

# Investigation of Excess Water Usage Events



Mike Bryan – Unit 411

[mbryanwingnut@gmail.com](mailto:mbryanwingnut@gmail.com)

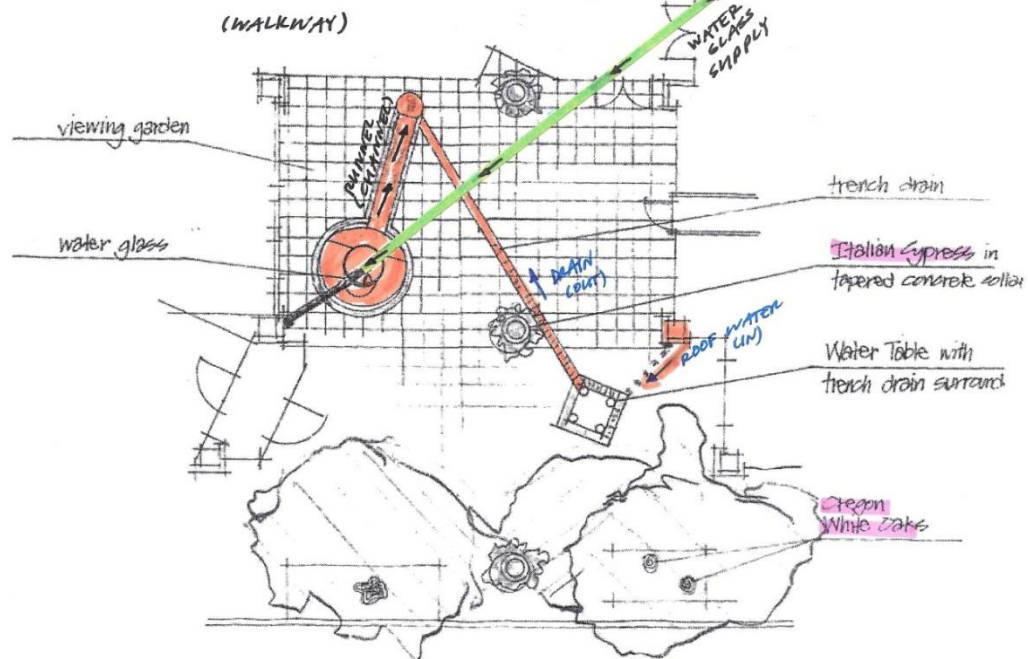
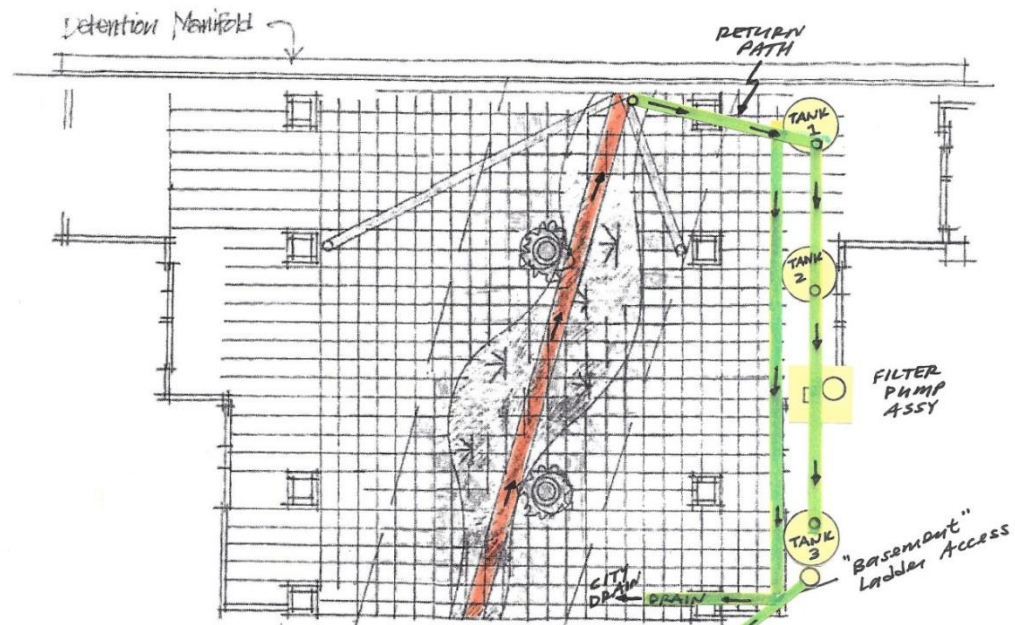
November 26, 2024

M: 206-419-8118

# Executive Summary

- In early 2024, excessive water and sewer usage was noticed as evidenced by a sudden spike in monthly utilities billing amounts. A significant leak (somewhere) was suspected; however, the March 2024 statement for water usage in February was unexpectedly normal in cost and usage. This implied the “leak” started and stopped; but no clear evidence of a leak of this magnitude could be easily found. Around June 2024, specialists and city officials helped perform a full water shutdown and inspection to help determine the cause. One technician noticed a water supply line lever in an ON position, with the hose inserted into Tank 1 of the courtyard art display water supply system. This was evidence the water had been left ON, thereby filling all three storage tanks to a full state with the subsequent excessive water volume being routed to the outgoing drain line.
- Referenced to an average monthly water usage of about 404,000 gallons, over 7.4 million gallons of water were sent directly to the drain system during the past six years. This resulted in excess fees of \$235,975 during that timeframe. Of the 16 affected months, nine of them occurred between the months of August 2023 to June 2024.
- The clear cause of the overflow events was the refill hose being left inserted into Tank 1, in the ON position for extended periods of time. The process relied on a single person performing the actions with no crosschecks. At least four different technicians performed the refilling actions since 2018 and caused overflow events. Even knowledgeable personnel most familiar with the water supply system did not fully understand the hidden risk such a refilling process might have until the cause was found by an outside inspector. The deeper causes are a combination of factors related to traditional Human Factors elements such as: knowledge, training, state awareness, indications, warnings, alerts, error tolerance, processes and checklists. These areas must be addressed and improved upon to prevent a reoccurrence of these costly drainage events. Without corrective action, it is a near certainty there will be a reoccurrence.

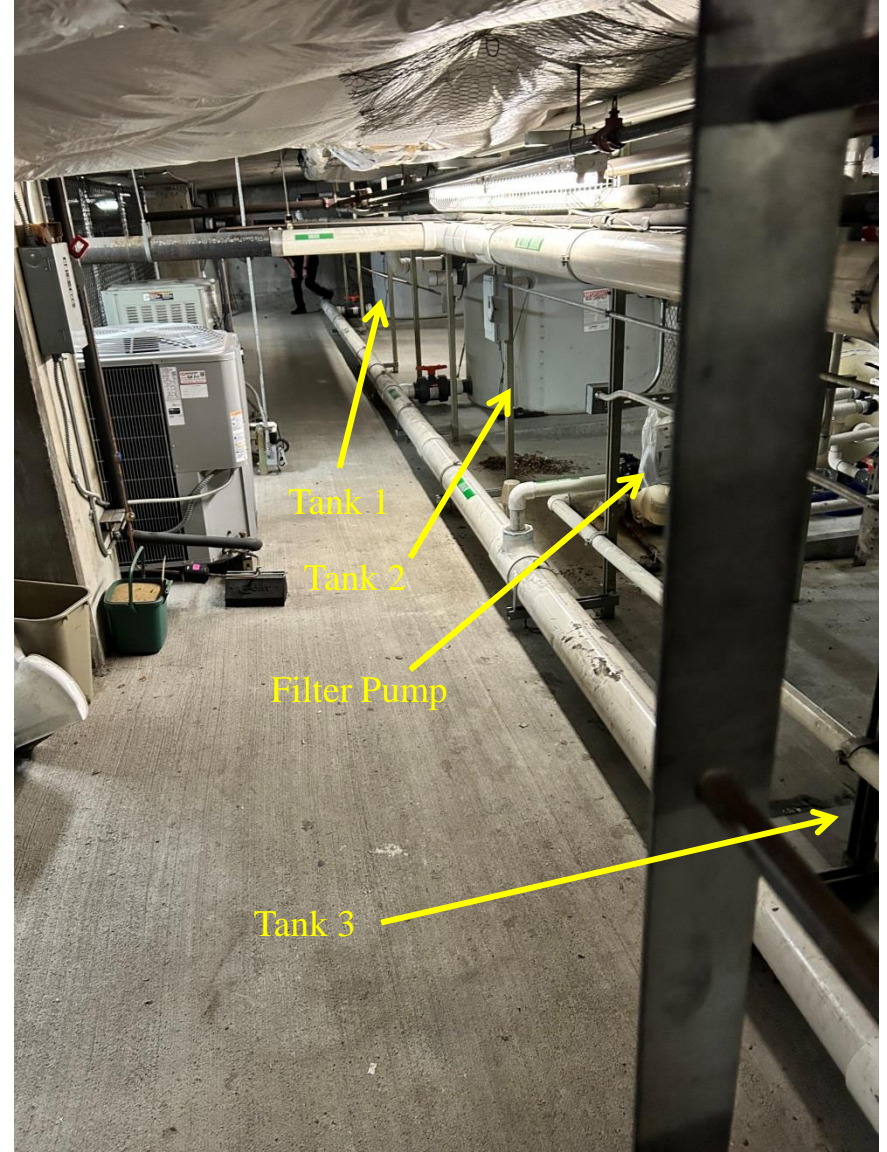




# Ladder Well Entry



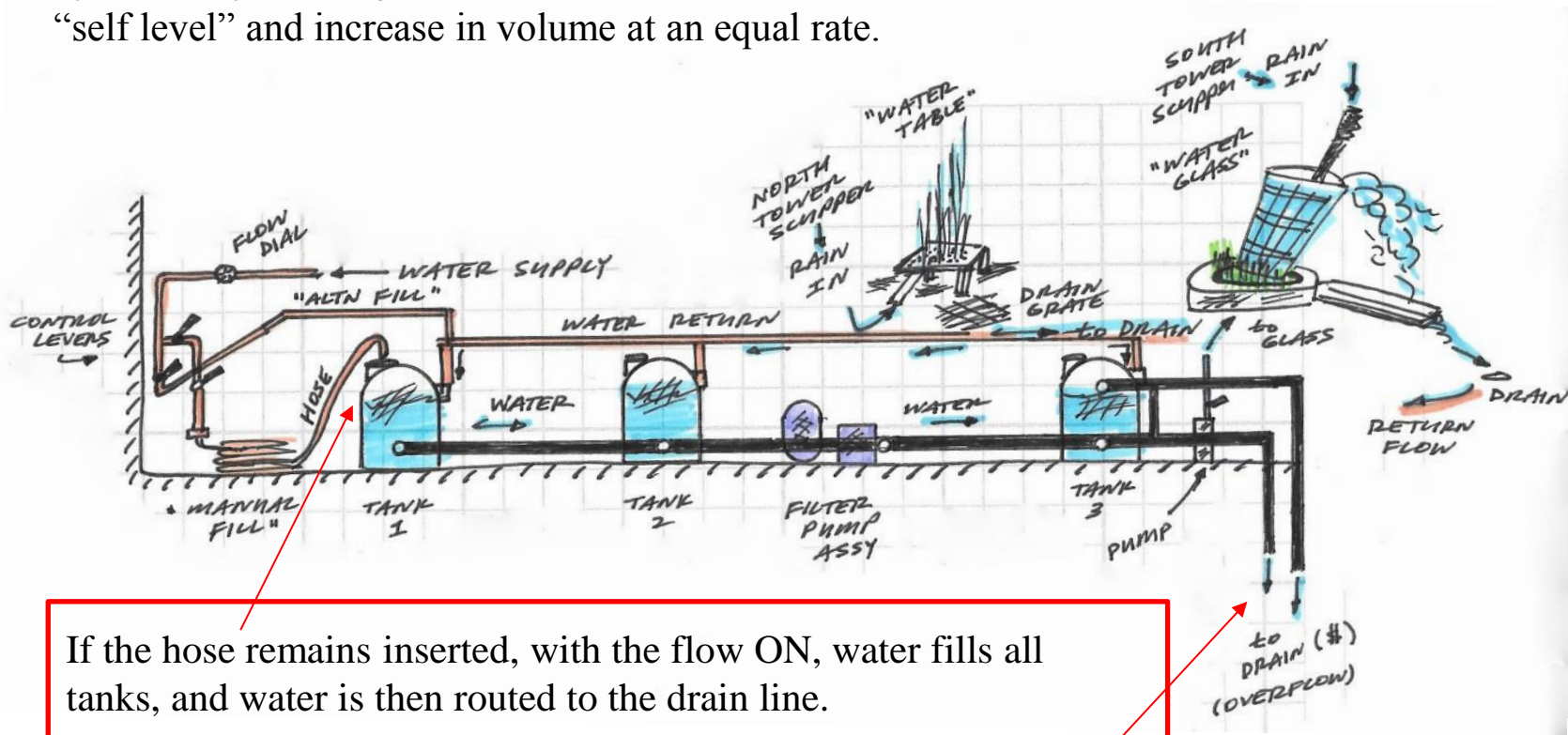
# View from Ladder



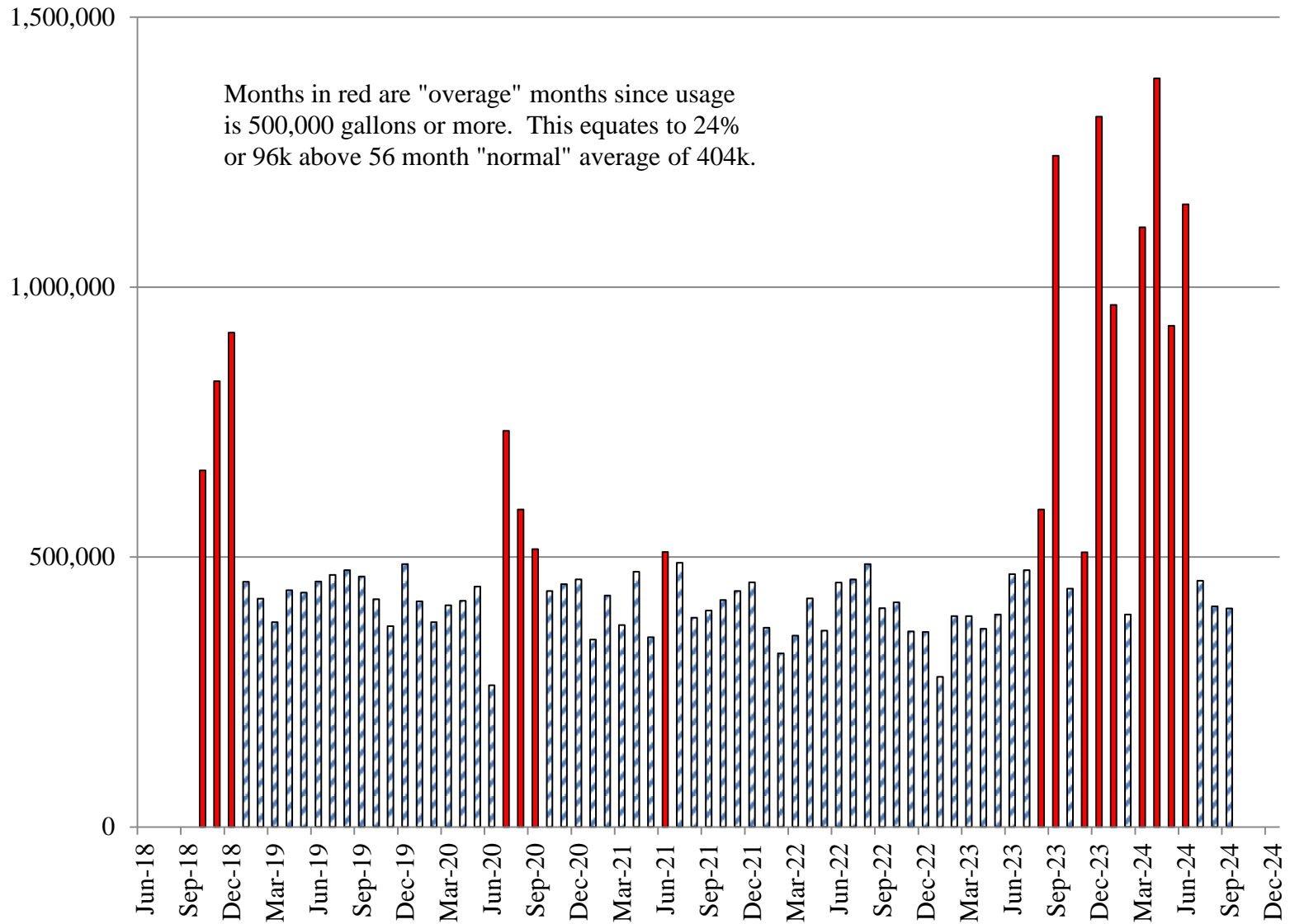


# FINDINGS – Water System Design and Operation

“Closed Loop” system design that utilizes 3 water reservoirs. Water Glass and Water Table spillages are returned to the system via the courtyard runnel (or channel) to a drain hole near the alley overlook boundary, then via pipes to all 3 tanks. Additionally, rain water enters the system via “capture scuppers” on both Towers. Spillage and evaporative water losses are accommodated by manually refilling the tanks, via an access hole on Tank 1 or the Alternate Fill route. The tanks “self level” and increase in volume at an equal rate.



## Monthly Water Usage (gal)



**Water Volume Overage versus Average Monthly Value (%)**

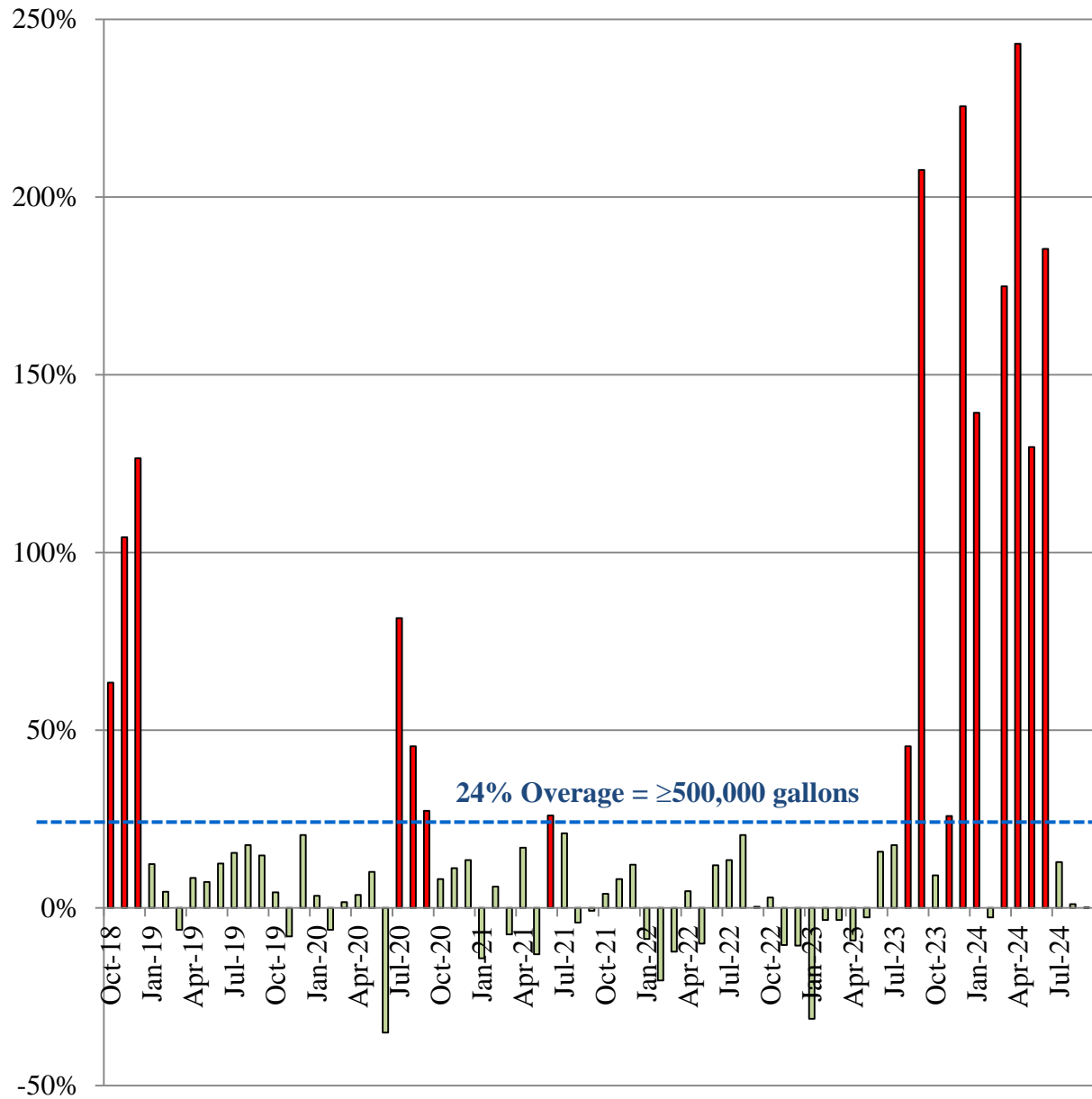


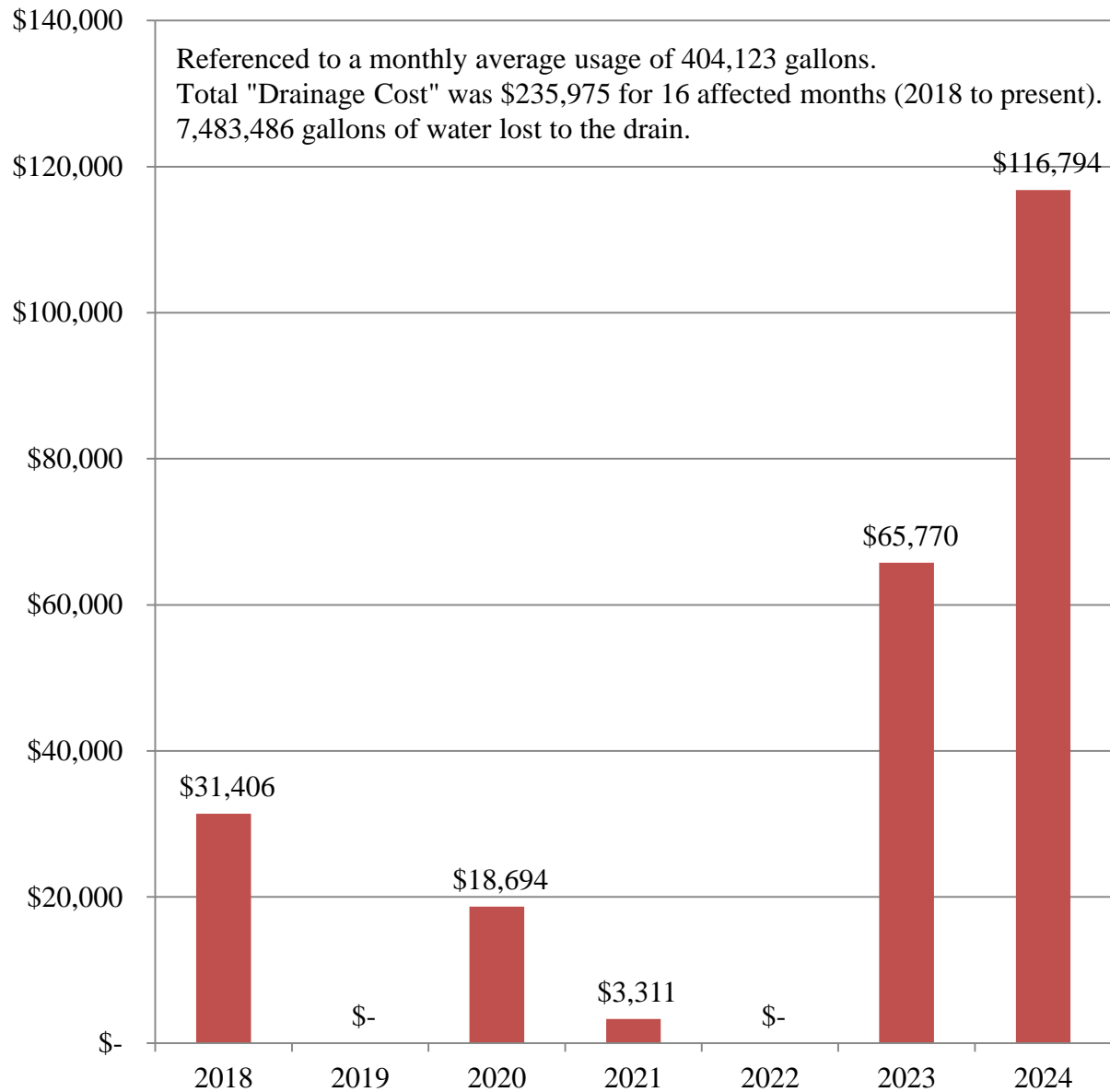
Table 1  
Monthly Water Usage for Affected Months (16)  
(Referenced to a 500,000 gallon usage threshold)

<u>Usage Month</u>	<u>Water Usage (gal)</u>	<u>“Lost” Water (gal)</u>	<u>”Lost” Cost</u>
October 2018	660,484	160,484	\$4,237
November 2018	825,792	325,792	\$8,602
December 2018	915,552	415,552	\$10,972
July 2020	733,788	233,788	\$7,004
August 2020	587,928	87,928	\$2,634
September 2020	514,624	14,624	\$438
June 2021	509,388	9,388	\$295
August 2023	587,928	87,928	\$2,927
September 2023	1,243,176	743,176	\$24,739
November 2023	508,640	8,640	\$270
December 2023	1,315,732	815,732	\$25,464
January 2024	967,164	467,164	\$15,114
March 2024	1,110,780	610,780	\$19,761
April 2024	1,386,792	886,792	\$28,690
May 2024	928,268	428,268	\$14,772
June 2024	<u>1,153,416</u>	<u>653,416</u>	<u>\$22,538</u>
Totals:	<b>13,949,452</b>	<b>5,949,452</b>	<b>\$188,459</b>

Note: Total payments = \$188,459 (\$50,249 for water, and \$138,209 for sewage).

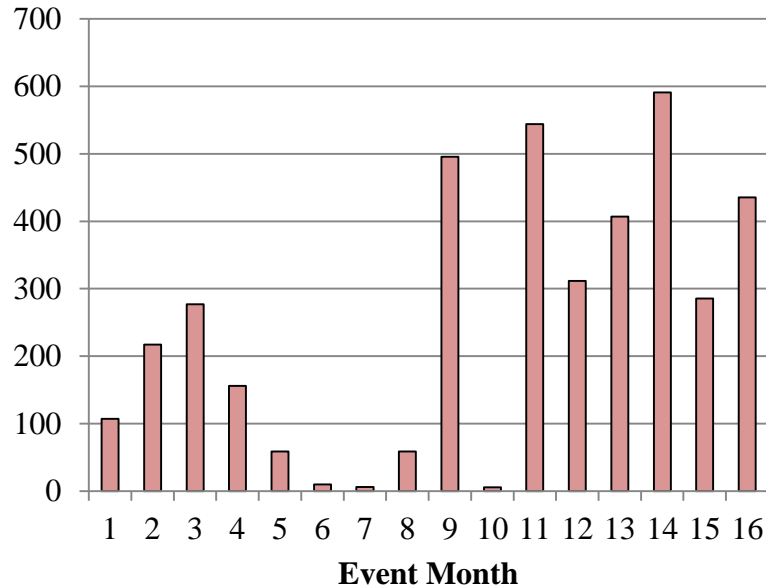


## Water Drainage Costs by Year (\$)

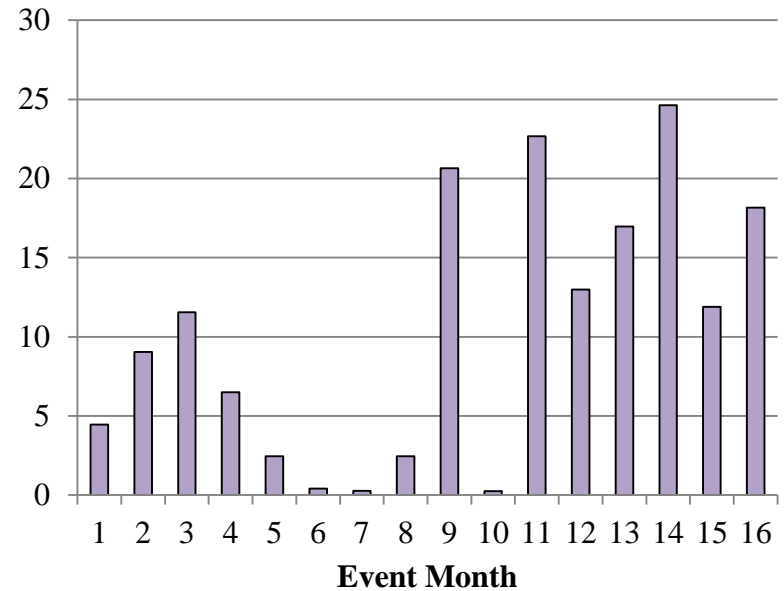


# Duration of Water Drain Events

**Excess "Hose On Time" (hrs)**



**Excess "Hose On" Time (days)**



# Conclusions

- The water usage events can be attributed to a combination of factors related to overall system design, system indications and warnings (or absence thereof), technical documentation, formalized training, procedures and checklists, and system component labeling.
- The primary cause of the 16 documented excessive water usage events (from 2018 to 2024) was the failure of the operator to turn the water supply system to an OFF state after the three tanks reached a full state. This alone is not the complete answer, in that it is highly unlikely the operators who made this error did so intentionally and with malice to dump millions of water into the city's drain system. The complexity of the system design and lack of feedback must be considered in overall causal factors. The lack of specific training and an understanding of the severity of the consequences during the refilling operation should be considered as contributing factors.
- At present, local awareness by Front Desk and maintenance personnel is high, which helps mitigate a near term repeat of an over fill to leakage event. No other mitigations beyond a current understanding of the issue have been implemented to prevent a reoccurrence. Therefore a repeat event remains very likely when such knowledge is absent in the case of new hire technicians or other support personnel. A more formalized plan of action must be taken to fully mitigate future risks, or it will happen again at some time in the future.



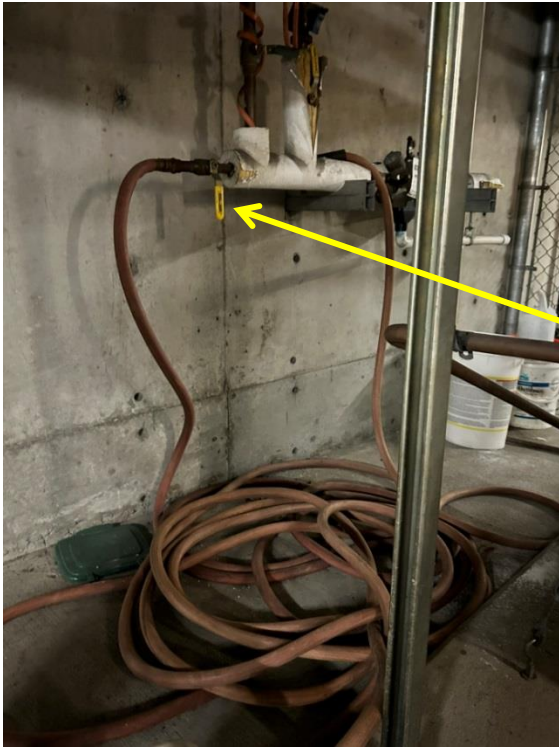
# Recommendations

- Education and Training
  - Obtain adequate operating instructions, manuals and diagrams
  - Contact City of Seattle and Buster Simpson for additional information
  - Train operators on normal and non-normal actions, with an emphasis on Refilling Actions
- Checklists
  - Create and incorporate normal and non-normal checklists
  - Add labels and placards where needed for efficient and safe system operation
- Crosschecks
  - Change “single operator” method to one with Front Desk (or two-person) crosschecks for Refilling Actions
  - Track City of Seattle billing to monitor overall water usage and trends
- Warning and Alerting
  - Investigate new technology for improvements in normal operations and detection of abnormal events
- Reserve Study and Funding
  - Obtain and study any existing agreements in place with the City of Seattle
  - Include funding estimates for expected costs for operating, maintaining, and repairing the artwork

# Recommendations

- Potential Improvement Ideas
  - Develop an auto-shutoff feature for refilling hose (either as a function of time or flow volume)
  - Consider having the refilling operator remain in the under-courtyard area until refilling is complete
  - Utilize a two-person protocol during refilling operations, with start and end times
  - Provide any amenities or items needed (foldable chair, communication or video device, etc)
  - Create tank markings tying volume to “time to refill”
  - Add checklist/warning placards in refilling area with needed start steps and shutdown actions (for both refilling methods)
  - Create checklists for core functions and procedures
  - Create checklists or manuals for possible non-normal events (component failures, leaks, etc)
  - Ensure all system components are properly identified and labeled.
  - Ensure component references correlate with existing operating manuals and instructions.
  - Correct the incorrectly installed water supply line selector level at the Filter Pump Assembly
  - Continue to track water usage trends through monthly billing data tracking (access needed for files)

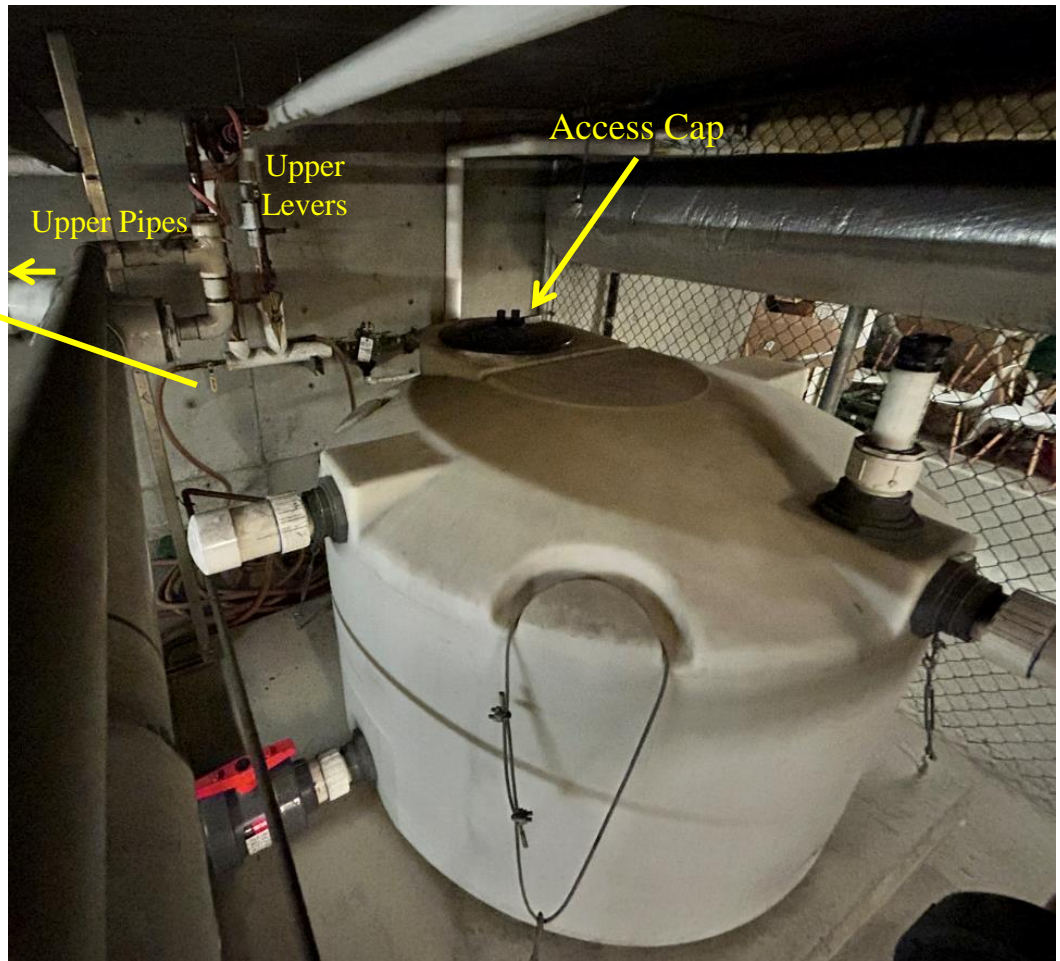
# Tank 1 – Refilling Process



Supply Lever and Hose Assembly

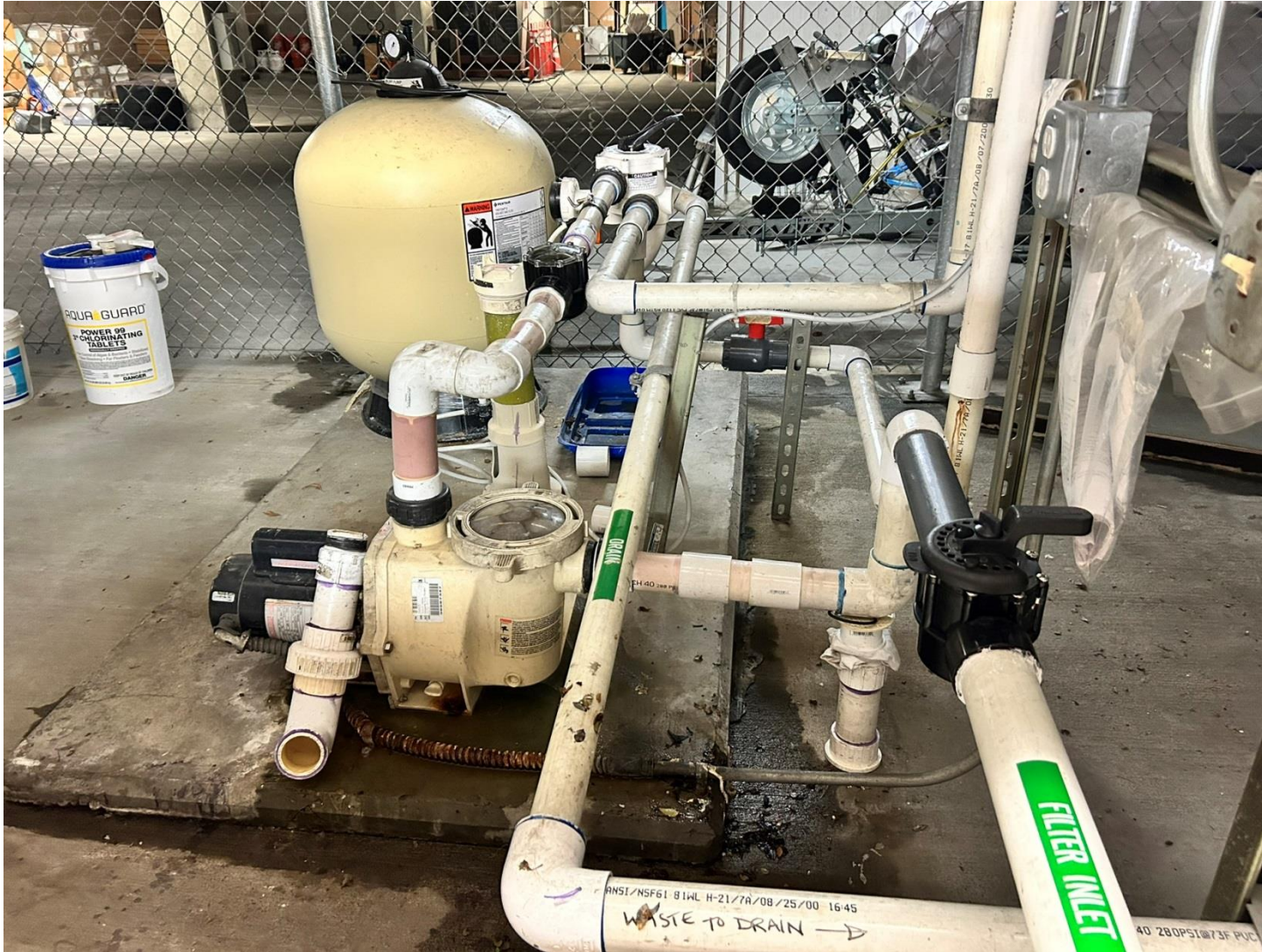


“OFF” Position



Tank 1 (Water Reservoir)





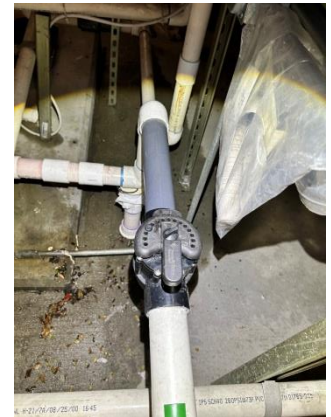
Water Pump and Filter System

Tank 2  
←

Tank 3  
→



"ON" position



"OFF" position



# Water Pump and Filter System

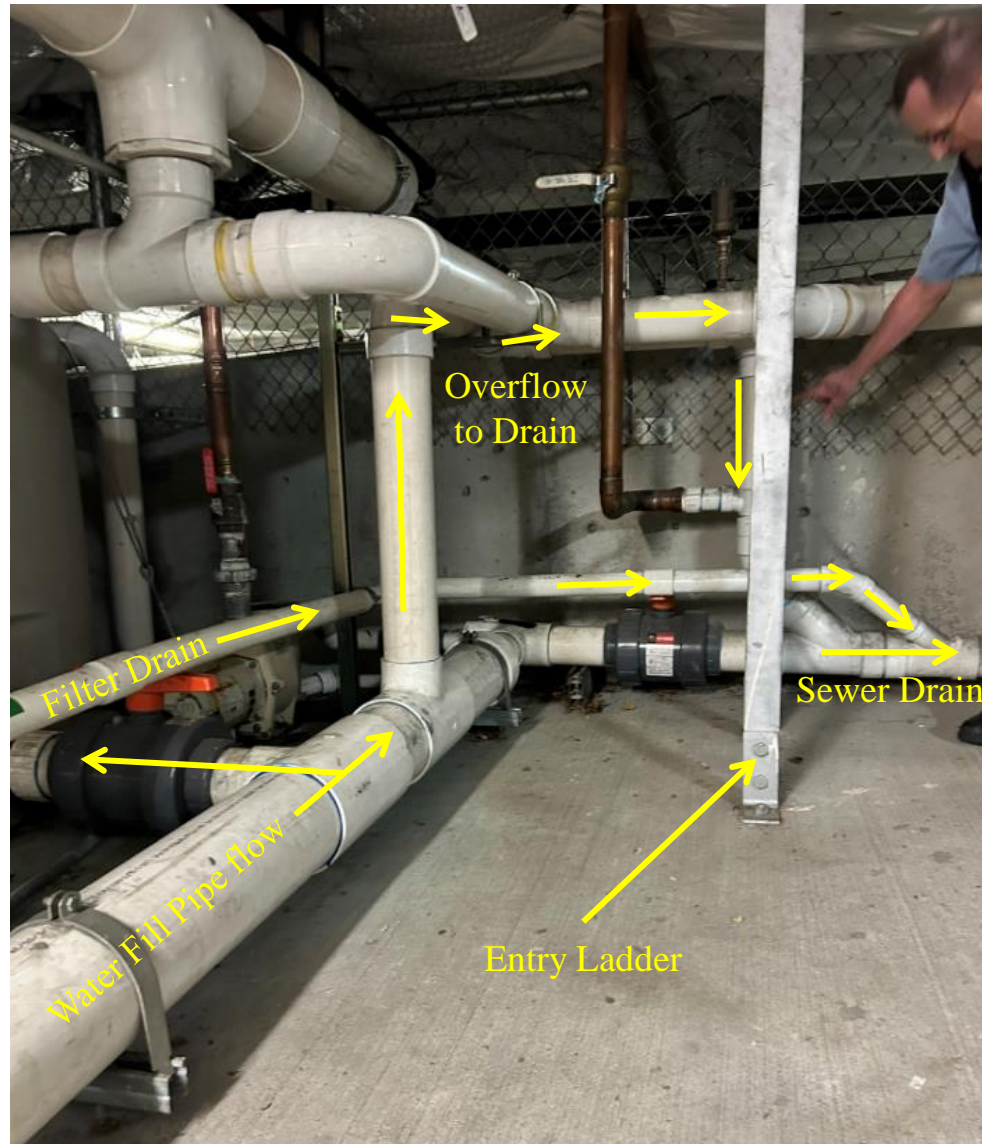


View Looking towards Tank 3



Recently Failed Filter Pump

# Water System Drain Design



Tank 3



# City of Seattle Bills



CITY OF SEATTLE

Account Number  
**2782440000**

ELLINGTON CONDO HOA  
2010 156TH AVE NE STE 100  
BELLEVUE WA 98007-3826

Property Owner  
ELLINGTON CONDO HOA  
Service Address  
2801 1ST AVE SVC HSE

# Seattle Public Utilities Bill

Pay your bill online at [myutilities.seattle.gov](http://myutilities.seattle.gov)

Questions? Visit us on the web at [seattle.gov/utilities](http://seattle.gov/utilities)

Or call 206-684-3000 or 1-800-862-1181 (out of area calls only)

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## Summary of charges as of June 07, 2024

Charges for May 2024

Payments received after June 07, 2024 are not reflected.

Previous balance:	49,239.61	Past Due Balance
Payment:	0.00	
Balance:	49,239.61	
Current billing:	35,794.17	Current Bill
<b>TOTAL AMOUNT DUE ON June 28, 2024</b>	<b>\$85,033.78</b>	

Customers are responsible for all account charges through the day the account is closed. Account closings cannot be backdated further than the most recent bill date.

For more information about opening and closing accounts, and other account related service visit [www.seattle.gov/util/my services](http://www.seattle.gov/util/my services).

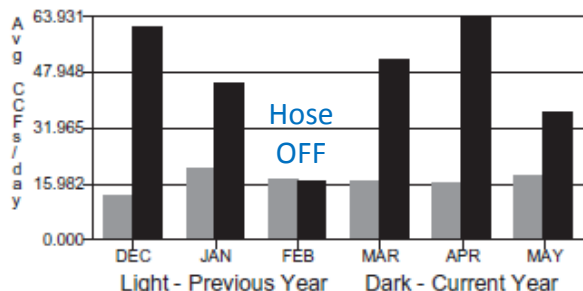
No food scraps and compostable paper in the garbage.

5 of 6 Past Months with Excessive Water Usage

Water Usage in May 2024

Water Usage in May 2023

### Compare Your Water Usage



#### This Bill Period

No. of days: 34

Consumption in CCF: 1241

Avg consumption/day: 36.500 CCF

Consumption in gals: 928268

Avg consumption/day: 27302.00 gals

#### Same Period Last Year

No. of days: 29

Consumption in CCF: 526

Avg consumption/day: 18.138 CCF

Consumption in gals: 393448

Avg consumption/day: 13567.17 gals

1 CCF = 748 Gallons

Account Number  
**2782440000**

ELLINGTON CONDO HOA  
2010 156TH AVE NE STE 100  
BELLEVUE WA 98007-3826

Property Owner  
ELLINGTON CONDO HOA  
Service Address  
2801 1ST AVE SVC HSE

## DETAILED BILLING INFORMATION

### Water Service

Service From	Service Through	CCF Usage	Previous Reading	Current Reading
Apr 25, 2024	May 29, 2024	0.00	498.00	498.00

Meter Number: PCN-99145709-1 Service Category: WTR1

Base service charge 82.73 \$: Service Charge

Apr 25, 2024 May 22, 2024 16.00 17139.00 17155.00\*

### \*Estimated Usage

Meter Number: NEP-31949601-2 Service Category: WTR2

Apr 25, 2024 May 29, 2024 1225.00 3274.00 4499.00

Meter Number: NEP-31949601-2 Service Category: WTR1

Base service charge 285.60 \$: Service Charge

Summer Commercial 511.00 CCF @ \$7.50 per CCF 3,832.50

Winter Commercial 1241 CCF 730.00 CCF @ \$5.90 per CCF 4,307.00 \$: Water Use

15.5% of water bills are paid to city taxes and 1.5% to state taxes.

**Current Water Service: 8,507.83 \$: Water Total**

### Sewer Service

Service From	Service Through	CCF Usage	Previous Reading	Current Reading
Apr 25, 2024	May 29, 2024	1225.00		

Commercial Service 1241.00 CCF @ \$18.30 per CCF 22,710.30

62.0% of sewer revenue is paid to King County Metro for sewage treatment.

12.0% of sewer bills are paid to city taxes and 1.2% to state taxes.

**Current Sewer Service: 22,710.30 \$: Sewage Total**

### Solid Waste Service

Service From	Service To		
May 01, 2024	May 31, 2024	1-Garbage Dumpster 2 Yd 2X Weekly	794.99
May 01, 2024	May 31, 2024	2-Garbage Compactor 2 Yd 2X Weekly	2,584.14
May 01, 2024	May 31, 2024	Dumpster Base Charge	48.25
May 01, 2024	May 31, 2024	4-Food/Yard Waste/Liner 90 Gal 1X Weekly	55.80
May 01, 2024	May 31, 2024	6-Recycle Dumpster 2 Yd 2X Weekly	0.00
May 01, 2024	May 31, 2024	Recycle Secure Building Fee	58.46
May 01, 2024	May 31, 2024	Recycling Dumpster Roll-out Fee	517.00

11.9% of solid waste bills are paid to city taxes and 4.0% to state taxes.

**Current Solid Waste Service: 4,058.64 \$: Solid Waste**

Same volume of water, at almost triple the cost.

**Adjustments**     \$: Additional Fees

Returned Item Fee	May 29, 2024	25.00
Water Late Payment Charge	Jun 06, 2024	112.53
Sewer Late Payment Charge	Jun 06, 2024	339.28
Solid Waste Late Payment Charge	Jun 06, 2024	40.59



CITY OF SEATTLE

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**Seattle Public Utilities Bill**

Statement date: June 07, 2024

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**DETAILED BILLING INFORMATION** *(continued from page 2)*

**Current Adjustments: 517.40**

**CURRENT BILLING: 35,794.17**

**\$: Total Bill**



CITY OF SEATTLE

OCT 08 2024

Account Number

**2782440000**

ELLINGTON CONDO HOA  
2010 156TH AVE NE STE 100  
BELLEVUE WA 98007-3826

Property Owner

ELLINGTON CONDO HOA

Service Address

2801 1ST AVE SVC HSE

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278454861074

## Summary of charges as of October 02, 2024

Charges for Sep 2024

Payments received after October 02, 2024 are not reflected.

Previous balance:	18,511.24
October 01, 2024 Payment - THANK YOU:	18,511.24 CR
Balance:	0.00
Current billing:	18,187.38
<b>TOTAL AMOUNT DUE ON October 23, 2024</b>	<b>\$18,187.38</b>

Current Bill

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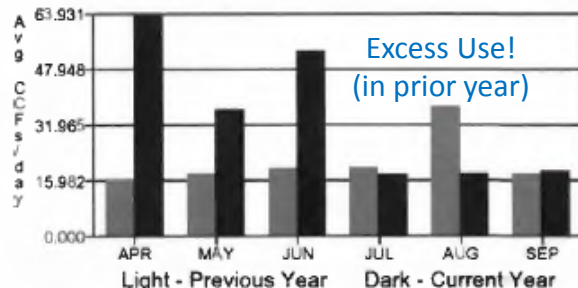
No food scraps and compostable paper in the garbage.

3 months in 2024, and 1 month in 2023 with drain losses

Water Usage in Sep 2024

Water Usage in Sep 2023

### Compare Your Water Usage



#### This Bill Period

No. of days: 29

Consumption in CCF: 541

Avg consumption/day: 18.655 CCF

Consumption in gals: 404668

Avg consumption/day: 13954.07 gals

#### Same Period Last Year

No. of days: 28

Consumption in CCF: 505

Avg consumption/day: 18.036 CCF

Consumption in gals: 377740

Avg consumption/day: 13490.71 gals

1 CCF = 748 Gallons





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ELLINGTON CONDO HOA  
2010 156TH AVE NE STE 100  
BELLEVUE WA 98007-3826

Property Owner  
ELLINGTON CONDO HOA  
Service Address  
2801 1ST AVE SVC HSE

OCT 08 2024

# Seattle Public Utilities Bill

Statement date: October 02, 2024

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## DETAILED BILLING INFORMATION

### Water Service

Service From	Service Through	CCF Usage	Previous Reading	Current Reading
Aug 30, 2024	Sep 28, 2024	0.00	498.00	498.00

Meter Number: PCN-99145709-1

Service Category: WTR1

Base service charge

70.57

\$: Service Charge

Aug 30, 2024 Sep 28, 2024

6.00 18159.00

18165.00

Meter Number: NEP-31949601-2

Service Category: WTR2

Aug 30, 2024 Sep 28, 2024

535.00 6193.00

6728.00

Meter Number: NEP-31949601-2

Service Category: WTR1

Base service charge

243.60

\$: Service Charge

Summer Commercial

298.48 CCF @ \$7.50 per CCF

2,238.60

\$: Water Use

Winter Commercial 541 CCF

242.52 CCF @ \$5.90 per CCF

1,430.87

15.5% of water bills are paid to city taxes and 1.5% to state taxes.

Current Water Service:

3,983.64

\$: Water Total

### Sewer Service

Service From	Service Through	CCF Usage	Previous Reading	Current Reading
Aug 30, 2024	Sep 28, 2024	535.00		

Commercial Service

541.00 CCF @ \$18.30 per CCF

9,900.30

62.0% of sewer revenue is paid to King County Metro for sewage treatment.

12.0% of sewer bills are paid to city taxes and 1.2% to state taxes.

Current Sewer Service:

9,900.30

\$: Sewage Total

Same volume of water, at almost triple the cost.

### Solid Waste Service

Service From	Service To		
Sep 01, 2024	Sep 30, 2024	1-Garbage Dumpster 2 Yd 2X Weekly	794.99
Sep 01, 2024	Sep 30, 2024	2-Garbage Compactor 2 Yd 2X Weekly	2,584.14
Sep 01, 2024	Sep 30, 2024	Dumpster Base Charge	48.25
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11.9% of solid waste bills are paid to city taxes and 4.0% to state taxes.

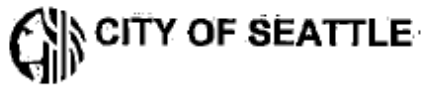
Current Solid Waste Service:

4,058.64

\$: Solid Waste

**Adjustments**    \$: Additional Fees

Extra Garbage	Sep 10, 2024	163.20
Extra Garbage	Sep 30, 2024	81.60



Account Number  
**2782440000**

ELLINGTON CONDO HOA  
2010 156TH AVE NE STE 100  
BELLEVUE WA 98007-3826

## Seattle Public Utilities Bill

Statement date: October 02, 2024

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### DETAILED BILLING INFORMATION *(continued from page 2)*

Current Adjustments: **244.80**

CURRENT BILLING: **18,187.38**

\$: Total Bill

# Seattle Utilities Bills (2018-2020)

				1 CCF = 748 gallons				"CCF": 100 cubic feet of water					
		Service Charges		Water Charges				Sewer Charges (1 CCF = 748 gal)			Solid Waste	Misc	
Statement Date	Usage Month	Service Charge (\$)	Service Charge (\$)	Water Usage (CCF)	Water (gal)	Water Usage (gal)	Total Water (\$)	Sewer Usage (CCF)	Sewer (gal)	Total Sewage (\$)	Solid Waste (\$)	Adjustments (\$)	Monthly Bill
7/1/18	Jun-18												\$ -
8/1/18	Jul-18												
9/1/18	Aug-18												
10/1/18	Sep-18												
11/1/18	Oct-18			883	660,484								
12/1/18	Nov-18			1,104	825,792		\$ -	1,104					
1/1/19	Dec-18				915,552		\$ -	0					
2/1/19	Jan-19				454,036		\$ -	0					
3/1/19	Feb-19				422,620		\$ -	0					
4/1/19	Mar-19				379,236		\$ -	0					
5/1/19	Apr-19				438,328		\$ -	0					
6/1/19	May-19				433,840		\$ -	0					
7/1/19	Jun-19				454,784		\$ -	0					
8/1/19	Jul-19				466,752		\$ -	0					
9/1/19	Aug-19				475,728		\$ -	0					
10/1/19	Sep-19				463,760		\$ -	0					
11/1/19	Oct-19				421,872		\$ -	0					
12/3/19	Nov-19	\$ 66	\$ 184	497	371,756	\$ 2,619	\$ 2,869	497	371,756	\$ 7,197	\$ 3,574	\$ 72	\$ 13,712
1/6/20	Dec-19	\$ 90	\$ 252	651	486,948	\$ 3,440	\$ 3,782	651	486,948	\$ 9,500	\$ 3,574	\$ -	\$ 16,855
2/4/20	Jan-20	\$ 73	\$ 212	559	418,132	\$ 3,019	\$ 3,304	559	418,132	\$ 8,692	\$ 3,574	\$ -	\$ 15,570
3/4/20	Feb-20	\$ 68	\$ 198	507	379,236	\$ 2,738	\$ 3,004	507	379,236	\$ 7,884	\$ 3,574	\$ -	\$ 14,462
4/2/20	Mar-20	\$ 71	\$ 205	549	410,652	\$ 2,965	\$ 3,240	549	410,652	\$ 8,537	\$ 3,574	\$ -	\$ 15,351
5/4/20	Apr-20	\$ 71	\$ 205	560	418,880	\$ 3,024	\$ 3,300	560	418,880	\$ 8,708	\$ 3,681	\$ -	\$ 15,688
6/2/20	May-20	\$ 73	\$ 212	595	445,060	\$ 3,618	\$ 3,903	595	445,060	\$ 9,252	\$ 3,681	\$ -	\$ 16,837
7/9/20	Jun-20	\$ 63	\$ 184	351	262,548	\$ 2,408	\$ 2,655	351	262,548	\$ 5,458	\$ 3,681	\$ -	\$ 11,794
8/4/20	Jul-20	\$ 83	\$ 240	981	733,788	\$ 6,730	\$ 7,053	981	733,788	\$ 15,255	\$ 3,681	\$ -	\$ 25,988
9/3/20	Aug-20	\$ 80	\$ 235	786	587,928	\$ 4,244	\$ 4,559	786	587,928	\$ 12,222	\$ 3,681	\$ -	\$ 21,628
10/5/20	Sep-20	\$ 78	\$ 226	688	514,624	\$ 4,155	\$ 4,459	688	514,624	\$ 10,698	\$ 3,681	\$ -	\$ 18,838
11/3/20	Oct-20	\$ 71	\$ 205	584	436,832	\$ 3,154	\$ 3,429	584	436,832	\$ 9,081	\$ 3,681	\$ -	\$ 16,191
12/7/20	Nov-20	\$ 78	\$ 226	601	449,548	\$ 3,240	\$ 3,544	601	449,548	\$ 9,330	\$ 3,681	\$ -	\$ 16,555
1/7/21	Dec-20	\$ 83	\$ 240	613	458,524	\$ 3,310	\$ 3,633	603	451,044	\$ 9,653	\$ 3,681	\$ 25	\$ 16,992

# Seattle Utilities Bills (2021-2023)

				1 CCF = 748 gallons				"CCF": 100 cubic feet of water					
		Service Charges		Water Charges				Sewer Charges (1 CCF = 748 gal)			Solid Waste	Misc	
Statement Date	Usage Month	Service Charge (\$)	Service Charge (\$)	Water Usage (CCF)	Water (gal)	Water Usage (gal)	Total Water (\$)	Sewer Usage (CCF)	Sewer (gal)	Total Sewage (\$)	Solid Waste (\$)	Adjustments (\$)	Monthly Bill
2/2/21	Jan-21	\$ 61	\$ 177	464	347,072	\$ 2,506	\$ 2,743	464	347,072	\$ 7,735	\$ 3,681	\$ -	\$ 14,159
3/4/21	Feb-21	\$ 73	\$ 212	573	428,604	\$ 3,094	\$ 3,379	573	428,604	\$ 9,552	\$ 3,681	\$ -	\$ 16,612
4/2/21	Mar-21	\$ 66	\$ 191	500	374,000	\$ 2,700	\$ 2,957	500	374,000	\$ 8,335	\$ 3,681	\$ -	\$ 14,972
5/5/21	Apr-21	\$ 85	\$ 247	632	472,736	\$ 3,413	\$ 3,745	632	472,736	\$ 10,535	\$ 3,788	\$ -	\$ 18,069
6/2/21	May-21	\$ 61	\$ 177	470	351,560	\$ 2,895	\$ 3,132	470	351,560	\$ 7,835	\$ 3,788	\$ -	\$ 14,755
7/2/21	Jun-21	\$ 83	\$ 240	681	509,388	\$ 4,672	\$ 4,995	681	509,388	\$ 11,352	\$ 3,788	\$ -	\$ 20,135
8/3/21	Jul-21	\$ 78	\$ 226	654	489,192	\$ 4,486	\$ 4,790	654	489,192	\$ 10,902	\$ 3,788	\$ -	\$ 19,481
9/2/21	Aug-21	\$ 68	\$ 198	518	387,464	\$ 3,553	\$ 3,819	518	387,464	\$ 8,635	\$ 3,788	\$ -	\$ 16,243
10/4/21	Sep-21	\$ 71	\$ 205	536	400,928	\$ 3,326	\$ 3,602	536	400,928	\$ 8,935	\$ 3,788	\$ -	\$ 16,325
11/5/21	Oct-21	\$ 68	\$ 219	562	420,376	\$ 3,035	\$ 3,322	562	420,376	\$ 9,369	\$ 3,788	\$ -	\$ 16,479
12/2/21	Nov-21	\$ 88	\$ 233	583	436,832	\$ 3,148	\$ 3,469	583	436,084	\$ 9,719	\$ 3,788	\$ -	\$ 16,976
1/6/22	Dec-21	\$ 85	\$ 248	598	453,288	\$ 3,283	\$ 3,616	598	447,304	\$ 10,131	\$ 3,788	\$ -	\$ 17,536
2/2/22	Jan-22	\$ 66	\$ 195	493	368,764	\$ 2,721	\$ 2,982	493	368,764	\$ 8,386	\$ 3,788	\$ 1,461	\$ 16,617
3/4/22	Feb-22	\$ 61	\$ 181	430	321,640	\$ 2,374	\$ 2,615	430	321,640	\$ 7,314	\$ 3,788	\$ -	\$ 13,718
4/4/22	Mar-22	\$ 66	\$ 195	474	354,552	\$ 2,616	\$ 2,877	474	354,552	\$ 8,063	\$ 3,788	\$ -	\$ 14,728
5/3/22	Apr-22	\$ 80	\$ 239	566	423,368	\$ 3,124	\$ 3,443	566	423,368	\$ 9,628	\$ 3,898	\$ -	\$ 16,969
6/2/22	May-22	\$ 68	\$ 203	486	363,528	\$ 2,941	\$ 3,212	486	363,528	\$ 8,267	\$ 3,898	\$ 117	\$ 15,495
7/5/22	Jun-22	\$ 83	\$ 246	605	452,540	\$ 4,241	\$ 4,570	605	452,540	\$ 10,291	\$ 3,898	\$ 65	\$ 18,824
8/3/22	Jul-22	\$ 75	\$ 224	613	458,524	\$ 4,297	\$ 4,597	613	458,524	\$ 10,427	\$ 3,898	\$ -	\$ 18,922
9/2/22	Aug-22	\$ 80	\$ 239	651	486,948	\$ 4,564	\$ 4,883	651	486,948	\$ 11,074	\$ 3,898	\$ -	\$ 19,854
10/4/22	Sep-22	\$ 73	\$ 217	542	405,416	\$ 3,396	\$ 3,686	542	405,416	\$ 9,219	\$ 3,898	\$ -	\$ 16,803
11/2/22	Oct-22	\$ 75	\$ 224	556	415,888	\$ 3,069	\$ 3,369	556	415,888	\$ 9,458	\$ 3,898	\$ -	\$ 16,725
12/2/22	Nov-22	\$ 71	\$ 210	484	362,032	\$ 2,672	\$ 2,952	484	362,032	\$ 8,233	\$ 3,898	\$ -	\$ 15,083
1/6/23	Dec-22	\$ 68	\$ 203	483	361,284	\$ 2,666	\$ 2,937	483	361,284	\$ 8,216	\$ 3,898	\$ -	\$ 15,051
2/2/23	Jan-23	\$ 54	\$ 165	372	278,256	\$ 2,128	\$ 2,346	372	278,256	\$ 6,558	\$ 3,898	\$ 3,107	\$ 15,910
3/6/23	Feb-23	\$ 73	\$ 225	522	390,456	\$ 2,986	\$ 3,284	522	390,456	\$ 9,203	\$ 3,898	\$ -	\$ 16,385
4/4/23	Mar-23	\$ 75	\$ 233	522	390,456	\$ 2,986	\$ 3,294	522	390,456	\$ 9,203	\$ 3,898	\$ -	\$ 16,395
5/3/23	Apr-23	\$ 73	\$ 225	491	367,268	\$ 2,809	\$ 3,107	491	367,268	\$ 8,656	\$ 3,956	\$ 53	\$ 15,772
6/2/23	May-23	\$ 71	\$ 218	526	393,448	\$ 3,374	\$ 3,662	526	393,448	\$ 9,273	\$ 3,956	\$ 40	\$ 16,931
7/5/23	Jun-23	\$ 78	\$ 240	626	468,248	\$ 4,551	\$ 4,869	626	468,248	\$ 11,036	\$ 3,956	\$ 13	\$ 19,875
8/3/23	Jul-23	\$ 78	\$ 240	636	475,728	\$ 4,624	\$ 4,942	636	475,728	\$ 11,213	\$ 3,956	\$ 159	\$ 20,269
9/8/23	Aug-23	\$ 75	\$ 233	786	587,928	\$ 5,714	\$ 6,022	786	587,928	\$ 13,857	\$ 3,956	\$ -	\$ 23,835
10/3/23	Sep-23	\$ 68	\$ 233	1,662	1,243,176	\$ 11,719	\$ 12,230	1,662	1,243,176	\$ 29,301	\$ 3,956	\$ (19,804)	\$ 25,683
11/2/23	Oct-23	\$ 78	\$ 240	590	441,320	\$ 3,375	\$ 3,693	590	441,320	\$ 10,402	\$ 3,956	\$ 53	\$ 18,103
12/4/23	Nov-23	\$ 75	\$ 233	680	508,640	\$ 3,890	\$ 4,198	680	508,640	\$ 11,988	\$ 3,956	\$ -	\$ 20,142
1/3/24	Dec-23	\$ 71	\$ 218	1,759	1,315,732	\$ 10,061	\$ 10,350	1,759	1,315,732	\$ 31,011	\$ 3,956	\$ -	\$ 45,317

Credit received (no response from SUHRCO on why)

# Seattle Utilities Bills (2024)

				1 CCF = 748 gallons				"CCF": 100 cubic feet of water					
		Service Charges		Water Charges				Sewer Charges (1 CCF = 748 gal)			Solid Waste	Misc	
Statement Date	Usage Month	Service Charge (\$)	Service Charge (\$)	Water Usage (CCF)	Water (gal)	Water Usage (\$)	Total Water (\$)	Sewer Usage (CCF)	Sewer (gal)	Total Sewage (\$)	Solid Waste (\$)	Adjustments (\$)	Monthly Bill
2/2/24	Jan-24	\$ 71	\$ 242	1,293	967,164	\$ 7,613	\$ 7,925	1,293	967,164	\$ 23,602	\$ 3,956	\$ -	\$ 35,483
3/4/24	Feb-24	\$ 75	\$ 260	526	393,448	\$ 3,103	\$ 3,439	526	393,448	\$ 9,626	\$ 3,956	\$ -	\$ 17,021
4/2/24	Mar-24	\$ 71	\$ 244	1,485	1,110,780	\$ 8,762	\$ 9,076	1,485	1,110,780	\$ 27,176	\$ 3,956	\$ -	\$ 40,207
5/1/24	Apr-24	\$ 71	\$ 244	1,854	1,386,792	\$ 10,939	\$ 11,253	1,854	1,386,792	\$ 33,928	\$ 4,059	\$ -	\$ 49,240
6/7/24	May-24	\$ 83	\$ 286	1,241	928,268	\$ 8,140	\$ 8,508	1,241	928,268	\$ 22,710	\$ 4,059	\$ 517	\$ 35,794
7/5/24	Jun-24	\$ 71	\$ 244	1,542	1,153,416	\$ 11,565	\$ 11,879	1,542	1,153,416	\$ 28,219	\$ 4,059	\$ 229	\$ 44,385
8/2/24	Jul-24	\$ 83	\$ 286	610	456,280	\$ 4,575	\$ 4,943	610	456,280	\$ 11,163	\$ 4,059	\$ 95	\$ 20,260
9/9/24	Aug-24	\$ 73	\$ 252	546	408,408	\$ 4,095	\$ 4,420	546	408,408	\$ 9,992	\$ 4,059	\$ 41	\$ 18,511
10/2/24	Sep-24	\$ 71	\$ 244	541	404,668	\$ 3,669	\$ 3,984	541	404,668	\$ 9,900	\$ 4,059	\$ 245	\$ 18,187
11/1/24	Oct-24					\$ -	\$ -		0	\$ -			\$ -
12/1/24	Nov-24					\$ -	\$ -		0	\$ -			\$ -
1/1/25	Dec-24					\$ -	\$ -		0	\$ -			\$ -



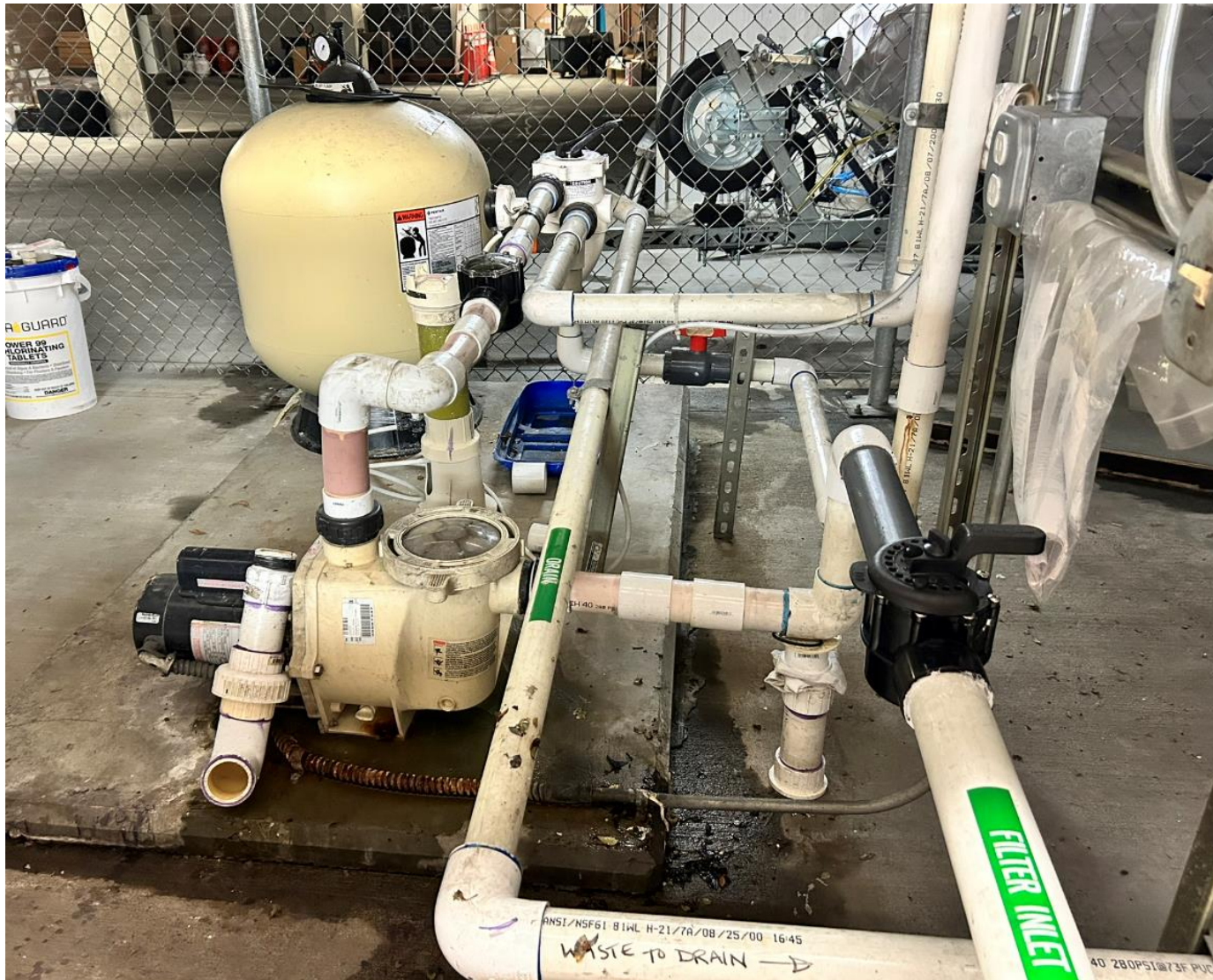
Additional Photos

# FINDINGS – Water System Elements



Return to Tank 1

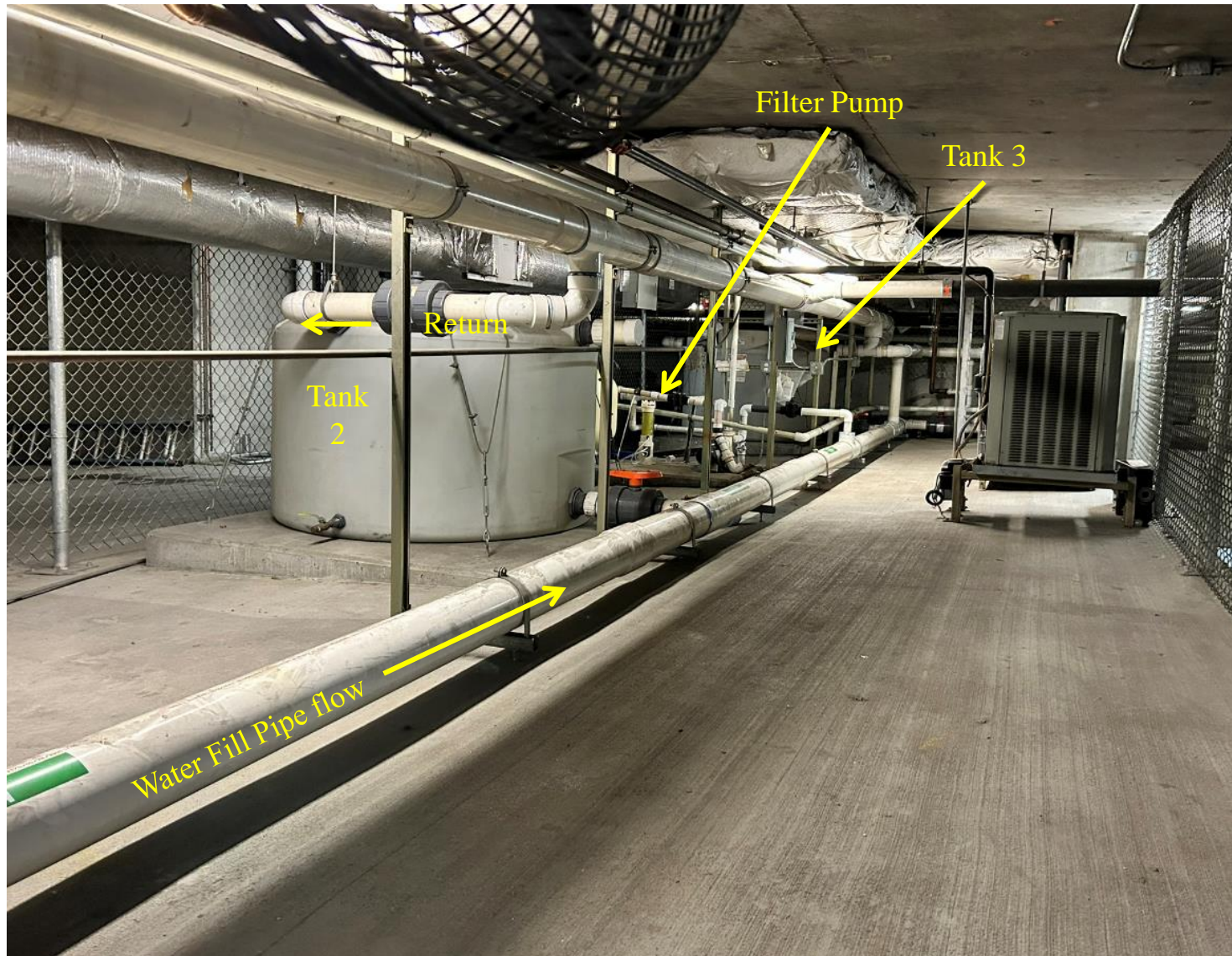
# FINDINGS – Water System Elements



Filter Pump Assembly



# FINDINGS – Water System Elements



View from Tank 1 – towards Tank 2, Pump Assembly, and Tank 3

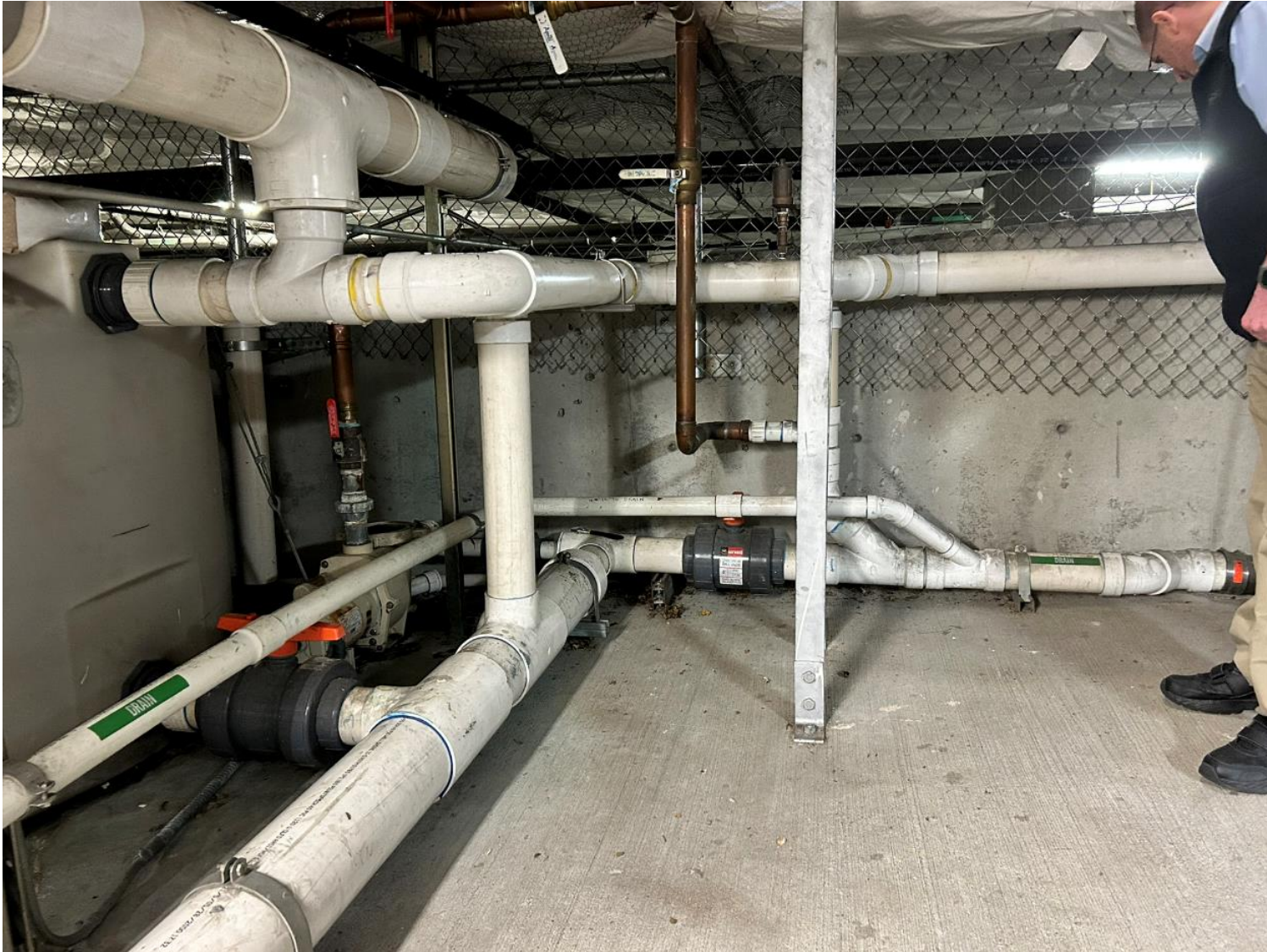
# FINDINGS – Water System Elements



Tank 2 – “Fill Line” Marking

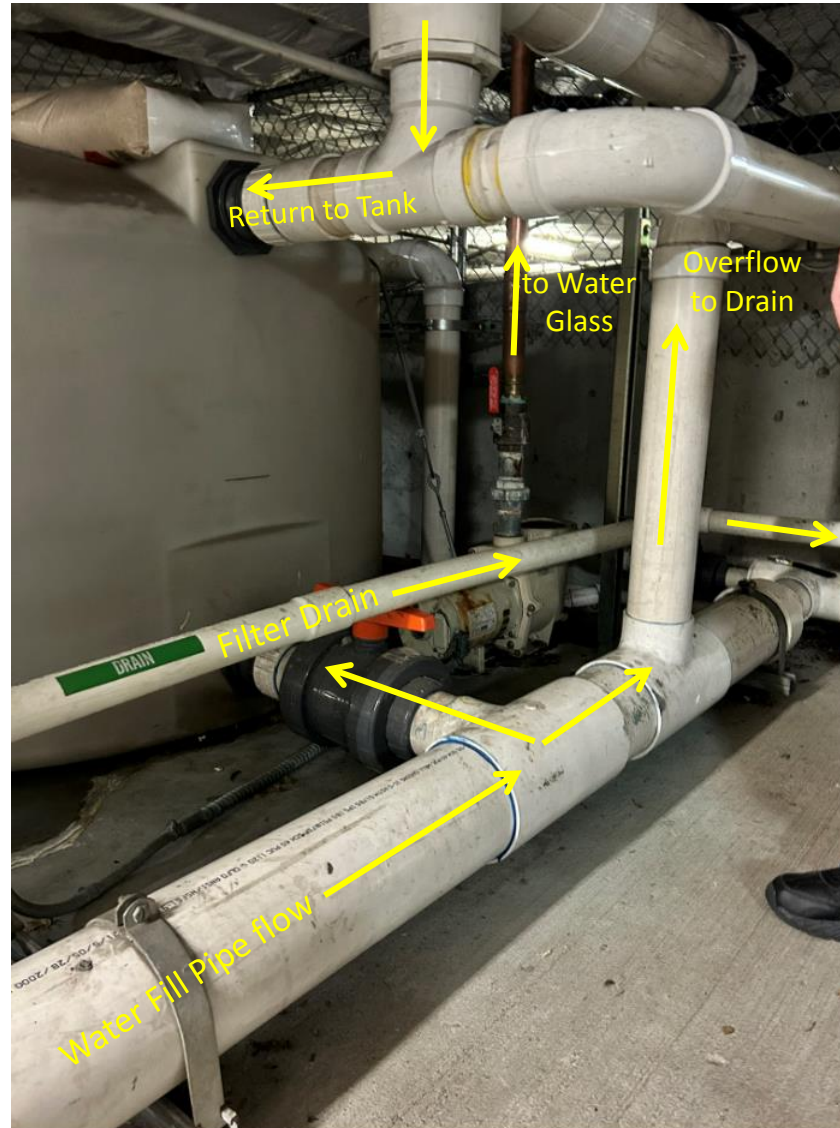


# FINDINGS – Water System Elements



Tank 3 Assembly

# FINDINGS – Water System Elements



Tank 3



# FINDINGS – Water System Elements



Valves and Plumbing from Tank 3 area

# FINDINGS – Water System Elements



Tank 3 Assembly



# FINDINGS – Water System Elements



Tank 3 Assembly