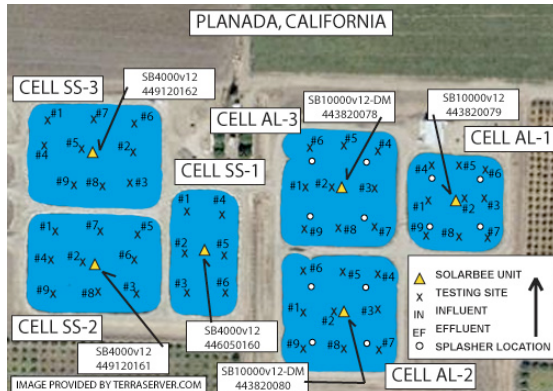


Summarized Case Study: Planada Community Services District (WW) Planada, CA

Key Words: Planada, CA, municipal, ammonia, sludge reduction, BOD, TSS, short-circuiting, energy savings



Photos: First photo is an aerial shot showing the location each SolarBee (indicated by yellow triangles) in the 6-cell system; second photo shows the SolarBee with two aerators in cell AL-1.

Reservoir or Lake Use: The Planada Community Services District operates this 0.5 MGD wastewater treatment plant, expanding to 1 MGD.

System Overview and Reservoir: The wastewater treatment system consists of 6 ponds/cells. The first cell (AL-1) is a total mix cell with a surface area of 1.2 acres and maximum depth of 10 ft; the second (AL-2) and third (AL-3) cells are partial mix cells with surface areas of 1.9 and 1.8 acres, respectively, and maximum depths of 10 ft; and, the last three cells (SS-1, SS-2, SS-3) are polishing ponds with surface areas of 1.2, 1.8, and 1.8 acres respectively, and maximum depths of 4 ft in each cell. Total surface area is 9.7 acres, total volume is 14.4 MG, and total retention time through the 6-pond system is about 27 days.

Reported Problem Before SolarBee Installation: Objectives are to improve treatment for removal of BOD, TSS and ammonia, and prevent short-circuiting that was occurring within each pond. Secondary objectives include reducing aeration runtime for the aerators in the first three cells, and enhance *in-situ* sludge reduction.

SolarBee Installation: Date: Jan 2005, installed six (6) SolarBees total, one per cell. In AL-1, the primary cell which is a total mix cell, 1 SB10000v12 was installed; in AL2 and AL3, one each SB10000v12-Dual Mix units were installed; one each SB2500v12 were installed in SS1, SS2, and SS3.

Results: Water quality improvements occurred almost immediately following the SolarBee installations, with ammonia levels sufficiently reduced to meet regulatory requirements - even in winter. Planada has achieved a 66% energy savings by reducing aeration runtime, and was subsequently awarded an energy savings grant from the Wastewater Optimization Program that paid for about 1/3 of the cost of the six units. In addition to the improved water quality and elimination of short-circuiting, the owner also reports significant *in situ* sludge reduction in the cells. Planada has been very happy with the performance and attained benefits with the SolarBees in their wastewater treatment system.

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