

Hands-on Wastewater Lagoon Troubleshooting Workshop

2-day hands-on workshops at the **Eureka** and **Weston** Missouri wastewater lagoon systems. Field testing, demonstrations, & lecture



Announcing a Powerful - "Hands ON" Diagnostic Troubleshooting and Optimization Workshop for Lagoon Operators and Wastewater Professionals

In this 2-day workshop, you will discover diagnostic tools to help you identify where, when, and why problems are occurring in your lagoon system. We will discuss new methods, techniques, and strategies you can use to get more BOD reduction, better TSS removal, Ammonia reduction, odor control, free sludge reduction, nutrient removal, and how to add more years of dependable service to the lagoon system you already have.

In this workshop you'll discover:

- Diagnostic keys to pinpointing where, when and why problems are occurring
- How to remove the greatest deterrent to your pond's treatment performance
- The 11 possible causes of high BOD and their 50 possible solutions
- The 7 possible causes of TSS problems and their 44 possible solutions
- How to troubleshoot ammonia removal problems
- How to get 12 inches of sludge reduction without dredging...and so much more!

Where:

Eureka Missouri

Hands-on Field Training: the Eureka Lagoon System

Lecture: The Timbers in Eureka

When: March 4 & 5, 2019,

MODNR Course # 1906082

Where:

Weston Missouri

Hands-on Field Training: the Weston Lagoon System

Lecture: Platte City Multipurpose Room, Platte City, MO

When: March 6 & 7th, 2019,

MODNR Course # 1901083



H&S Environmental, LLC

2122 E Leland Circle

Mesa, AZ 85213

March 4th -5th, 2019 Eureka, Missouri

March 6th - 7th, 2019 Weston & Platte City, Missouri

12 Renewal Training Hours CEU

Missouri DNR Green Voucher Approved

Eureka, Missouri March 4th & 5th, 2019
Weston & Platte City, Missouri March 6th & 7th, 2019

8:00 to 8:30 am	Registration
8:30 am to 10:00 am <small>At the Timbers & at the Platte City Multipurpose Room)</small>	Chief Failings of Lagoon Systems , six (6) main reasons why lagoons fail. The importance of biomass, hydraulics, sludge, testing, and maintenance of lagoon performance.
10:00 am to 10:15 am	Break
10:15 am to 12:00 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 and how to interpret test results.
12:00 pm to 12:30 pm	LUNCH
12:30 PM to 3:00 PM <small>(Meet at the Eureka and Weston Systems)</small>	Eureka & Weston 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
<u>DAY TWO</u>	
8:00 AM to 10:30 AM	Diagnostic Field Study Protocol Mission Hills Total Nitrogen Optimization Protocol. Analyzing the Eureka and Weston 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 1:30 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.
1:30 PM to 1:45 PM	Break
1:45 PM to 3:00 PM	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. The formula for determining sludge volume and mass. How to Desludge a pond. Getting free sludge removal.
	Pond Hydraulics for Enhanced System Performance. How a small amount of short-circuiting dramatically affects pond system performance. Solutions to poor hydraulic design

Registration Information

Because this is a hands-on laboratory and field class, seating is limited.

Registration is on a first come first serve basis. Sign up now BY SENDING THIS FORM IN to insure you will get a seat even if you are paying by VOUCHER.

Cancellations received up to 7 calendar days before the seminar are refundable, minus a \$25 registration service charge. After that, seminar fees are not refundable but can be credited to future workshops.

Lecture Portion of Workshop, Addresses:

- The Timbers at Eureka, MO: 1 Coffey Park Ln, Eureka, MO 63025, Phone: (636) 938-6775
- The Multipurpose Room at Platte, City, MO: Platte City High School Building at 308 Zed Martin Street at the southeast corner of Branch Street/Mo Rt 92 and 4th Street. Phone, City Hall: (816).858-3046.

The hands-on field work portion of the classes will be held at the Eureka Missouri and Weston Missouri lagoon systems

***** SIGN UP TODAY!

SPACE IS LIMITED *****

Wastewater Lagoon Optimization & Troubleshooting, comprehensive 2- day hands-on workshop

2 days, just \$225 per person

**Missouri DNR
Green
VOUCHER
APPROVED**

APPROVED BY: **Operator Certification and Training Units**
MISSOURI DEPARTMENT OF NATURAL RESOURCES Waste Water 12 hours
Course Numbers:
Eureka, MO: 1906082
Platte City/Weston, MO: 1901083

**Missouri DNR
Green
VOUCHER
APPROVED**

Name(s): _____

Municipality/Business: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ email: _____

Number of Attendees _____

Payment Amount: \$ _____ Check (✓) _____ (Make Check Payable to H&S Environmental, LLC)

Credit Card Number _____ Expiration Date _____

Name on Card _____ Signature: _____

Green Voucher _____ Yes/No (circle one) **Please Bring Green Vouchers the Day of Class**

Send, email, or Call to:
H&S Environmental, LLC
2122 E. Leland circle
Mesa, AZ 85213

1 (480) 274-8410
lagoonops@gmail.com
www.lagoonops.net

If **NOT** paying by MODNR Green Vouchers, send registration, check or money order, or email credit card number or call to the office above:
If paying **by voucher**, email or send this completed registration form to the address at the right. Keep VOUCHERS **UNTIL** day of class.