Analyzing Your Resources

To Start Your Own Processing Plant

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NOWRA Mega Conference 2019
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- Family Owned Since 1966
  - 3rd Generation now on board
  - 4th Generation up and coming
- Located in Northeast Ohio
  - Snow belt
Screening & Storage

Portable Toilet Waste

Grease

Sewage Sludge

Septage

Dewatering Process

Sludge Cake

Water
Not Just a Machine

• Things to Consider
  • Why are you building a dewatering facility
  • Is it a good fit

• Research
  • Field Trips
  • Networking

• Time
  • All of these take time, including actually running the dewatering facility
Things to Consider: Your Company

- Gallons per year pumped
  - Septage
  - Grease
  - Other

- Current disposal options & limitations
  - Current costs at WWTP
  - Travel time to and from WWTP
  - Hours of acceptance
  - Volume accepted
  - Materials accepted
  - Seasonal
Things to Consider: Your Employees

• How many
• Dedicated
  • Buying into the project
• Drivers or trained professionals
  • Setting the bar

“It’s the only way I can get my employees’ full attention.”
Things to Consider: Your Customers

- Loyal customer base
- Are you a professional company, or a name they found online
- What is your branding
  - How will a dewatering facility help deliver value to your customers
Things to Consider: Your Competition

• Their disposal options
• Are they competition or just names on the internet
• Do you work together on any projects
• Would a joint disposal facility be an option
Things to Consider: Explore all Options

- One size does not fit all
  - Find what is best for your situation
  - Bigger is not always better
- Bulk transportation to WWTP
- Screen and discharge
- Partnering with farmers for land application
- Repurpose existing buildings or abandoned WWTP
- Partner with WWTP
Things to Consider: Location

- Rural vs. Urban
- Final disposal options
  - You still have to get rid of water and sludge cake
- Local, county, and state ordinances
- Odors
- Zoning
- Utilities
- Neighbors
Research

• Field Trips
  • NAWT Symposia
  • See how other facilities did it

• Networking
  • Talk to other facility owners to find out what worked and what did not
  • Local WWTPs
  • Farmers
Research

• Sewer Ordinances
  • Tap in fees
    • Flat fee
    • Equivalent residential unit fee
  • User fees
    • Can vary
    • Negotiate
  • Impact fees
  • Surcharges
Sewer Ordinance Example: Tap in Fee

- One (1) equivalent residential unit (ERU) shall, for the purposes of this Section, have an assigned value of 1.000.
- One (1) ERU is hereby established and determined to be equal to a flow of three hundred (300) gallons per day.
- Tap in Fee for One (1) ERU is $4,000
Sewer Ordinance Example: Tap In Fee Calculation

• 30,000 Gallon per day
• 1 ERU = 300 Gallons per day
• 1 ERU = $4,000

• 30,000 GPD ÷ 300 G / ERU = 100 ERU’s x $4,000 Fee / ERU = $400,000
• This is the cost to tie into a municipality, does not include the cost per gallon for disposal
Sewer Ordinance Example: Impact Fees

- Impact Fee (if any) is in addition to tap fees and will be determined on a case by case basis.
- The fee helps offset municipalities’ cost of providing services to new users.
- The Impact Fee is based on location of project, size of project, type of project and other like factors.
"Normal sewage" means sewage which when analyzed shows by weight a daily average of not more than 250 parts per million of suspended solids; not more than 200 parts per million B.O.D.; not more than 8 parts per million phosphorus; and not more than 25 parts per million ammonia-nitrogen.
Components

• Receiving station for monitoring outside loads

• Screening
  • Bar Screening: Garbage, debris, wet wipes
  • Fine Screening: Hair, smaller trash
  • (Do not Grind – will come back to haunt you)

• Liquid Storage
  • Mixing, thickening, periods of high volumes of pumping
Liquid Storage

• Mixing
  • To ensure homogenous blend for easier dewatering

• Thickening
  • Ability to get your feed to the right consistency

• Periods of high volumes of pumping
  • Allows extra storage during busy periods or emergencies

• Unexpected breakdowns with dewatering equipment
  • Allows extra storage for maintenance & breakdowns of dewatering equipment
Separation

- Polymer
  - Dry
  - Liquid
- Lime
  - Safety
  - Storage
    - Bulk
    - Bag
- Both
Dewatering Equipment

- **Volume**
  - Desired amount to be dewatered per day
- **Size**
  - Area the equipment is to be located
- **Final disposal of cake and effluent water**
  - Final disposal options will dictate how dry the cake must be and water cleanliness
Dewatering Equipment

• Mechanical vs. Gravity
Final Storage

- Storage for dried cake
  - Inclement weather
  - Equipment malfunctions
  - Proper land application

- Liquid Storage
  - Inclement weather
  - Proper land application

- Oops Batches
  - Spot to dry bad dewatered batches
Final Disposal

- Disposal vs. Reuse
- Effluent water
  - Discharge to publicly owned treatment works
    - May require further filtration
  - Spray irrigation
  - Subsurface irrigation
- Sludge Cake
  - Landfill
  - Land application
  - Additional treatment processes
    - Composting, Thermal drying, etc.
Basic Layout Principles

• Let gravity be your friend
  • Elevated equipment
  • Let gravity help move water between components

• Outside facilities
  • Precipitation – outside storage (lagoons) and rain do not mix
  • Temperature – freezing, impeding achievement of discharge numbers

• Odors – Indoor or Outdoor
  • Don’t be a smelly neighbor

• Plan for expansion & flexibility
The Team

• You “the expert” and your employees  
  • Office staff  
  • Technicians  
  • Operator  
    • Will impact equipment choices
• Engineer  
  • Picking the one!
• Accountant
• Banker
• WWTP
Other Equipment

- Pumps
- Mixing & Blending
- Conveyors
- Front end loaders
- Roll-off truck / Dump truck
- Confined space entry training and equipment
Business Plan

• Does it make cents
  • Will you save money, time, or allow for increase opportunities

• Put it on paper
  • Painting a pretty picture for investors, banks, and government entities

• Lean on your team members for help

• Consider separating pumping business from dewatering company
Local & State Officials

• Be prepared to educate
• Present your plan
  • Donuts
• Be confident
• Get er’ done attitude!
• Be a professional
• Make them part of the team
Permits

• State or local
• Reflect materials processed
• May take time
• Lots of correspondence
• Facility storm water consideration
• Will impact operator choices
Construction

- Recycling of machines
- Repurpose of materials
  - www.govdeals.com
- My crew or hiring
- Putting it all together safely.
- Can be functional and safe and not have to look pretty
Any Questions?