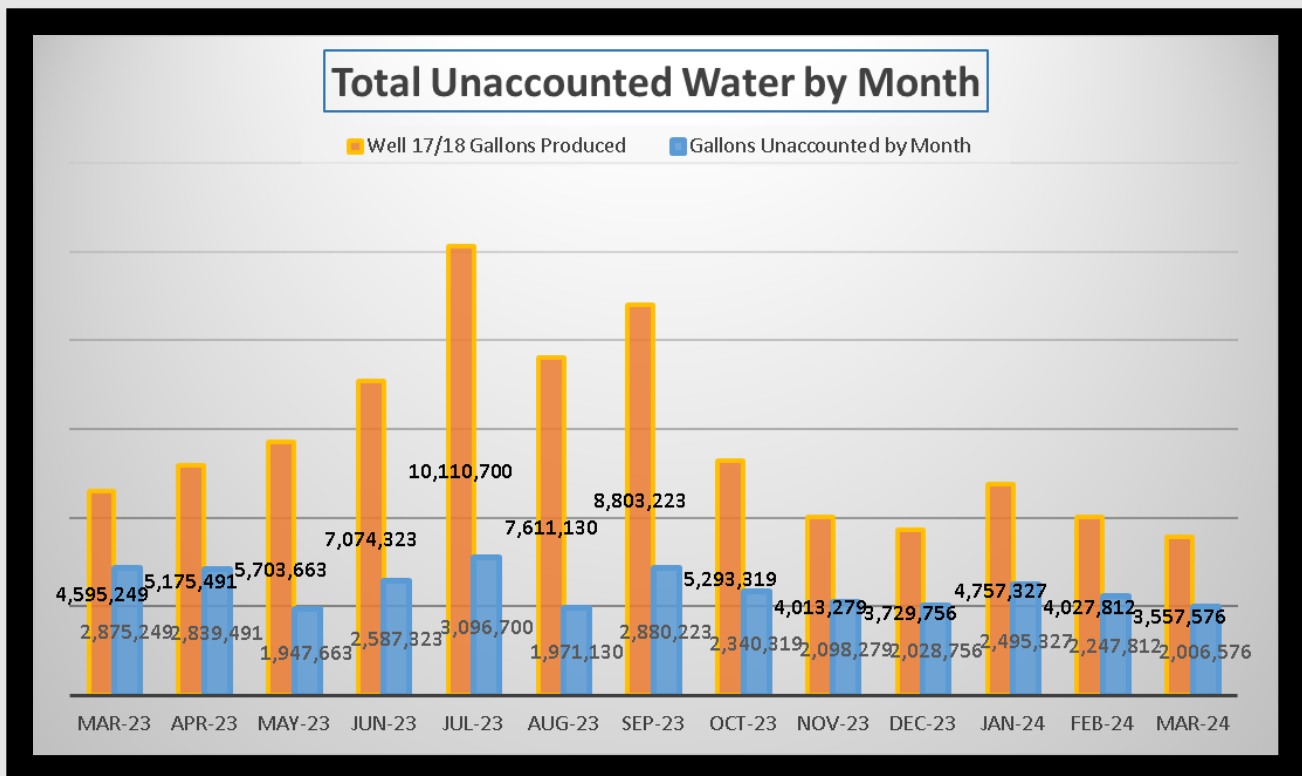
- Currently Planning for upcoming summer projects
  - Valve Maintenance- In process
  - Collection System Cleaning
  - Collection System Inspections
  - Fire Hydrant Maintenance- In Process
  - Dig List (various projects that require excavation)

### ➤ Unaccounted Water

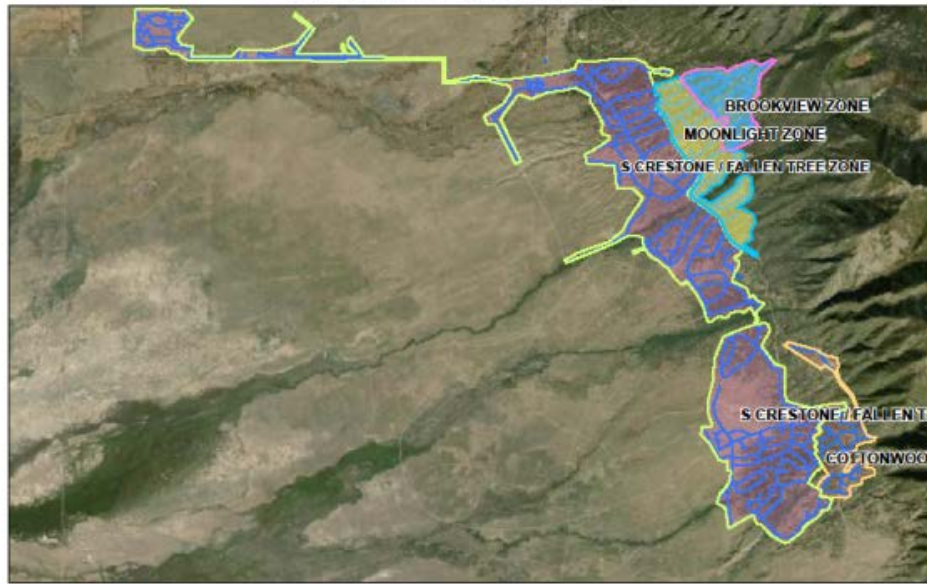
- Wells 17 and 18 produced 3,557,576 gallons of water in the month of March
- The District sold its customers 1,551,000 gallons of water in the month of March, leaving 2,006,576 gallons unaccounted for.
- 56% of the water produced is unaccounted for in the month of March.

➤ **Aspen WWTP and Town of Crestone Loading**

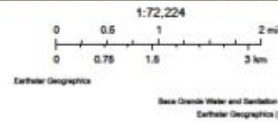
- Aspen WWTP averaged 36% of hydraulic loading capacity in the month of March, the Town of Crestone contributed and average of 21% of the treatment plants hydraulic load.
- Aspen WWTP averaged 48% of organic loading capacity in the month of February. The Town of Crestone contributed an average of 39% of the treatment plants organic load.



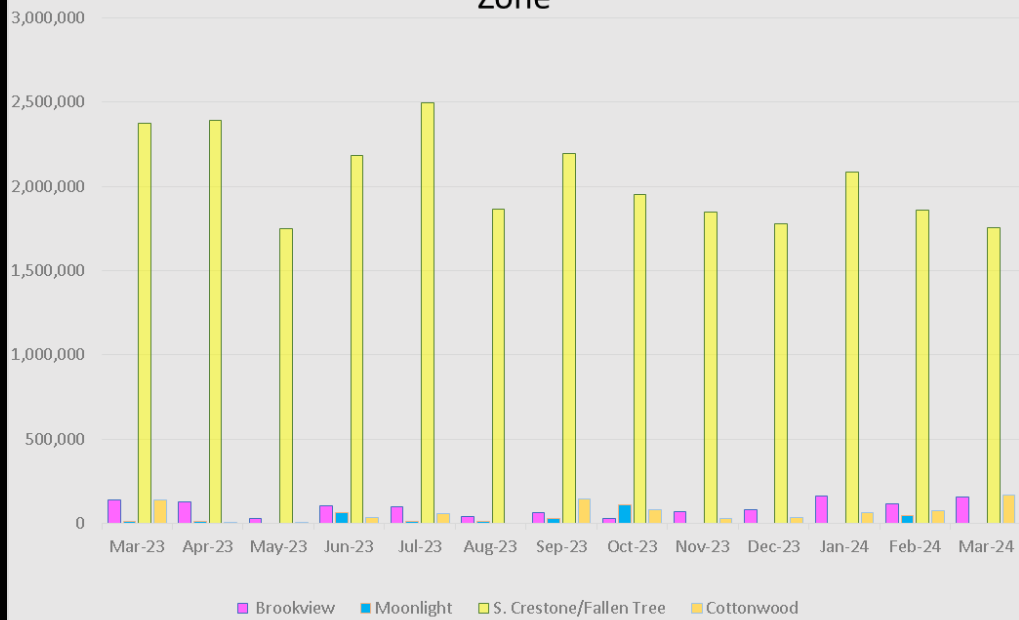
### BGWSD Unaccounted Water Zone's



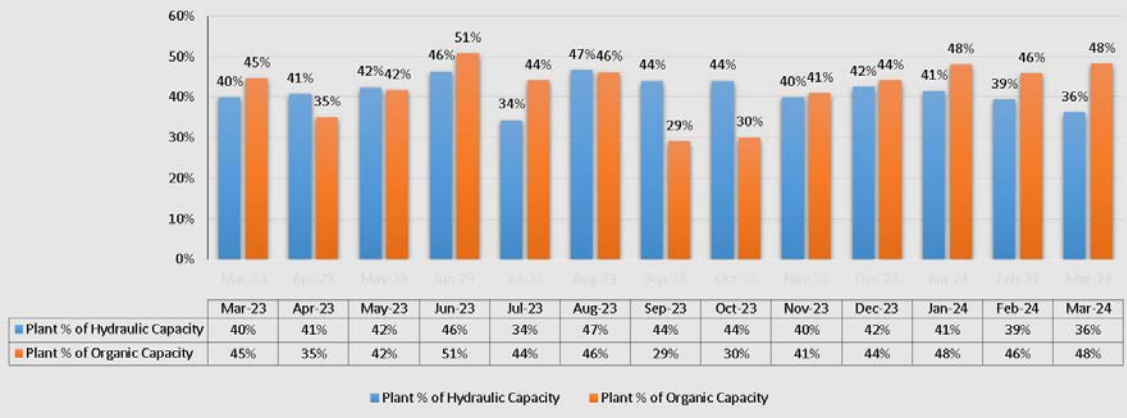
12/10/2020, 3:43:14 PM



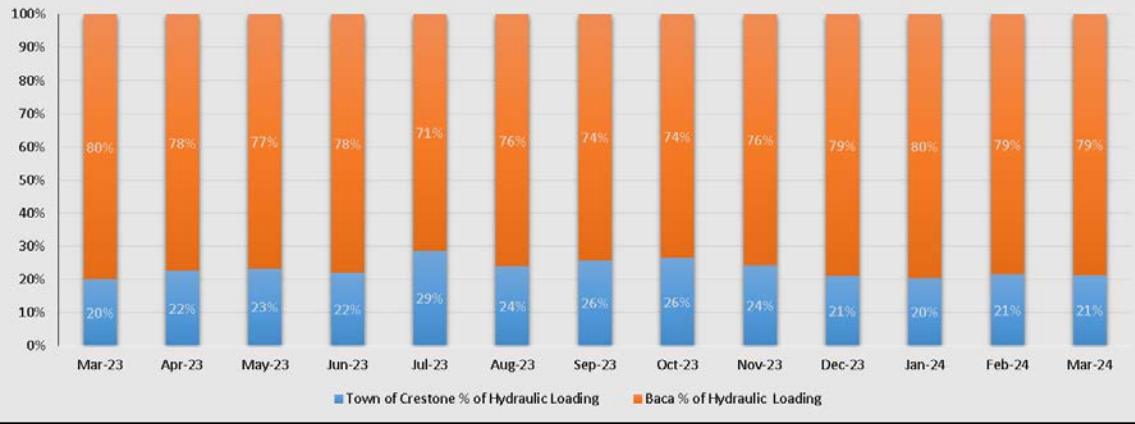
### Total Monthly Unaccounted in Gallons by Pressure Zone



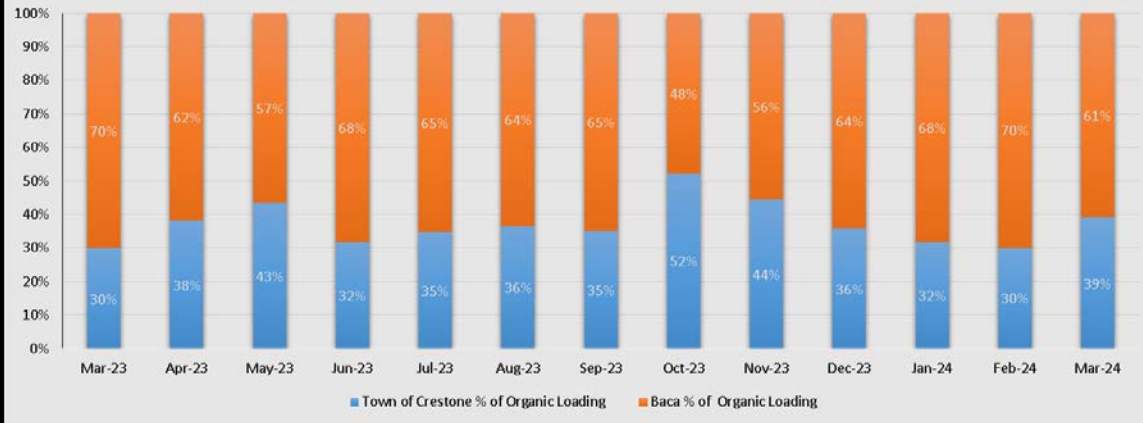
### Percentage of Plant Capacities by Month at Aspen Wastewater Treatment Plant

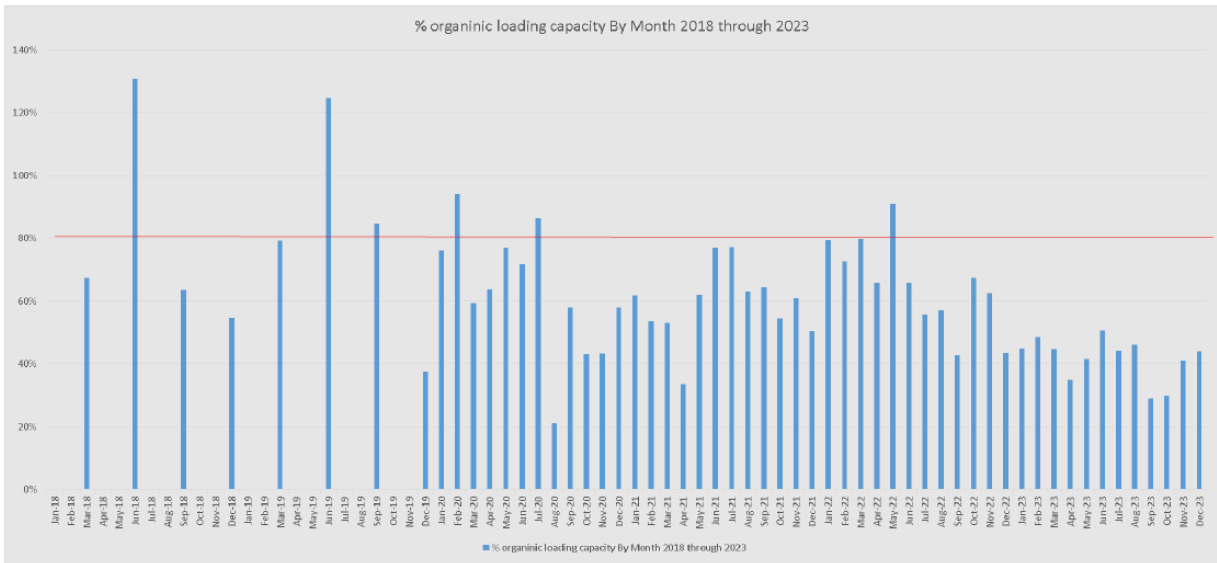


### Average % of Total Hydraulic Loading of Aspen Wastewater Treatment Plant by Month 2022-2023



### Average % of Total Organic Loading of Aspen Wastewater Treatment Plant by Month of 2022-2023





Dec. 2019 New Permit requires monthly Influent sampling.

Jan. 2021 Implement weekly sampling and begin sampling TOC BOD loading.

May. 2022 Begin regular cleaning of EQ Basin.

Sept. 2022 Auto-Samplers are online for collecting composite samples.

Oct. 2023 implement dual sampling. Sample analyzed by CAL and in-house.