

## Summary

The 2017 Annual Report highlights the significant projects completed at the Gloversville-Johnstown Joint Wastewater Treatment Facility (GJJWTF). Routine assignments such as tank cleaning, instrument calibration, laboratory analysis, sample collection, general maintenance and upkeep, while important, are not identified in this report. General statistics are included to illustrate additional activities at the facility.

Electrically, GJJWTF generated 6.1 million kilowatt hours of electricity; purchased 137,583 kilowatt hours of electricity from National Grid; and sold back 1,364,351 kilowatt hours of electricity to National Grid for \$48,782.64. GJJWTF saved users \$705,800 (assuming \$0.15/kwh) in direct electrical costs during 2017.

**O & M revenues totaled \$4.1 million during 2017.** The Industrial contribution was 52.8%, Residential 28.6% and Trucked/Pumped waste and miscellaneous revenue totaled 18.6%. The average industrial sewer bill increased 9%, while the residential rate increased by 2.4%. Use of \$424,081 from the rate stabilization reserve fund helped to minimize the rate increase.

Belt Filter Presses operated 4,182 hours producing 21,807 wet tons of sludge. Fulton County Department of Solid Waste received \$742,194 to accept the sludge.

FAGE USA Dairy (FAGE) and Euphrates Inc. pumped **28.6 million** gallons of whey via a dedicated pipeline during 2017. FAGE's 22.9 million gallons of whey constituted **31.1%** of the total O&M revenue collected.

The foundation for success of GJJWTF is due to the support of the Gloversville-Johnstown Joint Sewer Board (GJJSB) and the work of its twenty-six (26) employees. As a result of the conscientious efforts by all GJJWTF employees days, nights, weekends, holidays, during severe weather, and often in an inhospitable environment; the facility continues to operate and meet its wastewater discharge SPDES permit requirements.

The employee names (as of 12/31/17) are as follows:

<b>Barbara Allen</b>	<b>Alexander Isabella</b>	<b>Hilary Ruzycky</b>
<b>Thomas Ambrosino</b>	<b>Mark Levendusky</b>	<b>Christopher Stankes</b>
<b>Wallace Arnold</b>	<b>David Malagisi</b>	<b>Michael VanAlstyne</b>
<b>Ricky Barnett</b>	<b>Catherine Maragno</b>	<b>Christopher VanAuken</b>
<b>Steven Burns</b>	<b>James McMillan</b>	<b>Richard VanNostrand</b>
<b>Bruce Gardner</b>	<b>Scott Miller</b>	<b>Robert Yaggle</b>
<b>Erich Goodemote</b>	<b>Lacie Newland</b>	
<b>Matthew Handy</b>	<b>Chad Oathout</b>	
<b>Robert Henze</b>	<b>Richard Pedrick</b>	
<b>Timothy Hutchinson</b>	<b>Donna Renda</b>	

## **PERSONNEL**

The total number of NYSDEC Grade 3A and 4A license holders at this facility totals seven (7). Two (2) employees are in the process of obtaining the necessary training and experience to obtain a wastewater operator license.

Rich VanNostrand was promoted from Laboratory Technician to a 4A Plant Operator.

Lacie Newland joined the GJJWTF Staff as a newly hired Lab Technician.

Four (4) employees utilized three (3) sick days or less during 2017. The names of those employees are as follows:

**Bruce Gardner  
Donna Renda  
Hilary Ruzycky  
Christopher VanAuken**

During 2017 there were four (4) injuries reported; two (2) of the injuries resulted in lost time.

All members returned to the Gloversville-Johnstown Joint Sewer Board in 2017.

## **OPERATIONS AND MAINTENANCE**

Several improvement projects accomplished during 2017 with assistance from the Operations and Maintenance staff were:

1. Purchased a 2017 Chevrolet 3500 HD plow truck from Eagle Auto Mall Sales per NYS OGS mini bid.
2. Reconfigured polymer tanks and pumps to conserve polymer usage.
3. Installed new flow meter on process flow flume.
4. Cleaned and inspected all Primary Tanks.
5. Performed 18,000-hour service (blower end) on Turblex Blower with assistance from Siemens Energy.
6. Performed top-end service on Cogen No. 1 with assistance from Milton Cat technician.
7. Replaced flatbed on 2005 Dodge 3/4-ton truck with the flatbed from Chevrolet plow truck.
8. Installed brake shoes, drums and brake chamber on 2010 Freightliner.
9. Replaced belt on Belt Press No. 3 at the Sludge Building.
10. Completed installation of MSA gas detection system in Screening Building.
11. Installed four 120-volt circuits for Rotork heat tapes to prevent freezing issues.
12. Assisted Milton CAT technician at the High Yard to synchronize the CAT engines to National Grid power grid.
13. Changed 350-amp Ampman breaker in the main electrical panel of the Sludge Building.
14. Repaired and replaced part of drain system in front of Administration Building.
15. Changed the main breaker in the Sludge Building.
16. Installed heat tape on all Rotork air control valves of aeration tanks.
17. Removed Cain heat exchanger on Cogen No. 2 and installed a straight pipe.
18. Repaired broken conduit and installed new wire for influent flow meter.
19. Cleaned and tested old boilers for backup heat in Digester Building.
20. Cut bypass hole in stainless steel pipe in CAST holding tank to shorten whey retention time.

## **GRANTS & LOANS**

The H<sub>2</sub>S scrubber and CAT No. 3 generator QA/QC plan for the NYSERDA grant was completed and sent to NYSERDA for approval. A requirement of the QA/QC plan provided real-time data to NYSERDA for posting on their website which began in June.

Submitted a proposed work plan and budget on NYS grants portal system (Grants Gateway) for the Disinfection project whereby GJJWTF had received a 1.1 million dollar grant in 2015. The work plan and budget along with proof of insurance was submitted to NYSDEC for approval.

## **COMPLIANCE MONITORING AND TESTING**

Annual reviews of the Laboratory Quality Assurance, Test Method Standard Operating Procedures (SOP), Administrative/Quality Procedures, Monitoring and Field Activities, and Laboratory Chemical Hygiene manuals completed as scheduled.

Technical Director completed the annual internal audit of the laboratory in May of 2017.

NYS Department of Health's Environmental Laboratory Accreditation Program (NYS DOH ELAP) conducted their bi-annual ELAP external audit on August 17, 2016. ELAP proficiency testing (PT) was performed by GJJWTF lab staff in January/February and July/August 2017. All reported results were found to be within the NYS DOH ELAP's acceptable limits.

Laboratory Director conducted the annual ethics and data integrity training of all laboratory and monitoring personnel during December of 2017.

GJJWTF issued twenty-two (22) Industrial Wastewater Discharge Permits in December of 2016 for year 2017.

Recorded industrial loadings for 2017 compared to 2016:

<b>Industrial Flow:</b>	<b>Up</b>	<b>7%</b>
<b>Industrial Solids:</b>	<b>Down</b>	<b>5%</b>
<b>Industrial BOD:</b>	<b>Down</b>	<b>13%</b>
<b>Industrial TKN:</b>	<b>Down</b>	<b>8%</b>

In January 2017, Rich VanNostrand was promoted to a Licensed 4A Plant Operator.

In March 2017, Lacie Newland was hired as a Laboratory Technician.

2017 had seventeen (17) industrial violations as compared to eighteen (18) reported in 2016.

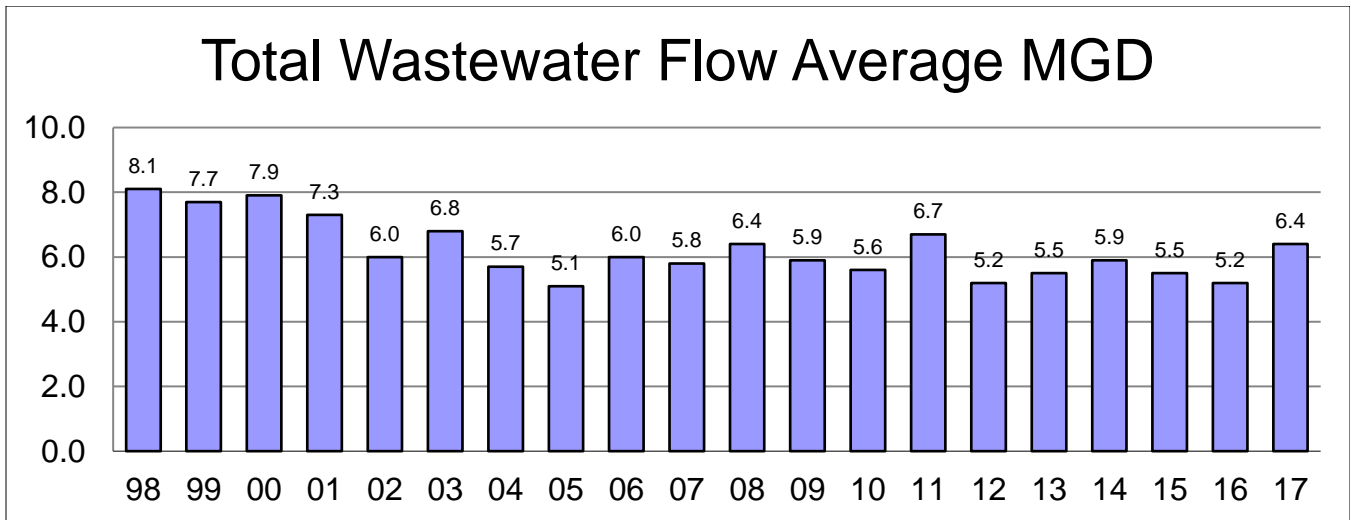
GJJWTF issued no consent orders in 2017.

The Laboratory Director performed confined space entry and compressed air refresher training for employees in the Confined Space Entry Program. The in-house drill covered the set up and function of a new davit arm, safety harnesses, masks, regulators, air packs and air tanks.

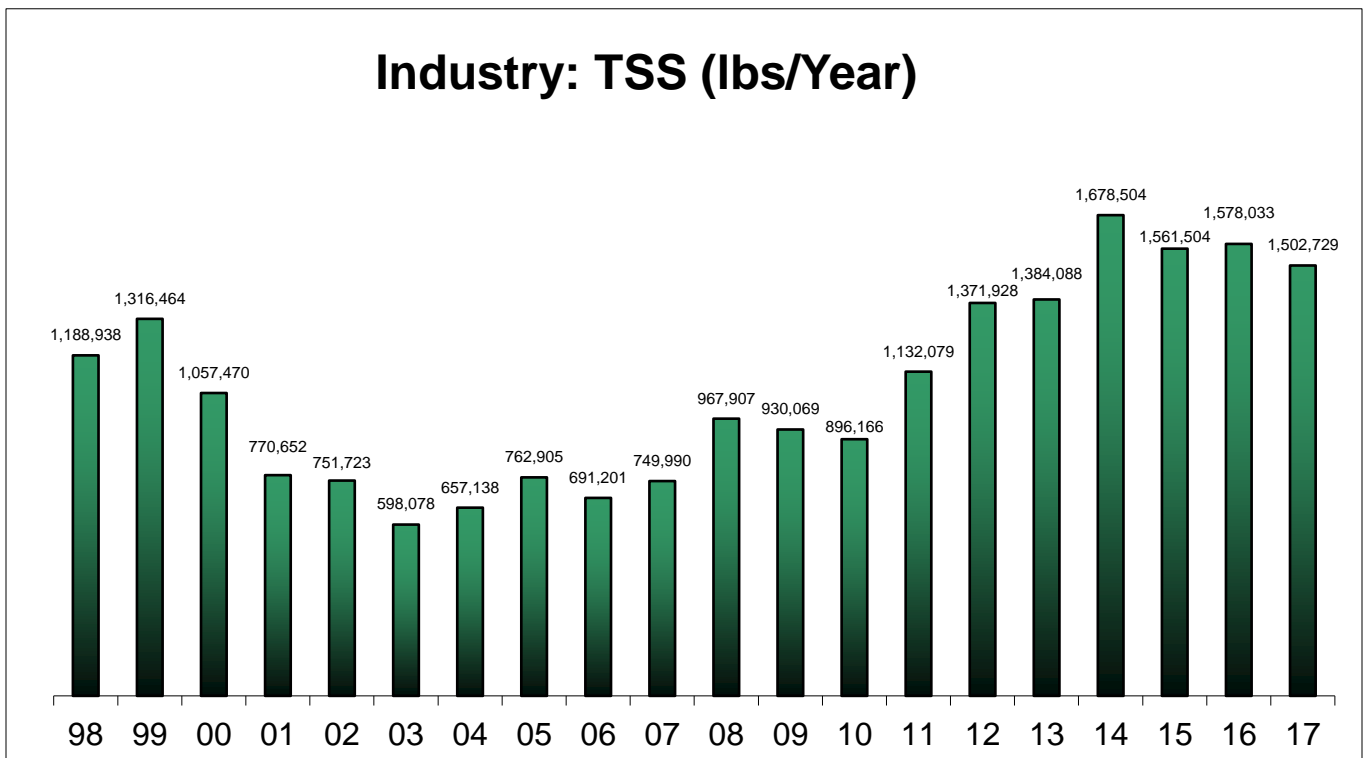
Laboratory personnel continued additional analysis of CAST project samples.

## USAGE

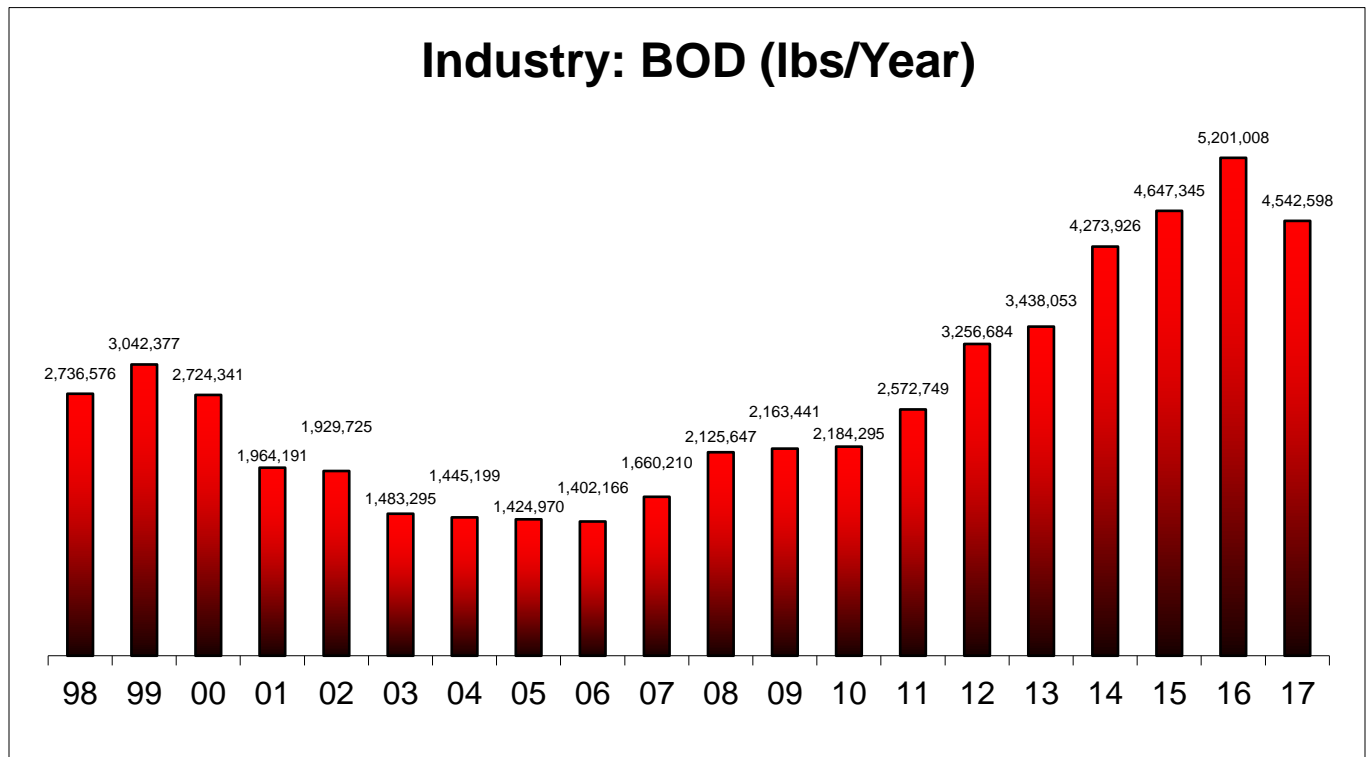
Historically, Wastewater Influent flows are relatively constant.



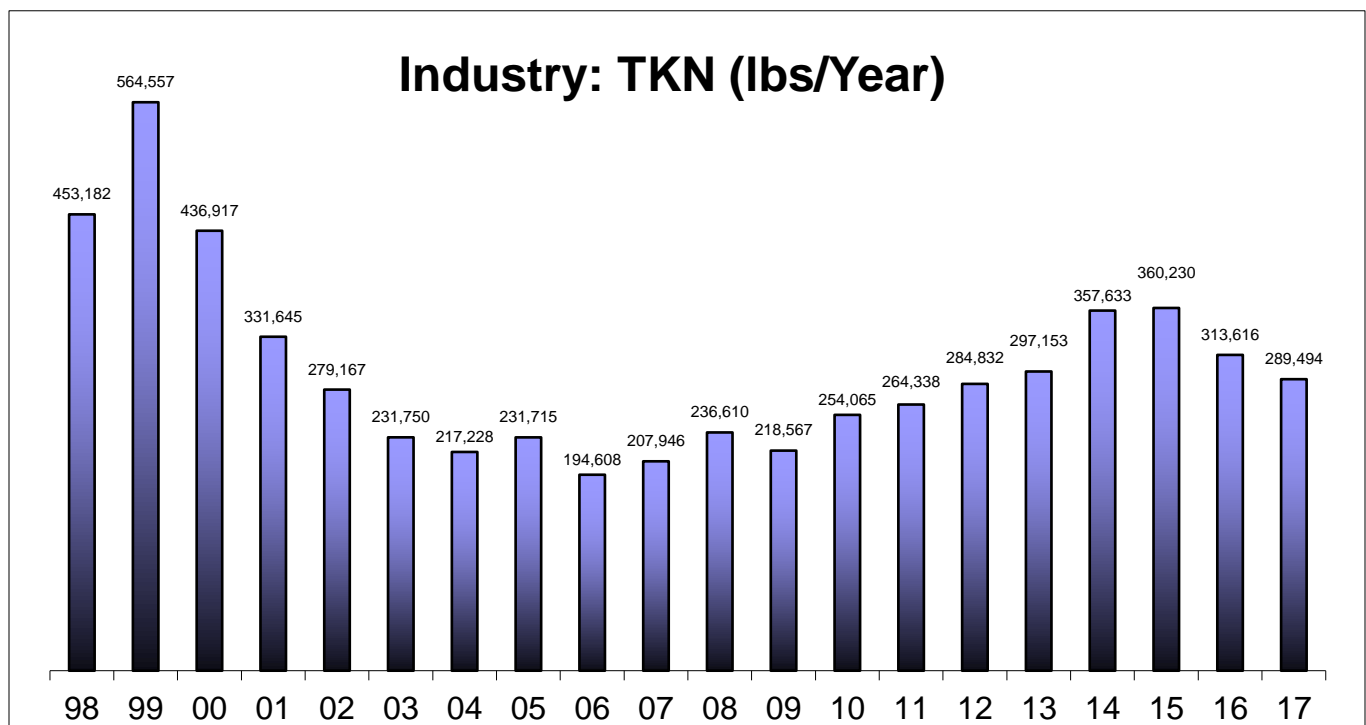
Industry: Total Suspended Solids (TSS) decreased 5% in 2017.



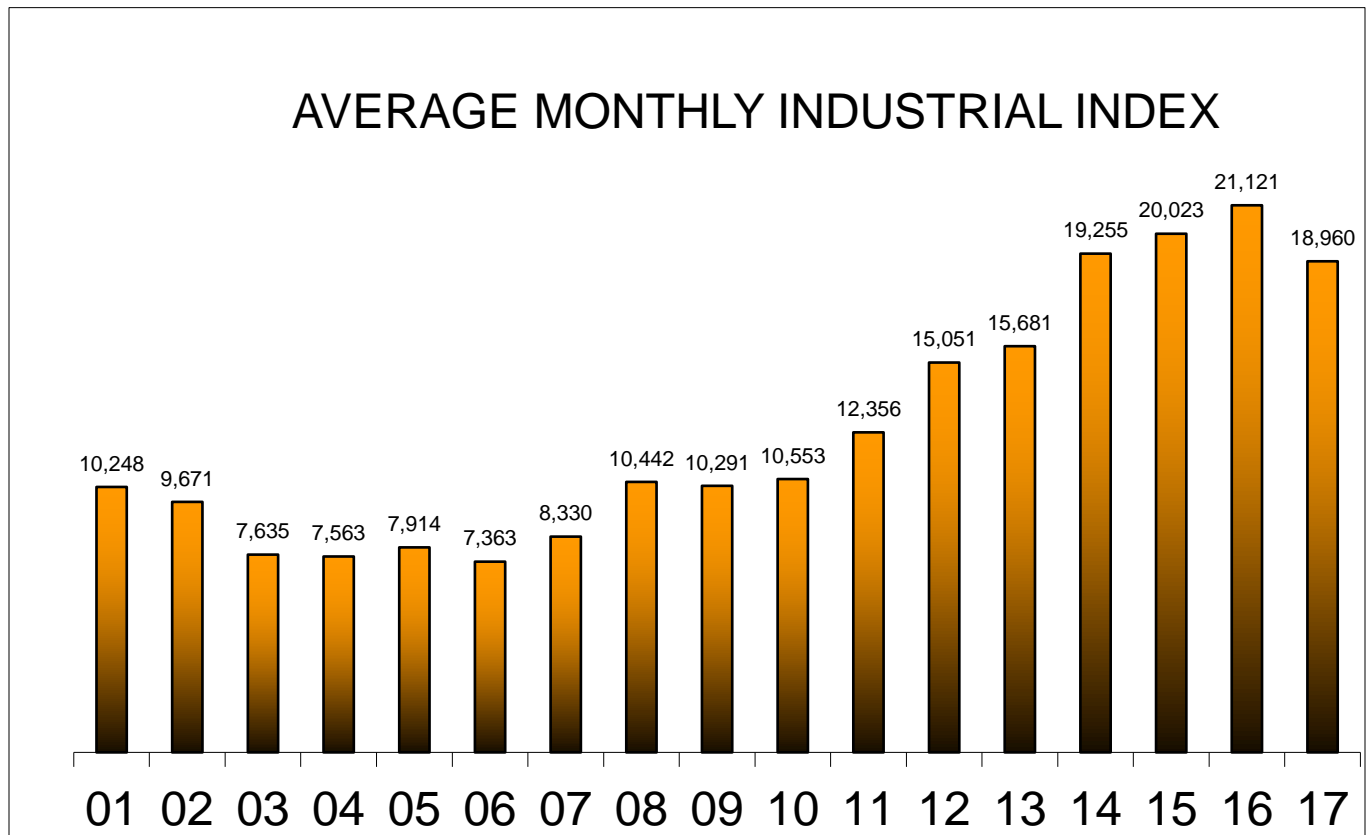
Industry: Biochemical Oxygen Demand (**BOD**) decreased 13% in 2017.



Industry: Total Kjeldahl Nitrogen (**TKN**) decreased 8% in 2017.



Finally, in order to measure the relative strength of industrial waste, staff developed a formula that combines BOD, TKN, and TSS data. The resulting value, **Industrial Index**, provides a single numeric number. The Industrial Index decreased 10% in 2017.



Overall, Industrial wastewater conveyed to GJJWTF via the sanitary sewer decreased in 2017.

However, the industrial index system did not incorporate the following waste streams:

- 1) Whey directly piped to the anaerobic digester;
- 2) 25% of dairy washwater diverted to CAST System;
- 3) National Grid remediation;
- 4) Fulton County Department of Solid Waste - Leachate.

As shown in the previous graphs, industrial loadings to GJJWTF appear to have decreased significantly over 2017 loadings, despite the total Flow increasing 23%. The reason is that the CAST System (\$7.5 Million, 2013 Upgrade) was fully operational for 91 days (25% of 2017).

While operational, the dairy loadings for TSS, BOD and TKN are no longer captured by the influent sampler at the plant's headworks. But, at day's end, the dairy influent flow is added to the plant's recordable influent flow as required.

2017 Dairy loadings:

FLOW: 220,972,289 gals  
BOD: 3,779,138 lbs  
TSS: 1,133,212 lbs  
TKN: 166,069 lbs

2017 Industrial Loadings (Total):

383,344,317 gals  
4,542,609 lbs  
1,502,629 lbs  
289,493 lbs

Dairy loadings account for 83% of the total Industrial BOD, 75% of the total Industrial TSS and 57% of total Industrial TKN.

In 2017, the total BOD and TKN loadings remained less than or equal to 50% of GJJWTF's Design Capacity.

Total TSS, however, remained less than 50% of design capacity only after August 2017. For all of 2017, TSS was above the 75% Design Capacity for 3 months as opposed to 6 months in 2016.



## LEGAL/MISCELLANEOUS

The Gloversville-Johnstown Joint Sewer Board (GJJSB) continued contracting for legal services from the Glens Falls based law firm Miller, Mannix, Schachner, & Hafner, LLC (MMSH). MMSH specializes in environmental issues. The GJJSB extended the contract for legal services with MMSH through 2017.

## ENVIRONMENTAL

Enforcement of the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) permit continues. This stringent effluent permit regulates the discharge limits of a multitude of parameters measured on a daily, weekly, monthly and/or annual basis.

GJJWTF was not in full compliance with the SPDES permit conditions during 2017. GJJWTF Reports of Non-compliance included: Settleable Solids (5), TSS (2), low pH (2) and high copper (1). CAST was not operational for three quarters of the 2017 time period.

In addition, GJJWTF performed two (2) NY-Alerts: April 7, 2017 to report a sewer manhole surcharge and April 20, 2017 to report City of Gloversville manhole leak to the Cayadutta Creek.

GJJWTF also reported a sludge spill to the Chemical and Petroleum Hotline on September 29, 2017. Spill was cleaned up by staff.

GJJWTF received a Notice of Violation (NOV) for odors from the NYSDEC dated May 12, 2017.

The NYSDEC gave GJJWTF an updated SPDES permit for the facility dated February 10, 2017.

## OPERATIONS

The year-to-year removal efficiency rates for the GJJWTF are as follows:

Parameters	2012	2013	2014	2015	2016	2017
Total Suspended Solids	97%	98%	97%	97%	98%	95%
Biochemical Oxygen Demand	99%	99%	98%	99%	99%	98%
Total Kjeldahl Nitrogen	92%	91%	79%	92%	92%	91%

The above TSS and BOD removal efficiencies exceed the permitted removal rate of 85 percent prior to discharge to the Cayadutta Creek.

Belt Filter Presses (BFPs) operated 4,182 hours producing 21,807 wet tons of sludge. During 2017, sand and/or dried sludge was blended into the sludge cake to meet the minimum 20% solids landfill disposal requirement.

Together, the BFPs and Gravity Belt Thickeners (GBTs) utilized 38,850 pounds of polymer, down 8.5%. In addition, the BFPs used another 6,915 gallons of an emulsion polymer to enhance sludge dewaterability, up 37%.

During 2017, the GJJWTF purchased 35,440 gallons of Ferrous Chloride to control sulfides at the anaerobic digesters. GJJWTF also purchased 51,442 therms of Natural gas to heat various buildings.

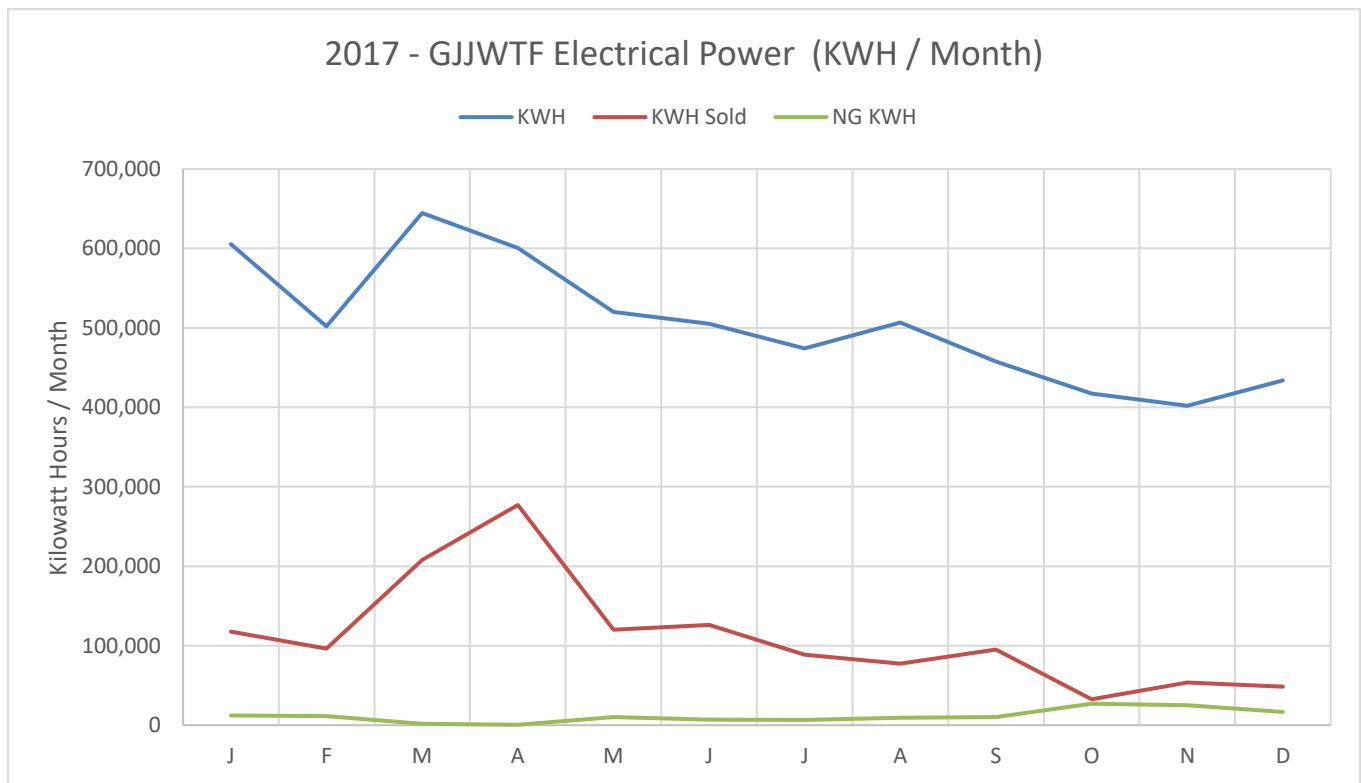
GJJWTF processed 17.3 million gallons of leachate in 2017. This represented an 40% increase over 2016. The Fulton County Landfill pumped leachate to the facility via a dedicated five (5) mile long force main.

### **ENERGY RECOVERY**

During 2017, GJJWTF generated 6.1 million kilowatt hours of electricity.

The biogas generators (CAT1, CAT2 and CAT3) generated 98% of GJJWTF's electrical needs in 2017.

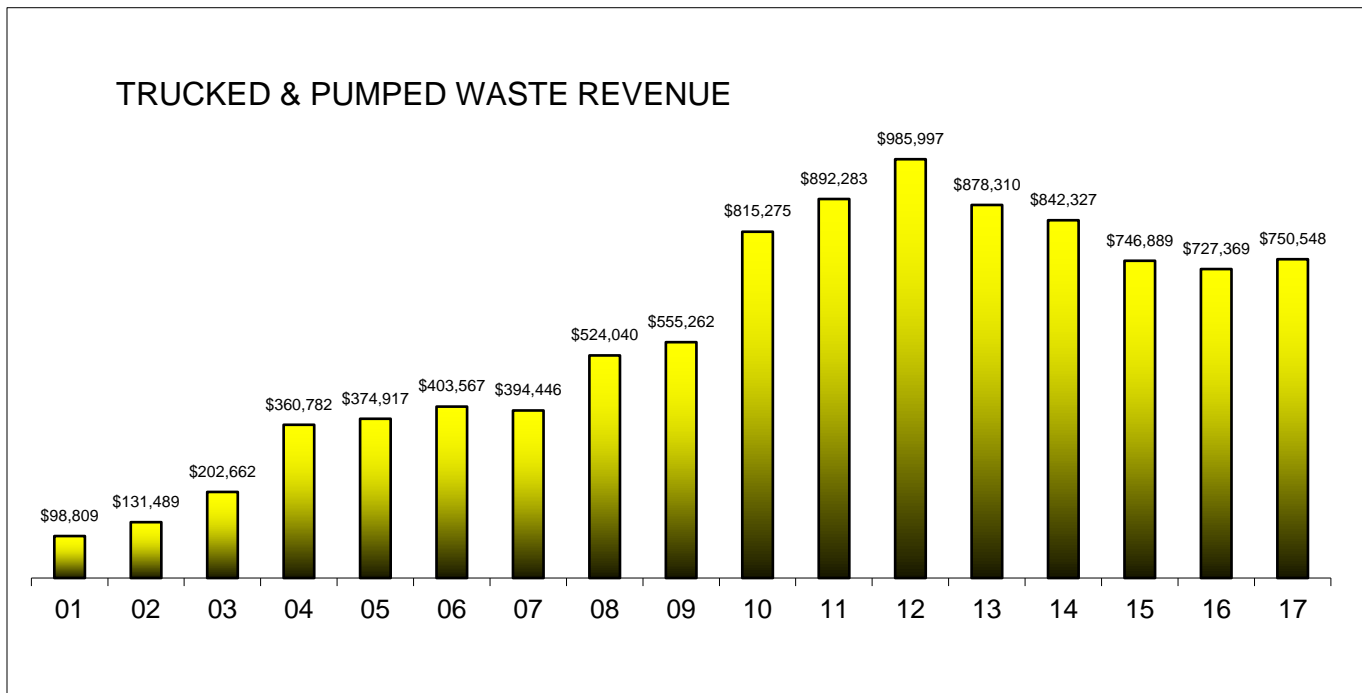
Anaerobic Digester System produced an average of 14.1 million cubic feet of biogas per month, representing a similar biogas production rate comparable to 2016.



## FINANCE OFFICE

O&M revenues totaled \$4.1 million during 2017. The Industrial contribution was 52.8%, Residential 28.6%, and Trucked/Pumped waste and miscellaneous revenue totaled 18.6%. Trucked/Pumped waste and miscellaneous revenue decreased by 2.4% from 2016 and the industrial contribution decreased by 2.9%.

Continued marketing to make surrounding communities and entities aware of what our facility has to offer proved beneficial during 2017. All trucked/pumped high strength waste contracts were renewed with existing customers during the year. For 2017, trucked & pumped waste receipts totaled \$750,548.



The single largest trucked waste contract was Adirondack Septic. FAGE USA Dairy and Euphrates Inc. pumped over **28.6 million** gallons of whey directly to the facility via a dedicated pipeline during 2017 resulting in slightly higher loadings compared to 2016 in gallons treated. The 22.9 million gallons of whey from FAGE resulted in **45.7%** of the revenue collected in this category.

The total quantity of whey during 2017 from FAGE and Euphrates Inc. increased less than 1%.

Sewer rates were adopted after a public hearing in April 2017. The average industrial sewer bill increased 9%, while the residential rate increased 2.4%. Rates remained relatively stable due to a variety of reasons including the use of \$424,081 of rate stabilization reserve funds.

The 2016 Financial Audit Summary from Bollam, Sheedy, Torani & Co. disclosed no issues of noncompliance, and no alternative procedures or corrective actions were suggested.

## INDUSTRIAL USE

O&M revenue from industrial users decreased 7% in 2017. The number one user of the facility was FAGE USA Dairy, and Euphrates was the second largest user.

Two (2) trucked waste accounts, septic haulers and Municipal Contracts, and two (2) leather industries (Colonial Tanning and Simco Leather) were in the top ten.

Fulton County Landfill Leachate, Hale Creek ASATCA, National Grid remediation site and Johnstown's Century Linen and Uniform round out the top ten largest customers of the facility in 2017.

