OPERATIONAL CHALLENGES OF REGIONAL (MERCHANT) RESIDUALS PROCESSING FACILITIES:





NEW ENGLAND WATER ENVIRONMENT ASSOCIATION 2015 ANNUAL CONFERENCE & EXHIBIT

Boston Marriott Copley Place January 26th, 2015



Presentation Overview

- Why a Merchant or Regional Facility?
- Challenges, Corrective Actions, Possible Solutions
 - General
 - Compost Facilities
 - Alkaline Stabilization Facilities
 - Anaerobic Digesters



Why a Merchant or Regional Facility?

- Legislated or Regulated Mandates
 - Solid Waste Hierarchy (Reduce, Reuse, Then Achieve Highest, Best Use)
 - Landfill Bans (leaf & yard, food, ????)
 - Greenhouse Gas Emissions Reduction
- Regional (Volume Generation)
 - Single Municipality may not Generate Critical Mass
 - Possible Access to Grants & Other External Funding
 - Generator Desire for Beneficial Use Options Doing the Right Thing
- Merchant (Business Opportunity)
 - Possibly More Private, Internal Resources Available (Technical, Financial, etc.)



Challenges, Corrective Actions, Possible Solutions

- General (Non-Operational)
 - Financial
 - Proforma, Schmoforma
 - Take Off the Rose-Colored Glasses
 - What <u>is the worst thing that can happen?</u>
 - C.A./Solution: Be realistic/conservative, then draw a line in the sand (What is go/no go?)
 - Neighbors' Concerns (Pre-Start Up & Beyond)
 - Odor
 - Traffic
 - Fear of the Unknown
 - C.A./Solution: Communicate, Have a Plan



Challenges, Corrective Actions, Possible Solutions - Compost Facilities

- Challenges
 - Feedstock Having Too Much or Too Little
 - Feedstock All Sludges are not Created Equal
 - Bulking Agents Once a Waste, Now a Commodity
 - Finished Product: Demand > Supply (Seasonal)

Corrective Actions, Possible Solutions
 Change the Medal

Compositing is Science, and Art (Employee Skills).

Creativity in Recipe Development (Recycling Embedded in Recycling)

- Find New Tools (Compost Manager 2015)
- Creatively Manage and Promote End Products



Hawk Ridge Compost Facility Unity Plantation, ME



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Challenges, Corrective Actions, Possible Solutions - Alkaline Stabilization Facilities

- Brief Descriptions of Two PFRP Technologies
 - N-Viro: Advanced Alkaline Stabilization with Subsequent Accelerated Drying – Alkaline admixture for temp/pH boost, ash component to achieve 50+% total solids (could actively heat)
 - Schwing Bioset: Lime stabilization in a plug flow reactor, takes advantage of ammonia release in the reactor

Challenges – N-Viro

- Ash Supply Quantity & Quality
- Odor Lime/Polymer Interactions
- Challenges Schwing Bioset
 - Sludge Variability
 - Lime Supply Cost & Quality
 - Solids Content
 - Sludge "Contaminants"



N-Viro Schematic





Schwing Bioset Schematic





Grasslands (NY) Bioset Facility







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- Challenges: N-Viro
 - Ash Supply Quantity (Reduction/Competition) & Quality
 - Odor Lime/Polymer Interactions
- Challenges: Schwing Bioset
 - Sludge Variability (among generators)
 - Lime Supply Cost & Quality
 - Solids Content (advertised range vs. real range)
 - Sludge "Contaminants"



Challenges, Corrective Actions, Possible Solutions - Alkaline Stabilization Facilities

- C.A.s/Solutions: N-Viro
 - Ash Supply Cast a Wider Net, Trial & Error, Analyses
 - Odor "Dial In" Lime Addition, Check Polymer Compatibility, Use Good Product Storage Practices
- C.A.s/Solutions: Schwing Bioset
 - Sludge Variability Blending (Generator Controls Volume)
 - Lime Supply Investigate Alternatives, Trial & Error, Analyses
 - Solids Content Blending, Water Addition
 - Sludge "Contaminants" Trailer Lining Options, Macerator



Challenges, Corrective Actions, Possible Solutions - Anaerobic Digesters

- Challenges
 - Feedstock Quality High Strength vs. Low Strength
 - Feedstock Quantity Generator Controls Availability
 - Digesters, Like People, Need Steady, Consistent Diet
 - H₂S Production Surprising Sources
- Corrective Actions, Possible Solutions
 - Over-sell Capacity, Have Back Up Outlets
 - Thoroughly Characterize all Inputs to the Digester
 - Have Good Process Control Equipment ,especially SCADA
 Knowledge is Power
 - Networking Conferences, Industry Reps, Trade Groups



AGreen/BGreen Anaerobic Digesters (MA)







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Free Advice

- Be Deliberate
 - Do Your Homework
 - Don't Get Caught Up in the Excitement
 - Proformas <u>are</u> Important; Play the "What If" Game
- Visit Existing Operations; Talk to Operators
- Don't be Afraid to Ask the Hard Questions
 - What are their challenges?
 - If they could do it again, would they?
- If It Doesn't Pencil Out, Don't Do It



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