TRI-TOWN JOINT REVIEW COMMITTEE MEETING

February 15, 2024
10:00 AM-11:00 AM

MEETING LOCATION: Via MS Teams

Agenda

1. Review and Approval of 11/30/23 meeting minutes
2. FYE 23 Reconciliation
3. FY24 budget Jan update-58% spent
4. FY25 Wholesale Rate
   a. Discussion on I&I effect on rates
5. RFP for Tv of sewer lines as Tri-town for cost savings?
6. 2023 Phosphorus Optimization Plan
7. High Strength waste surcharge policy continued review
8. Next meeting date: Wed, May 15, 2024 10 AM-11AM
   a. Continued discussion on High Strength waste policy

WWTF

Rate Stabilization Fund

	Town of Essex	Town of Williston	City of Essex Junction	Total
FY13	645	35,101	109,731	145,477
No refunds given to any Towns FY13	645	35,101	109,731	145,477
FY14	24,808	49,527	41,719	116,054
No refunds given to any Towns FY14	25,453	84,628	151,450	261,531
FY15	46,375	(10,340)	58,296	94,331
No refunds given to any Towns FY15	71,828	74,288	209,746	355,862
FY16	32,376	(9,500)	80,830	103,706
No refunds given to any Town FY16	104,204	64,788	290,576	459,568
FY17	(10,022)	(47,823)	27,311	(30,534)
No refunds given to any Town FY17	94,182	16,965	317,887	429,034
FY18	45,880	21,821	(35,451)	32,250
No refunds given to any Town FY18	140,062	38,786	282,436	461,284
FY19	(4,385)	66,037	(60,866)	785
No refunds given to any Town FY19	135,677	104,823	221,569	462,069
FY20	6,125	69,332	78,472	153,929
No refunds given to any Town FY20	141,802	174,155	300,041	615,998
FY21	(26,643)	(38,755)	101,493	36,095
No refunds given to any Town FY21	115,159	135,400	401,534	652,093
FY22	(18,525)	42,871	(50,472)	(26,126)
No refunds given to any Town FY22	96,634	178,271	351,062	625,967
FY23	27,806	5,112	(35,789)	(2,871)
No refunds given to any Town FY23	124,440	183,383	315,273	623,096

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MEMORANDUM

To: Regina Mahony, City Manager; City Council; Department Managers
From: Jess Morris, Finance Director
Date: January 19, 2024
Subject: December Financial Report

The following budget vs actual report includes detail by fund for all City funds (General Fund, capital funds, enterprise funds, etc). Each report details the approved budget, year to date actuals, remaining budget amount, actual as a % of budget, and a month to date amount which is the total revenue/expenditure for the last month of the included reporting period. These reports are run through 12/31/23 therefore the year to date actuals are for the period 7/1/23-12/31/23, and the month actuals are for the month of December.

While we will continue to receive December invoices over the coming weeks, we are about 50% of the way through the fiscal year. The General Fund revenue is about 95% of budget or $10,903,449 and expenditures are about 44% of budget or $5,098,347.

The Water Fund operating revenue is about 39% of budget or $656,846 and operating expenditures are about 44% of budget or $752,278. The Wastewater Fund operating revenue is about 47% of budget or $1,384,492 and operating expenditures are about 47% of budget or $1,382,172. The Sanitation Fund operating revenue is about 36% of budget or $307,918 and operating expenditures are about 49% of budget or $322,496.

There are currently 188 utility accounts with delinquent balances for a total of $52,302, with $27,453 outstanding from the October billing cycle. In December, there were 444 delinquent utility accounts with a balance of $124,266, with $92,604 of that balance from the October billing cycle.

The EJRP Program Fund revenue is about 53% of budget or $1,690,265 and expenditures are about 59% of budget or $1,876,269. The expenditures in this fund are higher at this point in the year due to seasonal activity in summer programming and the pool.

There are several factors that contribute to revenue and expenditures seeming either higher or lower at any point during the fiscal year. Property taxes are billed in August and all revenue is recorded at that point for the entire fiscal year, and utility bills are produced tri-annually thereby recording revenue every four months rather than monthly. There are several large payments made either on a quarterly, bi-annual or annual basis for things such as insurance (property/casualty/auto/worker's comp), debt payments and annual dues/memberships to various organizations.

Also included with the financial report are summaries of the ARPA Fund activity, LOT Fund activity, and Economic Development Fund activity.

Account	Budget	Actual	Budget Balance	% of Budget	Pd to Date
255-5-55-30-567.000 Biosolids Land Applicatio	190,000.00	102,600.00	87,400.00	54.00%	102,600.00
255-5-55-30-568.000 Biosolids Subcontractor	255,000.00	102,816.26	152,183.74	40.32%	14,059.69
255-5-55-30-570.000 Other Purchased Services	195,000.00	105,550.61	89,449.39	54.13%	13,998.90
255-5-55-30-609.000 Safety Supplies	3,000.00	619.17	2,380.83	20.64%	171.66
255-5-55-30-610.000 General Supplies	12,000.00	5,747.78	6,252.22	47.90%	451.20
255-5-55-30-612.000 Uniforms	7,898.00	745.88	7,152.12	9.44%	0.00
255-5-55-30-618.000 Laboratory Supplies	22,000.00	13,555.34	8,444.66	61.62%	4,019.82
255-5-55-30-619.000 Chemicals	500,000.00	259,065.84	240,934.16	51.81%	52,672.72
255-5-55-30-621.000 Natural Gas/Heating	25,650.00	5,095.69	20,554.31	19.87%	1,734.49
255-5-55-30-622.000 Electricity	170,000.00	69,291.64	100,708.36	40.76%	5,938.22
255-5-55-30-626.000 Gasoline	4,500.00	1,423.10	3,076.90	31.62%	257.92
255-5-55-30-735.000 Tech Hardware, Software,	6,396.00	0.00	6,396.00	0.00%	0.00
255-5-55-30-910.000 Transfer btwn funds (non-	0.00	750.00	-750.00	100.00%	0.00
255-5-55-30-920.000 Transfer btwn funds (capi	440,000.00	220,000.00	220,000.00	50.00%	110,000.00
Total Operating Expenses	**2,916,762.00**	**1,382,172.43**	**1,534,589.57**	**47.39%**	**405,710.33**
255-5-55-70 Nonoperating Expenses					
255-5-55-70-722.008 Vt Phos Challenge PePhlo	50,000.00	0.00	50,000.00	0.00%	0.00
255-5-55-70-722.013 Cogen	0.00	54,153.45	-54,153.45	100.00%	0.00
255-5-55-70-722.014 Digester Maintenance	42,500.00	0.00	42,500.00	0.00%	0.00
255-5-55-70-722.015 Automatic Samplers	27,000.00	26,467.22	532.78	98.03%	0.00
255-5-55-70-722.016 Submersible Pumps	25,000.00	26,993.63	-1,993.63	107.97%	0.00
255-5-55-70-722.017 O2 Reduction Controller R	14,000.00	14,000.00	0.00	100.00%	0.00
255-5-55-70-730.001 Energy Conservation	0.00	435.00	-435.00	100.00%	0.00
255-5-55-70-730.003 10 Year Engineer Evaluati	50,000.00	5,736.00	44,264.00	11.47%	1,912.00
255-5-55-70-751.003 Service Truck w/Crane	60,000.00	0.00	60,000.00	0.00%	0.00
255-5-55-70-955.001 ARRA Loan-AR1-004 Admin	0.00	459.72	-459.72	100.00%	0.00
255-5-55-70-955.002 RZEDB Interest	0.00	18,263.48	-18,263.48	100.00%	0.00
255-5-55-70-955.003 CWSRF RF1-148 Admin Fee	0.00	179,406.57	-179,406.57	100.00%	0.00
Total Nonoperating Expenses	**268,500.00**	**325,915.07**	**-57,415.07**	**121.38%**	**1,912.00**
Total Expenditures	**3,185,262.00**	**1,708,087.50**	**1,477,174.50**	**53.62%**	**407,622.33**
Total WASTEWATER FUND	**171,499.00**	**735,697.15**	**-907,196.15**	**428.98%**	**-3,654.36**

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FY25 Wholesale Rate Determination

FY25 Flow Percentage Projections

Williston	34.2%	236.22026	990,812.87
Essex	25.9%	178.55703	748,947.64
Essex Jct.	39.9%	275.22271	1,154,406.50
Total Flows	100.0%	690	Million Gallons

	FY23 Budget	FY24 Budget	FY25 Budget	
	2,470,209	2,916,761	2,950,267	1.15%
Minus Offsetting Revenues				
Interest Income				
Pump Station Fees	36,000	36,000	36,000	
Shared Septage Revenue	10,000	20,000	20,000	
Shared Leachate Revenue	100	100	100	
	46,100	56,100	56,100	
Total for Wholesale Rate Calculatio	2,424,109	2,860,661	2,894,167	
Flow for Calculation	670	690	690	
Rate per 1000 Gallons treated		4.146	4.194	1.17%

WHOLESAI Column1	Column2	Rate	$ Change	% Change
FY09 WHOLESALE SEWER RATE		1.5735		
FY10 WHOLESALE SEWER RATE		1.8641	0.2906	18.5%
FY11 WHOLESALE SEWER RATE		2.1452	0.2811	15.1%
FY12 WHOLESALE SEWER RATE		2.2657	0.1205	5.6%
FY13 WHOLESALE SEWER RATE		2.4248	0.1591	7.0%
FY14 WHOLESALE SEWER RATE		2.5278	0.1030	4.2%
FY15 WHOLESALE SEWER RATE		2.6294	0.1016	4.0%
FY16 WHOLESALE SEWER RATE		2.6877	0.0583	2.2%
FY17 WHOLESALE SEWER RATE		2.7311	0.0434	1.6%
FY18 WHOLESALE SEWER RATE		2.8430	0.1119	4.1%
FY19 Wholesale Sewer Rate		2.9830	0.1400	4.9%
FY20 Wholesale Sewer Rate		3.1540	0.1710	5.7%
FY21 Wholesale Sewer Rate		3.205	0.0510	1.6%
FY22 Wholesale Sewer Rate		3.251	0.0460	1.4%
FY23 Wholesale Sewer Rate		3.565	0.3140	9.7%
FY24 Wholesale Sewer Rate		4.146	0.5809	16.3%
FY25 Wholesale Sewer Rate		4.194	0.0484	1.2%

MONTH		WILLISTON Total Flow		Williston Daily Avg	ESSEX TOWN	WINCH. PL.		Essex Town Daily Avg	ESSEX JCT		Essex Jct Daily Avg	PLANT TOTAL
December	2022	21,652,950	33.39%	698,482	15,594,250		24.05%	503,040	27,594,800	42.56%	890,155	64,842,000
Janurary	2023	22,579,380	34.29%	728,367	15,792,626		23.98%	509,440	27,482,994	41.73%	981,536	65,855,000
February	2023	19,069,770	32.97%	681,063	14,108,455		24.39%	503,873	24,661,775	42.64%	795,541	57,840,000
March	2023	24,059,660	35.48%	776,118	15,810,285		23.32%	510,009	27,935,055	41.20%	901,131	67,805,000
April	2023	22,653,190	33.63%	755,106	16,098,925		23.90%	536,631	28,609,885	42.47%	953,663	67,362,000
May	2023	21,133,900	32.99%	681,739	16,693,214		26.06%	538,491	26,236,886	40.95%	846,351	64,064,000
June	2023	20,010,680	34.34%	667,023	15,336,384		26.32%	511,213	22,925,936	39.34%	764,198	58,273,000
July	2023	23,762,930	36.67%	766,546	17,737,434		27.37%	572,175	23,299,636	35.96%	751,601	64,800,000
August	2023	23,083,110	34.02%	744,616	18,142,387		26.74%	585,238	26,617,503	39.23%	858,629	67,843,000
September	2023	20,326,590	33.14%	655,696	16,357,094		26.67%	527,648	24,643,316	40.18%	794,946	61,327,000
October	2023	22,609,560	33.30%	729,341	17,376,602		25.59%	560,536	27,905,838	41.10%	900,188	67,892,000
November	2023	18,479,050	29.00%	596,098	16,411,850		25.76%	529,415	28,823,100	45.24%	929,777	63,714,000
December	2023	24,442,090	27.73%	788,455	21,662,000		24.57%	698,774	42,052,910	47.70%	1,356,545	88,157,000

The City of Essex Junction Wastewater Treatment Facility
VT Permit No: 3-1254 NPDES ID: VT 0100111

Phosphorus Optimization Plan
Annual Update
2023

January 26, 2024

Permit Limitations

A new NPDES Discharge permit became effective on August 1, 2021.
Permit Highlights Related to this Phosphorus Optimization Plan:

- Design Flow: 3.3 MGD
- Total Phosphorus: 2008 lbs./year, 0.8 mg/L Monthly (functionally 0.2 mg/L)

2023

- 12 month Running Total Pounds of Phosphorus: 1164.09 lbs./yr.
- 12 month running total/wasteload allocation: 58%
- 12 month avg flow 2.17 MGD

Process Control Management Strategies Utilized

In 2023 the EJWWTF focused on implementation of actuators on aeration air valves for better dissolved oxygen control, Oxidation Reduction Potential (ORP) measurements/trends, and side stream management to optimize phosphorus control strategies.

NOTE: 2023 was an extraordinary wet year with two unprecedented storms in July and December. As a result, we witnessed noticeable increase in flow to the facility likely from higher amounts of Inflow and Infiltration (I&I) into the collections systems. Our monthly average flow has consistently been over 2.0 MGD for all but one month in 2023 compared to previous years where we often hovered around 1.8 MGD. In December alone, we had 88 MG go through to facility where our normal average is 65 MG.

In 2024, I&I investigation in the Tri-town collection system will occur to try and identify any large sources that can be remedied.

ORP

- ORP in the anoxic and anaerobic tanks of each aeration process train are recorded daily. Process adjustments were made as needed to maximize the biological phosphorus removal. Adjustment strategies included adjusting dissolved oxygen in aeration process, managing height of secondary sludge blankets, and adjusting the rate of the return activated sludge. The allows us to significantly reduce the chemical addition for phosphorus removal.

Aeration valve retrofit-REXA Actuators

- Installation of eight high precision valve actuators (REXA) to replace eight butterfly valves in our aeration system.
    - Allows for 1) precise digital control of valves 2) balancing of the air in all parts of the aeration air distribution lines 3) fine tune process control based on DO.
    - Resulting in 1) over aeration 2) reduced energy use. It also gives the ability to fine tune.
    - All having the potential to enhance phosphorus removal.
- Actuators put in auto early May 2023.

- Tried to fine tune the SCADA programming for 3 months.
  - Had an issue with largest blower going out on high discharge pressure.
- Process began to struggle during fine tuning of controls.
  - lost all our stalked ciliates.
  - phosphorus removal began to slide.
  - settleability in the secondary clarifiers nearly disappeared (750-850 mg/L when our normal range is 200-250 mg/L).
- Noticed that most of the demand for air was in the zone closest to the building. Was artificially driving the other valves too open or closed. Causing air not to be balanced and often over applied.
- Several controls related meetings/discussions with the SCADA programmers, Blower reps and REXA were in process when the catastrophic flooding event hit Vermont in July. At that point we decided to put the valves into manual to regain control of process.
- Manual mode-valves are at set position and do no move up and down without operator input on SCADA. Aeration blower staging is run off avg DO and not pressure (like when in auto). By making the change our process began to recover slowly.

From July to December, we left the actuators in manual mode. Our process became steady and phosphorus removal efficiency numbers increased allowing us to recover from the troubles earlier in the spring/summer where at our highest we reached 71% of our 12-month running total. As of December 2023, we had moved back down to 58% of our 12-month running total of annual pounds. Biological phosphorus removal is excelling again with minimized chemical addition.

In 2024, we are going to work with SCADA programmer and blower rep to see how we can get the control for the actuators back to automatic mode and function successfully.

Management of high strength side streams

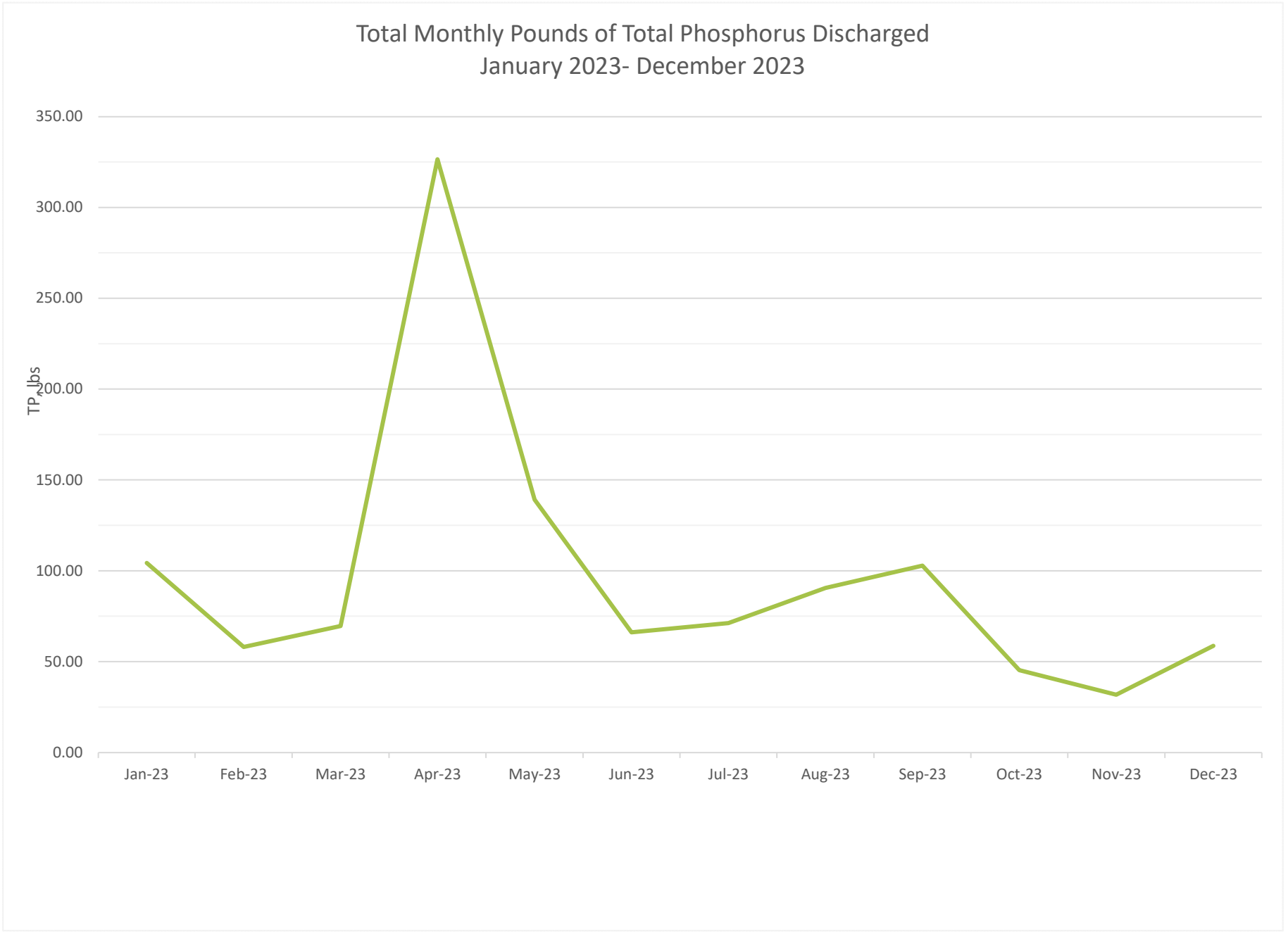
- High strength side stream waste generated from our dewatering operations continues to be segregated into our equalization tank 2 (EQ 2) during the two day/week operations.
- The waste is slowly metered back into the process by mixing with influent going to the primary clarifier to be treated.
- ortho P is monitored twice daily (AM/PM). If elevated levels are found, we turn down or shut off the metered pump or adjust chemical addition for phosphorus removal until the next morning lab test to make sure numbers start to recede.
- Typically, we need 3 days to empty EQ 2 for it to be ready to accept more dewatering waste the following week. By allowing the extra few days to empty the tank it gives us the needed flexibility to shut the pump off/on or up/down if our process can or cannot handle it.
- Continue to partner with UVM as part of the Vermont Phosphorus Innovation Challenge on the PePhlo project. In 2023, work on this project slowed as the doctoral candidate working graduated in January. If UVM, can find more graduate students interested in this than we will continue with the plan to move to a permanent installation at our EQ building to pilot the technology full scale. The results to date consistently show a P concentration reduction by more than 90%.
- Continue to not accept high strength waste for our digester. We seem to produce enough gas for our cogeneration system to run well just by using our waste primary as feed stock.

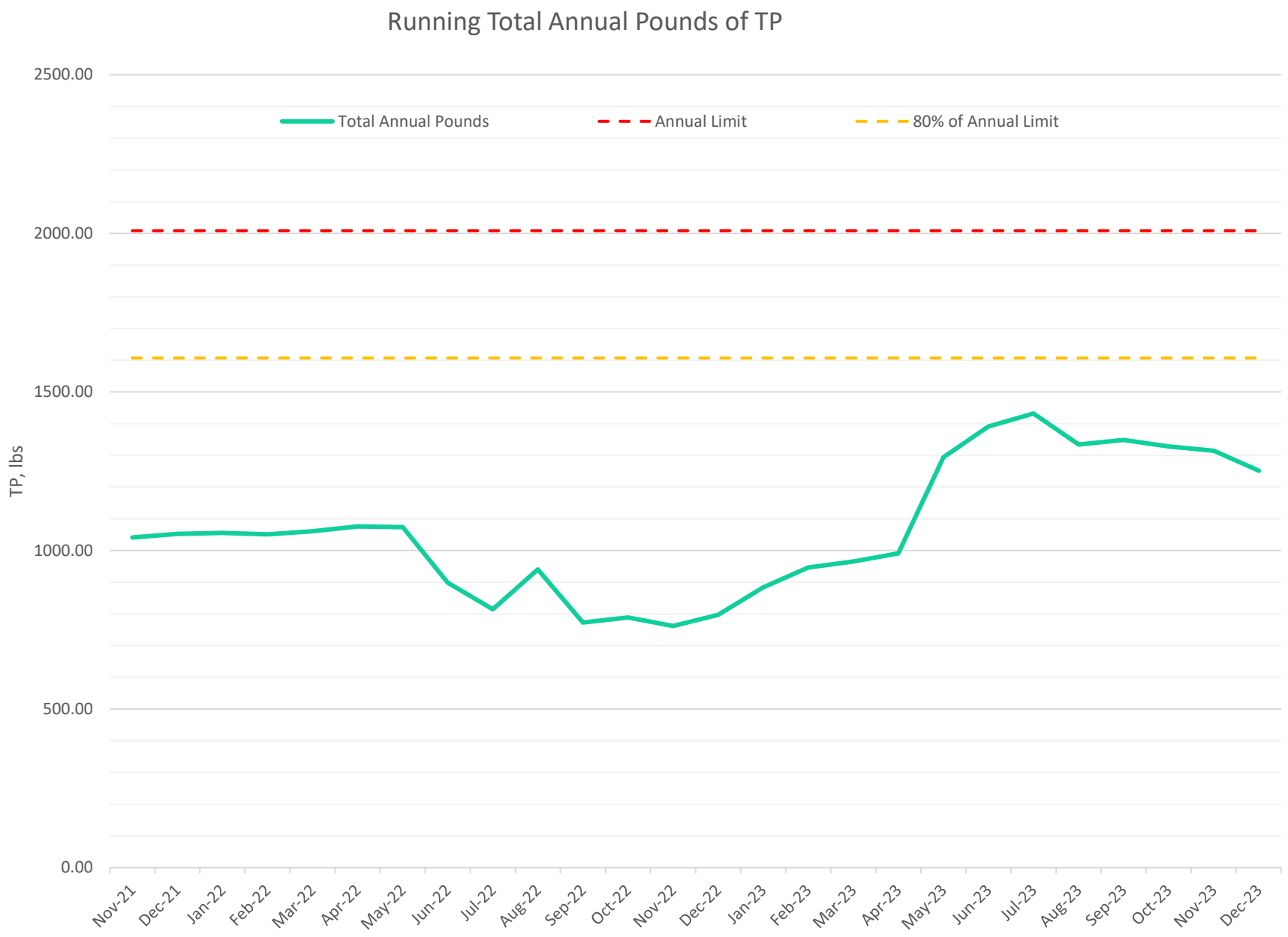
- Work with the Tri-town communities to manage high strength waste producers on the collection system. One known large high strength waste producer that at times has had visible effects at the wastewater treatment facility reached a settlement with the Town of Williston. The high strength waste producer will have a pretreatment system installed by July 2024 through ARPA funds. They also will be issued a State of Vermont Pretreatment permit. This should help reduce the strength of BOD Williston is sending to the facility through their collection system.

Total Phosphorus Reporting

Permitee:	Essex Jct
Permit Concentration Limit:	0.2
Permit Annual Limit:	2008.4
80% Annual Limit:	1606.7

Date	Monthly Average Concentration	Monthly Average Flow, MGD	Number of Days Discharging	Total Monthly Pounds	Running Total Annual Pounds	Running Total Metric Tons	Percentage of Permit Limit
Jan-23	0.19	2.124	31	104.34	946.28	0.43	47%
Feb-23	0.12	2.07	28	58.01	964.99	0.44	48%
Mar-23	0.123	2.187	31	69.55	991.31	0.45	49%
Apr-23	0.58	2.25	30	326.51	1294.30	0.59	64%
May-23	0.26	2.07	31	139.15	1391.05	0.63	69%
Jun-23	0.14	1.886	30	66.06	1431.94	0.65	71%
Jul-23	0.13	2.12	31	71.25	1333.88	0.61	66%
Aug-23	0.16	2.188	31	90.51	1348.79	0.61	67%
Sep-23	0.201	2.044	30	102.79	1327.98	0.60	66%
Oct-23	0.08	2.19	31	45.30	1314.33	0.60	65%
Nov-23	0.06	2.124	30	31.89	1251.24	0.57	62%
Dec-23	0.08	2.84	31	58.74	1164.09	0.53	58%


Total Monthly Pounds of Total Phosphorus Discharged
January 2023- December 2023
TP, lbs
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23


Running Total Annual Pounds of TP
Total Annual Pounds
Annual Limit
80% of Annual Limit
TP, lbs
2500.00
2000.00
1500.00
1000.00
500.00
0.00
Nov-21
Dec-21
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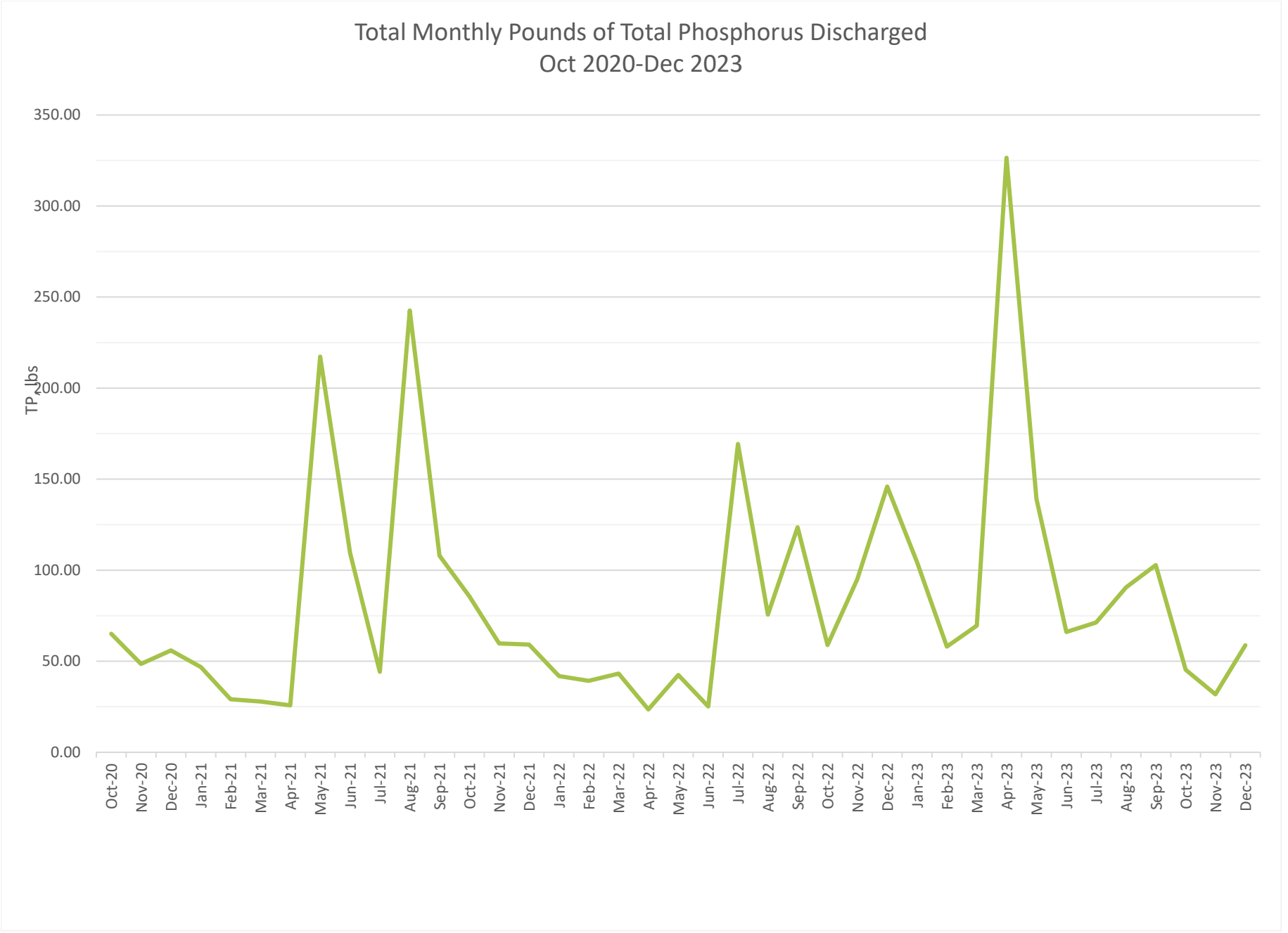
Total Monthly Pounds of Total Phosphorus Discharged
Oct 2020-Dec 2023
TP, lbs
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Oct-20
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UPDATED DRAFT – 12/28/2023-RAB

CITY OF ESSEX JUNCTION
TOWN OF ESSEX
and
TOWN OF WILLISTON

PROCEDURE
for the
CONTROL OF HIGH STRENGTH WASTES AND WATER DISCHARGES
and
SURCHARGES FOR INDUSTRIAL AND COMMERCIAL DISCHARGES

Part I

A. Purpose

The purpose of this Procedure is to:

1. Establish a process to review and control the discharges that contain high strength wastes or waters, or other regulated pollutants from industrial and commercial processes which may adversely impact the treatment process or the sludge (biosolids) at the City of Essex Junction Wastewater Treatment Facility (WWTF) via the Town of Essex, Town of Williston (Town(s)), and the City of Essex Junction (City) collection systems and to ensure that use of the WWTF is sustainable and maximized.

2. Establish a methodology to recover the costs associated with the treatment and the disposal of byproducts from high strength wastes and waters or other regulated pollutants discharged from industrial and commercial processes into the WWTF via the Towns' and City's collection systems.

B. Background

The Essex Junction WWTF has a finite capacity to process the organic pollutants in the wastewater it treats. The design volume and organic treatment capacity of the WWTF is based on the organic pollutant concentrations in typical domestic strength sewage.

The discharge of wastes or waters into a wastewater treatment facility from industrial or commercial process that have organic pollutant concentrations higher than typical domestic sewage consumes excessive organic treatment capacity and significantly increases the operational costs at the treatment facility and to the other system users inequitably and can cause upsets to the treatment process and violations the terms and conditions of the treatment facility's NPDES Discharge Permit.

The Essex Junction WWTF authorized to discharge into the Winooski River under the terms and conditions of Discharge Permit No. 3-1254 and currently has a permitted capacity to treat and discharge an annual average of 3.3 million gallons of per day of wastewater and has an organic treatment capacity to treat a monthly average influent loading of 8830 pounds per day of Biochemical Oxygen Demand.

Commented [RB1]: According to the WWTF Basis of Design, the facility is designed to treat an influent loading of 8830 lbs of BOD per day and can reliably comply with a BOD effluent limitation of 688 lbs/day.

Additional language has been included to clarify this treatment criteria

The Three-Party Agreement On Sewage Treatment (as Revised) identifies the allocation of treatment capacity of the WWTF between the Towns and the City.

In addition, the uncontrolled discharge of excessive concentrations of other regulated pollutants into a wastewater treatment facility such as heavy metals, volatile organic compounds, ammonia etc. can adversely impact the proper operation of the treatment facility. These impacts can include negatively affecting the biological treatment process and causing an operational upset, excessive pollutant accumulation in the biosolids, and effluent violations. These adverse impacts can result in a wastewater treatment facility incurring excessive operational costs to remediate the treatment process, to dispose of the biosolids, and to rectify potential violations of the effluent limitations.

C. Determination of High Strength Waters or Wastes

For the purposes of this Procedure a discharge of high strength waste or water is defined as a discharge to a collection system into the Essex Junction WWTF which has a reasonable potential to routinely exceed the following characteristics:

i. an average five (5) day Biochemical Oxygen Demand (BOD) concentration greater than 320 mg/l; or
ii. an average Total Suspended Solids (TSS) concentration greater than 320 mg/l; or
iii. an average Total Phosphorus (TP) concentration greater than 10 mg/l; or
iv. an average Total Kjeldahl Nitrogen (TKN) of greater than 50 mg/l

D. Applicability to High Strength Wastes or Waters

This Procedure applies to the discharge of high strength wastes or waters from industrial or commercial processes or similar strength wastes including hauled wastes received from outside of the service area and processed as septage under the Essex Junction allocation.

This Procedure shall be applied to industrial or commercial discharges which have a reasonable potential to contain a daily average BOD loading (pounds) greater than **3%** of the organic (BOD) treatment capacity allocated to each party based on the pollutant concentration and flow.

Commented [RB2]: Updated to 3% per District comments

The concentration of the pollutants in a discharge, the volume (flow) of a discharge, the frequency of a discharge, the rate of a discharge, and the impacts of the discharge at the Essex Junction WWTF over time shall be considered in applying this Procedure.

The City and Towns may allow flexibility within their respective organic capacity at their discretion but shall not exceed their proportional share of organic loading at the time of connection approval.

This Procedure shall not apply to discharges of residential wastewater or other discharges similar to typical domestic sewage strength unless a home or home business is found to be a significant contributor to a pollutant of concern.

Commented [RB3]: Language regarding Pollution Prevention has been removed per District comments.

Note: I would strongly suggest that this Procedure contain some simple general language regarding pollution prevention and best management practices.
Jim and I did not find any conditions in any of the 3 Ordinances which specifically contains language regarding mandating users implement pollution prevention or follow standard industry waste/wastewater management practices.

Part II

A. Operation and Maintenance Surcharge

This Procedure establishes a surcharge on the discharge of significant high strength wastes and waters into the Essex Junction WWTF to offset the additional operational and maintenance costs and the additional

biosolid disposal costs incurred at the WWTF caused by the treatment of these high strength wastes or waters and establishes an equitable and feasible method to recover these costs.

B. Authority

24 V.S.A. Sections 3615 and 3617 authorizes municipalities to establish "sewer disposal charges" including charges based upon "variable operations and maintenance costs" and the "strength and flow where wastes stronger than household are involved". The City and Towns sewer use ordinances have conditions which enable the municipality to charge for the discharge of waters or wastes stronger than typical domestic (household) wastes.

C. Applicability

Surcharges shall only be applied to industrial or commercial discharges of high strength waters or wastes which have a reasonable potential to contain a daily average BOD loading (pounds per day) greater than **3%** of the organic (BOD) treatment capacity allocated to each party.

Commented [RB4]: Updated to 3% per District comments

D. Implementation of Operational and Maintenance (O&M) Surcharges

1. **Operational and Maintenance (O&M) Surcharge Cost Allocation Factors**

The O&M surcharge shall be based on the cost incurred by the City at the WWTF to treat the high strength wastes or waters and to dispose of the additional biosolids generated in treatment process.

The O&M Surcharge shall be based upon the following pollutant discharged during billing period:

Commented [RB5]: The number of pollutants can be adjusted as the District sees fit. Some Towns do not bill for TKN. However due to the UOD limitation, a surcharge for TKN may be warranted since it takes more O2 in the treatment process to remove TKN than BOD, therefore removing high influent TKN loadings can be costly.

a. pounds of Biochemical Oxygen Demand (BOD)
b. pounds of Total Suspended Solids (TSS)
c. pounds of Total Phosphorus (TP)
d. pound of Total Kjeldahl Nitrogen (TKN)

The cost breakdown of the O&M surcharge shall be:

Commented [RB6]: As previously noted, these are just an example of general estimate of cost breakdowns. The actual treatment cost at the WWTF and the cost breakdown % for each pollutant treated will need to set by the District based on O&M costs at the WWTF, lbs of pollutants treated, sludge generated and cost, etc.

The application of these costs per each pollutant received and treated will need to be set by the District.

a. 60% Biochemical Oxygen Demand (BOD)
b. 15% Total Suspend Solids (TSS)
c. 15% Total Phosphorus (TP)
d. 10% Total Kjeldahl Nitrogen (TKN)

The determination of the unit cost per pound of each pollutant treated shall be based on computing the cost of the per pound of the pollutant treated or removed as determined by the annual recorded operational and maintenance costs at the WWTF and the annual pounds of the pollutants treated or removed by the WWTF.

This cost shall then be applied to the pounds of the pollutant contributed into the WWTF by the high strength discharge.

The District shall annually re-evaluate this cost factor to the reflect the current costs incurred by the City at the WWTF to treat the high strength water or waste and to dispose of the additional biosolids generated due to the high strength water or waste. These costs will be prepared annually in the budget process and shall serve as the basis for the surcharge in the upcoming year.

2. **Determination of Flow, Pollutant Concentration, and Loading**
The O&M Surcharge shall be based on the measured or estimated pounds of pollutants discharged (loading) into the WWTF.

The determination of flow (volume) shall be based on metered measurements as determined by the Town or City capacity values. Sewer meter readings shall be considered more reliable than water meter readings. Adjustments may be allowed for liquid that is added or taken from the industrial or commercial process which may or may not enter the discharge. Any flow adjustments granted must be measurable and approved by the Towns.

The concentration of pollutants in a discharge shall be based on the representative sampling of the wastewater before it enters the collection system. Samples shall be collected at a location approved by the City and/or Town and shall representative of the entire operational day.

The pounds of pollutants in a discharge shall then be derived based on the flow discharged and the concentration of pollutants measured in the wastewater.

The pound of pollutants discharge shall be calculated using the formula:

Pounds of Pollutant = Flow (MGD) x Pollutant Concentration (mg/L) x 8.34 pounds per gallon

The City and/or Towns shall have the option of conducting periodic sampling and flow measurements to ensure that representative sampling and flow measurements are being conducted and to confirm that the pounds of pollutants being computed is accurate.

The customer shall have the primary responsibility for conducting the sampling and flow measurements on a regular basis to determine the pounds of pollutants discharged into the collection system. All costs associated with sampling, measurements, and reporting shall be the responsibility of the customer, unless waived by the Town or the City.

For discharges regulated under this Ordinance, the customer shall submit a report of the sampling results to the applicable Town and to the WWTF via email.

For discharges regulated by Pretreatment Discharge Permits issued by the Agency of Natural Resources, the monthly WR-43 Discharge Monitoring Report shall be used to derive the O&M Surcharge.

3. **Industries to Monitor Their Own Discharge**
All industries and commercial facilities discharging into a public sewer shall perform any monitoring of their discharges as the Towns or City may reasonably require, including installation, use, and maintenance of monitoring equipment, keeping records, and reporting the results of such monitoring to the Towns or City.

Records shall be made available, upon request, to the Towns or City and to other agencies having jurisdiction over the discharge. Where pretreatment discharge permits are issued by the State of Vermont, monitoring records shall also be submitted to the State in accordance with such permit. Records of any monitoring may be supplied by the Town or City to the State on request.

All measurements, tests and analyses of the characteristics of waters and wastes which are required by Towns or City shall be determined in accordance with the latest edition of "Standard Methods of the Examination of Water and Wastewater" published by the American Public Health Association.

Samples shall be collected at a sampling manhole or representative location. In the event that no sampling manhole has been required, or representative location available, the sampling manhole shall be considered to be the nearest downstream manhole in the public sewer from the point at which the building sewer is connected.

Sampling shall be carried out by qualified personnel by customarily accepted methods to reflect compliance with current municipal and Vermont Occupational Safety and Health standards

Any discharger held in violation of the provisions of this ordinance may have its disposal authorization terminated and may be assessed penalties by the Town or City, as permitted by law.

4. Sampling Plan

To determine the pounds of pollutants in a discharge, commercial and industrial customers subject to this Amendment shall prepare a Sampling Plan unless waived by the Town and WWTF staff.

The Sampling Plan shall be submitted to the Town and WWTF staff for review and approval prior to implementation. Pollution prevention measures shall be described, accompanied by plans and other documents to enable comprehensive review.

The Sampling Plan shall include but is not limited to identifying the methodology to measure flow, the minimum frequency of sampling the effluent, the sampling location, sample collection methodology, the parameters for analysis, and the protocol to process samples and reporting results to the Town and to the WWTF.

Samples shall be flow proportioned whenever feasible and shall be representative of the volume and quality of effluent discharged into the sewer collection system over the sampling and reporting period. All samples shall be taken during normal operating hours over the production day. The Town in conjunction with WWTF staff shall determine the appropriate composite sample duration or whether a grab sample or grab samples should be taken.

All measurements, tests, and analyses of the characteristics of waters and wastes which are required by the Town or City shall be determined in accordance with the latest edition of "Standard Methods of the Examination of Water and Wastewater" published by the American Public Health Association.

5. Right of Access

The Towns and City or their duly authorized representatives, bearing proper credentials and identification, shall be permitted to enter into, upon, or through the premises of any industry or commercial facility discharging into the collection system and sewage treatment plant, to have access to and copy any records, to inspect any monitoring equipment or method, and to sample any discharge into the collection system or to the WWTF.

6. **Accessibility to Private Sewage Structures**
When required by the Towns or City, the Owner of any property served by a building sewer carrying industrial or commercial wastes shall install a suitably designed manhole in the building sewer to facilitate observation, sampling, and measurement of the process wastewaters or wastes.

The sampling manhole shall be safely located, constructed in accordance with plans approved by the Town or City, and accessible to Town or City personnel.

The sampling manhole shall be installed by the Owner, at their expense, and shall be maintained by the Owner to be safe and accessible at all times.

Commented [RB7]: E. Billing Procedure" has been removed per comments from the District.

Also it should be noted that some similar language is contained in Condition II.D above. Therefore this Condition was redundant.

Commented [RB8]: "F. Frequency of Billing" has been removed per comments from the District

Part IV

Changes in Discharge
Any user discharging high strength waters or wastes to the Essex Junction WWTF and that is subject to this Procedure shall provide the Town and the WWTF staff 45-calendar day's prior notification of any of the following changes in writing:

1. any proposed substantial change in the volume, loading, or type of pollutants discharged to the WWTF.

2. any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants to the WWTF.
3.

Part V

Applicability to Discharges of Metals and Other Regulated Pollutants
The uncontrolled or excessive discharge of metals or other regulated pollutants into a wastewater treatment facility can adversely impact the proper operations of treatment facility or the biosolids generated during the treatment process. These adverse impacts can result in a wastewater treatment facility incurring excessive operational costs to remediate the treatment process or disposal of the biosolids

Commented [RB9]: Portions of this Part have been rewritten and simplified

The Essex Junction WWTF has experienced high concentrations of zinc in the biosolids generated as part of the wastewater treatment process. To ensure that the quality of the biosolids and the wastewater treatment process are protected, as directed by federal regulations (40 CFR Part 403.2), during the connection approval process for any new or increased industrial or commercial discharge into the WWTF having a reasonable potential to contain concentrations or loadings of zinc or other similarly regulated pollutant measurably greater than typical domestic sewage, WWTF staff shall be consulted.

Based on the pollutant concentrations and flow of the new or increased discharge, the Towns or City after consultation with the WWTF staff, may approve, deny, or require treatment to control or remove zinc or the other similar pollutants from the discharge as part of the connection review process.

Commented [RB10]: Rewritten per comments. Approval authority is solely with the Towns or City but requires consultation with WWTF staff during the application review process.

Existing discharges which are identified to have a reasonable potential to contain concentrations or loadings of zinc or other similarly regulated pollutants that are measurably greater than typical domestic sewage may be required to reduce, control, or treat their discharge as mandated by the Towns or City after consultation

Commented [RB11]: Authority to mandate reductions is solely the Towns or City

with WWTF staff to prevent excessive pollutant accumulation in the biosolids, protect the WWTF treatment process, and/or prevent effluent violations.

Any additional costs incurred at the WWTF to dispose of biosolids which contains excessive zinc or other regulated pollutants, to remediate the WWTF treatment process, or to correct effluent violations due to an identified existing discharge shall be addressed through the Towns or City to the satisfaction of the District.

Commented [RB12]: Part VI, "Enforcement and Penalties" has been removed per comments since the District has no enforcement authority

Part VI

Agency of Natural Resources Regulatory Review

Commented [RB13]: Per discussions, this Part has been relocated in the document and has been rewritten.

The discharge of high strength wastes or water or other regulated pollutants into a municipally owned wastewater treatment facilities may require the issuance of Pretreatment Discharge Permit under federal regulations, 40 CFR Part 403 et al., and/or Vermont statutes, 10 VSA 1259(a).

Therefore it is recommended that all applicants requesting a new or increased discharge of high strength wastes or waters and/or other regulated pollutants into the Essex Junction WWTF via the Towns' or City's collection systems contact the Agency of Natural Resources, Department of Environmental Conservations, Wastewater Management Program and obtain a determination from the Agency regarding the need for a Pretreatment Discharge Permit for the proposed or increased discharge as part of the connection approval process.

Date _____

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