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Circulating the World's Water
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Summarized Case Study (WW)

Key Words: municipal wastewater, short-circuiting, ammonia, sludge reduction, energy savings

Photos: The triangles in the first photo show the locations of the SolarBee units in each of the five wastewater treatment ponds; second photo shows a unit operating in one of the ponds.

Reservoir or Pond Use: The city operates this 1 MGD wastewater treatment plant.

System Overview and Reservoir: The wastewater treatment system consists of 5 ponds/cells. The first parallel cells 1 & 2 are partial mix cells with surface areas of 2.7 acres each, and operating depths of 10 ft; the next two parallel cells 3 & 4 are partial mix cells with surface areas of 3.1 acres each, with operating depths of 10 ft; the last cell 5 is a polishing pond with surface areas of 5.8 acres and a maximum depth of 10 ft. Total surface area is 17.5 acres, total volume is 48.8 MG, and total retention time through the 5-pond system is about 49 days.

Reported Problem Before SolarBee Installation: This wastewater treatment system had high energy costs due to extensive aeration operation, and some regulatory pressures to reduce effluent ammonia levels caused in part by treatment inefficiencies due to short circuiting.

SolarBee Installation: Date: March 2003, installed one (1) SB10000 in cells 1, 2, 3, and 4; installed two (2) SB10000 units in cell 5. In Sept. 2003, all 6 SB10000 units were replaced with SB10000DM units.

Results: The city has achieved approximately $50,000 per year energy savings by reducing aeration runtime while reducing the effluent ammonia levels. They have also reported signifannt sludge reductions. The city has been very happy with the performance and attained benefits with the SolarBee units in their wastewater treatment system.

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