

HAMILTON TOWNSHIP WATER POLLUTION CONTROL



ANNUAL REPORT

2021

HAMILTON TOWNSHIP
DEPARTMENT OF WATER POLLUTION CONTROL
2021 Annual Report

January 2022

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Hamilton Township

Department of Water Pollution Control

2021 Annual Report

We never know the worth of water till the well is dry. - Thomas Fuller

Mission

The primary mission of the Hamilton Township Department of Water Pollution Control (WPC) is to protect the public and the environment by providing high quality wastewater utility service. WPC is dedicated to serving the residents of Hamilton Township, Robbinsville Township and the commercial ratepayers of the WPC service area.

Facilities Overview

The Hamilton Township WPC was initially constructed in the late 1930's and underwent substantial upgrades in 1953, 1968, and 1975. WPC operates a regional wastewater treatment facility and collection system with an New Jersey Pollution Discharge Elimination System (NJPDES) permitted capacity of sixteen (16) million gallons per day (MGD), and a 2021 actual average daily flow of 7.5 MGD. Wastewater treatment plants are also known as water resource recovery facilities. The utility has been in operation for over 80 years and is currently serving over 100,000 residents from three municipalities; namely, Hamilton Township (Mercer County), Robbinsville Township and a few specific facilities in West Windsor Township. The facilities in West Windsor include the Mercer County Community College, the adjacent park facility and related outparcels. The Hamilton Township wastewater collection system includes 350 miles of sewer pipes and 27 pumping stations in its 40-square mile service area. Additionally, there are 23 privately owned and operated pump stations in Hamilton. WPC also provides the licensing, and operational and maintenance responsibilities for the ten (10) Robbinsville Township pump stations and receives compensation from Robbinsville for this service. Refer to the Fast Facts on page 5.

The approved Mercer County Wastewater Management Plan (WMP) includes a chapter for Hamilton Township wastewater management. In 2019, Mercer County submitted the updated draft of the WMP to the New Jersey Department of Environmental Protection (NJDEP). WPC's

facilities reside in the Assunpink, Crosswicks and Doctors Creek Watershed. Wastewater cleaned by the treatment plant, also known as effluent, is discharged to the Crosswicks Creek. The plant produces secondary effluent using both trickling filter and rotating biological contactors processes. To reduce volume and thus save money, sludge is thickened, digested and then dewatered using belt filter presses. The sludge cake/grit/screenings are then hauled to the GROWS North Landfill located in Morrisville, Pennsylvania. Hamilton does not have a combined sewer system (CSS) in its collection system. A CSS occurs when stormwater and wastewater combine in the collection system before reaching the treatment plant.

WPC continues to be environmentally proactive by capturing methane to heat digesting sludge, replacing all lighting within the plant to energy efficient lighting and converting mowed lawn to natural vegetation.

Overall Progress

In 2021, the coronavirus continued to be an ever-present force imposing itself on how WPC employees worked and interacted. The wastewater industry was/is an essential service where employees are needed to continuously be present to operate and maintain the treatment plant and collection system.

A sewer rate study began later in 2020 to confirm whether or not a sewer rate increase is needed, and if so, what it would look like. WPC infrastructure, operation and maintenance are funded almost entirely by sewer taxes plus a small amount received from connection fees. Before last year, Hamilton's sewer service rate had not increased since 2008, yet still remains among the lowest in the region. The resolution of issues with Robbinsville Township is also important and which seem to be centered around payments and the updating of the contract.

In 2021, WPC continued its efforts toward optimizing plant operations, performing capital improvements and fortifying asset management. WPC followed the recommendations established by the New Jersey Clean Water Council, which included a mandate for sustainable asset management by using the United States Environmental Protection Agency (USEPA) Capacity Assurance, Management, Operations and Maintenance (CMOM) approach to achieve this mandate. WPC continued to comply with the requirements of a large list of local, county, state and federal regulations; refer to page 16.

Like the rest of the United States relative to water and wastewater services, WPC faces the issue of an aging workforce and hiring personnel with suitable skills. Hamilton believes strongly in investing in jobs. With this in mind, WPC continues to provide career training, foster a great-place-to-work environment, offer paid internships and examine succession planning alternatives. The Township works toward a diversified and inclusive workforce, with training to end harassment and discrimination in the work place.

Also like the rest of the United States, WPC faces aging infrastructure issues. With part of the plant and piping facilities still in operation since their original startup in the late 1930's, it is no wonder certain infrastructure needs to be replaced. While some have been replaced, it is time for some to be replaced again. The replacement or upgrade of aging infrastructure requires substantial money, thoughtfully planned over time, prioritizing our most critical needs first. Being proactive, is the safest and less expensive alternative. While emergency response is sometimes unavoidable, it is much more expensive, carries potential NJDEP fines and does not help instill public trust.

To help in evaluating infrastructure, a master plan study or long-range capital plan is slated to begin in 2021 and will take about a year to complete. It will include not only thorough inspections of our facilities, but it will also produce an estimated cost for each upgrade/replacement anticipated to be needed over the next twenty (20) years, including the evaluation of alternatives.

TRAI SR is one of the digitized tools WPC used daily to manage and map its assets, in addition to tracking work orders.

WPC infrastructure includes the piping collection system, some of it being over 80 years old. Age is only one factor used in prioritizing the need to repair, line or replace a pipe. Meanwhile, WPC continued to inspect, televise and test pipes to verify integrity.

WPC continued efforts to reduce spending where possible. This included improving labor efforts, reducing energy and chemical use when possible, and evaluating methods to reduce paperwork by conducting more work electronically. For the last couple of years, electricity consumption at the treatment plant, and therefore costs, have continued to go down.

Using the extensive data submitted to the Delaware River Basin Commission (DRBC) over the past two years, the DRBC continued to refine their modeling analyses of the Delaware River. The possible tightening of our NJPDES permit appears to pertain primarily to ammonia removal and is based on the on-going dissolved oxygen modeling of the Delaware River by the DRBC. If or when more stringent permit limits are required, connection fees and user charges will be re-evaluated to confirm they include all costs related to capital improvements and wastewater utility operations and maintenance. This, while discussions about PFAS (per- and polyfluoroalkyl substances) regulations and associated treatment crisscross the country.

In order to comply with environmental regulations, all aspects of WPC plant operations must be continuously monitored. One aspect of this monitoring includes taking wastewater and sludge samples from critical locations throughout the treatment plant and analyzing them in-house. WPC continued to perform the required analyses to determine compliance with permit requirements in addition to the daily process bench tests performed 365 days per year. Except

for wastewater bioassays, metals, oil and grease, and sludge analyses, all other wastewater sampling and conventional pollutant analyses are completed at WPC in our State certified laboratory.

For projects within the 208-sewer service development areas, WPC continued to perform development reviews for new applications proposing to connect to the sewer collection system. This year, over 110 projects were reviewed for pump station and piping capacity, estimated wastewater flow and their technical specifications, and if needed, NJDEP Treatment Works Approval submissions.

WPC received and responded to over 234 Hamilton Township HamStat Q-Alerts in 2021. This work included residential and main line sanitary sewer blockages, storm drainage issues, and a few odor concerns.

The Department of WPC is budgeted for 70 employees who are unionized and abide by civil service requirements. Efforts continued to improve the skill level of the entire work force with a variety of technical and management training classes. WPC also continued its cross-training program to develop employees' knowledge in all work areas.

WPC efforts are divided into two (2) primary categories, "inside" and "outside" work tasks. "Inside" includes the operation and maintenance of the treatment plant. "Outside" includes the operation and maintenance of the pump stations and maintenance of the collection system (jetting, vacuuming and televising). Due to Covid, "Stop – up" service to residential properties for blockages in their house laterals has been suspended.

Safety continued to be a primary goal throughout the entire WPC Department. Safety meetings with supervisors were held monthly and periodically with individual groups on specific topics in order to focus attention on the varying safety issues of each group. In addition, safety suggestions were received from employees in the "safety suggestion box".

WPC continued its award-winning Educational Outreach Program in which environmental scientists from WPC presented a program on Water Pollution and the Environment to various Township schools, and conducted numerous on-site tours to a variety of community groups.

Refer to the Hamilton Township Department of Community Planning and Compliance for stormwater and flood mitigation initiatives and accomplishments. In the past six years, Rutgers Cooperative Extension - Water Resources Program has made tremendous strides in developing and implementing solutions to flooding and storm water issues facing Hamilton Township.

FAST FACTS for 2021	
Hamilton Households & Commercial Users	30,527 (2021)
Robbinsville Households & Commercial Users	5,111 (2021)
Total Households & Commercial Users	35,638
Hamilton Permitted Industries	5
NJPDES Permitted Plant Capacity	16,000,000 gallons per day
Total Plant Average Daily Flow	7,500,000 gallons per day
Robbinsville: Average Daily Flow	Approx. 1,556,000 gallons per day
Total Cumulative Flow Treated per Year	2,737,500,000 gallons
Hamilton: Collection System	350 miles of sewer pipe
Hamilton: Pump Stations	27
Hamilton: Manholes	8060
Robbinsville: Collection System	72 miles of sewer pipe
Robbinsville: Pump Stations	10
Robbinsville: Manholes	1,512
For Hamilton WPC:	
WPC Plant Electric Consumption	3,742,156 kilowatts
Pump Stations Electric Consumption	1,373,643 kilowatts
Sludge Cake Disposed	4,435 tons
Screenings Disposed	120 tons
Approved Operating Budget – CY2021	\$18,597,000
Approved Capital Budget – CY2021	\$9,763,000
Acreage of Treatment Plant	35.9 acres
Acreage of Pumping Stations	7.9 acres
Number of Buildings	50
Number of Pumps	288
Number of Valves	974
Number of Motors	495
Number of Heating Systems	21

Wastewater Treatment Plant – Major Projects for 2021

In a continuing effort to maintain the efficiency of treatment operations and improve overall infrastructure condition, WPC has initiated and/or completed the following significant plant improvement projects during 2021:

Gravity Thickener and 1954 Digester Rehabilitation

The design and contract documents were completed and the project bid in late summer 2019. Due to a bid protest, bid award and notice to proceed were delayed until Spring, 2020. Mobilization began in January, 2021 with continued progress throughout the year. As of December, 2021, the project was near completion with equipment shortages delaying final completion and project closeout.

SCADA System Improvements

WPC personnel previously replaced existing outdated brain boards in 23 SCADA Input/Output (I/O) panel locations in support of an effort to migrate the existing SCADA system from serial communication to Ethernet. The migration to the new communication protocol has been completed along with replacement of the SCADA servers, updating of the SCADA software and licensing, and modernization of the HMI that plant operators use to navigate the system.

Aerated Grit Chamber Outlet Structure Rehabilitation

The grit removal chamber outlet structure exhibits concrete and reinforcement deterioration due to hydrogen sulfide attack, and microbial induced corrosion. This chamber requires structural rehabilitation that requires bypassing the entirety of plant flow for the duration of rehabilitation. Engineering condition assessment and preliminary design report has been completed by the Consultant. Construction drawings and bid document preparation has begun.

1968 Digester Structural Evaluation

As the 1968 Digester was demonstrating symptoms of differential soil settlement, a geotechnical and structural evaluation was conducted. The preliminary findings suggest that the south wing walls of the building will need attention to address perched water drainage issues, but that the settlement issues are historic and have not continued in the past seven years that monitoring has taken place.

Pump Stations and Collection System – Major Projects for 2021

Efforts this year focused on pump station upgrades, piping repairs, and continued sanitary sewer gravity and force main condition inspections. In a continuing effort to maintain the efficiency of the pump stations and collection system and improve overall infrastructure

condition, WPC has initiated and/or completed the following significant improvement projects during 2021:

Kuser Hollow Pump Station Elimination

Kuser Hollow Pump Station was eliminated in 2021. New sanitary sewer lines installed as part of the Vintage at Hamilton housing development allowed the flow from the few houses the pump station served to flow by gravity through the sewer system without going through the pump station.

Deutzville Pump Station Force Main Installation

The engineering design to replace the 1,950 linear feet of the Deutzville pump station force main that was not replaced in 2012 was completed in 2021. The path of the new force main crosses Green Acres property and other residential properties which required additional engineering design considerations and proposed property easements.

Force Main Inspections

The oldest force main pipes serving four pump stations, namely, Green Village, Hamilton Square Park, E. State Street, and Groveville, were inspected using very specialized equipment that flow through the pipes and collect data on leaks and gas pockets while the pipe is full. No leaks or gas pockets were detected. This information assists in future capital replacement planning.

Church Street-Doctors Creek Bridge Pipe Replacement

The Mercer County Doctors Creek Bridge replacement project involving new piping across the bridge on Church Street in Yardville was completed in 2021.

NJDOT Pump Station Replacement

The existing NJDOT Pump Station on Kuser Road was installed originally to serve the low volume of wastewater flow from NJDOT facility near Route 130. This pump station is at capacity. In order to serve new development in the area, the pump station and force main need to be replaced with one that can handle more wastewater. The engineering design for a new station began in 2021.

Yardville-Groveville Pump Station Improvements

Final engineering and design were completed for the Yardville-Groveville Pump Station in 2021. The primary improvements include replacing the existing two pumps with a 3-pump system with new controls and variable frequency drives, replacing the roof, and installing a station emergency bypass system. The project has been successfully bid for construction and Notice to Proceed given at the end of 2021.

Melody Estates and Middleton Drive Pump Station Replacements

Engineering design and contract document preparation services were awarded in 2021 for replacement of the Melody Estates and Middleton Drive Pump Stations. The project scope includes replacement of the existing, below grade can ejector stations with above grade enclosures with new pumps and controls. Preliminary design work was completed in 2021.

Pump Station Emergency Generators

Engineering design and contract document preparation services were awarded in 2021 to replace one existing emergency generator and install two new ones at pump stations. Power loss at pump stations has increased in recent years along with the severity of storms. These emergency generators will provide more reliable sewer service.

Sanitary Sewer Rehabilitation

A summary of collection system piping projects since 1997 is shown on Page 10.

Asset Management

The TRAIRS system, used for asset management and Geographic Information System (GIS) information, service requests, and work orders, continued to be enhanced with more data entered in 2021. These data include equipment inventory, linking scanned lateral connection information, and completed collection system repairs and rehabilitations (lining/coating). The data collected from the gravity main inspections are directly linked to the TRAIRS database which streamlines review and prioritization of necessary rehabilitation and/or repairs.

Routine Maintenance of Sanitary Sewer Lines

Routine maintenance of sanitary sewer lines continued in 2021. This included both the cleaning of sewer pipe with high velocity water jetting, and the assessing of pipe cleaning priorities using equipment that sends sound waves through a pipe from one manhole to another. The use of the sounding equipment helps conserve resources like personnel, water, and large jetting/vacuuming trucks, and allows for maintenance of more of the collection system each year.

Inspection and Cleaning of Sanitary Sewer Lines

In-house sewer cleaning and televising inspections (closed circuit TV/CCTV) were conducted on 690 pipe segments totaling over 137,000 linear feet or 26 miles of gravity pipe in 2021. Several Hamilton Township owned jet-vac trucks, jet trucks and a CCTV truck were used for this purpose.

Underground Infrastructure Repair Projects

WPC was required to make numerous repairs to underground sewer piping and manholes in need of repair. The projects completed in 2021 are shown on page 11.

Sanitary Sewer Connection Permits

A summary of the total number of sanitary sewer connection permits and fees since 2008 is shown on page 12.

Collection System Piping Projects Summary Since 1997

Project Name	Year	Approx. Linear Feet	Diameter of Pipe (in)	Manhole Rehab included?
E. Park Ave Replacement	1998	2,500	48	
W. Park Ave Lining	1998	500	48	
S. Broad St Lining	1999	1,800	24-27	
Route 130 Replacement	2001	800	18	New
Bowhill-Schiller Replacement/Lining	2004	3,750	15-21	
Wilson Ave Replacement	2005	2,575	8	New
Emeline Ave Replacement	2005	370	24	
Arena Drive Replacement	2006	1,930	8	New
Independence-Emeline Lining	2006	3,600	48	
W. Park-Independence Lining	2010	3,000	48	Yes
I-195 Headworks Slip-Lining	2010	350	78-66	
Yardville-Groveville Force Main Lining	2010	4000	18	
Nottingham Way-Hamilton Ave Lining	2010	6,000	24-36	
Various Lining	2010	5,000	8-24	
North Branch of Pond Run Slip-Lining	2011	5,200	42-36	
Wert Ave Lining	2011	7,400	48	Yes
Bowhill Ave Replacement	2012	1,500	8-12	Yes
Various-Phase I Lining	2013	2,800	8-15	
Various-Phase II Lining	2013	14,000	8-21	Yes
Various-Phase II Lining	2014	28,000	8-21	Yes (184 MHs)
Hamilton Ave Lining	2014	5,000	24-30	Yes
Newkirk Ave Lining	2014	5,000	42	Yes
Cedar Lane Lining	2014	1,000	12	
Church St Lining	2016	600	12	
Various Pipe Lining	2018	25,000	6-15	
Various Pipe Lining	2019	30,000	6-15	
Yardville-Groveville Force Main Replacement	2020	1,900	6	
Various Pipe Lining	2020	3,250	8-10	
Crestwood Force Main Replacement	2019	600	18	
Total		167,425		

EMERGENCY UNDERGROUND PROJECTS COMPLETED IN 2021		
Date	Location	Repair Activity
2/8/2021	173 Sherwood Ave	Lateral Repair
3/2/2021	58 Homestead Ave	Lateral Repair
3/11/2021	253 Flock Rd	Lateral Repair
3/25/2021	193 Quimby Ave	Lateral Repair
3/29/2021	23 Magnolia Lane	Lateral Repair
4/5/2021	4 Setter Way	Lateral Repair
4/22/2021	Route 33	1 Manhole Casting Replaced, 1 Set to Grade
4/28/2021	Whitehead Rd	Manhole Casting Replacement
6/1/2021	1608 Greenwood Ave	Main Repair
6/2/2021	146 Park Ave	Lateral Repair
6/18/2021	Flock Rd	Manhole Casting Replacement/Reset
6/23/2021	Tettemer Ave	Main Repair
6/28/2021	210 Lincoln Ave	Lateral Repair
7/7/2021	1021 Nottingham Way	Lateral Repair
7/22/2021	45 Kenwood Terrace	Lateral Repair
7/23/2021	51 Kenwood Terrace	Lateral Repair
7/26/2021	84 Kenwood Terrace	Lateral Repair
9/8/2021	Englewood Blvd	New Main Installation-Pump Station Demo
10/4/2021	142 Waln Ave	Lateral Repair
10/18/2021	Sloan Ave	Manhole Casting Replacement
10/28/2021	4 Dover Rd	Main Repair
12/21/2021	4 Leese Ave	Lateral Repair

SANITARY SEWER CONNECTION PERMITS				
Year	Commercial		Residential	
	Count	Fees	Count	Fees
2008	52	\$660,504	11	\$27,500
2009	54	\$246,975	32	\$80,000
2010	27	\$171,350	129	\$322,500
2011	85	\$212,500	31	\$77,500
2012	21	\$137,648	78	\$195,000
2013	31	\$266,853	179	\$418,375
2014	34	\$458,184	106	\$265,000
2015	32	\$665,650	97	\$242,500
2016	32	\$393,072	124	\$308,250
2017	37	\$278,811	11	\$51,917
2018	21	\$320,525	99	\$169,500
2019	21	\$282,850	54	\$132,500
2020	21	\$540,525	70	\$191,875
2021	38	\$475,279	74	\$240,303

Wastewater Treatment Plant – Work Proposed for 2022

Gravity Thickener and 1954 Digester Rehabilitation

The project is anticipated to be complete and closed out by Spring, 2022.

Aerated Grit Chamber Outlet Structure Rehabilitation

Engineering design and contract document preparation services have begun and are anticipated to be complete by Spring, 2022, at which time the project will be bid and construction started.

RBC Replacement

WPC has budgeted for the replacement of three Rotating Biological Contactor's (RBC's), which are at the core of the biological treatment utilized at the treatment plant. Engineering design and contract document preparation services will be procured in the spring of 2022 with the goal of procurement/installation contract bid and award in the fall.

Digestion Process Evaluation

This study will be a cost-benefit analysis of the processes related to sludge digestion and the alternatives. Considering the aging infrastructure and the possibility of scrubber requirements on the methane gas supply, it is prudent to consider the alternatives at this juncture.

Plant Wide Fiber Optic Network Backbone

Request For Proposals were solicited from a consultant on the General Engineering Contract to provide design through construction services to replace the fiber optic network loop within the treatment plant, fully separate the business and operational networks, and provide redundant pathways if fibers are damaged.

Sludge Dewatering Improvements

A dewatering alternatives analysis was performed and recommendations made regarding proposed dewatering equipment, control systems, and sludge feed equipment. Manufacturers will be contacted in 2022 to set up pilot studies to evaluate the suitability and performance of the proposed alternatives prior to going to design and bid document preparation.

Chloromat Building Rehabilitation/Replacement

The Chloromat Building is where liquid sodium hypochlorite is stored and dosed into the wastewater stream to provide NJPDES required disinfection prior to discharge to Crosswicks Creek. Liquid sodium bisulfite is also stored there, but dosed downstream of disinfection for

dechlorination purposes. A preliminary engineering evaluation has revealed that the building concrete and structural steel have experienced significant deterioration. Engineering final design and bid document preparation services will be procured in the spring of 2022 for the necessary rehabilitation or replacement of the building and equipment.

Master Plan

The Master Plan, or long-range capital plan, is slated to begin in 2022.

Pump Stations and Collection System – Work Proposed for 2022

Inspection and Cleaning of Sanitary Sewer Lines

WPC will continue its Capacity, Management, Operations and Maintenance (CMOM) efforts to accurately assess the overall condition of the collection system infrastructure through use of zoom and CCTV camera inspections, and from ongoing maintenance activities, including the new pipe sound testing equipment. This information is linked to the Trairs GIS system, and used to document maintenance activities and prioritize capital projects.

Sanitary Sewer Rehabilitation

As WPC receives data from sanitary sewer inspections that are continuously completed in-house and by contractors. Defects within the system are then prioritized and put on lists based on category or type of work. WPC will continue to prioritize and issue contracts as needed for the excavation and repair of mains and laterals, and the rehabilitation of manholes and sanitary sewer piping.

Yardville-Groveville Pump Station Improvements

Construction is anticipated to begin in the closing weeks of 2021 and continue through 2022.

Melody Estates and Middleton Drive Pump Stations Replacement

It is anticipated that the final engineering design, contract document preparation and replacement of the Melody Estates and Middleton Drive Pump Stations will be completed in 2022.

NJDOT Pump Station Replacement

It is anticipated that engineering design, permitting, and bid documents will be completed in 2022. Construction of the new pump station is anticipated to start in 2022 and be completed in 2023.

Deutzville Pump Station Force Main Installation

Having completed the majority of the engineering design in 2021, work on the project in 2022 will include permitting, obtaining easements, and bid document preparation. Due to a limited construction window on the Green Acres property that the force main crosses, the construction

work may be completed in 2022 or 2023.

Pump Station Emergency Generators

It is anticipated in 2022 that the engineering design will be completed and the contract to replace one existing emergency generator and install two new ones at pump stations will be awarded.

Regulatory Agency Review

WPC is a highly regulated facility and is subject to oversight by the following regulatory agencies and more.

1. US Environmental Protection Agency (USEPA)
 - Capacity Assurance, Management, Operations & Maintenance (CMOM)
 - Pretreatment
 - Sludge
 - Laboratory Certification
2. NJ Department of Environmental Protection (NJDEP)
 - Water Quality/NJPDES Regulations
 - Surface Water Quality Standards
 - Secondary Treatment Standards
 - Sludge Quality
 - Hazardous Waste
 - Air Quality
 - Lab Certification
 - Bioassay
 - Treatment Works Approvals
 - Underground Storage Tanks
 - Groundwater Monitoring
 - Backflow Preventer Permits
 - Pretreatment
 - Enforcement
 - Wetlands
 - Water Allocation
 - Stormwater
 - Site Remediation and Waste Management
3. NJ Integrated Water Quality Monitoring and Assessment
4. NJ Department of Health - Right to Know
5. NJ Department of Labor- Safety
6. NJ Department of Transportation - Road Opening
7. NJ Board of Public Utilities - One Call
8. Delaware River Basin Commission (DRBC)
9. Mercer County Soil Conservation District
10. Municipal Fire Inspections
11. Statewide Water Quality Management Plan
12. Interstate Environmental Commission
13. Federal Emergency Management Agency (FEMA)
14. Federal Highway Administration - CDL Testing
15. Federal Communications Commission
16. Nuclear Regulatory Commission

Workplace Safety

Because the WPC employees work in an industrial environment, workplace safety is of utmost importance. Proper training as well as the issuance of proper Personal Protection Equipment (PPE) is imperative for the safety of all workers. The operation and maintenance of wastewater treatment plants, pump stations and its associated collection system routinely include potential hazards such as pathogens, chemicals, confined spaces, hazardous atmospheric and environmental conditions, excessive heat, electrical voltage, moving parts, heavy machinery, traffic, and challenging weather.

Annual safety training, including, for example, confined space, forklift and Right-To-Know, is mandatory for all operation, maintenance and collection system personnel in order to review and simulate possible hazards. The identification of potential hazards and the review of the WPC proper safety procedures help in keeping all utility employees safe.

Management continues to regularly stress good safety practices to the plant and collection system supervisors and workers. These discussions facilitate the resolution of pending and previous safety issues and the monitoring of required training. In addition, they encourage an open dialogue between employees and management, as well as aid in lowering worker's compensation injuries. The following are types of safety training provided to WPC employees:

Types of Safety Training

- Personal Protective Equipment
- Right-To-Know
- Confined Space Training
- Lock Out/Tag Out
- Arc Flash Safety
- Forklift
- Back Safety and Proper Lifting
- Slips, Trips and Falls Avoidance
- Air Monitoring Equipment
- Self-Contained Breathing Apparatus
- Snow Removal Safety
- Supervisor Training for Commercial Driver's License Holders
- Traffic Safety
- Accident Reporting for Supervisors
- Job Safety Analysis
- Respiratory Fit Testing
- Respiratory Medical Testing
- Blood-Borne Pathogen Training
- Hepatitis Training and Vaccine

Technical Training

Operating the Hamilton Township wastewater utility requires being continuously updated in the knowledge of biology, chemistry, mechanics, computers, regulatory issues, health/safety and human resource issues. Training staff in proper operation and maintenance procedures, as well as compliance with our operating permit, is important to our success in a dynamic environment. Many employees in the department hold wastewater operating and collection system licenses which require that continuing education credits be earned during a three-year cycle. The Township endorses higher training/education for all employees. WPC is committed to providing the required continuing education credits for license holders in order for them to remain current with the NJ Department of Environmental Protection.

WPC encourages employees to undertake online technical training through the California State, University of Sacramento, Water Programs as an option for obtaining NJDEP operator licensing. Personnel organization continued to improve through promotions and out-of-title assignments to fill open positions and temporary work assignments.

WPC also continued to promote training for employees that work within the electrical trade. Courses are also recommended for supervisors and professional engineers. Additionally, WPC offered training in computer software, asset management and Geographic Information System/TRAISR programs.

In 2021 and due to Covid, the utility hosted limited training sessions on safety issues at the plant. WPC also provided individual training sessions via internet webinars which allowed employees to learn without the travel and registration expenses. In addition, WPC continued to reduce costs by using in-house employees and vendors with specific expertise to provide cross-training to employees. The following is a list of training offered during the year:

Training/Seminars in 2021

<u>Month</u>	<u>Course Title</u>	<u>Trainer</u>	<u>Location</u>
January	Wastewater Collection	Sacramento St.	On-line
March	Utility Management Conf.	AEA	On-line
March	Respiratory Fit and Bloodborne	Certified Health	WPC Plant
April	Pipeline Assessment Recertification	NAASCO	On-line
June	Innovations in Process	WEF	On-line
September	Adv. Wastewater Collection	Sacramento St.	On-line
October	Technical Transfer	NJWEA	Eatontown
November	Confined Space & Lockout/Tagout	Certified Health	WPC Plant
November	Annual Conference	AEA	Atlantic City

Educational Outreach

Due to the closing of all Hamilton schools for most of 2021 due to the Covid-19 pandemic, WPC was not able to present its award-winning Educational Outreach Program in which environmental scientists from WPC presented a program on Water Pollution and the Environment to elementary, middle and high school students. The program, which consisted of a computer-enhanced multi-media presentation and visual demonstrations, motivated students to participate. By learning how wastewater is formed and treated, as well as how we can all help protect and preserve water quality, the students became an integral part of Hamilton's environmentally aware community.

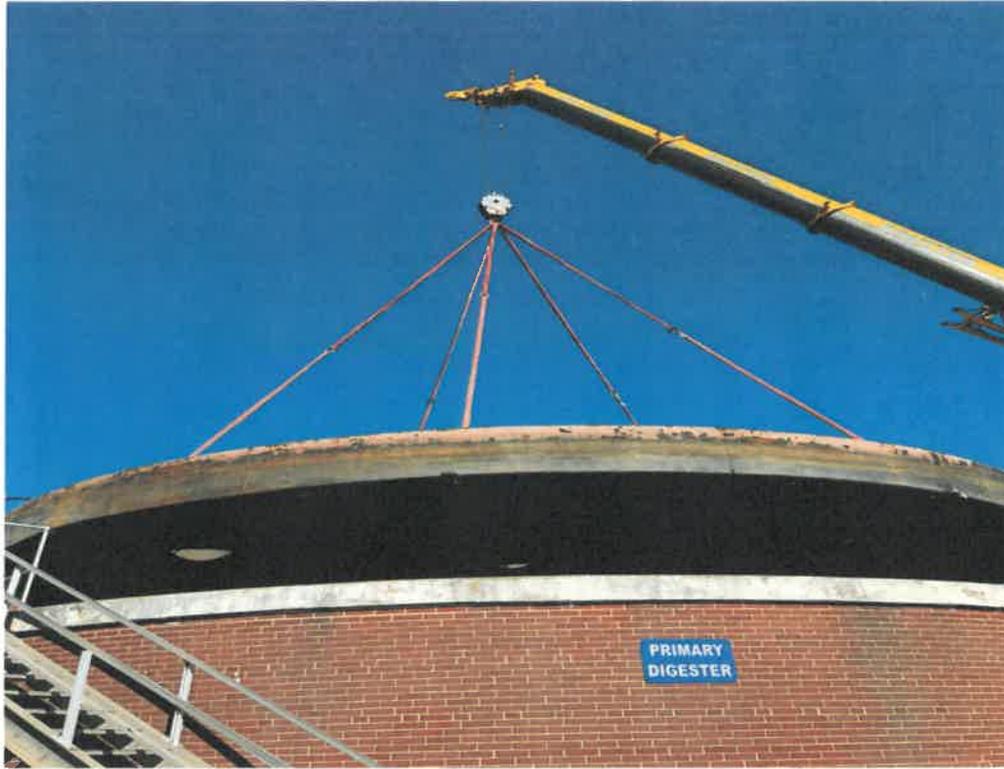
In the recent past, WPC conducted numerous on-site tours for a variety of students and/or interest groups including but not limited to:

- Students from the Plumber Apprentice Class at Mercer County Vocational Technical School
- Regional High School Students
- New Jersey Department of Environmental Protection
- Association of Environmental Authorities
- Rider University Hydrology Students
- Hamilton Township Employees from Different Departments
- Local Fire Departments



Before and After. Removal of Kuser Road Pumping Station.





Removal of old 1954 Digester Cover (above) and Replacement of New Cover (below).





Photographs above shows a new generator being installed at the Klockner Pumping Station.