



Crystal Environmental



Pumper & Cleaner
Environmental Expo

TREATMENT PROCESSES... WHAT IS OUT THERE?



*Wednesday,
February 25, 2009*

Processing in the USA





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Therese Wheaton

www.crystalenv.com

“Specializing in Industrial and Municipal Solids-Liquid Separation Since 1992”





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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.

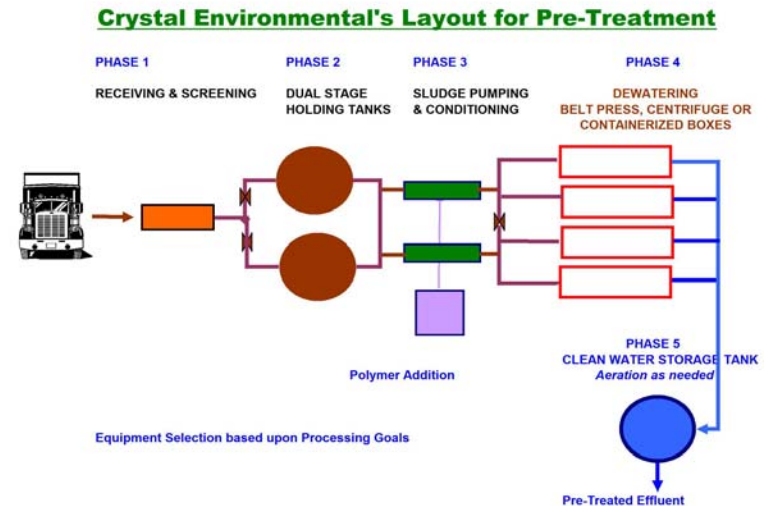




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**“WE PUT THE BIG PICTURE OF
PROCESSING TOGETHER...”** *Tom Ferrero*
INCLUDING:

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





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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!*





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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!*





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Environmental Expo

TREATMENT PROCESSES... WHAT IS OUT THERE?



Processing in the USA





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LIQUID HAULING TO WWTP



**\$10.00 - \$50.00 PER THOUSAND
CLOSE PROXIMITY...
LET THEM HAVE IT!**





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LIQUID HAULING TO LANDFILLS



OPTIMUM METHANE GAS EXTRACTION





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LIQUID HAULING TO LANDFILLS



PERMITTED FOR LIQUID WASTE





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MICHIGAN DEPARTMENT ENVIRONMENTAL QUALITY LAND APPLICATION 3:1 RULE FOR SEPTIC : GREASE



SCREENING OR GRINDING TO 3/8"





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**MICHIGAN DEQ
LAND APPLICATION**



APPROVED SEPTAGE WASTE STORAGE FACILITY





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**MICHIGAN DEQ
LAND APPLICATION**



**SCREENING FOR:
APPROVED SEPTAGE WASTE STORAGE FACILITY**





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**MICHIGAN DEQ
LAND APPLICATION**



APPROVED SEPTAGE WASTE STORAGE FACILITY



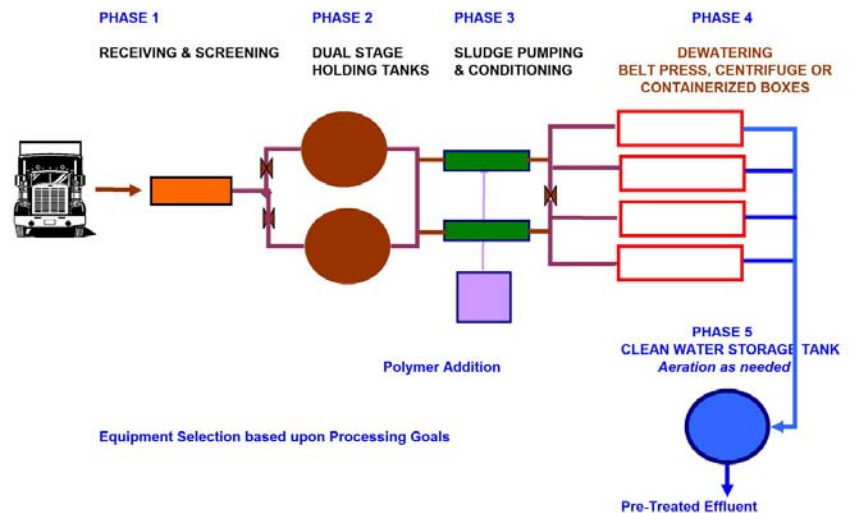


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HOW ARE WE PROCESSING OUT THERE?

- ❖ 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

Crystal Environmental's Layout for Pre-Treatment





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GRIT REMOVAL



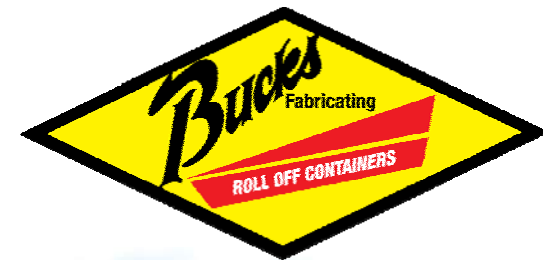
THERE CAN BE 10-30 YARDS OF GRIT IN ONE MILLION GALLONS OF GREASE / SEPTIC





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GRIT REMOVAL



**TRAPPING GRIT IN CONTAINERS
SIMPLIFIES "GRIT HANDLING"**





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PUMPING & GRINDING



- Meets 3/8" Particle Size for Process
- Eliminates Screening Solid Waste
- Consider Flow Meter
- Odor Friendly





Crystal Environmental SCREENING



- Michigan Fabrication
- Meets 3/8" Particle Size
- Available in Stainless Steel
- Economical
- Simple





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USED SCREENING



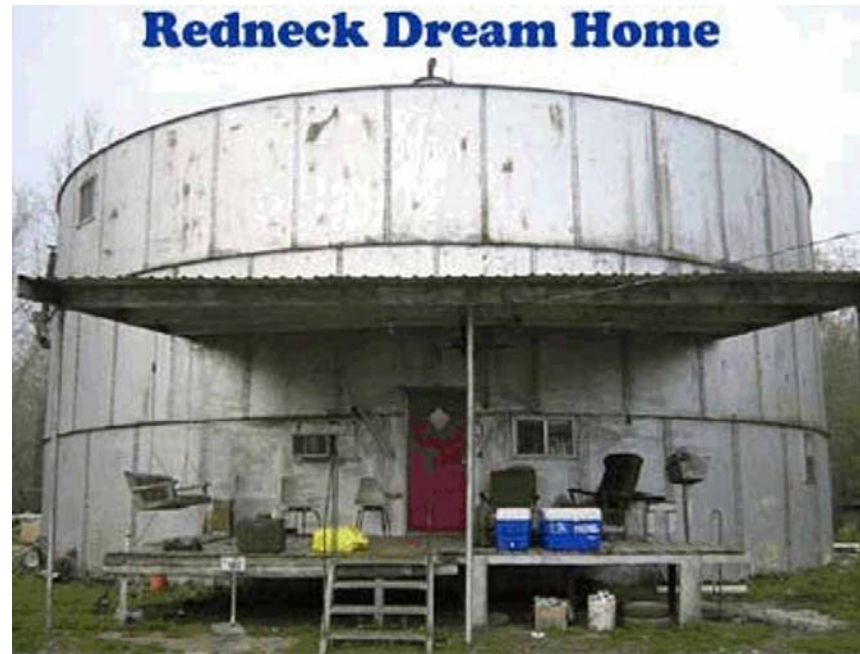
- Used & Rebuilt Rotomat
- Meets 3/8" Particle Size for Process
- Cleans & Dries Screenings
- Odor Friendly





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DUAL STAGE HOLDING TANKS



GO BIG!

THE MAN WITH THE BIGGEST TANKS WINS!





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DUAL STAGE HOLDING TANKS



**DETERMINE DAILY FLOW TO PLANT
BUILD 2**





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DUAL STAGE HOLDING TANKS



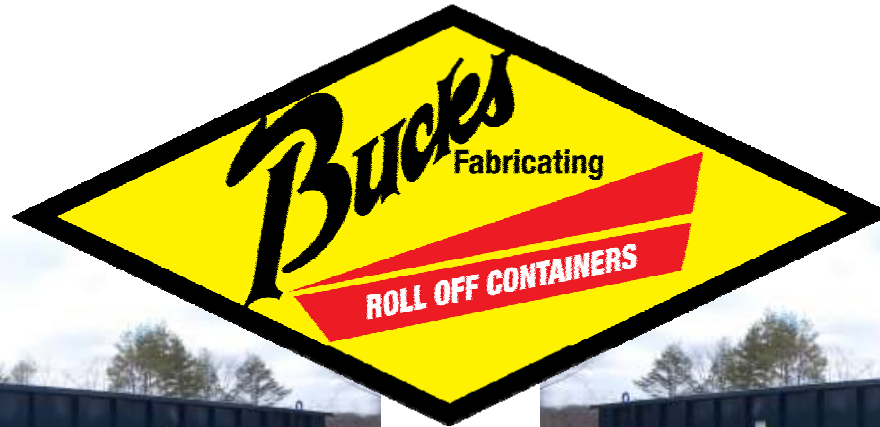
DETERMINE DAILY FLOW TO PLANT
BUILD 2 OR MORE!





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DUAL STAGE HOLDING TANKS



**DETERMINE DAILY FLOW TO PLANT
BUILD 2**





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BIOLOGICAL PROCESSES



AEROBIC PROCESSES / BIG FISH





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BIOLOGICAL PROCESSES



AEROBIC PROCESSES / BIG FISH





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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 & Vivianite 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

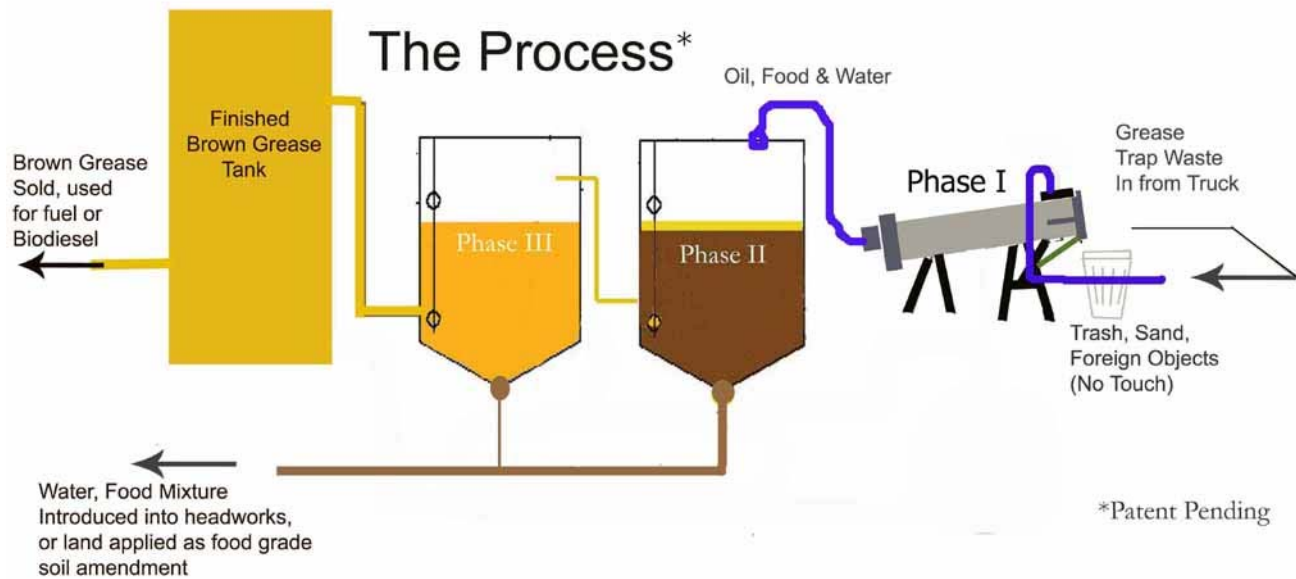
BROWN GREASE TO BIO-FUEL





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BENEFICIAL REUSE OF GREASE



BROWN GREASE TO BIO-FUEL





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BENEFICIAL REUSE OF GREASE

**BLACKGOLD
BIOFUELS**



Steve Standing



(FRY-O-DIESEL)





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BENEFICIAL REUSE OF GREASE



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





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BENEFICIAL REUSE OF GREASE



**POP DIESEL...POP BOX
INSTALLATIONS FOR BIG TRUCKS, TOO!**





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**CLAUDE WILL BE SPEAKING
THIS AFTERNOON.**



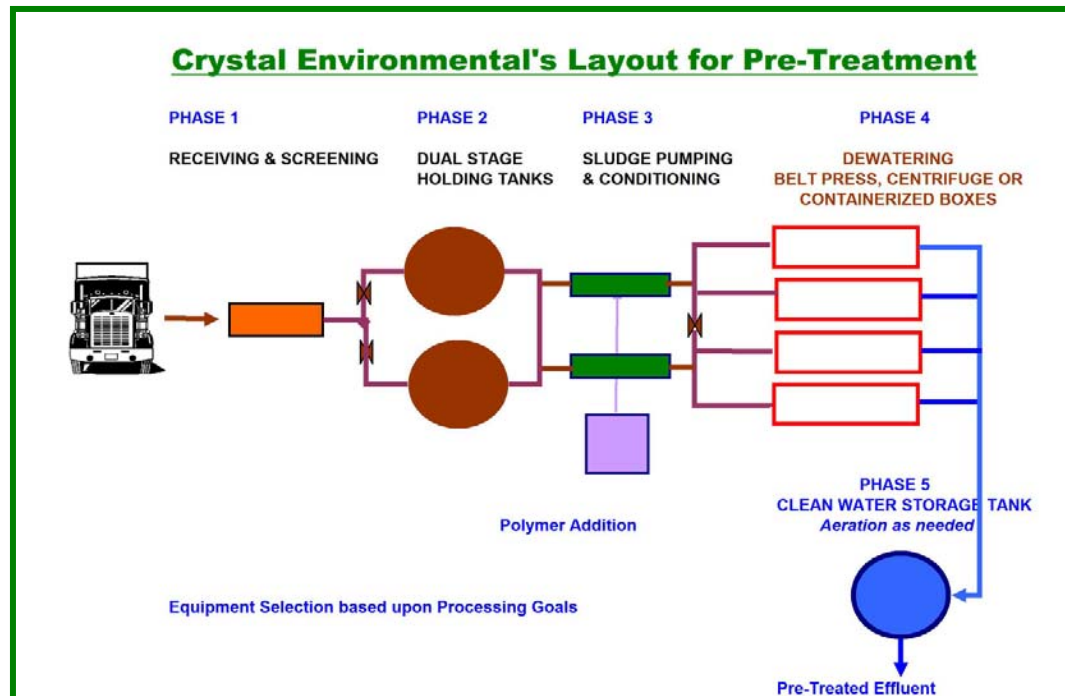
SELL OIL FOR FUEL





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BACK TO THE PLAN



NOW WHAT?





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CONDITIONING & PUMPING WHAT SHOULD GREASE LOOK LIKE?



CONTAINER DEWATERING BOX





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CONDITIONING & PUMPING WHAT SHOULD GREASE LOOK LIKE?



CONTAINER DEWATERING BOX





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CONDITIONING & PUMPING

WHAT SHOULD THE FILTRATE LOOK LIKE?



CONTAINER DEWATERING BOX





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CONDITIONING & PUMPING WHAT DOES SEPTIC LOOK LIKE?



CONTAINER DEWATERING BOX





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CONDITIONING & PUMPING WHAT CHANGE SHOULD WE EXPECT?



MAKING SEWERABLE WATER





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BELT FILTER PRESSES



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



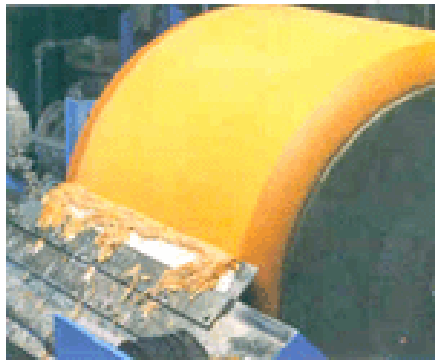
New BDP Industries...Complete Mobile Unit Delivered May, 2008





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ALAR



Vacuum Filter





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PLATE & FRAME PRESSES



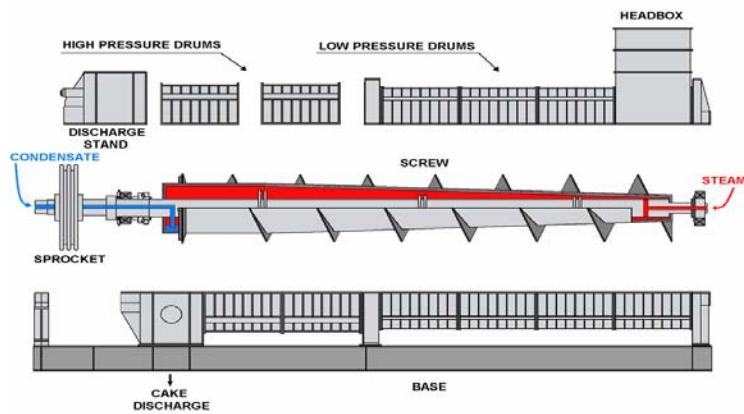
Equalize with Chemical Addition in Slurry Tank and Pump!





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FKC SCREW PRESS



FKC Screw Press Expanded View



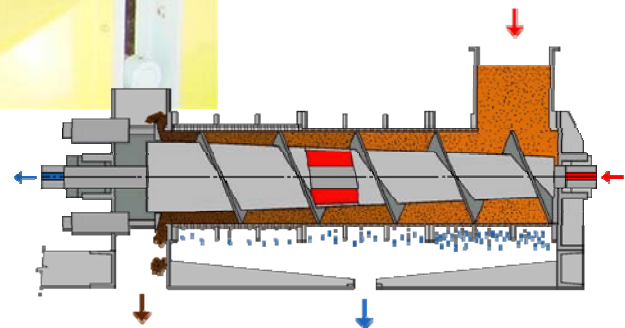
Lime Addition can Produce a Marketable Bio-Solid





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FKC SCREW PRESS INSTALLATION



Tim Frank's Septic Services

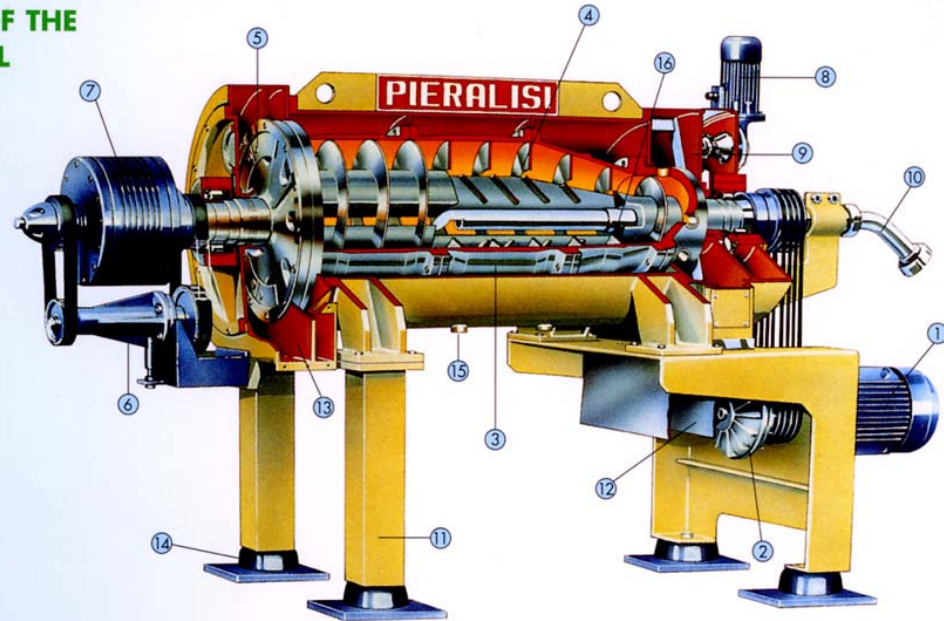




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CENTRIFUGES

CUT AWAY OF THE CENTRIFUGAL EXTRACTOR



Legenda:

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

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

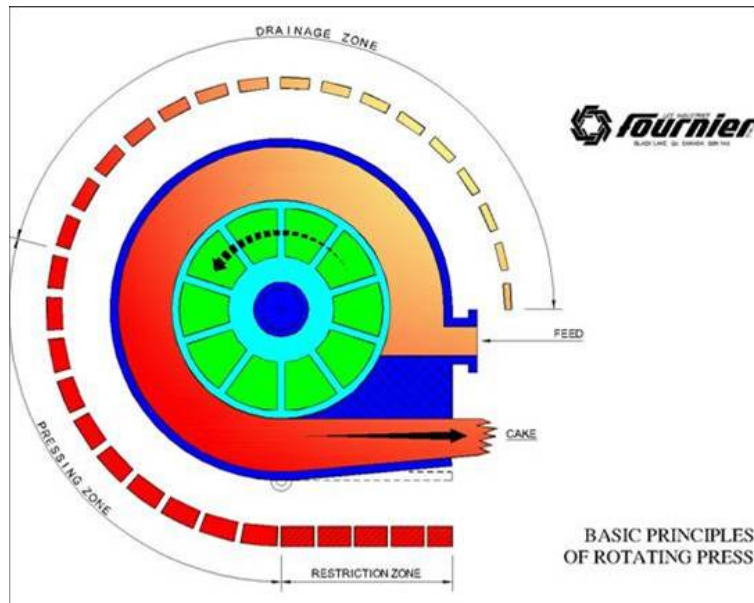
Dewaters With Polymer at High Speeds





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FOURNIER



- ❖ 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

Chemically Treated Dewatering





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FOURNIER



- ❖ High Solids
- ❖ No Wash Water
- ❖ High Capture Rates
- ❖ Low Energy Demand & Septic

2009 Installation in Transport Waste Processing Facility





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**CONTAINERIZED DEWATERING
MOST AFFORDABLE ENTRY POINT**



Available in: Carbon Steel, Stainless Steel

Hot Dipped Galvanized & HDPE Plastic in 2009





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DEWATERING PROCESS COMPARISON

GRINDING

VS.

SCREENING





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DEWATERING PROCESS COMPARISON DUAL TANKS





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DEWATERING PROCESS COMPARISON CHEMICAL ADDITION & PUMPING





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DEWATERING PROCESS COMPARISON SOLIDS PRODUCTION





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DEWATERING PROCESS COMPARISON WATER DISCHARGE





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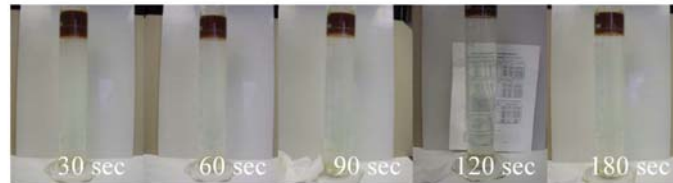
DEWATERING PROCESS COMPARISON WATER DISCHARGE



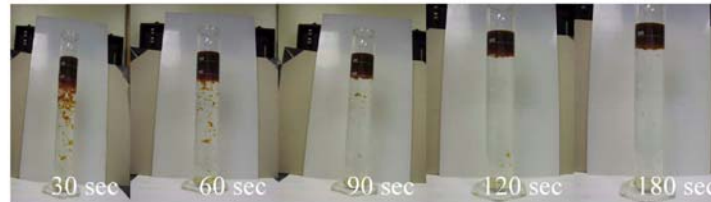


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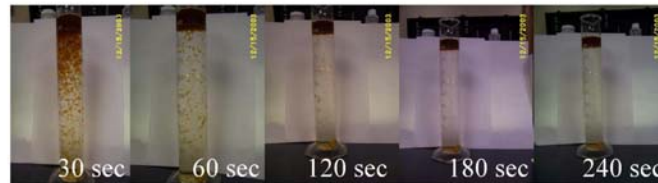
A FINAL NOTE FOR BOD & FOG WATER CLARIFICATION



SAF™



High
Rate
DAF



Standard
DAF

DAF / SAF PROCESSES





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WATER CLARIFICATION



DAF / SAF PROCESSES





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WATER CLARIFICATION



DAF / SAF PROCESSES





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PROCESSING IDEALS

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





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CLASS A BIO-SOLIDS



**AQUA-ZYME
DEWATERING & COMPOSTING**





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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





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BIO-FILTERS / ODOR CONTROL



SITE ENGINEERED





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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



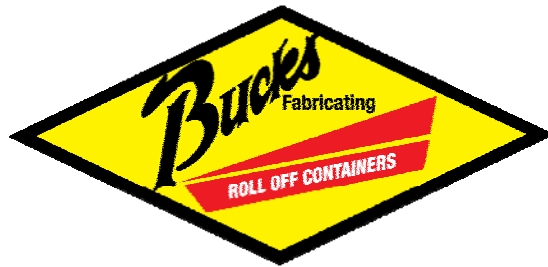
Emergency Storage, Event Waste, Special Chemistries





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ADDITIONAL STORAGE



Emergency Storage, Event Waste, Special Chemistries





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TREATMENT PROCESSES...



WHAT MOTIVATED OTHERS TO BUILD?





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WHAT MOTIVATED OTHERS TO BUILD?



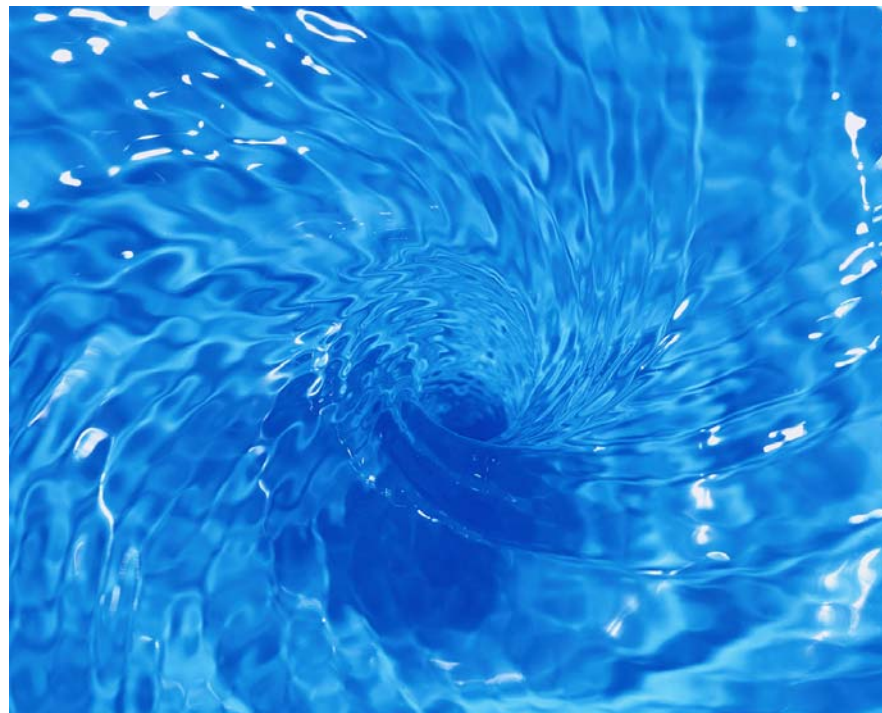
PROVIDE A VIABLE FINANCIAL OUTLET





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WHAT MOTIVATED OTHERS TO BUILD?



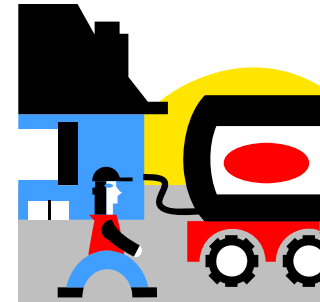
DISCHARGE A VIABLE WATER QUALITY





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WHAT MOTIVATED OTHERS TO BUILD?

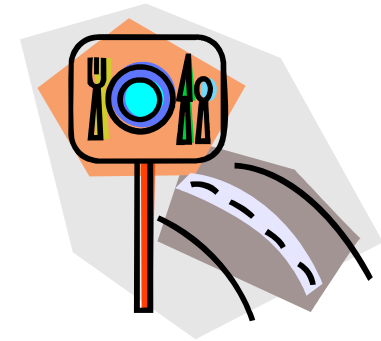


INCREASE CUSTOMER SERVICE





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**RURAL / NON-POINT SOURCE LOCATIONS
CAN BE SERVICED (OUR PROBLEM?)**





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WHAT MOTIVATED OTHERS TO BUILD?



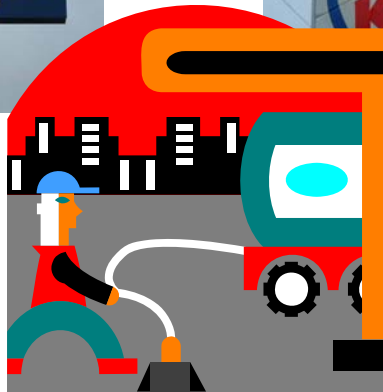
PROTECT THE WATER SHED





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GREASE... SOLVING REGIONAL NEEDS



ALLOW HEALTH DEPARTMENTS TO ENFORCE GREASE TRAP PUMPING





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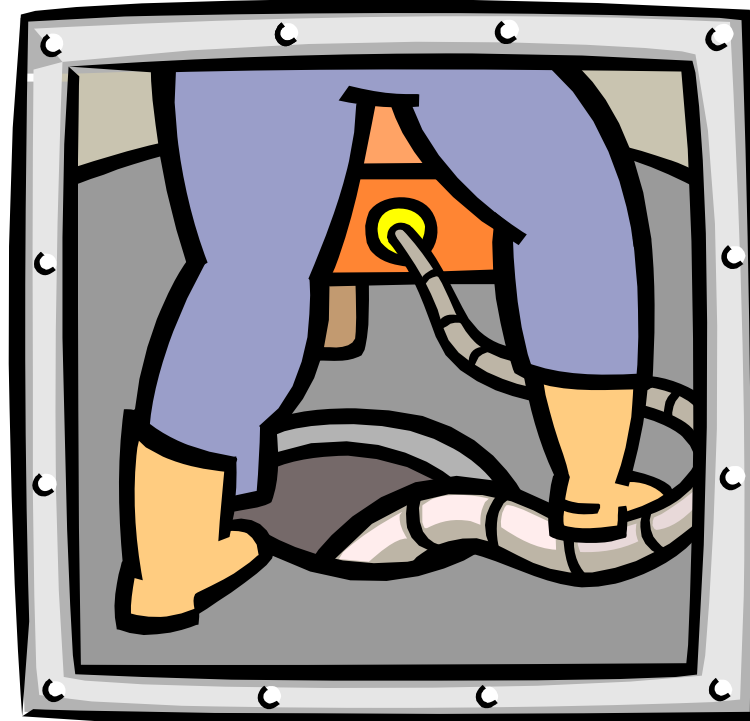


**WASTEWATER TREATMENT PLANTS
CAN ENFORCE PUMPING**





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**DECREASE SEWER CLEANING
FOR WASTEWATER PLANTS**





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WHAT MOTIVATED OTHERS TO BUILD?



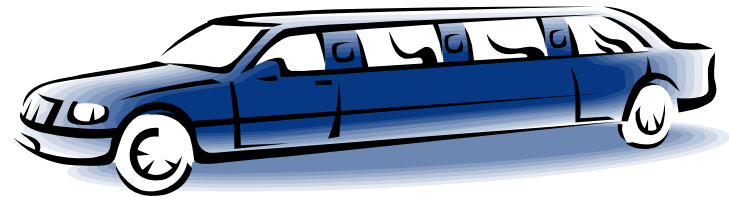
PUT THE TIPPING FEES INTO CAPITAL





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WHAT MOTIVATED OTHERS TO BUILD?



CASH COW OR A MARKETABLE BUSINESS





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THERESE'S EDITORIAL



**WASTE WATER TREATMENT PLANTS
ELIMINATING THESE TYPES OF PROBLEMS**





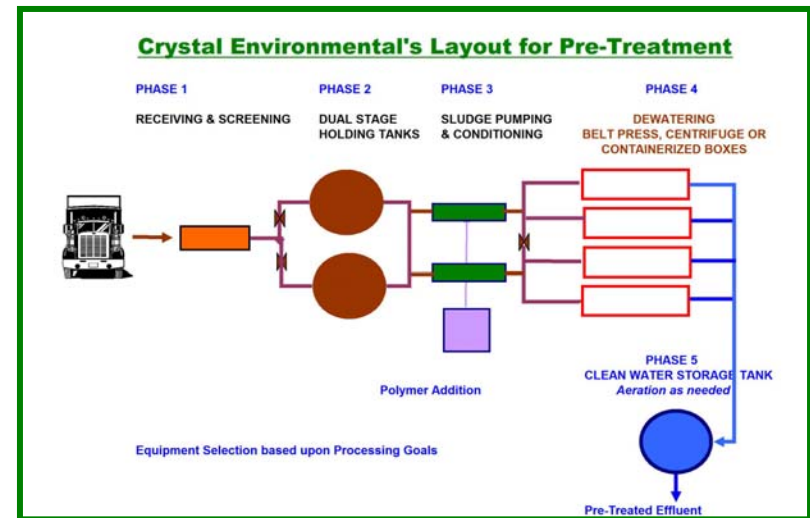
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MY STRESS POINT WASTE WATER TREATMENT PLANTS



vs.



PRE-TREATMENT ALLOWING THE DISCHARGE TO SUPPORT THE PRIMARY TREATMENT





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**HOW MUCH MORE OF THIS SEWERABLE WATER
CAN THE WWTP HANDLE?**



CHOOSE YOUR EQUIPMENT

PERMIT SITE

MEET THE DISCHARGE
REQUIREMENTS





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PROCESSING OPPORTUNITIES

*Faith is Taking the First Step,
Even When You Don't See
The Whole Staircase!*





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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?

