

DBP Compliance

EPA Quarterly Update



Quarter 4 Update: October – December 2024

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From: Joshua Schimmel, Executive Director, Springfield Water and Sewer Commission

Date: December 31, 2024

The Springfield Water and Sewer Commission (Commission) has embarked on large-scale upgrades to replace 50- to 100-year-old drinking water infrastructure and to achieve compliance with regulatory limits for disinfection by-products (DBPs). This is a quarterly update on projects related to DBP compliance and water supply capacity.

The following projects to reduce DBPs in the Commission's drinking water and maintain a consistent supply of safe drinking water have progressed over the last quarter:

- **New Water Treatment Plant** – A kick-off construction meeting for the new WTP was held on October 3. The Commission hosted a groundbreaking event on October 16. Senator Edward J. Markey, Congressman Richard Neal, and Springfield Mayor Domenic J. Sarno were among those who spoke at the event, which was attended by EPA and MassDEP representatives, members of the Springfield area state delegation, Walsh, Hazen, and Commission staff. Walsh began mobilizing to the site in October and has installed erosion control, prepped a staging area, and established construction trailers. Walsh is currently preparing submittals for Hazen's review and is planning the transmission main tie-in work required to prepare the new WTP site for slow sand filter demolition.
- **42-inch Raw Water Transmission Main / Energy Dissipating Valve (EDV) and Equalization Tank Facility** – Northern has completed CCTV/LiDAR survey and joint testing of the pipeline and has begun prepping the pipeline for repairs, including exposing manholes along the pipeline, removing one section of steel pipe, and excavating sections of pipe. At the EDV site, Northern demolished the existing EDV structure, piping, and a section of the spillway, is currently completing excavation for the new structure, and has installed a mud mat slab in preparation for pouring the footings for the new structure. Northern completed rock removal and installation of a new duct bank during this quarter as well.
- **Clearwell & Backwash Pump Station – COMPLETE** – CH Nickerson has received final payment for this project. The Commission continues to work to resolve some remaining warranty issues. This will be the final update provided for this project.
- **Cobble Mountain Hydroelectric Station Improvements for Primary Raw Water Conveyance** – The Commission is currently working with Holyoke Gas & Electric, the contracted plant operator, to manage the completion of the final design of selected improvements. Improvements to the power plant and lining the penstocks are projected to be completed in 2027 but the schedule may change as design progresses and more specifics are known about the project.

We have included additional information for each project on the following project update pages.

Please contact us if you would like more information about these projects. More information is also available at <https://waterandsewer.org/projects/>.



New West Parish Water Treatment Plant

Project Purpose: This project is for design and construction of a new water treatment plant (WTP) to meet system demand while providing a higher level of treatment to achieve long-term, consistent compliance with the Disinfection By-Product (DBP) Rule. The new WTP will replace the existing direct filtration and slow sand filtration plants, which were not designed to remove adequate dissolved natural organic matter (NOM) to meet current regulatory limits for HAA5s and THMs.

The Commission has been in periodic non-compliance for HAA5s since 2018. To address this issue, after completing several studies, the Commission identified that modifications to the existing plant processes would not be sufficient to achieve compliance, and that the addition of clarification was needed to reliably remove NOM and maintain compliance. Based on the results of a three-season pilot plant operation, Dissolved Air Flotation (DAF) with a polyaluminum chloride coagulant was selected as the clarification process for the new conventional plant.

Delivery Approach: Design-Bid-Build with Hazen (Engineer) and Walsh Construction (Contractor). Planned financing using WIFIA and SRF.

Progress: A kick-off construction meeting was held on October 3 and has been followed with bi-weekly progress meetings. The Commission hosted a groundbreaking event on October 16. Senator Edward J. Markey, Congressman Richard Neal, and Springfield Mayor Domenic J. Sarno were among those who spoke at the event, which was also attended by EPA and MassDEP representatives, members of the Springfield area state delegation, Walsh, Hazen, Commission staff, and a class from the Springfield Renaissance School.

Walsh began mobilizing to the site in October and has installed erosion control, prepped a staging area, and established construction trailers. Walsh is currently preparing submittals for Hazen's review and is planning the transmission main tie-in work required to prepare the new WTP site for slow sand filter demolition.

The Commission has created a website and newsletter to provide project information and updates to stakeholders and the public at <https://www.newwestparish.com/>.

Supply Chain: At this time, no supply chain impacts have been identified by the GC. They continue to work on submittals for equipment and are waiting on final delivery estimates once the equipment is released. Lead times for some electrical equipment can be as high as two years.

Schedule: The EPA Administrative Consent Order dated April 22, 2024 requires the plant to be online by September 30, 2028. The contract was scheduled to be awarded in July 2024 with substantial completion in June 2028 and final completion in September 2028. The contract award was delayed by several weeks for MassDEP SRF review. Based on the date of the executed Notice To Proceed, substantial completion is projected for August 30, 2028 (*note: correction from previous update, which incorrectly said September 30*), and final completion is projected for November 24, 2028.

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October 2024 Groundbreaking for the New West Parish WTP

L to R: SWSC Owner's Project Manager Mark Johnson, SWSC Director of Engineering Darleen Buttrick, Senator Edward J. Markey, Springfield Mayor Domenic J. Sarno, SWSC Commissioner Matthew Donnellan, State Representative Orlando Ramos, SWSC Commissioner Vanessa Otero, Congressman Richard Neal, SWSC Executive Director Joshua Schimmel, EPA Deputy Regional Administrator Karen McGuire, State Representative Carlos Gonzalez, MassDEP Commissioner Bonnie Heiple, SWSC Director of Water Operations James Laurila



New West Parish WTP Rendering



42-inch Raw Water Transmission Main, Energy Dissipating Valve, and Equalization Tank

Project Purpose: This project is for the repair of the 42-inch bypass raw water conveyance PCCP pipeline and construction of a new energy dissipating facility (EDV) at the outlet. The pipeline and EDV facility were damaged when a new EDV failed in 2019. The pipeline and EDV facility provide a critical route for raw water to bypass the Cobble Mountain Hydroelectric Station (CMHS), the Intake Reservoir, and the 72-inch Intake Tunnel. The EDV facility provides necessary energy dissipation for the 42-inch outlet, which conveys high pressure water (approximately 200 psi) directly from Cobble Mountain Reservoir. The project also includes the design of a new raw water equalization (EQ) tank that will be used in the future to directly provide raw water to the new water treatment plant. The EQ tank will eventually replace the need to use the sedimentation basin for raw water storage.

With the 42-inch raw water transmission bypass out of service, the Commission currently relies on the Diversion Gates (the low-level dam outlet) to release water from the Cobble Mountain Reservoir when the CMHS is offline for routine maintenance. This outlet was not designed to operate as a regular intake and is not operable remotely, requiring staff to regularly perform a complicated confined space entry that would require assistance from a technical rescue team should an emergency evacuation be required. With the 42-inch bypass out of service, there is currently no bypass for the 72-inch Tunnel.

Returning this route to service will allow the Commission to take the CMHS and 72-inch Intake Tunnel offline for maintenance when needed while maintaining raw water supply to the current and future water treatment plants.

Delivery Approach: Design-Bid-Build with AECOM (Engineer).

Progress: Northern Construction (Northern) has completed CCTV/LiDAR survey and joint testing of the pipeline and has begun prepping the pipeline for repairs, including exposing manholes along the pipeline, removing one section of steel pipe, and excavating sections of pipe. At the EDV site, Northern demolished the existing EDV structure, piping, and a section of the spillway, is currently completing excavation for the new structure, and has installed a mud mat slab in preparation for pouring the footings for the new structure. Northern completed rock removal and installation of a new duct bank during this quarter as well.

Supply Chain: No supply chain issues have been identified by Northern on this project. The knife gates valves have a long lead time and are a critical path item for Northern.

Schedule: The combined project is projected to be completed in December 2025. Some project delays were related to securing a waiver from EPA WIFIA program for the specified valves, which are not made in America. Other delays have been related to the need to coordinate some aspects of the design with the design of the new WTP.

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Excavation for new EDV Facility (photo by AECOM, 12/27/2024)



Removing flange at MH #1B for joint testing access (photo by AECOM, 11/05/2024)



Clearwell & Backwash Pump Station - **COMPLETE**

- Project Purpose:** This facility replaced the existing clearwell and backwash, domestic, and process water pumps.
- The existing clearwell was a 1920s slow sand filter that was retrofitted for use as a clearwell and backwash water storage tank for the direct filtration plant in the 1970s. The structural integrity of the clearwell is uncertain and the roof is leaky, allowing rainwater to infiltrate into the filtered water. The roof leaks were temporarily mitigated by the installation of a geomembrane cover over the clearwell. The clearwell could not be taken offline for maintenance, presenting a single point of failure for the direct filtration plant. The existing backwash, domestic, and process water pumps were original to the plant; parts were no longer readily available for more frequently necessary repairs.
- This project provided the reliability and redundancy needed to maintain existing operations and also functioned as the first component of the new water treatment plant.
- Delivery Approach:** Design-Build with AECOM (OPM), Tighe & Bond (Engineer), and CH Nickerson (GC). Financed by MA Drinking Water SRF.
- Design Progress:** Tighe & Bond submitted the final design documents in November 2022.
- Const. Progress:** CH Nickerson has received final payment for this project. The Commission continues to work to resolve some warranty issues. This will be the final update provided for this project.
- Supply Chain:** There are no supply chain issues at this stage in the project.
- Project Delays:** The original substantial completion date at the onset of this project was February 2023. Due to several factors, including changes in design scope, pipe delivery delays, electrical equipment delays, and startup issues with the domestic water system, a partial substantial completion was granted on October 13, 2023, with full substantial completion granted on April 10, 2024.
- Operational Issues:** The Commission continues to work through warranty issues.
- Schedule:** Project close-out is underway. SRF closeout paperwork is being prepared and final record drawings are under review.

Cobble Mountain Hydroelectric Station Improvements for Primary Raw Water Conveyance

Project Purpose: The Cobble Mountain Hydroelectric Station (CMHS) is an essential component of the Commission's raw water conveyance system. As part of the primary raw water conveyance route, the CMHS delivers water from the Broome Gate Intake down to the Intake Reservoir while generating power by using the 450-foot elevation difference between the two reservoirs. This project will identify alternatives for upgrades to hydropower generation in response to failing infrastructure at the facility. The existing 1930 turbines are mostly beyond the end of their operational lives, with only one out of the original three turbines currently operational on a limited schedule to limit wear and reduce the risk of failure.

When the CMHS is offline for maintenance, the remaining routes for raw water conveyance are the 42-inch bypass (currently out of service) and the low-level Diversion Gates, which are not designed for regular operation. Restoring the CMHS conveyance route is vital to establishing reliable raw water conveyance for the Commission.

Delivery Approach: Design-Bid-Build with some Design-Build improvements being considered.

Progress: The Commission is currently working with Holyoke Gas & Electric, the contracted plant operator, to manage the completion of the final design of selected improvements. Improvements to the power plant and penstock lining are projected to be completed in 2027 but the schedule may change as design progresses and more specifics are known about the project.

Supply Chain: Supply chain impacts on this project are currently unknown but long lead times are anticipated for turbine manufacturers.

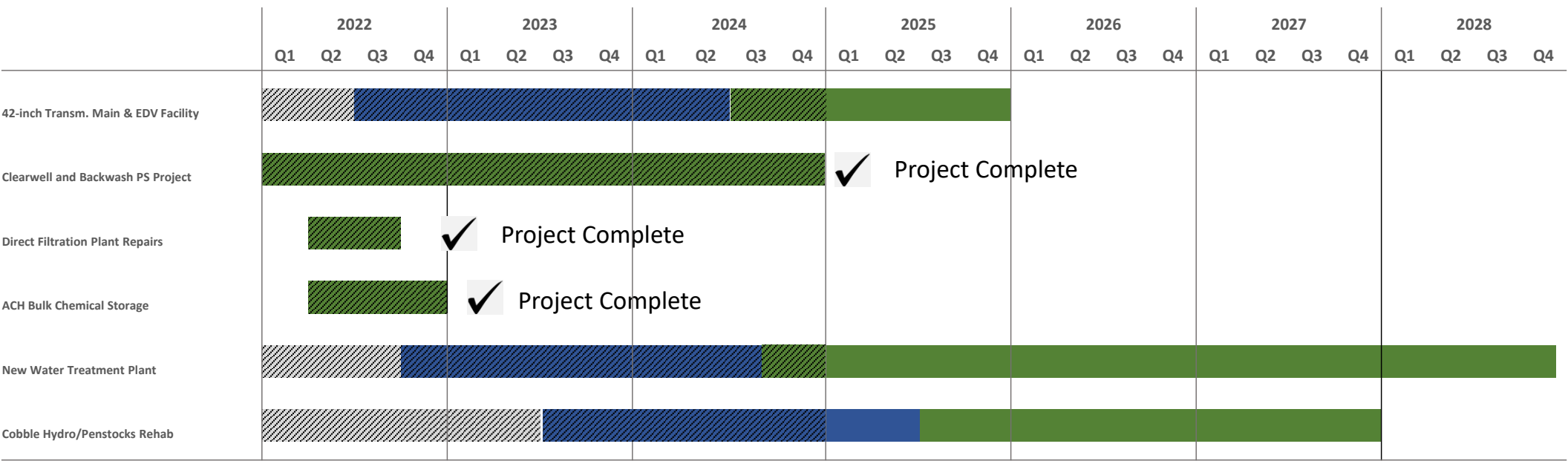
Schedule: This project is currently projected to be completed in 2027, but this date is subject to change as design progresses.



CMHS Existing Turbine #1

Engineering Capital Projects Schedule

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Note: Schedule is generalized and subject to change