



We are committed to becoming a watershed to Agriculture and restoring it to its rightful place in the economy. This is substantiated through our ability to Envision the Big Picture and pinpoint the inefficiencies within our industry and provide solutions which ultimately contributes to our Mandate, Commitment and Successes.

# AGENDA

- ▶ 1. Introductions
- ▶ 2. Presentation
- ▶ 3. Questions and Answers
- ▶ 4. Discuss next steps



## WHO WE ARE

Ferthaul specializes in marketing/selling/hauling/applying manure and biosolids to Agricultural land. Currently working on some of North Americas largest hog and chicken farms.



CORN GROWERS AWARD FOR THE STATE OF MISSOURI 2014



MAP OF LAKE APOPKA



**Litchfield Analytical Services**

P.O. Box 457  
535 Marshall Street  
Litchfield, MI 49252

Voice: 517-542-2915  
Fax: 517-542-2014  
litchlab@qcnet.net  
www.litchlab.com

Feeds Forages Mycotoxins Soils Plant Tissues Manure Fertilizers Lime Water

**Sample Number:** 5,264

**Date Processed:** 03/15/12

**Sample Type:** Manure

**Cust#:** F972

**Grower ID:** #11

**Sample ID:** Lake Apo

**Phone:** 734-660-0075

FertHaul Michigan LLC  
8151 Zeeb Road

**Fax:**

Dexter MI 48130

**Email:** nickszabo@ferthaul.com

Attn: Nick Szabo

**Manure / Compost / Sludge Sample Laboratory Analysis Report**

Lab Results	E160.3 Moisture H2O %	E160.3 Solids DM %	E160.4 Organic Matter %	E353.2 Nitrate NO3-N %	E350.1 Ammonia NH4-N %	E351.2 Nitrogen Total N %	E6010 Phosphate P <sub>2</sub> O <sub>5</sub> %	E6010 Potassium K <sub>2</sub> O %	E6010 Calcium Ca %	E6010 Magnesium Mg %	E6010 Sulfur S %	Carbon C %
As Received Basis	87.13%	12.87%			0.01%	0.15%	0.02%	0.00%	0.18%	0.02%	0.06%	
Dry Matter Basis	0.00%	100.00%			0.06%	1.18%	0.17%	0.01%	1.40%	0.16%	0.47%	
<b>Lbs / 1,000 Gals As Received **</b>	7,258	1,072			0.6	12.7	1.8	0.1	15.0	1.7	5.1	
Estimated 1st Year Available Nutrients * Lbs / 1,000 Gals As Received **	7,258	1,072			0.6	3.6	1.8	0.1	11.2	1.3	3.8	

Lab Results	E6010 Aluminum Al ppm	E6010 Boron B ppm	SM4500 Chloride Cl %	E6010 Copper Cu ppm	E6010 Iron Fe ppm	E6010 Manganese Mn ppm	E6010 Sodium Na ppm	E6010 Zinc Zn ppm	E6010 Molybdenum Mo ppm	E160.4 Ash %	SM5210 BOD ppm	E160.2 Suspended Solids ppm
As Received Basis				1.9	281.4	6.8	22	9.5	1.0			
Dry Matter Basis				14.8	2,186.4	52.6	170	73.4	8.1			
<b>Lbs / 1,000 Gals As Received **</b>				0.0	2.3	0.1	0.2	0.1	0.0			
Estimated 1st Year Available Nutrients * Lbs / 1,000 Gals As Received **				0.0	1.8	0.0	0.1	0.1	0.0			

Lab Results	E6010 Arsenic As ppm	E6010 Barium Ba ppm	E6010 Cadmium Cd ppm	E6010 Chromium Cr ppm	E7471 Mercury Hg ppm	E6010 Nickel Ni ppm	E6010 Lead Pb ppm	E200.9 Selenium Se ppm	618.08 CaCO <sub>3</sub> Equivalent %	E160.4 Volatile Solids TVS %	9215B Total Plate Count CFU / Gram	9213D Fecal Coliform CFU / Gram
As Received Basis	0.5		0.3	9.0	0.0	3.5	1.9	1.8				
Dry Matter Basis	4.0		2.4	70.1	0.0	27.5	14.4	14.2				
<b>Lbs / 1,000 Gals As Received **</b>	0.0		0.0	0.1	0.0	0.0	0.0	0.0				
Estimated 1st Year Available Nutrients * Lbs / 1,000 Gals As Received **	0.0		0.0	0.1	0.0	0.0	0.0	0.0				

\* No estimate of 1st year available nitrogen is calculated without an Ammonium Nitrogen (NH<sub>4</sub><sup>+</sup>) assay. Estimated 1st Year Availability is based on Tri-State Fertility Recommendations, Midwest Plan Service, and Michigan Right to Farm guidelines. Actual 1st year nutrient availability, especially nitrogen, can vary greatly from estimates. 1st year nutrient availability is influenced by the type of manure the presence or absence and type of bedding or litter, the application rate, the application method, field conditions at the time of application, and weather following the manure application. The most accurate determination of nitrogen availability can be made with a Pre-Sidedress Soil Nitrate test taken just prior to nitrogen sidedress applications.

\*\* Manure density is assumed to be 8.33 pounds per gallon. Adjust if necessary as follows: Measured Density / 8.33 \* Reported Pounds Per 1000 Gallons = Adjusted Pounds Per 1000 Gallons.



## HISTORY

In 2013, Ferthaul presented a plan to revive Lake Apopka by remediating the lake through land utilization; Essentially, harvesting the flocculent and applying it to the adjacent land to grow hay. For every acre of land, Bermuda grass for instance, would remove approximately 100 Lb per acre.

# NUTRIENT REMOVAL via PLANT UPTAKE

- ▶ Here are your nutrient removal results for Bermuda Grass at 8 Tons.
- ▶ Nutrient lbs
- ▶ Nitrogen (N) 368
- ▶ Phosphorus (P<sub>2</sub>O<sub>5</sub>) 96
- ▶ Potassium (K<sub>2</sub>O) 400
- ▶ Sulfur (S) 32
- ▶ Magnesium (Mg) 32
- ▶ Calcium (Ca) 48
- ▶ Copper (Cu) 0.02
- ▶ Manganese (Mn) 0.64
- ▶ Zinc (Zn) 0.48
- ▶ Boron (B) 0.13
- ▶ Iron (Fe) 1.20





## LAKE APOPKA WATERWAYS



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litchlab@qcnet.net  
www.litchlab.com

Feeds Forages Mycotoxins Soils Plant Tissues Manure Fertilizers Lime Water

**Sample Number:** 5,260 **Date Processed:** 03/15/12  
**Sample Type:** Manure  
**Grower ID:** #4 **Cust#:** F972  
**Sample ID:** Hyacinths **Phone:** 734-660-0075  
 FertHaul Michigan LLC  
 8151 Zeeb Road  
 Dexter MI 48130  
 Attn: Nick Szabo **Email:** nickszabo@ferthaul.com

**Manure / Compost / Sludge Sample Laboratory Analysis Report**

Lab Results	E160.3 Moisture H2O %	E160.3 Solids DM %	E160.4 Organic Matter %	E353.2 Nitrate NO3-N %	E350.1 Ammonia NH4-N %	E351.2 Nitrogen Total N %	E6010 Phosphate P <sub>2</sub> O <sub>5</sub> %	E6010 Potassium K <sub>2</sub> O %	E6010 Calcium Ca %	E6010 Magnesium Mg %	E6010 Sulfur S %	Carbon C %
As Received Basis	92.89%	7.11%			0.01%	0.17%	0.03%	0.38%	0.15%	0.03%	0.01%	
Dry Matter Basis	0.00%	100.00%			0.18%	2.45%	0.41%	5.31%	2.17%	0.47%	0.16%	
<b>Lbs / 1,000 Gals As Received **</b>	7,738	592			1.1	14.5	2.4	31.4	12.8	2.8	0.9	
Estimated 1st Year Available Nutrients * Lbs / 1,000 Gals As Received **	7,738	592			1.1	4.5	2.4	23.6	9.6	2.1	0.7	

Lab Results	E6010 Aluminum Al ppm	E6010 Boron B ppm	SM4500 Chloride Cl %	E6010 Copper Cu ppm	E6010 Iron Fe ppm	E6010 Manganese Mn ppm	E6010 Sodium Na ppm	E6010 Zinc Zn ppm	E6010 Molybdenum Mo ppm	E160.4 Ash %	SM5210 BOD ppm	E160.2 Suspended Solids ppm
As Received Basis				0.5	39.2	24.4	80	1.0				
Dry Matter Basis				7.0	550.9	344.0	1,130	14.3				
<b>Lbs / 1,000 Gals As Received **</b>				0.0	0.3	0.2	0.7	0.0				
Estimated 1st Year Available Nutrients * Lbs / 1,000 Gals As Received **				0.0	0.2	0.2	0.5	0.0				

Lab Results	E6010 Arsenic As ppm	E6010 Barium Ba ppm	E6010 Cadmium Cd ppm	E6010 Chromium Cr ppm	E7471 Mercury Hg ppm	E6010 Nickel Ni ppm	E6010 Lead Pb ppm	E200.9 Selenium Se ppm	618.08 CaCO3 Equivalent %	E160.4 Volatile Solids TVS %	9215B Total Plate Count CFU / Gram	9213D Fecal Coliform CFU / Gram
As Received Basis												
Dry Matter Basis												
<b>Lbs / 1,000 Gals As Received **</b>												
Estimated 1st Year Available Nutrients * Lbs / 1,000 Gals As Received **												

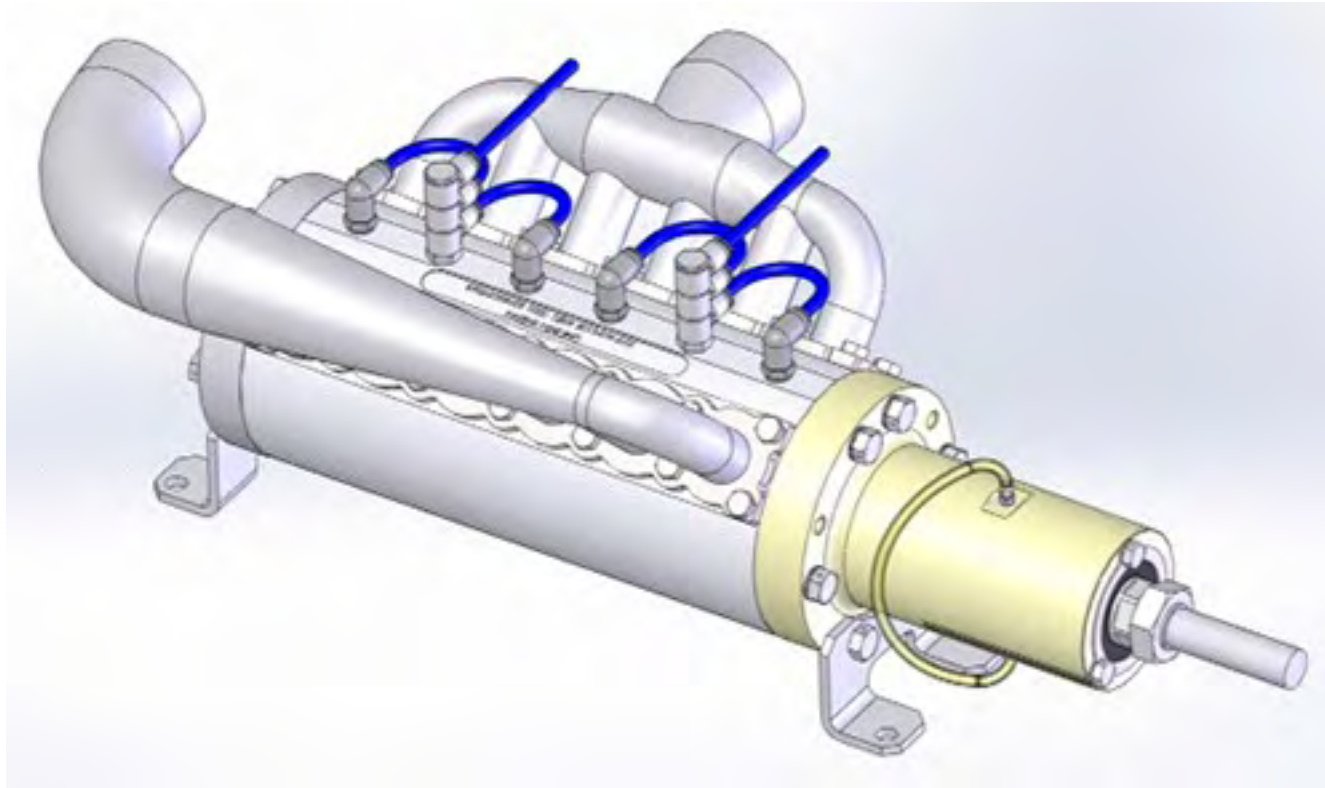


\* No estimate of 1st year available nitrogen is calculated without an Ammonium Nitrogen (NH4+) assay. Estimated 1st Year Availability is based on Tri-State Fertility Recommendations, Midwest Plan Service, and Michigan Right to Farm guidelines. Actual 1st year nutrient availability, especially nitrogen, can vary greatly from estimates. 1st year nutrient availability is influenced by the type of manure the presence or absence and type of bedding or litter, the application rate, the application method, field conditions at the time of application, and weather following the manure application. The most accurate determination of nitrogen availability can be made with a Pre-Sidedress Soil Nitrate test taken just prior to nitrogen sidedress applications.

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# MITTON VALVE TECHNOLOGY INC.



# cav·i·ta·tion

*ˌkavəˈtāʃən/*

*noun* PHYSICS

noun: **cavitation**

1. the formation of an empty space within a solid object or body.
  - the formation of bubbles in a liquid, typically by the movement of a propeller through it.



**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

BOB MARTINEZ CENTER  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT  
GOVERNOR

CARLOS LOPEZ-CANTERA  
LT. GOVERNOR

JONATHAN P. STEVERSON  
SECRETARY

February 11, 2015

Mr. Nicholas Szabo  
Ferthaul Florida RS LLC  
100 West Lucerne Circle  
Suite 200  
Orlando, Florida 32801

Dear Mr. Szabo:

The Florida Department of Environmental Protection's Bureau of Laboratories has completed testing of the Lake Apopka Cavitation Pilot Project water samples collected January 20-21, 2015. The pilot focused on the efficacy of removing nutrients, specifically phosphorus from Lake Apopka. Based on comparing the analytical chemistry sample results for the incoming dredge material (influent) and post-process water (effluent), the pilot plant removed total phosphorus from 8.0 mg P/L in the influent sample to 0.25 mg P/L in the effluent sample. Similarly, total nitrogen was reduced from 150 mg N/L to approximately 4.4 mg N/L.

The Department finds the results from this pilot project successful in reducing total phosphorus and total nitrogen. Please note, this letter does not relieve Ferthaul from any future permit requirements of state or federal law.

If you have questions, please contact me at [thomas.frick@dep.state.fl.us](mailto:thomas.frick@dep.state.fl.us).

Sincerely,

Thomas M. Frick, Director  
Division of Environmental Assessment and Restoration

**Florida Department of Environmental Protection  
Safe Drinking Water Program Laboratory Reporting Format**

**LABORATORY CERTIFICATION INFORMATION** (to be completed by lab - please type or print legibly)

Lab Name: Flowers Chemical Laboratories, Inc.

Florida DOH Certification #: E83018

Certification Expiration Date: 6/30/2015

ATTACH CURRENT DOH ANALYTE SHEET\*

Address: P. O. Box 150597, Altamonte Springs, FL 32715-0597

Phone #: 407-339-5984

Were any analyses subcontracted?  Yes  No If yes, please provide DOH certification number(s): \_\_\_\_\_

ATTACH DOH ANALYTE SHEET FOR EACH SUBCONTRACTED LAB\*

**ANALYSIS INFORMATION**(to be completed by lab)

Date Sample(s) Received: 01/21/15

PWS ID (From Page 1): \_\_\_\_\_

Sample Number (From Page 1): 256750SW1

Lab Assigned Report # or Job ID: 256750

Group(s) analyzed and results attached for compliance with Chapter 62-550, F.A.C. (check all that apply)

Inorganics

- All Except Asbestos
- Partial
- Nitrate
- Nitrite
- Asbestos

Synthetic Organics

- All 30
- All Except Dioxin
- Partial
- Dioxin Only

Volatile Organics

- All 21
- Partial

Disinfection Byproducts

- Trihalomethanes
- Haloacetic Acids
- Chlorite
- Bromate

Radionuclides

- Single Sample
- Qtrly Composite\*\*

Secondaries

- All 14
- Partial

**LAB CERTIFICATION**

I, Jefferson S. Flowers, Technical Director, do HEREBY CERTIFY that all attached analytical data are correct and unless noted meet all requirements of the National Environmental Laboratory Accreditation Conference (NELAC).

Signature:



Date: 02/13/15

\* Failure to provide a valid and current Florida DOH certification number and a current Analyte Sheet for the attached analysis results will result in rejection of the report and possible enforcement against the public water system for failure to sample, and may result in notification of the DOH Bureau of Laboratory Services.

\*\* Please provide radiological sample dates & locations for each quarter.

**CONFIRMATION AND NOTIFICATION IS REQUIRED WITHIN 24 HRS FOR NITRATE MCL EXCEEDANCES**

**NON-DETECTS ARE TO BE REPORTED AS THE MDL WITH A "U" QUALIFIER. (Non-detects reported as "BDL" or with a "<" are not acceptable.)**

**Compliance Determination** (to be completed by DEP or DOH - attach notes as necessary)

Sample Collection & Analysis Satisfactory  Yes  No \_\_\_\_\_ Replacement Sample or Report Requested (circle or highlight group(s) above) 14

Person Notified: \_\_\_\_\_ Date Notified: \_\_\_\_\_ DEP/DOH Reviewing Official: \_\_\_\_\_

QUESTIONS.