Therese Wheaton

www.crystalenv.com

“Specializing in Industrial and Municipal Solids-Liquid Separation Since 1992”
SPECIALIZING IN SOLIDS LIQUID SEPARATION...WHO ARE WE?

- Manufacturer & Manufacturer Representative.
- Our Products Available at Fair Market Prices.
- Our Experience Provides Clients, Regulators and Engineers with Pre-Determined Success.
- We **Challenge & Inspire** Entrepreneurs.
“WE PUT THE BIG PICTURE OF PROCESSING TOGETHER…” Tom Ferrero

INCLUDING:

- Dewatering Equipment
- Chemical Addition Equipment
- Sludge Pumping & Mixing
- De-Gritting & Screening
- Bio-Filtration / Odor Control
- Modulated Tanks
- Specialty Chemicals
OUR MISSION...

If you help enough people get what they want out of life...
You never have to worry about what you want!

Special Thanks to Those of You Who Shared Your 2008 Success with Me for this Presentation!
WHO IS HERE?

- Processors
- Pumper/Haulers Septic
- Pumper/Haulers Grease
- Pumper/Haulers Other
- Portable Toilet
- Excavators
- Students / Credit Hours
- Engineers
- Vendors
- Others?

Share Your Gifts with Others!
TREATMENT PROCESSES... WHAT IS OUT THERE?

Processing in the USA
LIQUID HAULING TO WWTP

$10.00 - $50.00 PER THOUSAND
CLOSE PROXIMITY...
LET THEM HAVE IT!
LIQUID HAULING TO LANDFILLS

OPTIMUM METHANE GAS EXTRACTION
LIQUID HAULING TO LANDFILLS

PERMITTED FOR LIQUID WASTE
MICHIGAN DEPARTMENT ENVIRONMENTAL QUALITY
LAND APPLICATION
3:1 RULE FOR SEPTIC : GREASE
SCREENING OR GRINDING TO 3/8”
MICHIGAN DEQ
LAND APPLICATION

APPROVED SEPTAGE WASTE STORAGE FACILITY
MICHIGAN DEQ
LAND APPLICATION

SCREENING FOR:
APPROVED SEPTAGE WASTE STORAGE FACILITY
MICHIGAN DEQ
LAND APPLICATION

APPROVED SEPTAGE WASTE STORAGE FACILITY
HOW ARE WE PROCESSING OUT THERE?

- Grit Removal
- Grinding or Screening
- Dual Stage Holding Tanks / Treatment
- Grease For Fuel
- Chemical and Pumping
- Dewatering
- DAF for Final BOD Removal
- Clarification / Holding Tank
- Bio-Filters
- Class A Bio-Solids Options
THERE CAN BE 10-30 YARDS OF GRIT IN ONE MILLION GALLONS OF GREASE / SEPTIC
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GRIT REMOVAL

TRAPPING GRIT IN CONTAINERS SIMPLIFIES “GRIT HANDLING”
Crystal Environmental

PUMPING & GRINDING

• Meets 3/8” Particle Size for Process
• Eliminates Screening Solid Waste
• Consider Flow Meter
• Odor Friendly
• Michigan Fabrication
• Meets 3/8” Particle Size
• Available in Stainless Steel
• Economical
• Simple
Crystal Environmental

USED SCREENING

- Used & Rebuilt Rotomat
- Meets 3/8” Particle Size for Process
- Cleans & Dries Screenings
- Odor Friendly
DUAL STAGE HOLDING TANKS

GO BIG!
THE MAN WITH THE BIGGEST TANKS WINS!
DUAL STAGE HOLDING TANKS

DETERMINE DAILY FLOW TO PLANT
BUILD 2
Crystal Environmental

DUAL STAGE HOLDING TANKS

DETERMINE DAILY FLOW TO PLANT
BUILD 2 OR MORE!
Crystal Environmental

DUAL STAGE HOLDING TANKS

DETERMINE DAILY FLOW TO PLANT
BUILD 2
Crystal Environmental

BIOLICAL PROCESSES

AEROBIC PROCESSES / BIG FISH
BIOLOGICAL PROCESSES

ANAEROBIC GREASE PROCESSING

- Requires 25,000 to 100,000 GPD
- Methane Gas Production
- Biological Process Must Be Maintained
- Consistent and Equalized Flow Demand
- Still Struggles in Agriculture
- Struvite & Vivanite Precipitation
- Ideally located by power generator
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BENEFICIAL REUSE OF GREASE

60,000 GPD of Grease Trap
- 300,000 GPW of Grease Trap
- 6,500 GPW of Bio-Fuel

BROWN GREASE TO BIO-FUEL
BENEFICIAL REUSE OF GREASE

The Process:

1. Brown Grease: Sold, used for fuel or biodiesel.
2. Water, Food Mixture: Introduced into headworks, or land applied as food grade soil amendment.
3. Oil, Food & Water: Filtered into Phase II.
4. Phase I: Grease trap waste in from truck.
5. Trash, Sand, Foreign Objects: (No Touch).

*Patent Pending

BROWN GREASE TO BIO-FUEL
CRYSTAL ENVIRONMENTAL

BENEFICIAL REUSE OF GREASE

BLACKGOLD BIOFUELS

(FRY-O-DIESEL)
The City of San Francisco announced earlier this month that it will install BlackGold’s Processing Equipment at their treatment plant to convert their trap grease into bio-diesel. This installation will be online in November.
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BENEFICIAL REUSE OF GREASE

POP DIESEL
PURCHASES BROWN GREASE
BENEFICIAL REUSE OF GREASE

POP DIESEL...POP BOX
INSTALLATIONS FOR BIG TRUCKS, TOO!
CLAUDE WILL BE SPEAKING THIS AFTERNOON.

SELL OIL FOR FUEL
Crystal Environmental's Layout for Pre-Treatment

Equipment Selection based upon Processing Goals

NOW WHAT?
CONDITIONING & PUMPING

WHAT SHOULD GREASE LOOK LIKE?

CONTAINER DEWATERING BOX
CONDITIONING & PUMPING
WHAT SHOULD GREASE LOOK LIKE?

CONTAINER DEWATERING BOX
Crystal Environmental

CONDITIONING & PUMPING

WHAT SHOULD THE FILTRATE LOOK LIKE?

CONTAINER DEWATERING BOX
CONDITIONING & PUMPING
WHAT DOES SEPTIC LOOK LIKE?

CONTAINER DEWATERING BOX
CONDITIONING & PUMPING
WHAT CHANGE SHOULD WE EXPECT?

MAKING SEWERABLE WATER
Komline Sanderson Belt Filter Press Rented to a Grease Processing Facility
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BELT FILTER PRESSES

Ashbrook Klampress
Delivered August, 2008
5% Special Project Sludge
150 GPM
21% Solids

Used & Refurbished; Skid Mounted Unit
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Belt Filter Presses

New BDP Industries...Complete Mobile Unit Delivered May, 2008
Crystal Environmental

ALAR

Vacuum Filter
Equalize with Chemical Addition in Slurry Tank and Pump!
Lime Addition can Produce a Marketable Bio-Solid
FKC SCREW PRESS INSTALLATION

Tim Frank’s Septic Services
**CENTRIFUGES**

**CUT AWAY OF THE CENTRIFUGAL EXTRACTOR**

**Legenda:**
1. Main motor
2. Hydraulic coupling
3. Bowl
4. Scroll, open type
5. Effluent weir plates
6. Pulley drive
7. Planetary reduction unit
8. Scraper motor (patented system)
9. Separate sediment scraper room (patented system)
10. Removable shuttle feed pipe
11. Studs (standard)
12. Cake discharge
13. Effluent discharge
14. Vibration dampers
15. Flushing drains
16. Dehydrated product washing device

*All parts in contact with the product to be treated are made of stainless steel.*

**Dewaters With Polymer at High Speeds**
Chemically Treated Dewatering

- Feed Pressure 2-7 PSI
- Discharge Pressure 70 PSI max.
- Filtration, Pressing & Restriction Zones:
  - Variable Depending on Speed
  - Feed & Discharge Pressures
  - Nature of the Sludge
High Solids
No Wash Water
High Capture Rates
Low Energy Demand & Septic

2009 Installation in Transport Waste Processing Facility
CONTAINERIZED DEWATERING
MOST AFFORDABLE ENTRY POINT

Available in: Carbon Steel, Stainless Steel

Hot Dipped Galvanized & HDPE Plastic in 2009
DEWATERING PROCESS COMPARISON

GRINDING VS. SCREENING
DEWATERING PROCESS COMPARISON
DUAL TANKS
DEWATERING PROCESS COMPARISON
CHEMICAL ADDITION & PUMPING
DEWATERING PROCESS COMPARISON
SOLIDS PRODUCTION
DEWATERING PROCESS COMPARISON
WATER DISCHARGE
DEWATERING PROCESS COMPARISON
WATER DISCHARGE
A FINAL NOTE FOR BOD & FOG
WATER CLARIFICATION

DAF / SAF PROCESSES
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WATER CLARIFICATION

DAF / SAF PROCESSES
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WATER CLARIFICATION

DAF / SAF PROCESSES
YOU CAN PROCESS:

- Grease
- Septic
- Grease & Septic
- Portable Toilet
- Car Wash
- Industrial Wastes

CHOOSE YOUR EQUIPMENT
PERMIT SITE
MEET THE DISCHARGE REQUIREMENTS
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CLASS A BIO-SOLIDS

AQUA-ZYME

DEWATERING & COMPOSTING
Crystal Environmental

CLASS A BIO-SOLIDS

AQUA-ZYME
DEWATERING & COMPOSTING
CLASS A BIO-SOLIDS

GREEN MOUNTAIN TECHNOLOGIES
DEWATERING & COMPOSTING
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CLASS A BIO-SOLIDS

GREEN MOUNTAIN TECHNOLOGIES

COMPUTER MAINTAINS DOCUMENTATION
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CLASS A BIO-SOLIDS

GREEN MOUNTAIN TECHNOLOGIES
DEWATERING & COMPOSTING
BIO-FILTERS / ODOR CONTROL
SITE ENGINEERED
Crystal Environmental

BIO-FILTERS / ODOR CONTROL

SITE ENGINEERED AT BIG FISH
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BIO-FILTERS / ODOR CONTROL

SITE ENGINEERED
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BIO-FILTERS / ODOR CONTROL

DESIGNED WITH HOG ODORS IN MIND (NOSE!)
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ADDITIONAL STORAGE

Emergency Storage, Event Waste, Special Chemistries
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ADDITIONAL STORAGE

Emergency Storage, Event Waste, Special Chemistries
WHAT MOTIVATED OTHERS TO BUILD?

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TREATMENT PROCESSES...
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WHAT MOTIVATED OTHERS TO BUILD?

PROVIDE A VIABLE FINANCIAL OUTLET
WHAT MOTIVATED OTHERS TO BUILD?

DISCHARGE A Viable WATER QUALITY
WHAT MOTIVATED OTHERS TO BUILD?

INCREASE CUSTOMER SERVICE
RURAL / NON-POINT SOURCE LOCATIONS CAN BE SERVICED (OUR PROBLEM?)
WHAT MOTIVATED OTHERS TO BUILD?

PROTECT THE WATER SHED
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GREASE...
SOLVING REGIONAL NEEDS

ALLOW HEALTH DEPARTMENTS TO ENFORCE GREASE TRAP PUMPING
WASTEWATER TREATMENT PLANTS CAN ENFORCE PUMPING
DECREASE SEWER CLEANING
FOR WASTEWATER PLANTS
WHAT MOTIVATED OTHERS TO BUILD?

PUT THE TIPPING FEES INTO CAPITAL
WHAT MOTIVATED OTHERS TO BUILD?

CASH COW OR A MARKETABLE BUSINESS
THERESE’S EDITORIAL

WASTE WATER TREATMENT PLANTS
ELIMINATING THESE TYPES OF PROBLEMS
MY STRESS POINT
WASTE WATER TREATMENT PLANTS

PRE-TREATMENT ALLOWING THE DISCHARGE TO SUPPORT THE PRIMARY TREATMENT
HOW MUCH MORE OF THIS SEWERABLE WATER CAN THE WWTP HANDLE?

CHOOSE YOUR EQUIPMENT
PERMIT SITE
MEET THE DISCHARGE REQUIREMENTS
Faith is Taking the First Step, Even When You Don’t See The Whole Staircase!
Is Processing the Key to Your Future?

WWW.CRYSTALENV.COM
For: Pumper / Haulers

- More Information
- Game Plan
- Project Estimator
- Gallery Tour of Photos

Thank You! Therese Wheaton
Questions?