

Case Study: Pfizer Inc / Johnson Controls ComboPack Use at 8 Acre Lake (Lincoln, Nebraska U.S.A. Facility)



Background. The Pfizer, Inc facility in Lincoln, NE includes an 8-acre lake. This lake has had a history of increasing eutrophication, as pond odors (sulphide) and excess algae blooms have become increasingly problematic in recent years.

Johnson Controls is under contract with Pfizer to provide process control and maintenance services at this site, and is responsible for upkeep on this 8 acre lake.

In the last several years, the site manager, Mr. Steve Amos, has utilized a variety of algae control methods, such as copper addition and herbicides. Despite these efforts, the lake condition has continued to deteriorate. By late April 2012, particularly with an unusually warm spring and abundant sunshine, the lake was highly odorous, and was 30 to 50% covered with algae. Because past chemical and physical treatments proved ineffective, Johnson Controls / Pfizer elected to use the ComboPack System, manufactured by TLC Products in Cleveland, OH.



Pfizer lake overview (white dots = dose points)



**Steve Amos,
Site Manager
Johnson Controls
Pfizer Inc.
Lincoln, Nebraska**

“Our 8-acre lake had not responded well to copper and herbicide treatments in the past, so we used ComboPacks beginning May 4, 2012. Just as predicted by the manufacturer, we have seen algae turn brown and then disappear over just 8 weeks, and the odor problems are completely gone. I recommend ComboPacks to anyone needing algae reduction or odor reduction.

...Steve Amos,
Site Manager, Pfizer - Johnson Controls

ComboPacks. ComboPacks include a liquid bacterial concentrate (PondPerfect) plus a slow release powdered bacteria / nutrient mix (EcoSocks). PondPerfect is ultra-concentrated, with a mix of nitrifying and denitrifying bacteria that out-compete algae for N and P nutrients. EcoSocks consist of freeze-dried, sludge-reducing bacteria and food grade nutrients encased in a biodegradable sock. When placed into water, the EcoSock continuously produces sludge-digesting, algae-fighting bacteria for a full one month. After one month, the EcoSock is removed, discarded as yard waste, and replaced with a fresh EcoSock. Together, PondPerfect plus EcoSocks make up the ComboPack. ComboPacks are designed for once a month application.

ComboPack Dosing. A total of 14 ComboPacks were applied per dose, with one ComboPack dosed at each of the 14 white dots (see photo above) on these dates: May 4, May 18, June 26, and July 10.

Results. A photo chronology from before treatment through dramatic algae reduction is presented on the next page. As predicted by the manufacturer (TLC Products), the sulphide odors were eliminated within 2 to 3 weeks of first application. Within 2 weeks (from May 4 to May 18), the previously “healthy” green algae had begun to turn brown (as predicted). By 6 weeks, most of the algae had died, and surface algae coverage was reduced from 30 to 50% down to 5 to 10%. By July 10, about 8 weeks after the first application, nearly all excess algae was eliminated, the water clarity was superb, and odors were completely gone.

(See photo chronology of results, next page)

Photo Chronology: Pfizer/ Johnson Controls Lake Treatment (Lincoln, NE)

Overview, Looking Away from Buildings



May 4, First Dose, Algae Heavy Along Shore



May 18, Second Dose, Algae Turning Brown

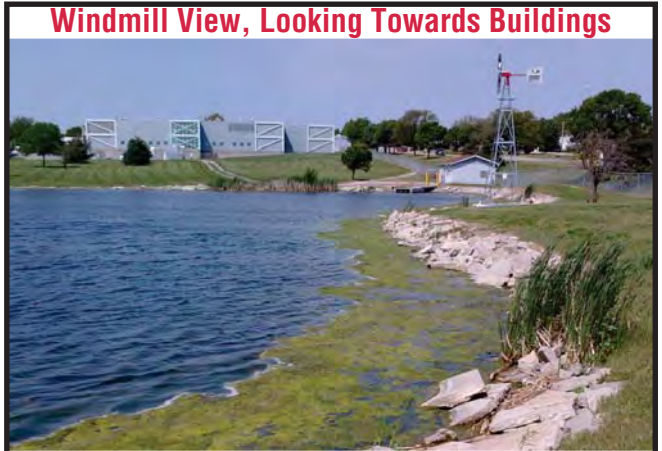


June 26, Third Dose, 85% of Algae Eliminated



July 10, Fourth Dose, Crystal Clear Water

Windmill View, Looking Towards Buildings



May 4, First Dose, Severe Algae to Windmill



May 18, Second Dose, Algae Turning Brown



June 26, Third Dose, Clear Water to Windmill



July 10, Fourth Dose, Crystal Clear Water