

TRI-TOWN JOINT REVIEW COMMITTEE MEETING

November 30th
10:00 AM-11:00 AM

MEETING LOCATION:

Via MS Teams or in person at the Essex Jct WWTF

Agenda

1. Budget Reviews
 - a. FY23 Reconciliation
 - i. FY23 Flows
 - b. FY24 budget update
 - c. FY25 draft budget
2. State Inspection of facility-Sept 2023
3. 10-year evaluation of facility
4. Essex Pump Stations
5. Drying bed cleaning schedule
6. Copper Survey results
7. Burlington Beer update
8. High Strength Waste Ordinance
9. Set 4 meeting dates for 2024
 - a. February 15th 10 AM
 - b. May 15th 10 AM
 - c. August 22nd 10 AM
 - d. November 21st 10 AM

Account

	Budget	Actual	% of Budget	Pd to Date
255-4-55-30 Operating Revenue				
255-4-55-30-022.000 Sewer User Fees	964,646.00	353,649.31	36.66%	353,570.11
255-4-55-30-022.001 City: Septage Discharg	50,000.00	37,835.00	75.67%	14,766.50
255-4-55-30-022.002 City: Leachate Revenue	500.00	741.24	148.25%	221.07
255-4-55-30-025.001 Tri-Town: WWTF Charge - E	746,504.00	373,252.00	50.00%	186,626.00
255-4-55-30-025.002 Tri-Town: WWTF Charge - W	1,095,511.00	273,877.75	25.00%	0.00
255-4-55-30-025.003 Tri-Town: Septage	20,000.00	0.00	0.00%	0.00
255-4-55-30-025.004 Tri-Town: Leachate	100.00	0.00	0.00%	0.00
255-4-55-30-025.005 Tri-Town: Pump Station In	36,000.00	9,000.00	25.00%	0.00
255-4-55-30-085.000 Penalties	3,500.00	1,484.59	42.42%	0.00
255-4-55-30-098.000 Misc Revenue	0.00	8,211.00	100.00%	2,100.00
Total Operating Revenue	2,916,761.00	1,058,050.89	36.27%	557,283.68
255-4-55-70 Nonoperating Revenues				
255-4-55-70-092.000 Transfer to Capital	440,000.00	110,000.00	25.00%	0.00
Total Nonoperating Revenues	440,000.00	110,000.00	25.00%	0.00
Total Revenues	3,356,761.00	1,168,050.89	34.80%	557,283.68

255-5-55-30 Operating Expenses

255-5-55-30-110.000 Regular Salaries	493,131.00	171,660.85	34.81%	30,920.34
255-5-55-30-120.000 Part Time Salaries	0.00	15,628.34	100.00%	1,431.35
255-5-55-30-130.000 Overtime	44,955.00	17,417.15	38.74%	4,059.94
255-5-55-30-210.000 Group Insurance	162,045.00	19,815.97	12.23%	5,105.82
255-5-55-30-220.000 Social Security	42,912.00	15,729.69	36.66%	2,806.98
255-5-55-30-230.000 Retirement	46,817.00	16,743.22	35.76%	3,376.79
255-5-55-30-250.000 Unemployment Insurance	527.00	109.77	20.83%	0.00
255-5-55-30-260.000 Workers Comp Insurance	25,400.00	9,005.00	35.45%	0.00
255-5-55-30-320.000 Legal Services	3,000.00	517.50	17.25%	0.00
255-5-55-30-330.000 Professional Services	12,000.00	6,015.33	50.13%	212.00
255-5-55-30-335.000 Audit	4,553.00	795.00	17.46%	0.00
255-5-55-30-340.000 Technical Services	40,000.00	4,293.59	10.73%	130.00
255-5-55-30-340.001 Lab Testing	0.00	1,125.00	100.00%	210.00
255-5-55-30-410.000 Water and Sewer Charges	4,000.00	0.00	0.00%	0.00
255-5-55-30-421.000 Grit Disposal	16,500.00	3,568.35	21.63%	1,189.45
255-5-55-30-430.000 R&M Vehicles & Equipment	4,000.00	79.08	1.98%	0.00
255-5-55-30-431.000 R&M Buildings	3,000.00	0.00	0.00%	0.00
255-5-55-30-442.000 Rental Vehicles/Equip	1,500.00	162.50	10.83%	0.00
255-5-55-30-491.000 Administrative Fees	106,003.00	26,500.75	25.00%	0.00
255-5-55-30-500.000 Training, Conf, Dues	8,500.00	2,571.41	30.25%	1,500.00
255-5-55-30-505.000 Tech. Subs, Licenses	3,000.00	935.00	31.17%	0.00
255-5-55-30-510.000 Permits, Licenses, Reg	11,000.00	710.00	6.45%	0.00
255-5-55-30-520.000 Workers Comp Insurance	39,800.00	21,906.39	55.04%	0.00
255-5-55-30-530.000 Communications	12,675.00	5,203.33	41.05%	1,398.02
255-5-55-30-567.000 Biosolids Land Applicatio	190,000.00	0.00	0.00%	0.00
255-5-55-30-568.000 Biosolids Subcontractor	255,000.00	60,394.63	23.68%	33,082.61

Account

	Budget	Actual	% of Budget	Pd to Date
255-5-55-30-570.000 Other Purchased Services	195,000.00	47,030.83	24.12%	6,301.75
255-5-55-30-609.000 Safety Supplies	3,000.00	0.00	0.00%	0.00
255-5-55-30-610.000 General Supplies	12,000.00	4,987.74	41.56%	890.05
255-5-55-30-612.000 Uniforms	7,898.00	593.38	7.51%	0.00
255-5-55-30-618.000 Laboratory Supplies	22,000.00	7,694.89	34.98%	139.99
255-5-55-30-619.000 Chemicals	500,000.00	168,585.50	33.72%	49,502.75
255-5-55-30-621.000 Natural Gas/Heating	25,650.00	2,772.48	10.81%	693.75
255-5-55-30-622.000 Electricity	170,000.00	38,453.99	22.62%	2,969.11
255-5-55-30-626.000 Gasoline	4,500.00	1,012.66	22.50%	499.00
255-5-55-30-735.000 Tech Hardware, Software,	6,396.00	0.00	0.00%	0.00
255-5-55-30-910.000 Transfer btwn funds (non-	0.00	750.00	100.00%	0.00
255-5-55-30-920.000 Transfer btwn funds (capi	440,000.00	110,000.00	25.00%	0.00
Total Operating Expenses	2,916,762.00	782,769.32	26.84%	146,419.70
255-5-55-70 Nonoperating Expenses				
255-5-55-70-722.008 Vt Phos Challenge PePhlo	50,000.00	0.00	0.00%	0.00
255-5-55-70-722.013 Cogen	0.00	54,153.45	100.00%	0.00
255-5-55-70-722.014 Digester Maintenance	42,500.00	0.00	0.00%	0.00
255-5-55-70-722.015 Automatic Samplers	27,000.00	8,620.00	31.93%	0.00
255-5-55-70-722.016 Submersible Pumps	25,000.00	17,725.63	70.90%	0.00
255-5-55-70-722.017 O2 Reduction Controller R	14,000.00	14,000.00	100.00%	0.00
255-5-55-70-730.003 10 Year Engineer Evaluati	50,000.00	1,434.00	2.87%	1,434.00
255-5-55-70-751.003 Service Truck w/Crane	60,000.00	0.00	0.00%	0.00
255-5-55-70-955.002 RZEDB Interest	0.00	18,263.48	100.00%	18,263.48
255-5-55-70-955.003 CWSRF RF1-148 Admin Fee	0.00	179,406.57	100.00%	179,406.57
Total Nonoperating Expenses	268,500.00	293,603.13	109.35%	199,104.05
Total Expenditures	3,185,262.00	1,076,372.45	33.79%	345,523.75
Total WASTEWATER FUND	171,499.00	91,678.44	53.46%	211,759.93

10-year eval list of items to explore

- Soundproof office for dewatering building (if stay with centrifuge)
- Drying bed for pump station cleanings
- Centrate management strategies
 - EQ/gravity flow modifications
 - Pephlo
- Solids management alternatives
 - Screw press
- UV disinfection
- Headworks odor control for septage/receiving or improved receiving station
- More aeration tanks to address organic loading
 - Blower header spilt
- Cold storage area for equipment
- Flow control for splitting flow to secondary clarifiers
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DRAFT



**Vermont Department of Environmental Conservation
Watershed Management Division
Wastewater Program
1 National Life Drive, Davis Building, 3rd Floor
Montpelier, VT 05620-3522**

Facility Inspection Report

Permittee Name:	Village of Essex Junction (Towns of Essex and Williston are co-permittee's)				
Facility Name:	Essex Junction WWTF				
Facility Location:	39 Cascade Street, Essex Junction, Vermont				
Inspection Type:	Compliance Inspection (CEI)	Date Announced:	September 1 st , 2023		
Inspection Date:	September 26 th , 2023	Time In:	12:00pm	Time Out:	2:30pm
NPDES Permit Number:	VT0100111				
State Permit Number:	3-1254				
Permit Type:	Domestic Discharge Permit				
Permit Expiration Date:	June 30 th , 2026				
Facility Grade/Class:	5 DM Major				
Receiving POTW/ Waterbody:	Winooski River				
Onsite Representative/Title:	Chelsea Mandigo				
Responsible Official/Title:	Chelsea Mandigo	Contacted:	Yes		
Official Email:	chelsea@essexjunction.org	Phone:	802-878-6943, 1705		
INSPECTION RATING:	ACCEPTABLE				

Guidelines for wastewater treatment facility and pretreatment facility inspection ratings:
<http://dec.vermont.gov/sites/dec/files/wsm/wastewater/docs/Inspection.PDF>

Aaron Krymkowski Environmental Analyst	Vermont ANR/DEC/Watershed Management Division Phone: 802-828-1115	<i>Aaron Krymkowski</i> Date: 10/30/23
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Areas Evaluated:

<input checked="" type="checkbox"/>	Permit	<input type="checkbox"/>	Compliance Schedules	<input type="checkbox"/>	Stormwater
<input checked="" type="checkbox"/>	Records/Reports	<input checked="" type="checkbox"/>	Laboratory	<input type="checkbox"/>	Combined Sewers Overflows
<input checked="" type="checkbox"/>	Facility Site Review	<input checked="" type="checkbox"/>	Operations & Maintenance	<input type="checkbox"/>	Sanitary Sewer Overflows
<input checked="" type="checkbox"/>	Effluent/Receiving Waters	<input checked="" type="checkbox"/>	Sludge Handling/Disposal	<input type="checkbox"/>	MS4
<input checked="" type="checkbox"/>	Flow Measurement	<input checked="" type="checkbox"/>	Pretreatment	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Self-Monitoring Program	<input type="checkbox"/>	Pollution Prevention	<input type="checkbox"/>	

Inspection Attendees / Facility Contacts:

Name	Title	Grade	Participated in Inspection?
Chelsea Mandigo	Water Quality Superintendent	V DM	Yes
Arthur Garrison	Chief Operator	V DM	Yes
Aaron Krymkowski	Environmental Analyst	IV DM	Yes
Preston Myatt	Environmental Analyst	N/A	Yes

Corrective Actions:**Required:**

- **Complete and submit successful Proficiency Testing for *ortho-Phosphate as P* by December 31st, 2023.**
- **Submit a timeline for the full function of the anaerobic digester flare and flame arrestors to be fully operation by December 1st, 2023.**

Recommended:

- **Consult the Annual Constituent Monitoring Guidance to ensure an even distribution of seasonal sampling (Guidance for Annual Constituent Monitoring).**
- **Begin checking eyewash stations on a weekly basis.**

Inspection Findings	
<p>The rating for this inspection is “Acceptable”. This was based upon the following factors.</p> <ul style="list-style-type: none"> • One reported incident that resulted in solids loss. • The anaerobic digester flare has been non-functional for an extended period. 	
Self-Monitoring Data Review Period (12 months):	July 1 st , 2022 – June 30 th , 2023
<p>Flow checks are performed weekly. The percent error did not exceed +/- 10% during the review period. Water quality data for the review period of 7/1/22 – 6/30/2023 was reviewed. No effluent violations were reported during the review period.</p> <p>The three-year look-back period included six Total Residual Chlorine (TRC) limit violations, one pH violation, and one E. Coli violation.</p> <p>Annual Constituent Monitoring (ACM) sampling was conducted in August of 2022. Results from ACM are due by January 15, 2024. It is recommended that this sampling be performed between October 1st and December 31st in accordance with the guidance document for ACM.</p> <p>WR43s, Bench Sheets, and Lab Reports were reviewed for November 2022 and May 2023. No transcription errors or discrepancies were found.</p>	
Visual Observation of Effluent Quality:	<p>Effluent was moderately turbid with no visible solids.</p> <p>Water quality data indicates it is of good quality.</p>
Equipment Condition and Operational Status:	
<p>Essex Junction is an activated sludge plant with tertiary treatment for phosphorus removal. The headworks building also contains septage receiving. The plant has occasional issues with high organic loading in the influent, the permittees are enforcing a sewer use ordinance and have reached settlements with problematic users. High Zinc values in facility sludge samples was linked to a Zinc producing industrial user whose industrial discharge has now been removed from the collection system.</p> <p>A bar rack bypass channel is present for when the grit auger and rag removal require cleaning and maintenance. The influent inorganics wash press is currently off-line with repair work being completed in Kentucky. Automatic sampling is in place with a NIST traceable thermometer (checked yearly by TMDE).</p> <p>Three equalization pumps send flow to the primary clarifiers, two for influent and one for centrate. Centrate is kept in a separate aerated tank and metered to mix with influent. The centrate is too high strength to be added to the process without dilution.</p> <p>One of two primary clarifiers is active under normal operations with the second allotted as a high flow backup. Clarifier 1 failed this winter and had to be taken offline. Clarifiers are cleaned and serviced yearly. A process water autosampler is present before the aeration basin trains. This sampler is usually equipped with a NIST traceable thermometer but had its thermometer in use for the effluent sampler at time of this inspection.</p> <p>Two full treatment trains of aeration basins are present with open space allocated for a third train if tri-town growth requires it. Treatment includes anaerobic and anoxic selection. A treatment upset in January of 2023 resulted in the loss of nitrification until April due to overfeeding of centrate. Sodium aluminate is</p>	

added for Total Phosphorus removal (20-80 mgd). New orthophosphate and DO meter controllers from Hach were installed recently.

The facility has three secondary clarifiers with two online during regular operations. Clarifier #2 is currently being pumped down for cleaning and inspection.

A chemical treatment for filter fly population control is added between the aeration basins and the filters.

Tertiary treatment consists of Aqua-Aerobics cloth filters. Three filter basins are installed with two online at a time. Filter basins are rotated monthly for cleaning and servicing.

Chlorine disinfection and sodium bisulfate dechlorination is used to finish treating the effluent. Chemical storage tanks are kept separate in secondary storage installations. No drainage connects chemical storage to any other aspect of the facility. Tank levels are digitally tracked and recorded to allow operators to track dosing. The chlorine contact tank is cleaned regularly, most recently due to a solids loss from a failed RAS pump. This failure did not occur within the review period for this inspection and did not contribute to the inspection rating.

Onsite Data Review:

Copies of the Permit, OMERP, and EFPF were all on hand. Three years of records were accessible.

The inspections required in the OMERP are performed by the operators. The collection system for the permittees also contains assets managed by the Town of Essex and Town of Williston, which are responsible for their own sets of inspections and implementation of emergency management and spill prevention.

Maintenance Program & Controls:

Essex Junction has a computer-based maintenance management system. Work orders are generated automatically and are being updated to include parts and tools necessary for any given maintenance task. The eventual goal is for a generated work order to provide locations, supplies, and equipment needed to complete any regular maintenance task.

This has reduced equipment and asset downtime and improved plant performance.

The plant is equipped with a generator for backup power. It is exercised monthly under load and serviced by Milton CAT.

The plant is equipped with SCADA. SCADA runs on a local desktop PC that was last replaced in 2019. A new desktop will be installed this year. SCADA access is restricted and protected by LCS Controls.

Sludge/ Solids/ High Strength Waste Management:

Sludge is currently land-applied locally. Two one-million-gallon sludge storage tanks are installed, approximately two million gallons are land applied yearly. Two anaerobic digesters produce heat and gas which is converted to electricity on-site. Essex Junction has achieved days of net-zero line power demand. The flare has been off-line for some time, but the chief operator recently completed a flare repair training course at Montpelier to address this. **The flare being off-line contributed to the inspection rating**

Moisture traps are emptied daily, no chemicals are needed to manage the anaerobic digesters.

The centrifuge is run weekly and maintained annually. Polymer optimization trials are currently ongoing but 27% solids are reliably produced. A gravity belt thickens sludge from the storage tanks before feeding the

centrifuge. The belt thickener is also cleaned after each use.

Buildings and Grounds:

The grounds are well kept and maintained; lawns are mown by Parks & Rec.

Laboratory and Analytical Procedures:

The facility conducts most of its own laboratory analyses. BOD, TSS, SS, TP, E.coli, TRC, and pH are conducted on site. Proficiency testing is performed by the operators for these constituents. Currently, all constituent tests have been completed successfully except for ***ortho-Phosphate as P***. **Testing for this constituent must be completed by December 31st, 2023.**

Metals and Total Kjeldahl Nitrogen are analyzed by Endyne.

Schedule Items

Phosphorus Optimization Plan Annual Reporting was completed in January 2023. Current loading is at 44% of the Waste Load Allocation, and the PePhlo Phosphorus removal system being tested in partnership with UVM will be installed at demonstration scale this winter.

The Industrial Waste Survey for Copper was submitted and accepted in August 2023.

Updated OMER and EPF Plans were submitted on schedule in 2022 following the permit renewal.

Operator Certification and Staffing:

The facility is slightly under ideal staffing with two current openings. A full complement would include ten operators and the Water Quality Superintendent. Essex Junction had multiple retirements in close succession as the previous Chief Operator was a transition between the long-term Chief and the current Chief.

On-call is on a rotating basis with minimum payouts for call-ins.

Safety Program

Operators are trained and equipped for confined space entries but minimize them as a safety measure.

Grinder stations are properly installed and shielded.

Ladders are checked before each use.

Eyewash stations are checked monthly. **These should be checked weekly**

Fire extinguishers are checked monthly by staff and professionally on an annual basis.

Backflow prevention is inspected annually.

While general questions about safety may have been asked during the inspection, this was not a comprehensive safety inspection.

As a reminder, the facility should always follow safe operating procedures. Employees must be trained in emergency shut-down, fire control, and spill response procedures, as well as in the use of safety equipment, safe sampling techniques, and safe handling of chemicals and wastes. Employees should not enter confined spaces unless properly trained and equipped. Managers must be aware of the Occupational Safety and Health Administration (OSHA) Right-to-Know laws regarding potentially dangerous chemicals in the workplace. This law specifically requires a written hazard communication program, labeling of chemicals, and the availability of material safety data sheets to employees upon request.

Workplace safety laws may be found here: <https://labor.vermont.gov/vermont-occupational-safety-and-health-administration-vosha/rules-publications/rules-regulations>

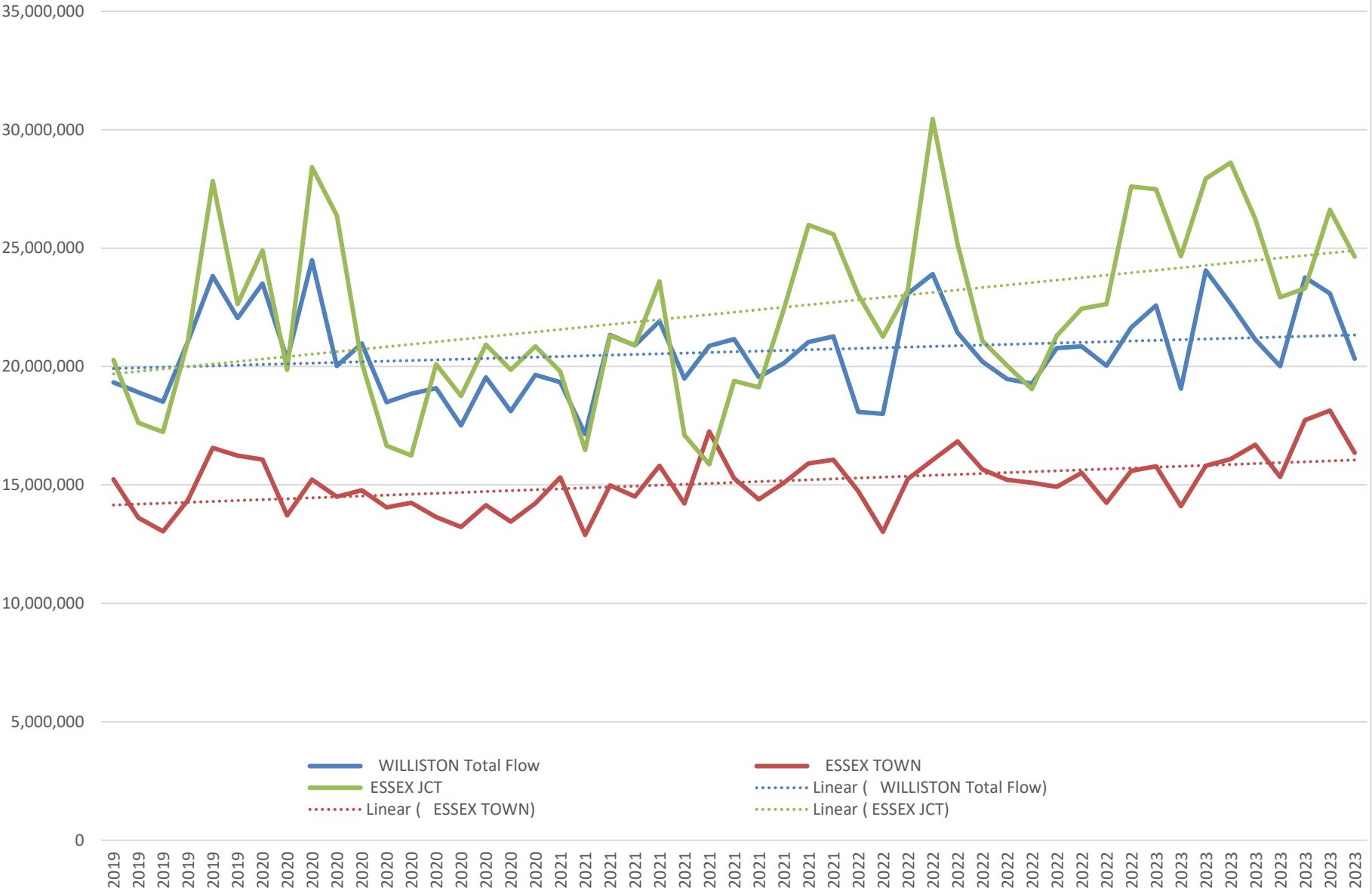
The Vermont Occupational Safety and Health Agency (VOSHA) can assist facilities in creating safe workplaces. VOSHA Compliance Assistance Specialists can provide general information about VOSHA standards and compliance assistance resources. <https://labor.vermont.gov/vermont-occupational-safety-and-health-administration-vosha/meet-vosha-requirements>

Other Items (response to violations, NOAV, 1272 Order, enforcement actions, etc.):

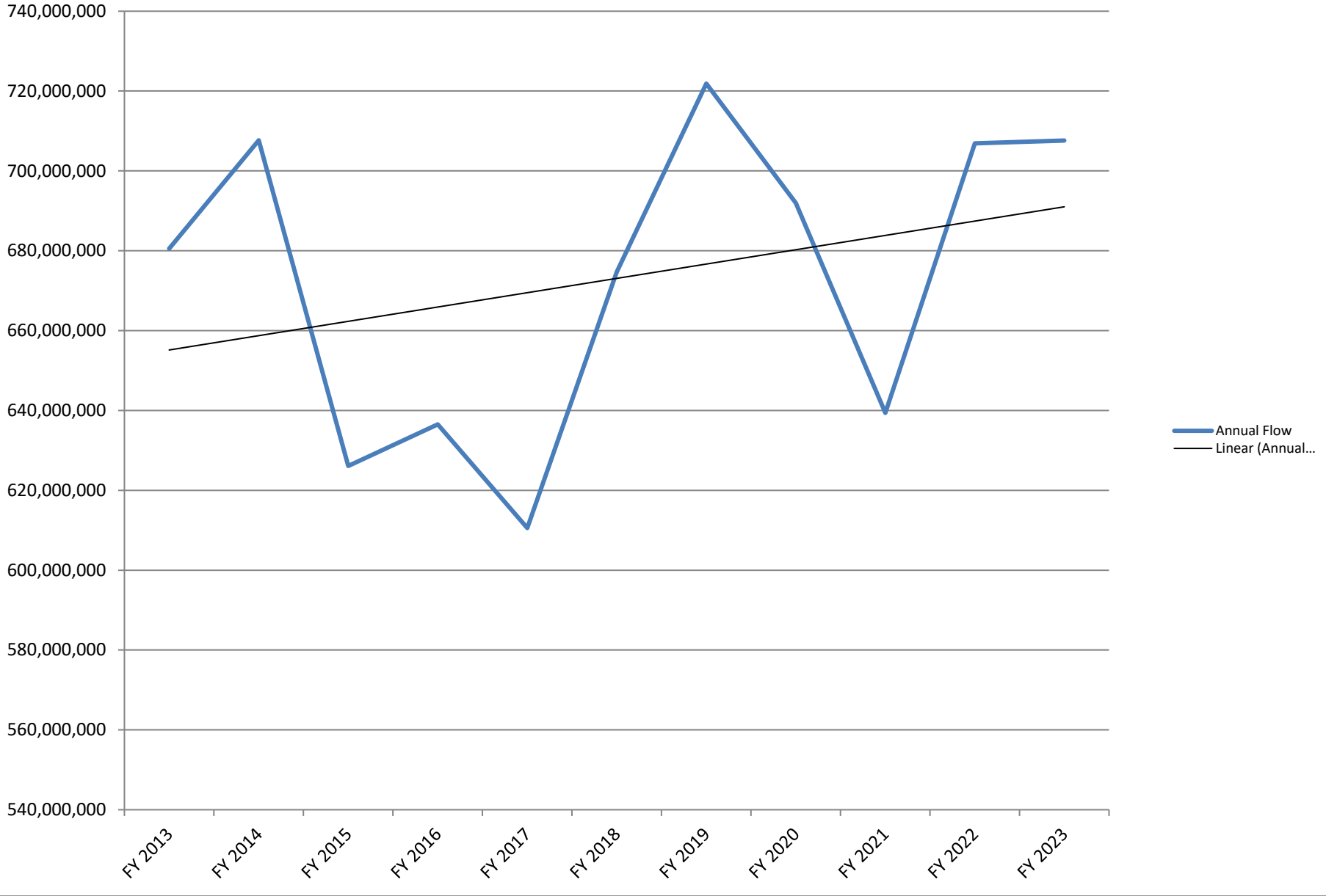
MONTH		WILLISTON Total Flow		Williston Daily Avg	ESSEX TOWN	WINCH. PL.		Essex Town Daily Avg	ESSEX JCT		Essex Jct Daily Avg	PLANT TOTAL
July	2022	19,470,200	35.58%	628,071	15,215,044		27.80%	490,808	20,042,756	36.62%	646,541	54,728,000
August	2022	19,276,820	36.09%	621,833	15,095,238		28.26%	486,943	19,044,942	35.65%	614,353	53,417,000
September	2022	20,784,450	36.46%	692,815	14,920,591		26.17%	497,353	21,302,959	37.37%	710,099	57,008,000
October	2022	20,856,360	35.46%	672,786	15,510,875		26.37%	500,351	22,442,765	38.16%	723,960	58,810,000
November	2022	20,032,650	35.19%	667,755	14,249,637		25.03%	474,988	22,642,713	39.78%	754,757	56,925,000
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
January	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

FYE 2022 Flow Summary			
35.26%	248,761,530	35.19%	Williston
26.36%	185,552,951	26.25%	Essex
38.38%	272,577,519	38.56%	Village
100.00%	706,892,000	100.00%	Total
FYE 2023 Flow Summary			
34.66%	251,580,010	34.61%	Williston
25.47%	184,425,524	25.37%	Essex
39.87%	290,923,466	40.02%	City
100.00%	726,929,000	100.00%	Total

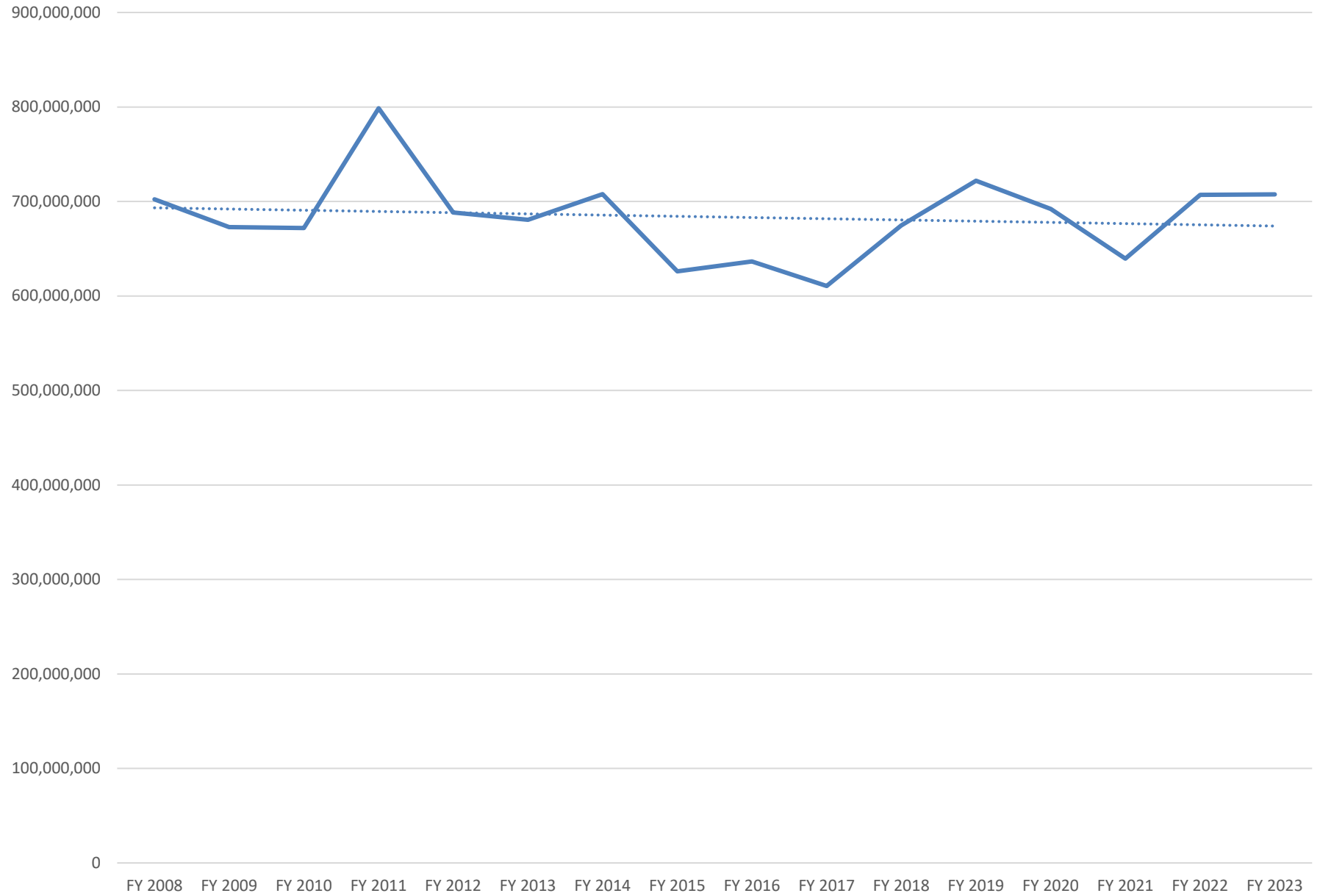
5 year TriTown Community Flow Trends



10 year WWTF Annual Flow



15 year WWTF Flow Trend



Attachment B: Tracking Survey Data

Name	Description of Wastewater Discharge	Avg. and Max Wastewater Flows	Pollutants of Concern Associated with Wastewater Discharge	Follow-up Required (Y/N)
ASIC North, Inc.				
Flexaseal Engineered Seals & Systems	manufacture seal to go into fluid pumps	16 gpd		
New England Air Systems, LLC				
BSC Industries	toilets/sinks			
Velan Valve				
United Rentals, Inc.		200 gpd		
Pre-Tech Precision		50 gpd		
VT Plastic Specialties				
Endyne, Inc.	Laboratoy	220 gpd	CU but not to Municipal System	
Vermont Mechanical, Inc	Mechanical Contractor	124 gpd		
Greentree Engineering, LLC				
Asten Johnson	Manufacturer plastic monofilament	20,000 gallons/month		
Champlain Dental Laboratoy	Fabricator			
Sathorn Corporation	Manufacturer	230 gpd	CU but not to Municipal	
Crown Lift Trucks	office space	20-30 gpd		
ILH, LLC (SD Ireland)		334 gpd		
P & P Septic, Inc.	septic	10,000 per month		

