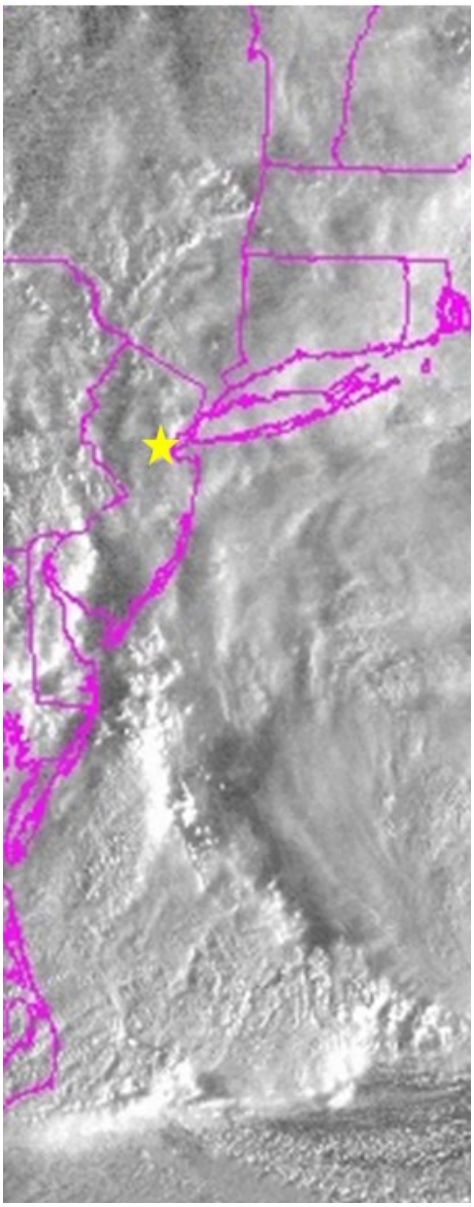


Prepare Protect Restore

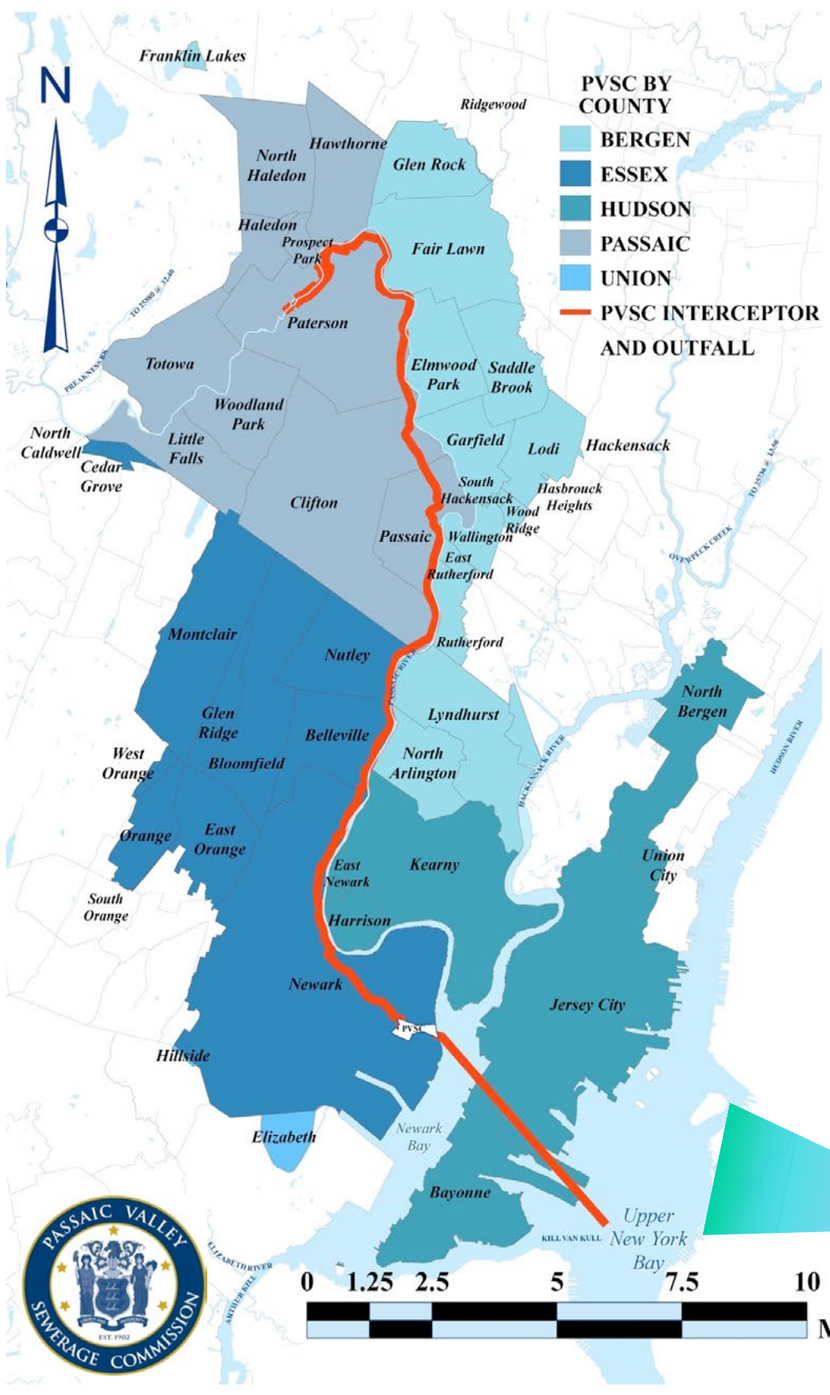
Recovering from Superstorm Sandy

January 2014

Passaic Valley Sewerage Commission

Our Purpose is to relieve the streams & rivers from pollution & provide a plan of prevention

PVSC Service Area



City of Bayonne
Township of Belleville
Township of Bloomfield
Township of Cedar Grove
City of Clifton
Borough of East Newark
City of East Orange
Borough of East Rutherford
City of Elizabeth
Borough of Elmwood Park
Borough of Fair Lawn
Township of Franklin Lakes
City of Garfield
Borough of Glen Ridge
Borough of Glen Rock
City of Hackensack
Borough of Haledon
Town of Harrison
Borough of Hasbrouck Heights
Borough of Hawthorne
Township of Hillside
City of Jersey City
Township of Kearny
Township of Little Falls
Borough of Lodi
Township of Lyndhurst
Township of Montclair
City of Newark
Borough of North Arlington
Township of North Bergen
Township of North Caldwell
Borough of North Haledon
Township of Nutley
Township of Orange
City of Passaic
City of Paterson
Borough of Prospect Park
Village of Ridgewood
Borough of Rutherford
Township of Saddle Brook
Township of South Hackensack
Township of South Orange
Borough of Totowa
City of Union City
Borough of Wallington
Township of West Orange
Borough of Woodland Park
Borough of Wood-Ridge

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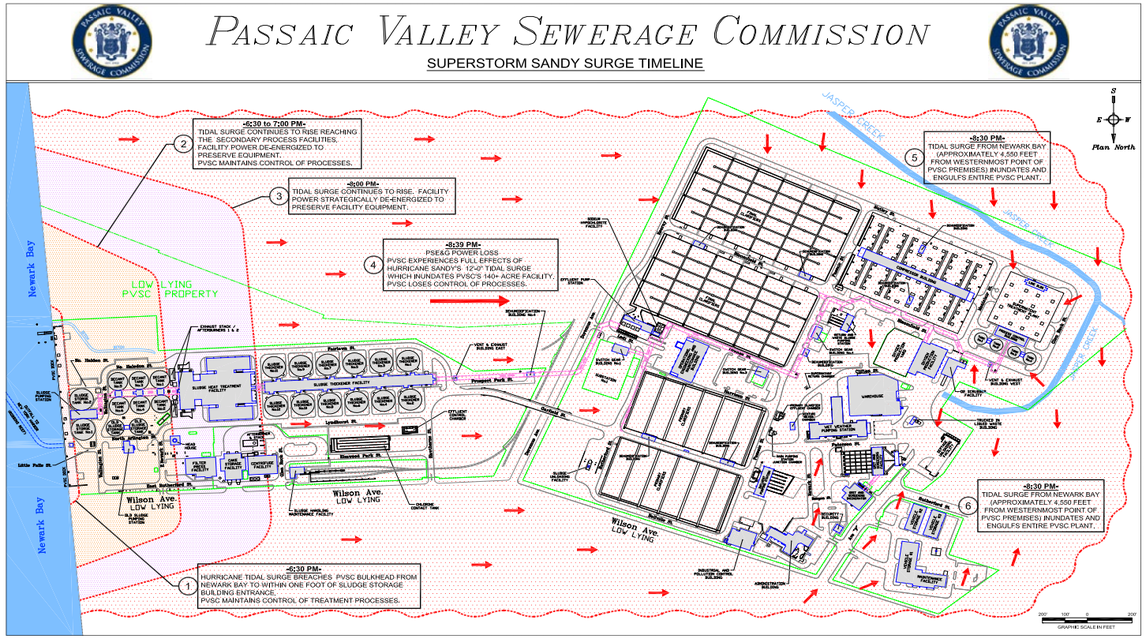


WATER SURGE

As water surged east from Newark Bay on to the Passaic Valley Sewerage Commission's property, the entire 140 acre complex quickly became inundated from the storm surge which reached heights of up to 12 feet.

Kenneth J. Lucianin
Commissioner

Michael DeFrancisci
Executive Director

Gregory A. Tramontozzi
General Counsel

Michael DeFrancisci
Executive Director

In 2012, the Passaic Valley Sewerage Commission (PVSC) - like much of the State - felt first-hand the devastating force of Sandy.

When the storm hit, no one could have anticipated the impact it would have on PVSC. The sewerage plant – situated where the Passaic River meets Newark Bay - was flooded by millions of gallons of combined bay water, rain and wastewater. At one point, a 4-foot wall of water overwhelmed the plant, destroying buildings, flooding our underground substructure, washing away vehicles, short-circuiting automated systems, and demolishing critical equipment.

As a testament to the PVSC workforce, we immediately began the process of bringing operations back on-line once the storm abated. Many of the staff returned the next day, eager to assist in our recovery efforts. As a result, our facility was back up and online within days of this unprecedented natural disaster. PVSC's recovery was further bolstered by the arrival of local, county, state and federal assistance including the Army Corps of Engineers, the Federal Environmental Protection Agency, the Federal Emergency Management Agency and the New Jersey Department of Environmental Protection. During this past year, PVSC has made incredible strides restoring the plant and moving through the recovery phase with speed and precision.

Since then, we have been completely dedicated to the process of returning to normal operations. I am proud of the progress we've made so far.

As we continue to recover, our focus is on a number of priorities and we have reached many milestones well in advance of original estimates:

- To date, most PVSC functions are back on line. Although some major systems are still in need of repair, primary and secondary treatment were operational within days of the storm.

- After several months, we began accepting all municipal, industrial, and water sludge and our Liquid Waste Acceptance operation is back to accepting all streams of waste.

- PVSC has taken a leadership role in flood mitigation efforts - planning with Federal Emergency Management Agency (FEMA) and the New Jersey Department of Environmental Protection (DEP) the construction of permanent flood control measures.

- Finally, as part of our post-Sandy recovery efforts, PVSC has implemented a new temporary flood control barricade system (Muscle Wall) to ensure we are prepared for extreme weather events.

Last year proved to be a challenging but pivotal year for PVSC; however I have full confidence that PVSC, working with our many partners, will be prepared to meet any further extreme weather challenges, as well as implement new strategies to ensure we never sustain the damage we did during this storm.

Michael DeFrancisci
Executive Director

"...we have been completely dedicated to the process of returning to normal operations. I am proud of the progress we've made so far."

"...we pledge to continue our efforts to restore the Passaic Valley and Newark Bay to their optimal state."

Kenneth J. Lucianin

Message from the Commissioner

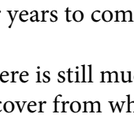
The months following Superstorm Sandy have proven to be difficult not only for the Passaic Valley Sewerage Commission, but the entire State of New Jersey. The effects of Sandy have been felt across our great State and will have an impact on much of what the Passaic Valley Sewerage Commission accomplishes in the coming months. Thanks largely to State and PVSC leadership, the PVSC has navigated the aftermath of Sandy with integrity and a clear purpose.

While there has been an outpouring of effort and energy focused on recovering after Sandy, every action is still fueled by the core principals of this Agency. The past year was spent restoring the PVSC's facilities that were flooded and damaged by the storm, as well as recovering equipment, vehicles, and controls that were damaged or lost.

Damage suffered during the storm required that the PVSC make some difficult decisions, and many of the facilities used to accomplish our goals are now back and functioning. None of this would have been accomplished without the dedication of PVSC employees and aid from local, county, state and federal agencies. It is possible that this assistance will be needed for years to come.

There is still much to be done as we recover from what was one of the worst storms we have ever seen. We continue to work towards restoring all of our facilities to pre-Sandy status, but take great pride in the resilience of the region.

On behalf of all of us at PVSC, we pledge to continue our efforts to restore the Passaic Valley and Newark Bay to their optimal state. We will be doing everything within our power to move forward in reducing pollution and protecting the environment. Since I was sworn in on January 15, 2010, we have worked to bring about real change, which has become the model for all agencies, authorities, and boards throughout New Jersey.
I am proud to say that level of change will be able to continue well into the future.



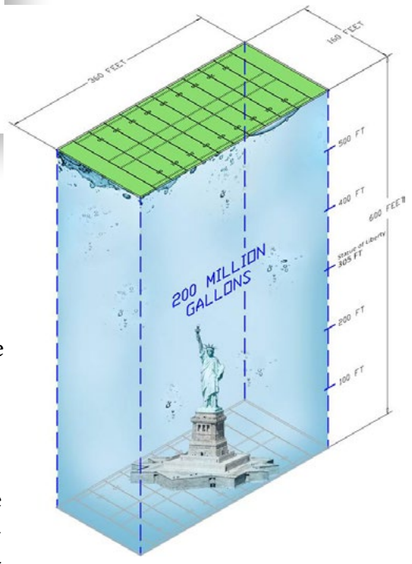
Kenneth J. Lucianin
Commissioner

Superstorm Sandy Devastates PVSC Facility

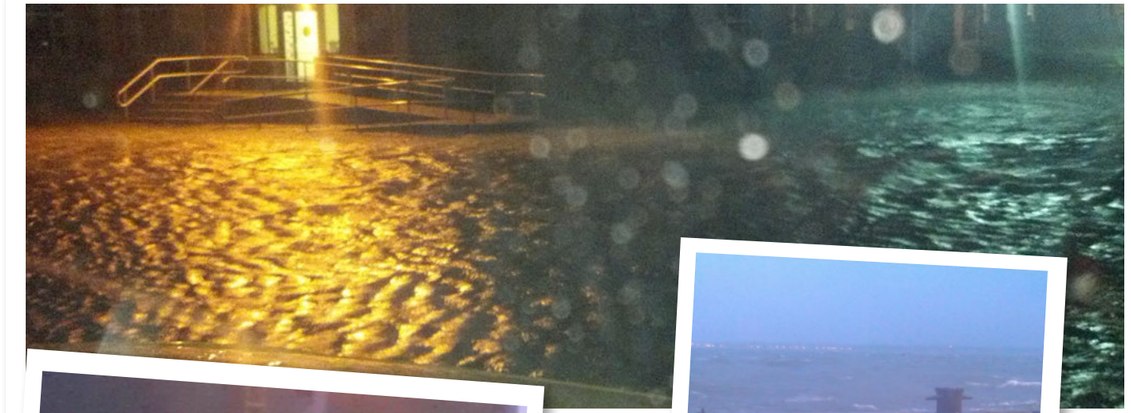
On Monday, October 29, 2012 Superstorm Sandy hit the East Coast of the United States and completely devastated the Passaic Valley Sewerage Commission's 140 acre facility. The entire plant was inundated with over 200 million gallons of tidal surge that flooded many of the PVSC buildings and underground utility tunnels. Approximately fifty PVSC employees were working that evening to ensure that treatment was uninterrupted and were also present to facilitate an emergency power shut down. The decision to power down the plant resulted in less damage, but the shut-down process was accelerated involuntarily when the plant, like so many homes and businesses that night, lost power. Due to the sheer volume of flooding, the plant would not have continued operating even if power had stayed on.

Fortunately, there was no loss of life and none of the PVSC staff were injured; however, many will undoubtedly remember the entire plant being engulfed in the tidal surge and the flooding that soon enveloped the plant. Shortly after the storm abated, PVSC immediately began the process of bringing operations back on-line.

Because of the round the clock efforts of PVSC's employees, less than a week after Sandy the plant was partially treating sewage. By the second week following the storm, the Army Corps had dewatered the entire underground complex which contains the majority of PVSC's processing equipment found in the tunnels and galleries. The rendering shown below conceptualizes the amount of water that flooded those tunnels and galleries which needed to be evacuated before repairs could begin.

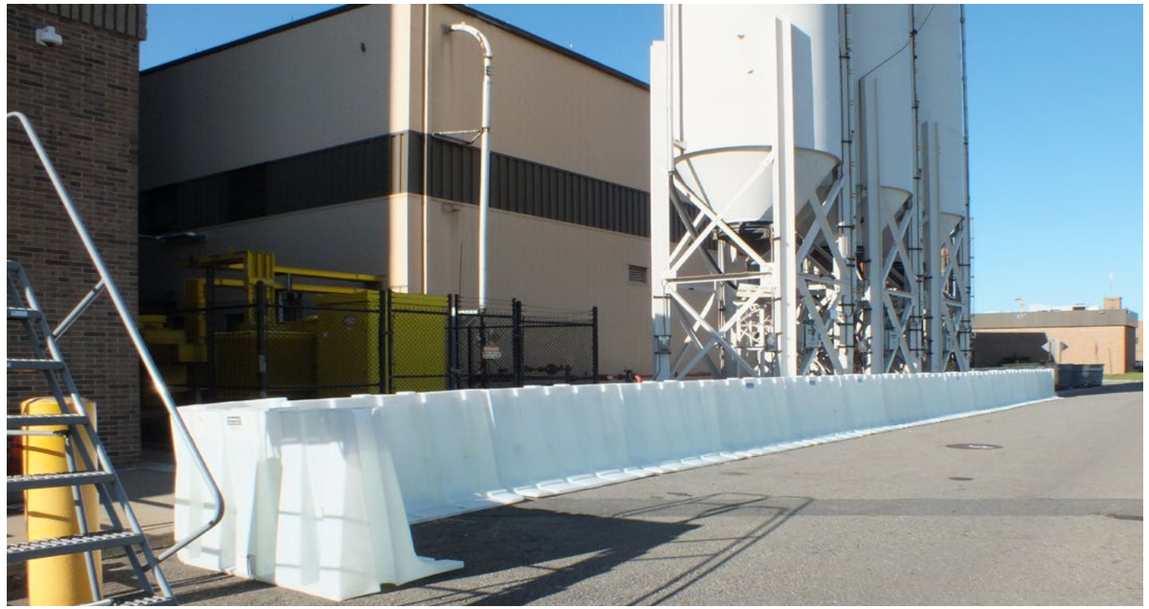


Equal to the Size of a Regulation Football Field (360 ft x 160 ft)



PVSC just recently topped the $100 million dollar mark in estimated repairs that will be needed to bring the plant back to pre-storm conditions. PVSC continues to dedicate the time, manpower and resources needed to complete the restoration process. To date PVSC has already spent approximately $15 million dollars in repair costs and it is anticipated that these repairs will continue for many years in the future and will ensure that we retain our place as one of the leading wastewater treatment facilities in the country.

Plant Update



The impact of the storm surge coupled with the loss of power, rendered the PVSC treatment plant inoperable on the night of October 29, 2012. Continued flooding of the underground utility tunnels and process galleries devastated PVSC's process equipment and electrical systems.

Although secondary treatment standards were being met, the plant continued to experience intermittent failures due to damaged equipment, electrical system malfunctions and lack of automation. In July 2013, the PVSC was able to report its first month of perfect compliance to the New Jersey Department of Environmental Protection (NJDEP), since the plant has continued to meet all if its effluent compliance points since then.

The PVSC Interceptor Line, which runs from Paterson to the PVSC plant in Newark, suffered damages at 34 different locations as a result of Superstorm Sandy. That line - which closely follows the path of the Passaic River - is the primary acceptance line for PVSC. Damages were found at 10 regulating gates, and another 24 metering locations, which are critical to the proper allocation of user charges to PVSC's contributing municipalities. Total estimated damages reached approximately $1.2 million dollars.

PVSC began mitigation work at 23 of the 34 sites to avoid future damages. Restoration to many of the gates took place by January of 2012 and by May 2013, 9 were again operating remotely. One remaining gate was too severely damaged and had to be completely replaced. Mitigation work is on-going.

Of the 24 metering sites that were damaged, all but one was quickly restored. The remaining site has undergone significant improvements and mitigation work so that it could be restored to working condition without the risk of damaging new equipment. It is expected that this site will be completely restored and operational soon.

“It is expected that even after the temporary shutdown, LWA will top previous revenue records.”

The PVSC’s Liquid Waste Acceptance program (LWA) accepts non-hazardous hauled waste into the PVSC treatment works via trucks, or barges and ships for treatment. Due to the damage from Superstorm Sandy, PVSC temporarily ceased the acceptance of all wastewater for approximately two weeks following the storm.

However, because the LWA performs an important regional service and also generates significant revenue for PVSC (which is used to offset user charges) it was crucial to bring this program back online as quickly as possible.

The PVSC began accepting liquid waste, in a phased approach, in early December. The LWA program saw a brief decline in revenue due to the storm. However, shortly after, PVSC began to accept new record loads. It is expected that even after the temporary shutdown, LWA will top previous revenue records.

Since re-starting on December 16, 2012, PVSC’s dock has been busy seven days a week with barges and ships primarily from the Bergen County Utilities Authority and the New York City’s Department of Environmental Protection. In fact, the NYCDEP has increased its schedule from three ships to four ships weekly. And, because of the addition of a second discharge point at the PVSC dock, we can now allow two ships to offload simultaneously, making PVSC’s operations more productive and profitable.

PVSC’s Engineering Department has been involved with the repair and improvements of critical plant infrastructure since Sandy hit. Shortly after the storm, the Engineering Department prepared an in depth damage assessment of both mechanical and electrical systems affected by the storm. Working with both the PVSC Operations and Maintenance Departments this document served as the roadmap to prioritize repairs and to track progress. Included as part of this initiative was the rebuilding or replacement of over 500 motors that were damaged throughout the plant.

PVSC Operational and Performance Highlights

A quick turnaround to the repair of these motors was critical to getting PVSC back on line. In addition, the assessment was used to assist FEMA in the creation of 44 project worksheets. The PVSC Engineering Department has been involved with efforts to improve plant infrastructure to avoid Sandy-like flood damage in the future.

Included in these efforts was the evaluation, selection, and deployment of temporary flood walls around critical facilities. The deployment of the flood walls will prevent flood waters from entering these facilities and damaging mechanical and electrical systems. The PVSC Engineering Department has also arranged for emergency backup generators to be made available on short notice to power critical sump pumps in the event that utility power is lost.

Lastly, the PVSC Engineering Department is developing construction drawings and specifications to repair the flood damaged PVSC Administration Building which housed the PVSC administrative staff who have been displaced since the storm.

“Engineering has helped improve plant infrastructure to avoid Sandy-like flood damage in the future.”

"As time progressed, wind and rain became more intense and we did routine checks on the entire plant. At about 6 p.m., we received a call on the radio that the security trailer on the Newark Bay dock had been knocked over and destroyed into Jasper's Creek. At that time nothing could be done because of high winds and an overflow of water coming over the sea wall."

Pre- Storm Preparations
Week of October 22, 2012
- PVSC activated Emergency Management team.
- PVSC prepared for storm debris removal and contractor notifications.
- PVSC designed contingency plans and staffing.
- PVSC made notifications to service district municipalities, offering post-storm assistance.
- Stood up emergency communications and notifications systems.
- PVSC Mobilized standby crews and line operations crews.

Post- Storm Recovery
October 30 – November 16, 2012
- Hypochlorite treatment @ outfall (4 days).
- Primary treatment restored within 7 days.
- Wastewater influent accepted from all municipalities on November 3, 2012.
- Secondary treatment began on November 16, 2012 using a newly seeded biomass.

Post- Storm Recovery
November 21, 2012
- Ongoing repairs/rebuild to systems and equipment.
- Primary process treatment is in operation.
- Effluent discharge is being disinfected for pathogens.
- Temporary solids dewatering equipment was mobilized for removal and disposal of biomass while work continues on PVSC's permanent dewatering processes.

Post- Storm Recovery
November 26, 2012
- Ongoing repairs/rebuild to systems and equipment.
- Primary and secondary treatment system is operational.
- Effluent disinfection continues.
- 10 mobile solids dewatering centrifuges continued to remove and dispose of biosolids while work continues on PVSC's permanent dewatering processes.
- 2 of PVSC's 12 Zimpro units and 1 of its 5 filter press dewatering units were running.

Post- Storm Recovery
November 30, 2012
- PVSC has 3 of its 7 permanent dewatering centrifuges operating and PVSC has 3 of its 12 Zimpro units available and 2 of its 5 filter press dewatering units running

Post- Storm Recovery
December 5, 2012
- PVSC continued to meet secondary treatment compliance standards, while it repairs and replaces damaged equipment.
- PVSC began to demobilize temporary dewatering equipment as its permanent processes return to service

Post- Storm Recovery
December 12, 2012
- PVSC had demobilized 60% of the temporary dewatering equipment as its permanent processes return to service

Post- Storm Recovery
December 18, 2012
- PVSC had demobilized 100% of the temporary dewatering equipment as its permanent processes have returned to service in sufficient capacity with additional redundancy

Post-Storm Recovery
January, 2013
- PVSC received nearly $15 million from FEMA to reimburse the authority for costs incurred for interim repairs and sludge shipping costs.

Post- Storm Recovery
March 19, 2013
- 16 facilities at PVSC had Project Worksheets submitted to FEMA for reimbursement.
- PVSC brought in additional Subject Matter Experts (SME's) including structural, electrical, and mechanical engineers to assist PVSC and FEMA with assessments.

"I was making the rounds every 20 minutes and saw the river water level rise slowly each time… Water was coming from the bay side to Sludge Pumping station, so we shut the building down."

"Through radio transmission, we began to hear windows breaking, flooding at the lab, security building and plant. The surge was upon us, flooding all functions of the primary and secondary phases of the operations."

Post- Storm Recovery
June 11, 2013

- PVSC staff completed cleaning, rebuilding and replacing fixtures throughout the plant.
- PVSC employees and supervisors continued to manage, maintain and provide operational service 24 hours a day.
- PVSC staff tackled inspection and repair of electrical substations, replacing thousands of linear feet of electrical cables and control wiring severely damaged by salt water.
- PVSC brought the laboratory, computer systems, and other critical functions back online.
- PVSC, FEMA and DEP identify 43 project worksheets (PWs) for recovery of plant. (30 PWs were submitted to FEMA 23 of these have been obligated)
- PVSC began Flood Mitigation Planning; PVSC used new federal flood maps as part of recovery mitigation planning efforts. PVSC submitted to FEMA several letters of intent requesting grants totaling $779 million.

Post- Storm Recovery
July 22, 2013

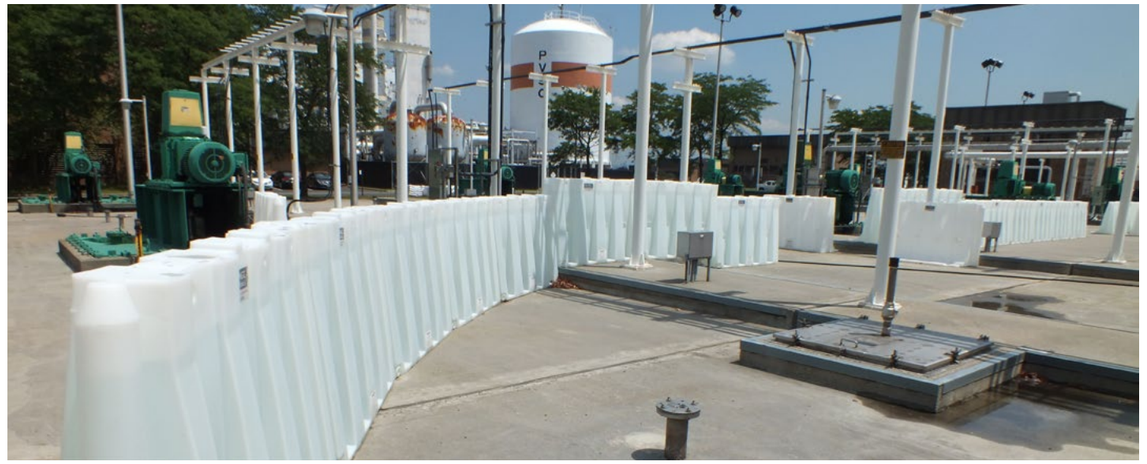
- In advance of the 2014 Hurricane Season, PVSC deployed "Muscle Wall" flood control barricade system designed to protect key infrastructure at the plant. Installation of the flood barricade includeed a total of 7,760 linear feet (just under 1.5 miles) of barricade wall installed around key PVSC facilities.

Post- Storm Recovery
August 8, 2013

- To date, 43 project worksheets (PWs) have been identified for PVSC. 37 PWs are now in the FEMA system.
- PVSC signed PWs for Emergency Sludge Removal and Sludge Thickeners, ($2.5M each).

Post- Storm Recovery
September 3, 2013

- Permanent flood control measures are on-going.
- PVSC also continues to work with FEMA on the completion and submission of all Project Worksheets (PWs).
- 44 PW's have been anticipated for PVSC, with 41 PW's already in the FEMA system. 37 of these have been obligated.



PVSC's On-Going Mitigation Efforts

Having marked the one year anniversary of Superstorm Sandy, PVSC continues to make steady progress on our post-Sandy recovery efforts. Now that the plant has returned to normal operations, our primary goal is to prepare for future severe weather events and continue with on-going repairs.

We are optimistic that new sources of funds for critical infrastructure upgrades (that PVSC can access for needed repairs) will help us quickly pivot to mitigation efforts and the hardening of our facility.

State and federal efforts to assist us are also encouraging recognition that wastewater treatment plants need these additional funds to recover from Sandy's devastation, rebuild our infrastructure and reduce the risks of flood damage in the future as a result of severe storms.

As we continue to rebuild the important and sensitive infrastructure, our goal is to get ahead of the problem and do so in a way that's smarter and more resilient to the effects of extreme weather.

All post-Sandy recovery and rebuilding facilities in New Jersey are now under revised Base Flood Elevation Maps provided by FEMA. In order to receive "Mitigation Funds" (now or in the future) from FEMA, these new elevations must be taken into consideration. PVSC is currently using these new BFE maps issued in July 2013.

Below are ten new upgrades that PVSC is currently pursuing, based on a proactive approach to mitigate any future extreme weather events that would cause PVSC to discontinue service:

1) On-site Primary Power – To ensure PVSC has the ability to produce its own power to operate the plant without relying on outside sources.
2) Sustained Dewatering of PVSC – Emergency stand-by (generators) due to power loss.
3) Flood Wall – To protect PVSC from future tidal and storm surge.
4) Head Works Grit & Screening Electrical & Conveying System – To elevate out of the flood plain systems that deliver influent to PVSC.
5) Rehabilitation of PVSC's Existing Dewatering Centrifuges – Rebuilding of emergency back-up dewatering centrifuges presently mothballed at PVSC.
6) Regional Biosolids Facility – Upgrade to ensure the viability of accepting wastewater from our regional partners.
7) Upgrade Substations – Electrical power upgrades.
8) Plant wide Electrical Modification to Elevate Motor Control Centers – Elevation out of flood plain electrical components so as to not be susceptible to flood waters.
9) Plant-wide Pump Replacement (submersible type pumps) – Replacement of all sump pumps to submersible types.
10) Elevate Control Panels for Tunnel Sump Pumps - Elevation of control panels out of flood plain.

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Prepared by:
PVSC Office of Public Affairs
In Cooperation with:
New Jersey Office of Information Technology
Printed In-House by the PVSC