



Newterra provided a highly effective stormwater treatment system at Horsham Air National Guard Base, removing PFOA/PFOS and protecting Neshaminy Creek with advanced filtration and ion exchange technologies."

Case Study: Horsham Air National Guard Base Enhances Stormwater Management with Advanced PFOA/PFOS Treatment System

Client: Horsham Air National Guard Base

Location: Pennsylvania, USA

Industry: National Defense

Project Overview

The Horsham Air National Guard Base required a comprehensive stormwater treatment system to address the presence of perfluorinated compounds (PFOA/PFOS) in runoff before it entered Neshaminy Creek. After several years of piloting ion exchange resin for removing these contaminants, CKS Engineers undertook the design and construction of a full-scale treatment system to ensure compliance with environmental standards.

The Challenge

The primary challenge was to develop a reliable system that could effectively remove PFOA/PFOS from the stormwater runoff at a former military base. The system needed to handle high flow rates while ensuring the removal of particulates, volatile organic compounds (VOCs), and perfluorinated compounds, all while preventing fouling and maintaining operational efficiency.

The Solution

CKS Engineers collaborated with the experienced engineering team at Newterra to design a multi-stage treatment system capable of addressing the various contaminants present in the stormwater. *The solution consisted of the following key components:*

- **CP5K-6 Sand Filters:** Equipped with sand, gravel, and automation, these filters were designed to remove particulates and protect subsequent treatment stages from fouling.
- **CP5K-6 Filter with Organoclay/Zeolite (OMC):** This stage targeted the removal of volatile organic compounds (VOCs).
- **CP10K8 Filter with Granular Activated Carbon (GAC):** Dedicated to removing PFOA/PFOS compounds through adsorption.

- **CP3000 with PF964 Ion Exchange (IX) Resin:** A final stage for PFOA/PFOS removal, ensuring the highest possible treatment efficiency.

The system was configured with two parallel treatment trains, each capable of processing 250 gallons per minute (GPM). This design allowed for the forward flow of one treatment train to backwash the other, enhancing operational reliability and reducing downtime.

Project Execution

The equipment for the treatment system was procured directly by Warminster Authority, with CKS Engineers managing the design-bid-build procurement process for the contractor installation services. The treatment system was successfully commissioned and began operation in March 2021.

Outcome

The installation of the PFOA/PFOS stormwater treatment system at Horsham Air National Guard Base resulted in effective removal of particulates, VOCs, and perfluorinated compounds from the stormwater runoff. The system's robust design and automated functionality ensure consistent compliance with environmental standards, safeguarding the water quality of Neshaminy Creek and contributing to the sustainability of the local ecosystem.

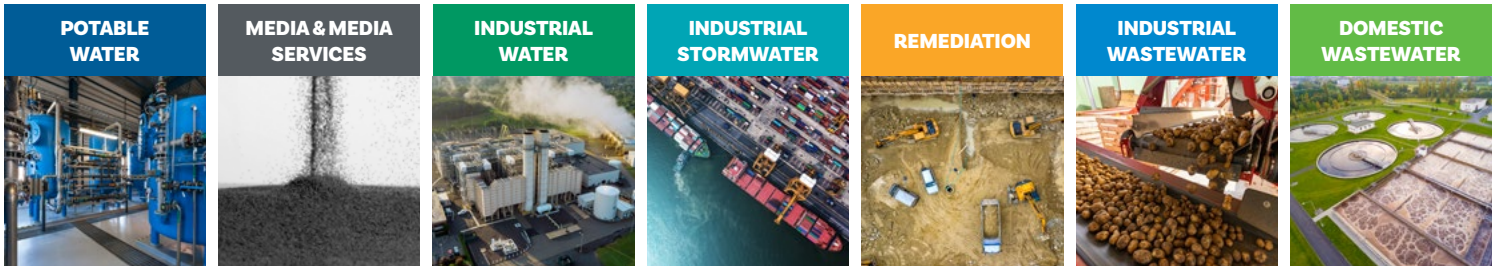
Conclusion

By partnering with Newterra and leveraging advanced filtration and ion exchange technologies, CKS Engineers delivered a highly effective stormwater treatment solution for the Horsham Air National Guard Base. This project exemplifies the successful application of engineering expertise and innovative design in addressing complex environmental challenges.

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