



CASE STUDY  
Xtreme Treatment Compound  
November 2015



**Heartland Energy Group, Ltd.**

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## Overview & Background of Project:

In late October of 2015, Heartland Energy Group, Lld ("HEG") was contacted about treating a pond at Fair Oaks Ranch Golf & Country Club. The grounds management team had received multiple complaints from club members regarding the condition of the pond. The complaints ranged from foul and stagnant odors to the pure aesthetics of the pond. HEG's object was to remove and reduce the large biomass of algae that had overtaken the pond. The biomass of algae in the pond was several feet deep and covered the entire pond. It looked like green astro- turf. The biomass of algae was so bad that ducks were laying eggs on top of the water and the eggs would not sink.

Several limiting factors encompassed the treatment of this pond and created a very challenging setting for this application. The first major factor was the source from where the pond water originated. For this application, the pond water was pumped from a large water storage reservoir. The water in reservoir consists of treated wastewater effluent purchased from the City of San Antonio. The condition of the effluent in the reservoir was very poor. The actual color was dark green. (Fig.1)



Figure 1. Water being pumped into the pond from the storage reservoir.

Under the design of the golf course, water is pumped from the effluent reservoir into the pond. The water in the pond is then subsequently used to irrigate the greens and the fairways. As the water levels in the pond are depleted, the reservoir water is used to replenish the pond.

The second major factor to consider was the safety and toxicity of the treatment material. In the case of this application, the grounds crew was concerned about a fish kill and potential damage to the greens and fairways. In past applications the grounds crew had resorted to hazardous treatments like copper sulfate or strong oxidizers. It is well known and documented that copper sulfate leaves residuals and is extremely toxic to the ecosystem. The grounds crew expressed deep concern over creating any potential fish kill which was considered heavily as a protocol when recommended.

In the case of this pond, a decision was reached to use HEG's Xtreme Treatment Compound.

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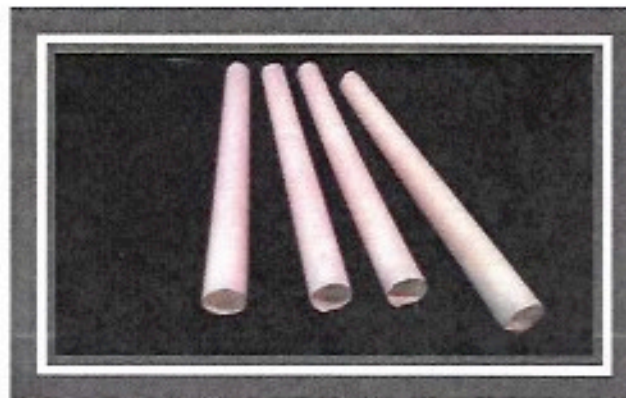
## Treatment Schedule for Fair Oaks Ranch Project:

Total gallons of water in the pond prior to treatment: ~ 3 million gallons

Application Date	Amount(gals)	Type of Treatment Method
11/3/2015	5	Applied with LP sprayer around entire perimeter of shoreline
11/9/2015	5	Applied with LP sprayer around 1/2 perimeter of shoreline & boat
11/11/2015	12 + 5 sticks	Applied with LP sprayer around 1/2 perimeter of shoreline + added 5 sticks

### *Treatment Notes:*

*It is also important to note that the pond contained a circulation pump. Upon completion of the treatment performed on 11/11, the grounds crew circulated the pond for approximately 15 minutes. Shortly after circulating the pond, additional effluent from the storage reservoir was added to the pond. This was done due to anticipated irrigation demands and because the pond had not been topped off for a month or so. The treatment sticks (Fig. 2) were introduced to demonstrate how certain spots in the pond can be targeted.*



*Fig. 2 Water soluble Xtreme treatment stick*

## Conclusion for Fair Oaks Ranch Project:

In conclusion, the biomass of the pond was substantially reduced, the odors were eliminated, and the complaints have stopped. The total amount of product used was 22 gallons of Xtreme and 5 sticks. The grounds crew are continuing with a monthly maintenance program to help prevent and reduce additional biomass accumulation.

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