

# Eaton Public Works

Service Department

901 South Barron

937-456-7157



## ANNUAL REPORT

# 2023

*Prepared by: Chris Denlinger, Scott Brubaker and Zac Wilson*

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<b>Employee:</b>	<b>Position:</b>	<b>Years of Service for the City of Eaton:</b>
Chris Denlinger	Superintendent	27 years
Scott Brubaker	Assistant Superintendent	17 years
Dana Smith	Lab Analyst	37 years
Tim Tudor	Treatment Operator	13 years
Ben Thornsberry	Treatment Operator	9 years
John Kern	Treatment Operator	22 years
Tom Paxton	Treatment Operator	7 years
Johnny Vest	Treatment Operator	7 years
Zac Wilson	Parks and Service	10 years
Jason Fore	Utility Worker	7 years
Steve McBee	Utility Worker	5 years
Doug Werts	Utility Worker	4 years

## **Mission Statement Public Works:**

*The Eaton Public Works Division is dedicated to protecting the environment and the public health for our community by maintaining regulatory compliance and providing service to the public in an effective and efficient manner.*

## Overview of Wastewater Plant



Eaton Water Plant

Black Water Plant





The City of Eaton has a water distribution system that serves the approximate population of 8,400 people with around 3,700 customer accounts. The water system consists of the following components:

- Eaton Water Plant (3 wells)
- Black Water Plant (5 wells)
- Two Water Tower Storage Tanks
- Distribution system

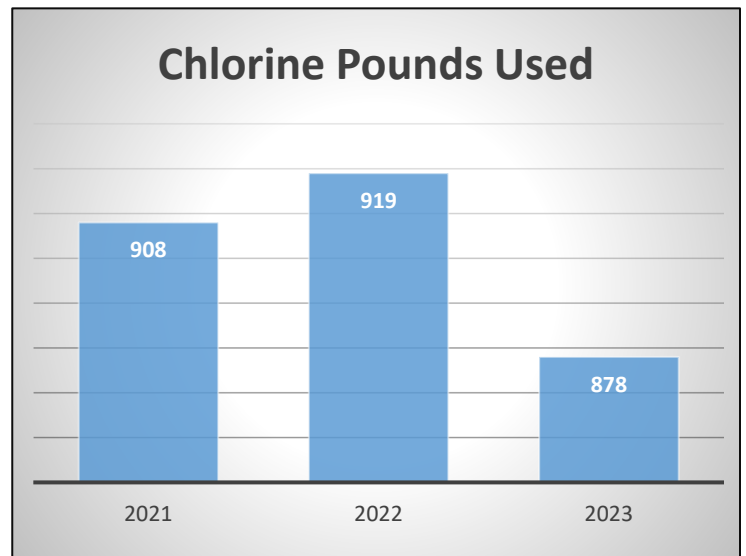
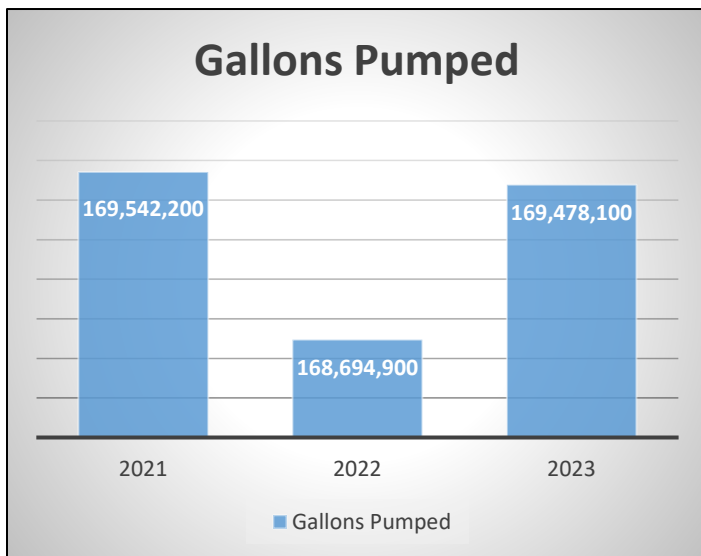


A brief description of these components is included in the following:

- **Eaton Water Plant**
  - This plant is an iron removal plant served by 3 wells. It is fully automated and can be operated manually as required.
- **Black Water Plant**
  - This plant is an iron and manganese removal plant served by 5 wells. It is also fully automated and can be operated manually as required.
- **Storage Tanks/ Water Towers**
  - Two elevated storage tanks provide a storage capacity of .75 MG and 1.5 MG. The system can operate with one tank out of service. However, should the 1.5 MG tank be out of service, normal fire flows could be a problem in the event of a major fire.
- **Distribution System**
  - The system is approximately 55 miles long of pipe varying in size from 2"-12".
  - There are approximately 475 fire hydrants around the city.

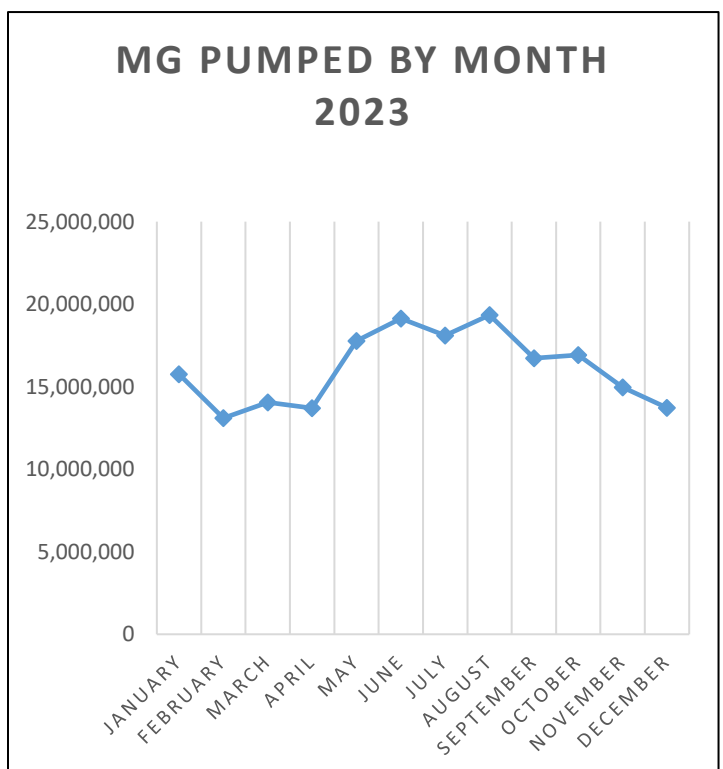
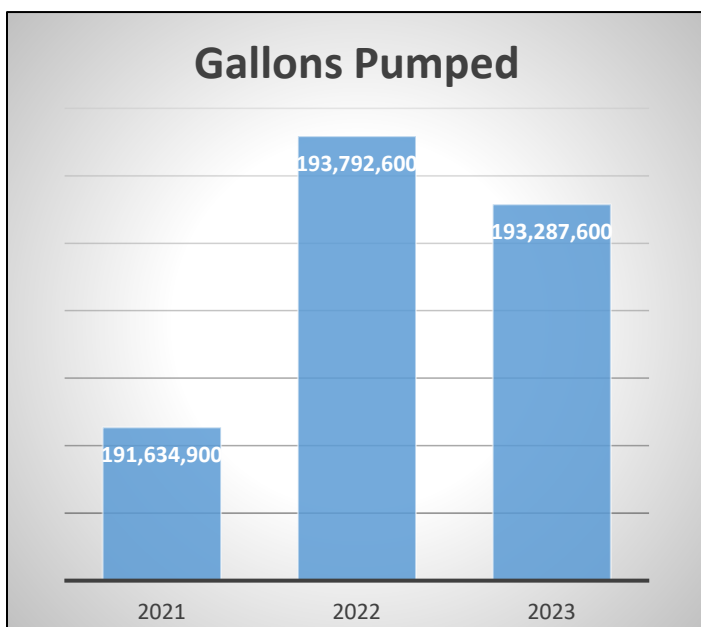
Month:	Gallons Pumped	Backwash Gallons	Pounds of PO4	Chlorine Pounds	Free CL2 Mg/L	Total CL2 Mg/L
January	14,582,000	259,280	233	72	1.36	1.49
February	12,953,700	230,520	214	65	1.37	1.50
March	14,411,800	259,360	243	85	1.31	1.42
April	13,939,400	259,240	243	69	1.28	1.42
May	14,595,000	259,200	256	72	1.26	1.37
June	13,722,700	259,200	229	78	1.34	1.44
July	14,426,000	244,800	244	75	1.27	1.37
August	14,442,000	259,200	243	88	1.29	1.41
September	13,686,800	259,200	231	78	1.24	1.34
October	14,283,000	246,240	255	70	1.30	1.43
November	14,018,300	244,800	266	68	1.33	1.44
December	14,417,400	231,840	295	58	1.34	1.45
<b>Total</b>	<b>169,478,100</b>	<b>3,012,880</b>	<b>2,952</b>	<b>878</b>	<b>-</b>	<b>-</b>
<b>Average</b>	<b>14,123,175</b>	<b>251,073</b>	<b>246</b>	<b>73</b>	<b>1.30</b>	<b>1.42</b>
<b>Maximum</b>	<b>14,595,000</b>	<b>259,360</b>	<b>295</b>	<b>88</b>	<b>1.37</b>	<b>1.50</b>
<b>Minimum</b>	<b>12,953,700</b>	<b>230,520</b>	<b>214</b>	<b>58</b>	<b>1.24</b>	<b>1.34</b>

## 3 Year Review



Month:	Gallons Pumped	Backwash Gallons	Pounds of PO4	KMNO4 Pounds	Chlorine Gallons	Free CL2 Mg/L	Total CL2 Mg/L
January	15,757,500	488,696	336	54	899	1.25	1.45
February	13,096,500	444,601	278	44	625	1.25	1.44
March	14,044,600	512,434	317	48	695	1.27	1.46
April	13,697,200	441,507	275	47	628	1.29	1.49
May	17,766,600	511,251	359	60	836	1.27	1.48
June	19,134,600	518,971	384	64	864	1.21	1.41
July	18,106,600	484,959	367	61	806	1.16	1.36
August	19,339,200	564,815	398	67	916	1.17	1.37
September	16,732,100	475,348	338	59	830	1.17	1.37
October	16,922,700	504,251	341	61	782	1.12	1.31
November	14,966,300	562,800	302	57	682	1.16	1.33
December	13,723,700	537,660	289	46	687	1.17	1.36
<b>Total</b>	<b>193,287,600</b>	<b>6,047,293</b>	<b>3,984</b>	<b>668</b>	<b>9,250</b>	<b>-</b>	<b>-</b>
<b>Average</b>	<b>16,107,300</b>	<b>503,941</b>	<b>332</b>	<b>56</b>	<b>770</b>	<b>1.20</b>	<b>1.40</b>
<b>Maximum</b>	<b>19,339,200</b>	<b>564,815</b>	<b>398</b>	<b>67</b>	<b>916</b>	<b>1.29</b>	<b>1.49</b>
<b>Minimum</b>	<b>13,096,500</b>	<b>441,507</b>	<b>275</b>	<b>44</b>	<b>625</b>	<b>1.12</b>	<b>1.31</b>

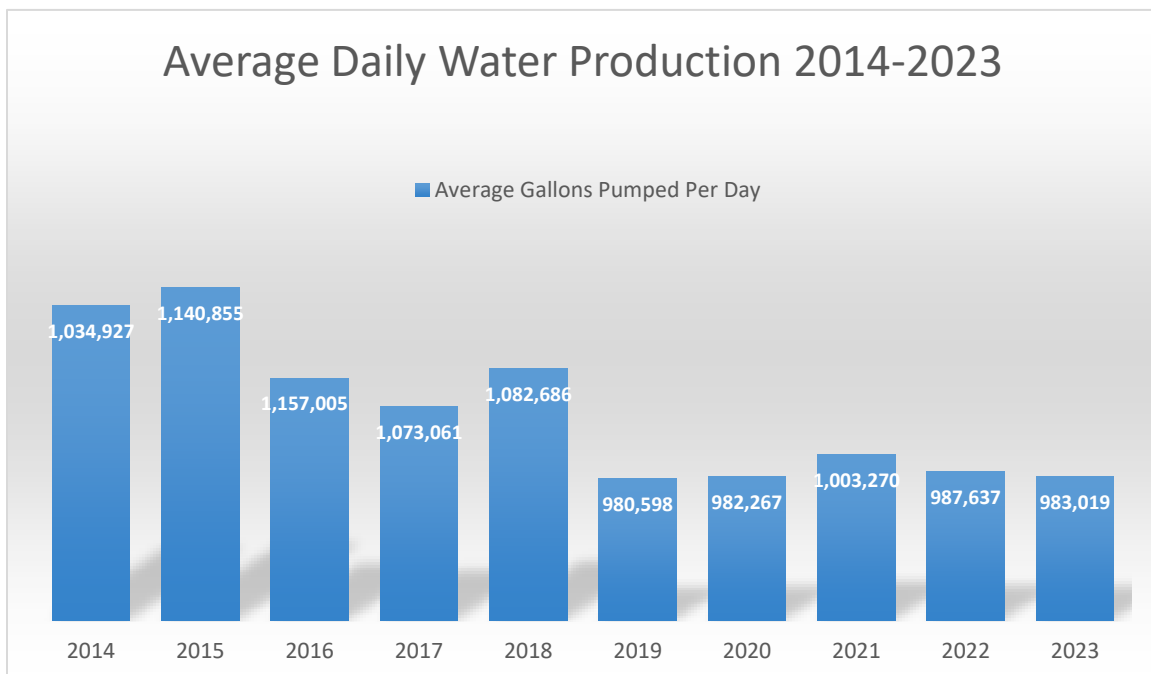
## 3 Year Review



Month:	Gallons Pumped	Backwash Gallons
January	29,841,500	725,694
February	26,050,200	675,121
March	27,977,400	749,551
April	27,636,600	700,747
May	31,649,100	748,351
June	32,857,300	778,171
July	31,711,600	672,078
August	33,158,200	801,876
September	30,418,900	734,548
October	30,599,700	724,901
November	28,984,600	807,600
December	27,917,100	769,500
<b>Total</b>	<b>358,802,200</b>	<b>8,888,138</b>
<b>Average</b>	<b>29,900,183</b>	<b>740,678</b>
<b>Maximum</b>	<b>33,158,200</b>	<b>807,600</b>
<b>Minimum</b>	<b>26,050,200</b>	<b>672,078</b>



## Average Daily Water Production 2014-2023





## Eaton Water Plant Wells 2023 (MG OUTPUT)

Source	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Yr. Total
Well #1	3.77	8.12	12.58	3.35	3.44	6.32	6.10	3.54	6.93	3.36	3.91	7.22	68.64
Well #2	0.09	2.06	4.35	1.30	3.72	3.04	3.80	5.04	4.90	3.53	5.39	4.64	41.86
Well #3	7.85	4.30	3.91	7.38	5.70	7.85	4.95	6.58	8.16	8.15	7.36	9.77	81.96
<b>Total</b>	<b>11.71</b>	<b>14.48</b>	<b>20.84</b>	<b>12.03</b>	<b>12.86</b>	<b>17.21</b>	<b>14.85</b>	<b>15.16</b>	<b>19.99</b>	<b>15.04</b>	<b>16.66</b>	<b>21.63</b>	
<b>Maximum</b>	<b>7.85</b>	<b>8.12</b>	<b>12.58</b>	<b>7.38</b>	<b>5.7</b>	<b>7.85</b>	<b>6.1</b>	<b>6.58</b>	<b>8.16</b>	<b>8.15</b>	<b>7.36</b>	<b>9.77</b>	
<b>Minimum</b>	<b>0.09</b>	<b>2.06</b>	<b>3.91</b>	<b>1.3</b>	<b>3.44</b>	<b>3.04</b>	<b>3.8</b>	<b>3.54</b>	<b>4.9</b>	<b>3.36</b>	<b>3.91</b>	<b>4.64</b>	

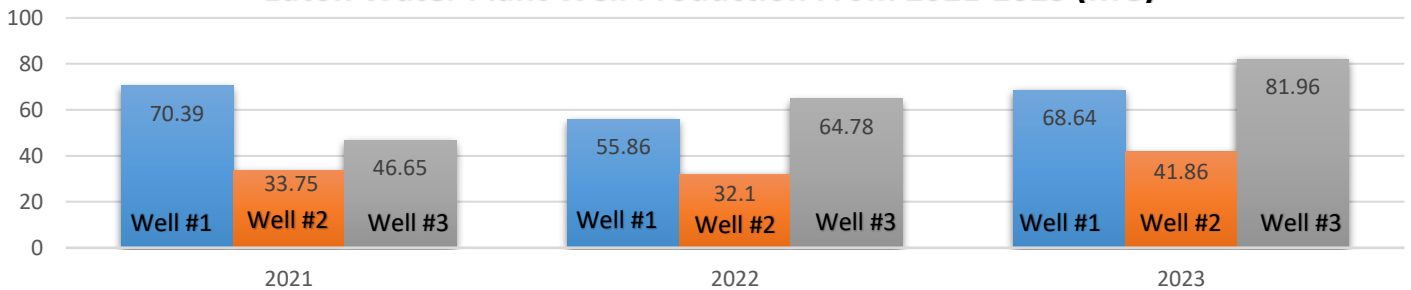
**Total: 192.46 MG**

## Black Water Plant Wells 2023 (MG OUTPUT)

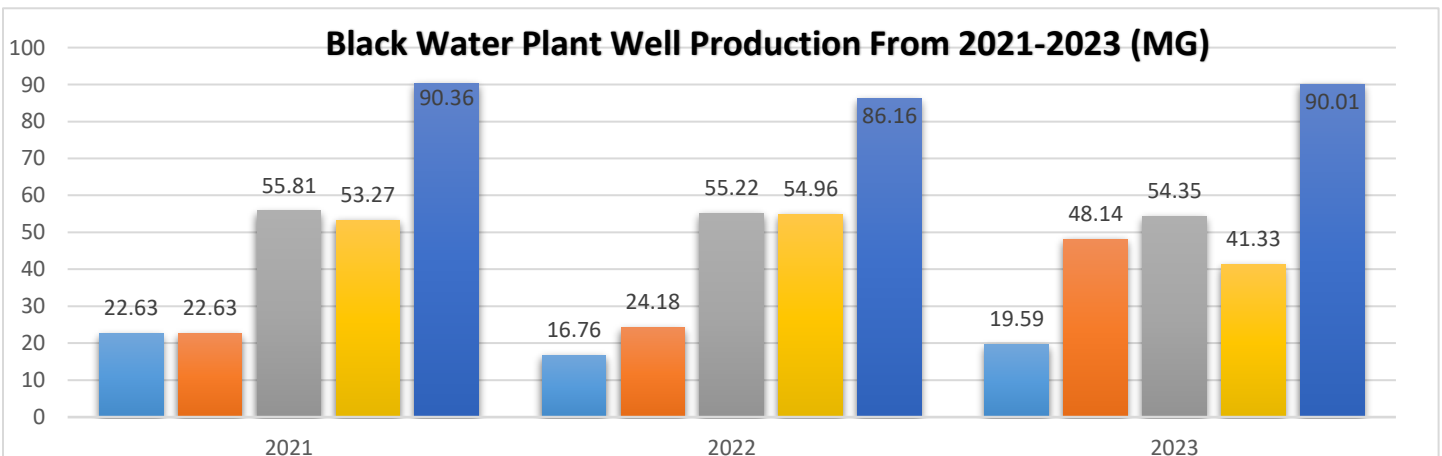
Source	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Yr. Total
Well #1	1.5	2.19	1.86	1.10	1.10	1.39	1.59	1.61	2.21	1.62	1.51	1.91	19.59
Well #2	1.75	2.61	2.52	1.16	2.84	7.63	5.15	4.37	5.68	4.49	4.40	5.54	48.14
Well #3	4.44	0.10	4.01	3.12	3.58	6.84	5.14	5.45	7.37	4.8	4.64	4.86	54.35
Well #4	3.5	0	1.55	3.13	3.36	5.60	4.27	3.17	4.31	4.39	4.24	3.81	41.33
Well #5	7.74	9.42	8.86	5.46	5.77	6.56	6.76	8.8	9.29	6.80	6.44	8.11	90.01
<b>Total</b>	<b>18.93</b>	<b>14.32</b>	<b>18.8</b>	<b>13.97</b>	<b>16.65</b>	<b>28.02</b>	<b>22.91</b>	<b>23.4</b>	<b>28.86</b>	<b>22.1</b>	<b>21.33</b>	<b>24.23</b>	
<b>Maximum</b>	<b>7.74</b>	<b>9.42</b>	<b>8.86</b>	<b>5.46</b>	<b>5.77</b>	<b>7.63</b>	<b>6.76</b>	<b>8.8</b>	<b>9.29</b>	<b>6.8</b>	<b>6.44</b>	<b>8.11</b>	
<b>Minimum</b>	<b>1.5</b>	<b>0</b>	<b>1.55</b>	<b>1.1</b>	<b>1.1</b>	<b>1.39</b>	<b>1.59</b>	<b>1.61</b>	<b>2.21</b>	<b>1.62</b>	<b>1.51</b>	<b>1.91</b>	

**Total: 253.42 MG**

## Eaton Water Plant Well Production From 2021-2023 (MG)

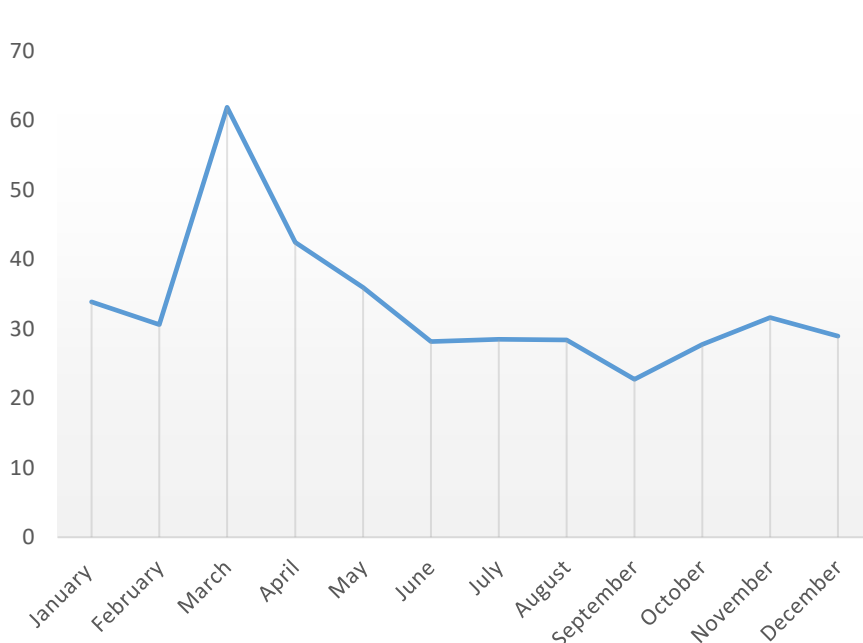


## Black Water Plant Well Production From 2021-2023 (MG)

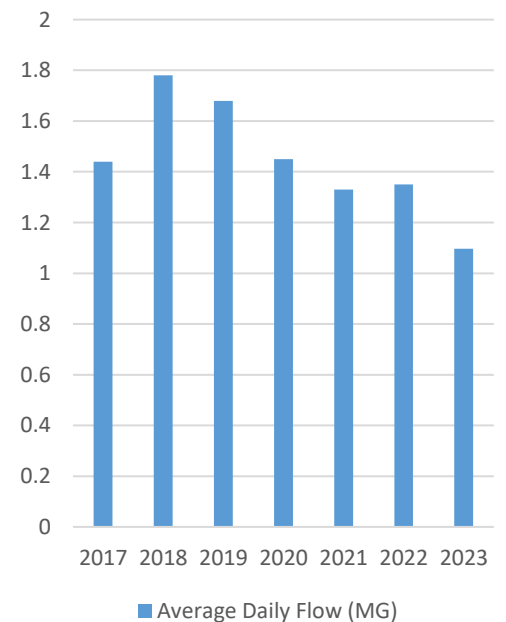


Month:	Flow Gallons (MG)	Flow Average Daily (MG)	CBOD5 Mg/L Effluent	TSS Mg/L Effluent	NH3 Mg/L Effluent	Chlorine Lbs/day Average	Precipitation Inches
January	33.905	1.094	2.0	1.25	.21	0	4.05
February	30.615	1.093	1.6	1.2	.09	0	2.06
March	61.899	1.997	1.4	1.5	.32	0	6.88
April	42.448	1.415	1.5	1.4	0	0	2.61
May	35.973	1.160	1.4	1.2	.02	.01	2.22
June	28.154	.938	3	2.1	.01	.01	3.80
July	28.490	.919	1.58	1.2	.09	.01	4.25
August	28.386	.916	2.3	1.4	.09	.01	4.10
September	22.733	.758	2	1.3	.08	.01	1.51
October	27.743	.895	2.4	1.3	.04	.01	2.92
November	31.647	1.055	1.9	1.5	.04	0	1.12
December	28.962	.934	2.1	1.2	.07	0	1.70
<b>Total</b>	<b>400.955</b>	<b>1.097</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>37.22</b>
<b>Average</b>	<b>33.412</b>	<b>1.097</b>	<b>1.93</b>	<b>1.37</b>	<b>.08</b>	<b>.005</b>	<b>3.10</b>
<b>Maximum</b>	<b>61.899</b>	<b>1.997</b>	<b>3</b>	<b>2.1</b>	<b>0.32</b>	<b>0.01</b>	<b>6.88</b>
<b>Minimum</b>	<b>22.733</b>	<b>.758</b>	<b>1.4</b>	<b>1.2</b>	<b>0</b>	<b>0</b>	<b>1.12</b>

Flow Gallons (MG) Per Month 2023



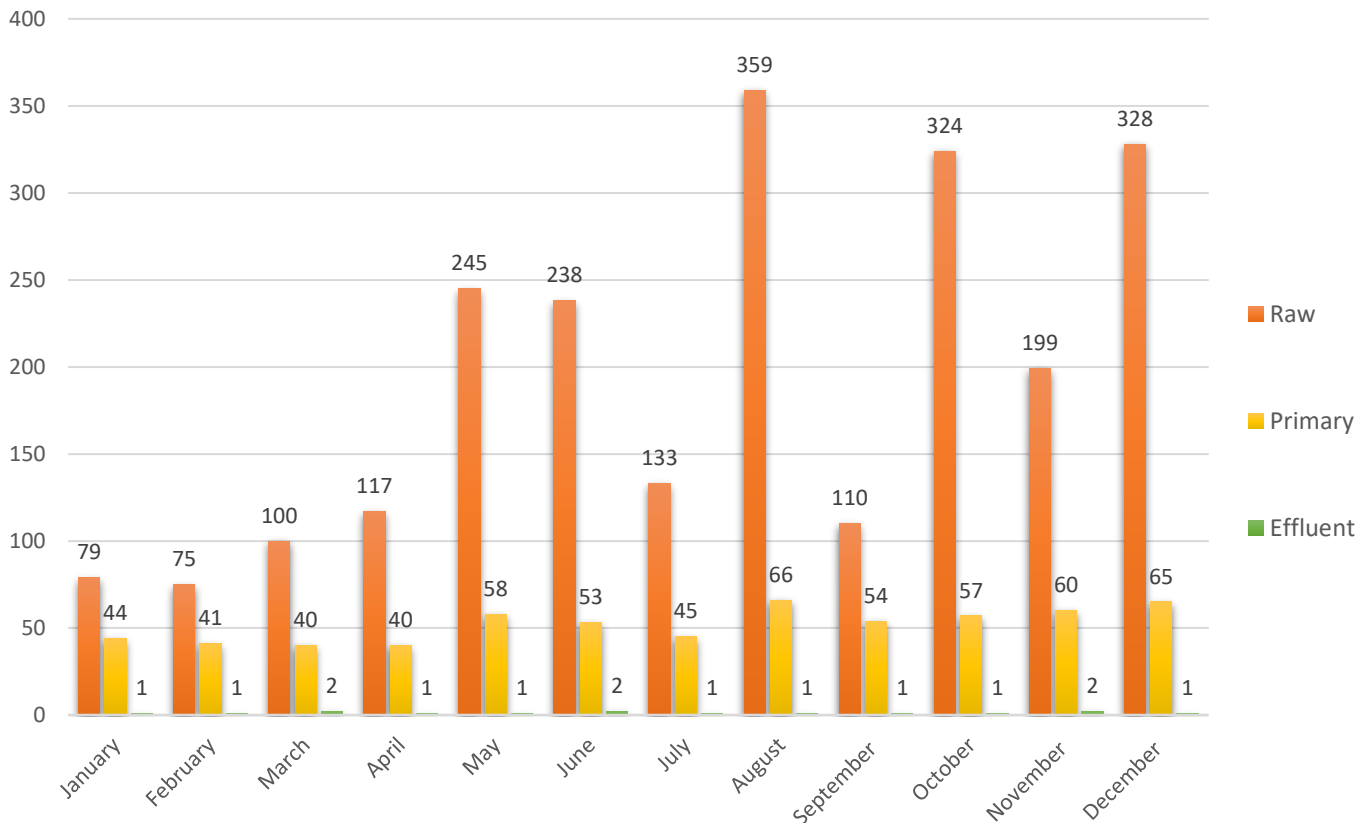
Average Daily Flow (MG) from 2017-2023



Month:	CBOD Removal %	TSS Removal %	NH3-N Removal %
January	96.67	99.26	99.31
February	98.30	98.34	99.96
March	98.05	98.51	99.75
April	97.66	98.8	99.0
May	98.51	99.48	99.87
June	99.96	99.03	99.52
July	98.02	99.1	99.54
August	97.58	99.60	99.71
September	97.58	98.80	99.67
October	97.78	99.59	99.85
November	98.11	99.20	99.79
December	98.38	99.62	99.23
<b>Average</b>	<b>98.05</b>	<b>99.1</b>	<b>99.6</b>
<b>Maximum</b>	<b>99.96</b>	<b>99.62</b>	<b>99.96</b>
<b>Minimum</b>	<b>96.67</b>	<b>98.34</b>	<b>99</b>

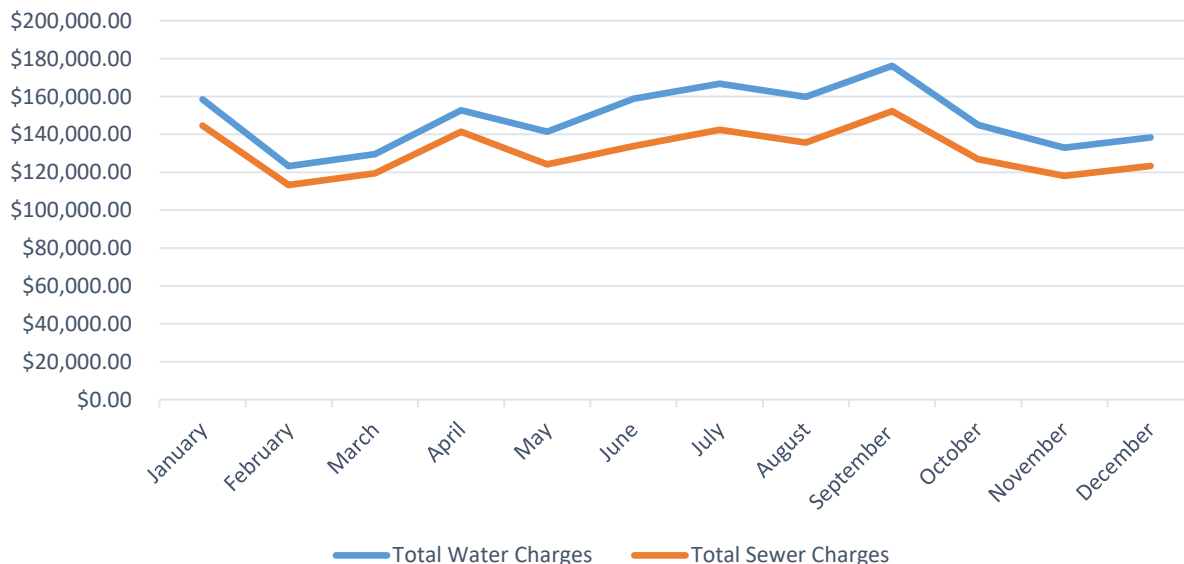
## Total Suspended Solids (TSS) Removal Efficiency mg/L

Raw → Primary → Effluent

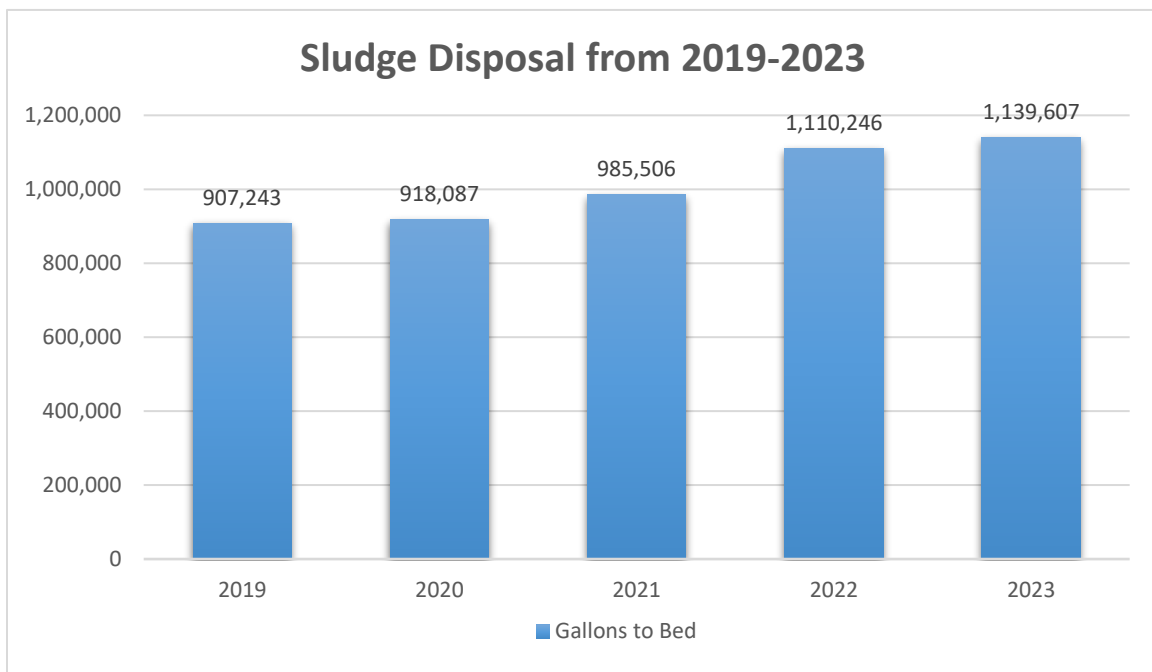


Month:	New Water Service	New Sewer Service	Cubic Feet Consumption	Total Penalty Charges	Total Water Charges	Total Sewer Charges
January	1	2	3,547,202	\$4,748.31	\$158,513.33	\$144,607.91
February	1	1	2,552,566	\$5,800.44	\$123,265.81	\$113,284.66
March	0	0	2,740,052	\$3,881.84	\$129,607.67	\$119,432.92
April	0	0	3,421,787	\$5,115.14	\$152,684.34	\$141,376.18
May	0	0	2,743,098	\$5,814.04	\$141,432.61	\$124,119.01
June	0	0	3,209,679	\$4,511.29	\$158,791.60	\$133,770.16
July	0	0	3,431,967	\$5,638.89	\$166,807.97	\$142,374.45
August	0	0	3,236,358	\$5,183.59	\$159,916.83	\$135,675.61
September	2	2	3,682,253	\$5,221.29	\$176,183.67	\$152,248.26
October	2	2	2,836,022	\$6,832.26	\$145,014.84	\$126,925.54
November	0	0	2,510,496	\$4,603.34	\$133,004.80	\$118,138.04
December	1	0	2,658,709	\$5,150.36	\$138,311.69	\$123,352.65
<b>Total</b>	<b>7</b>	<b>7</b>	<b>36,570,189</b>	<b>\$62,500.79</b>	<b>\$1,783,535.16</b>	<b>\$1,575,305.39</b>
<b>Average</b>	<b>0.58</b>	<b>0.58</b>	<b>3,047,516</b>	<b>\$5,208.40</b>	<b>\$148,627.93</b>	<b>\$131,275.45</b>
<b>Maximum</b>	<b>2</b>	<b>2</b>	<b>3,682,253</b>	<b>\$6,832.26</b>	<b>\$176,183.67</b>	<b>\$152,248.26</b>
<b>Minimum</b>	<b>0</b>	<b>0</b>	<b>2,510,496</b>	<b>\$3,881.84</b>	<b>\$123,265.81</b>	<b>\$113,284.66</b>

## 2023 Consumption Report Total Water and Sewer Charges



Month:	Gallons to Bed:	Dry Tons to Landfill:
January	141,556	43.86
February	95,891	16.88
March	100,941	14.14
April	52,000	13.26
May	99,420	15.92
June	95,076	38.61
July	56,106	20.15
August	94,177	27.44
September	162,632	31.19
October	0	20.77
November	109,673	39.21
December	132,135	0
<b>TOTAL:</b>	<b>1,139,607</b>	<b>281.43</b>





## January 2023:

- Installed new grinder pumps and electrical panel at Sunrise Lift Station
- Repaired 2 water service leaks
- Performed annual service on equipment and generators



## February 2023:

- Moody's cleaned well #4 at Black Plant
- Moody's abandoned old well #1 at Little League
- Replaced gear drives on reaction tanks at Black Plant

## March 2023:

- Fishbeck performed manhole inspections on East Side Trunk line
- Poured concrete around clear well risers at Eaton Plant
- Fishbeck performed smoke testing on east side of the City

## April 2023:

- Cleaned contact tank at WWTP
- Exercised critical distribution water valves
- Repaired 2 water service leaks
- Started CL2 and Sodium Bisulfite treatment at WWTP

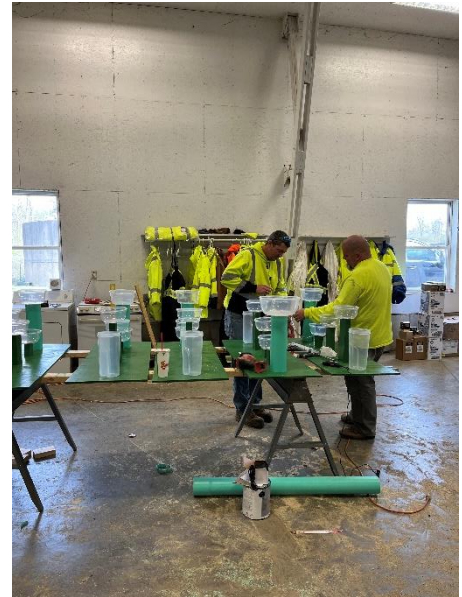


## May 2023:

- Moody's abandoned old well #3 Eaton Plant
- Completed hydrant Flushing
- Inventoried fire hydrants for repainting
- Participated in Career Day at Expo Center

## June 2023:

- Installed new fire hydrant U.S. 35 East
- Completed maintenance on secondary clarifier scum arms at WWTP
- Completed meter calibrations in lab
- Completed annual lead and copper sampling program



## July 2023:

- Replaced battery backup in PLC cabinets at Black Plant
- Moody's installed new motor on well pump #4 at Black Plant
- Repaired 3 water service leaks

## August 2023:

- Repaired manhole 517 S. Barron St.
- Purchased new John Deere Gator
- Trained on new leak detection equipment which was purchased
- Repaired water service leak at Black Plant
- Visited Rushville, Indiana WWTP for research on new filters at WWTP



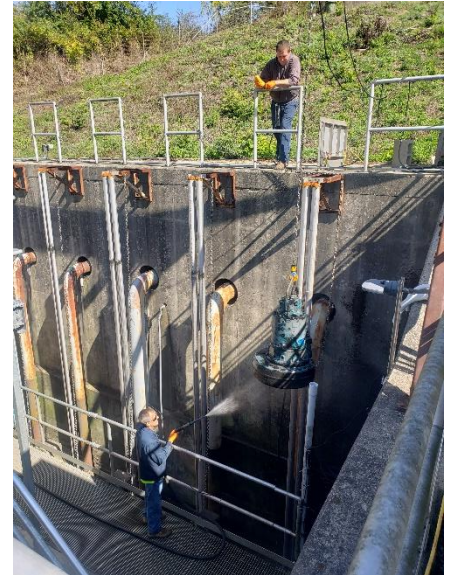


## September 2023:

- Repaired raw water line leak at Debbie Drive
- Replaced VFD for raw pump #4 at WWTP
- Repaired 1 water service leak

## October 2023:

- Purchased new sewer camera
- Performed annual filter inspection at Black Plant
- Removed old air scrubber at WWTP
- Repaired 3 water service leaks
- Replaced raw pumps #4 and #5 at WWTP



## November 2023:

- Repaired 2 water service leaks
- Pressure tested new water main at 800 Nation Ave.
- Repaired 2 sewer mains

## December 2023:

- Replaced pump #1 Mound Hill Lift Station
- Microbiology Lab Inspection was performed
- Repaired 1 water service leak
- Completed MIPP inspections
- Cleaned grit tanks at WWTP

