



Agenda for Advanced 2-Day Hands-on Lagoon Optimization Workshop



8:00 to 8:30 am	Registration
8:30 am to 10:00 am <small>Meet at lagoon</small>	Chief Failings of Lagoon Systems. Six (6) main reasons why lagoons fail. The importance of biomass, hydraulics, sludge, testing, and maintenance on lagoon performance.
10:00 am to 10:15 am	Break
10:15 am to 11:30 am	Lagoon System Upgrades and Lagoons that Produce Great Effluent
12:30 PM to 2:30 PM (Meet at lagoon)	Lagoon Field Testing, the basics of how to test and sample a municipal wastewater lagoon system for optimization. Dissolved Oxygen, Ammonia, Nitrate, & Temperature, Alkalinity Using a DR 1900 and Test Strips. How to pull samples, where to pull samples, and when to pull samples. How to properly sludge judge a lagoon
3:00 PM to 4:30 pm	Diagnosing Wastewater Lagoon Problems. How to determine the source of lagoon problems. The eleven things an operator must know to troubleshoot or optimize a lagoon. The essential role of monitoring and record keeping in solving problems in a lagoon system. How pond chemistry changes over the day & year. Sampling locations and a discussion of the value of different tests. How to interpret test results.
<u>DAY TWO</u>	
8:30 AM to 10:30 AM	Diagnosis Field Study Mission Hills Total Nitrogen Optimization Protocol Analyzing the Field Data Analyzing Dissolved Oxygen, Ammonia, Nitrate, Alkalinity, pH, and Temperature data.
10:30 AM to 10:15 AM	Break
10:15 AM to 12:00 PM	Diagnosing and Troubleshooting BOD₅ Problems. How to tell if your lagoon can handle additional load from a new subdivision, jail, hotel, handle septage, or industrial waste. Understanding CBOD ₅ vs. BOD ₅ . Diagnostic BOD ₅ Case studies from the field on solving BOD ₅ issues.
12:00 PM to 12:30 PM	Lunch
12:30 PM to 2:00 PM	Troubleshooting TSS Problems. What is BOD & TSS? Algae related TSS problems and algae's effect on BOD. Where and how to sample. The six steps to take to isolate the cause of a BOD ₅ problem. Typical loading rates. The benefits of algae. Algae's problematic side and in-pond strategies to remove algae. Methods for controlling algae growth. Lagoon colors and their meaning.

2:00 PM to 2:15 PM	Break
2:15 PM to 3:30 PM	<p>Sludge Accumulation and Removal. The problems accumulated sludge creates. Ten signs indicating it is time to remove sludge. Fifteen things that affect the rate of sludge accumulation. Typical sludge removal rates. How to determine the volume of sludge, sludge judging and core sampling. Things to consider before sludge judging a lagoon and how to prepare for this test. Formula for determining sludge volume and mass. How to Desludge a pond. Getting free sludge removal.</p> <p>Troubleshooting Ammonia and Phosphorous Problems. Nitrogen removal pathways and the eleven key factors that determine the rate of nitrogen removal. The chemistry and biology of nitrogen removal in lagoon systems. How to optimize a lagoon system for nitrogen removal. Case studies from cities that have controlled their ammonia & phos problems.</p>
3:30 PM to 4:30 PM	<p>Pond Hydraulics for Enhanced System Performance. How a small amount of short-circuiting dramatically affects pond system performance. Solutions to poor hydraulic design</p>