

CASE STUDY

Year-round camp in a sensitive area

REWATEC | **ECOFLO**



PROJECT

Camp Courageous in Monticello, Iowa, USA

FACTS

Camp Courageous is a non-profit organization that provides year-round recreational and respite care for people with special needs. The camp has 25 buildings on 300 acres of land and hosts more than 9,000 campers each year.

The camp's original wastewater treatment system could no longer cope with the site's growing needs. Rather than scale back operations – and turn people away – Camp Courageous looked for a long-term solution to treat its wastewater.

CHALLENGES

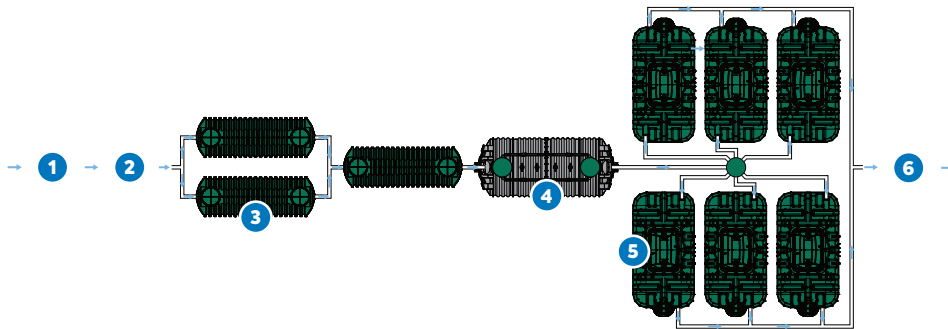
The project presented several challenges, including:

- flow fluctuations between periods of peak use and low use
- wastewater strength fluctuations
 - high NH_4 during peak use
 - high BOD_5 and FOG from food preparation
- surface discharge into Maquoketa River, an environmentally sensitive area

SOLUTION

Shive-Hattery, the engineering firm in charge of the project, designed two independent treatment trains to meet Camp Courageous' needs. Each train uses technologies from Premier Tech, including Rewatec moving bed biofilm reactors (MBBRs), Ecoflo biofilters, and UV disinfection units.

Technology	Volumetric Capacity (per Train)	Features
Primary treatment tank 1	6,000 US gal	<ul style="list-style-type: none"> captures suspended solids screens trash and reprocesses biological sludge
Equalization tank 2	2,000 US gal	<ul style="list-style-type: none"> provides metered dose to secondary treatment tank controls aerator operating time (when there is no water at the tributary, the blowers stop)
Rewatec MBBR 3	4,500 US gal	<ul style="list-style-type: none"> fixed-film media keeps biomass inside the tank aeration moves and self-cleans the bacterial support (increasing surface area and improving performance)
Clarification tank 4	4,500 US gal	<ul style="list-style-type: none"> separates solids from liquids in sludge and scum resulting from the treatment process
Ecoflo 5	15,000 US gal/d	<ul style="list-style-type: none"> uses a filter made coconut husk fragments filter is 100% natural, renewable, and compostable requires no energy for treatment
UV disinfection 6	15,000 US gal/d	<ul style="list-style-type: none"> kills wastewater pathogens with UV radiation self-cleans six times per day



REWATEC™

Rewatec MBBR is the clear-cut treatment solution for projects with fluctuations in flow and strength. This modular system is designed to reduce high loads of BOD₅ and NH₄ and is ideal for:

- truck stops, hotels, and campgrounds
- convenience stores with food preparation
- fast food chains
- breweries and wineries
- projects where space is limited

RESULTS

Camp Courageous' treatment trains were installed in September and November 2017, respectively. Both trains have performed well in the field, as demonstrated by the following results.

Parameter	Primary Treatment Tank Influent Concentration	Surface Discharge Effluent Concentration	
		Objective	Actual
Total BOD ₅	487 mg/L	25 mg/L	3 mg/L
TSS	300 mg/L	25 mg/L	2 mg/L
NH ₄	28 mg/L	1.2 mg/L	< 0.05 mg/L
Fecal coliforms	N/A	Disinfection	Disinfection

"Premier Tech was a pleasure to work with... from design through installation, and, most importantly, support after completion. The results speak for themselves."

James Kurth
Facilities Director, Camp Courageous



PT Water and Environment

1-800-632-6356
pta@premiertech.com
premiertechaqua.com

