CASE STUDY

OPERATION AND MAINTENANCE (O&M) OF A WATER AND WASTEWATER TREATMENT SYSTEM, INCLUDING ONSITE COMPOSTING

CLAREMONT, NEW HAMPSHIRE

CONTRACT VALUE:
$1,200,000

APPLICATION:
Municipal

TECHNOLOGY:
Activated Sludge

CAPACITY:
1.5 MGD

PROJECT START:
2012

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CITY OF CLAREMONT

BACKGROUND

H_2O Innovation has been providing O&M services for the City of Claremont, NH, since 2012. After the conclusion of the first five-year contract, H_2O Innovation was awarded a new five-year agreement and subsequent one-year extensions. Our team includes five full-time operators and one part-time employee. The site has a Class III surface water treatment facility and a Grade III wastewater treatment facility.

SCOPE OF WORK

H_2O Innovation operates the Claremont Wastewater activated sludge plant, which has a current capacity of 1.5 MGD and a design capacity of 3.8 MGD. The facility consistently achieves 97% pollutant removal while minimizing energy use and sludge handling costs. The typical effluent criteria are a biochemical oxygen demand (BOD) of 3 mg/L, TSS of 4 mg/L, ammonia levels of 0.2 mg/L, and a total phosphorus (TP) of 0.4 mg/L.

The treatment process includes primary treatment followed by activated sludge in plug flow mode with year-round nitrification. The use of VFDs on aerators, combined with tight dissolved oxygen (DO) control and mixed liquor process testing, helps optimize both performance and operating costs.

SCOPE OF WORK (continued)

Waste sludge is aerobically digested and then dewatered using belt filter presses, followed by further treatment through onsite composting. The compost produced is a low-metal, Class A biosolids compost, stabilized through aerated static pile composting on-site. Sawdust and wood ash are mixed with the dewatered sludge in a Kuhn Knight Reel Auggie and processed in piles where air is introduced into the mixture. Bacteria biodegrade the rich organic content of the raw sludge, using the sawdust as a carbon source. This process generates temperatures exceeding 55 °C for several days, effectively killing pathogenic organisms. The resulting compost is suitable for land reclamation cover, potting soil, farming applications, and other uses.

We also operate the Claremont Surface Water Plant, which currently treats 1.2 million gallons per day (MGD) and is designed for a capacity of 3 MGD. The treatment process includes coagulation, settling, filtration, chlorination for disinfection, pH adjustment, and corrosion control. Coagulation, settling, and filtration remove impurities from the water, while carbon filtration addresses taste and odor.

The plant serves approximately 4,000 connections and treats an average of 1.2 MGD for delivery into the distribution system.

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