

THE SKY IS NOT FALLING ON CONTINUING BIOSOLIDS LAND APPLICATION ALONG THE SPACE COAST

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The Issue

- Chap 62-640 Biosolids Regulation Revisions
- Less Land Application Sites
 - Public Perception
 - Previous Odor Complaints
 - Soil/Crop Issues
 - Changing Land Ownership
- Increasing Disposal Costs



New Regulations

- Existing sites to be permitted by January 2, 2013
- Prohibits application within Wekiva Area, Lake Okeechobee, & St Lucie River Watersheds
- Nutrient Management Plans replaces Agricultural Use Plans
- New monitoring requirements
- Record keeping & reporting
- Site management
 - Storage Limitations
 - Setbacks
 - Site Slope Restrictions



Land Application Sites

Flying L Ranch

Location: Indian River County

Size: 412 Acres

Sites: 9

Land Use: Bahiagrass – Cattle Farming

Distance: 40 miles

Hayman 711 Ranch

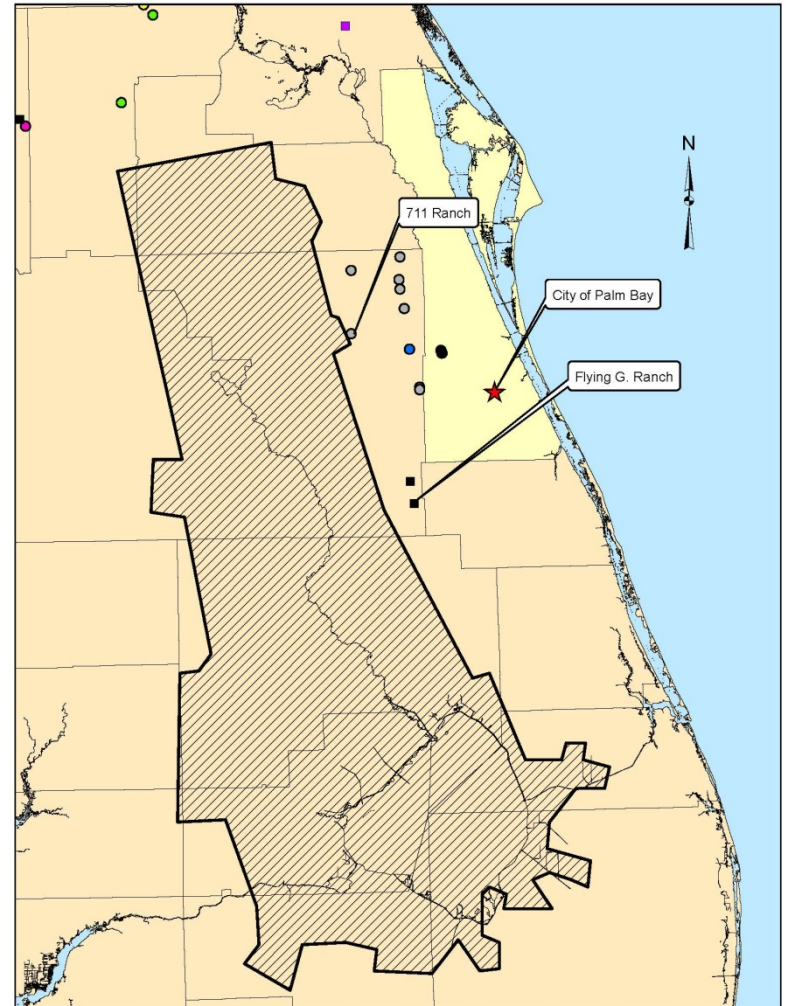
Location: Osceola County

Size: 4,500 Acres

Sites: 62

Land Use: Bahiagrass – Cattle Farming

Distance: 60 miles



Current Solids Handling Practice

Waste Activated Sludge (WAS)

Flow: 120,000 gal per day

Concentration: 5,500 mg/L

Mass: 5,200 lbs/day

Aerobic Digestion

Solids Retention Time: 12 to 15 days

Dewatering

Operation: 13 to 15 days/month

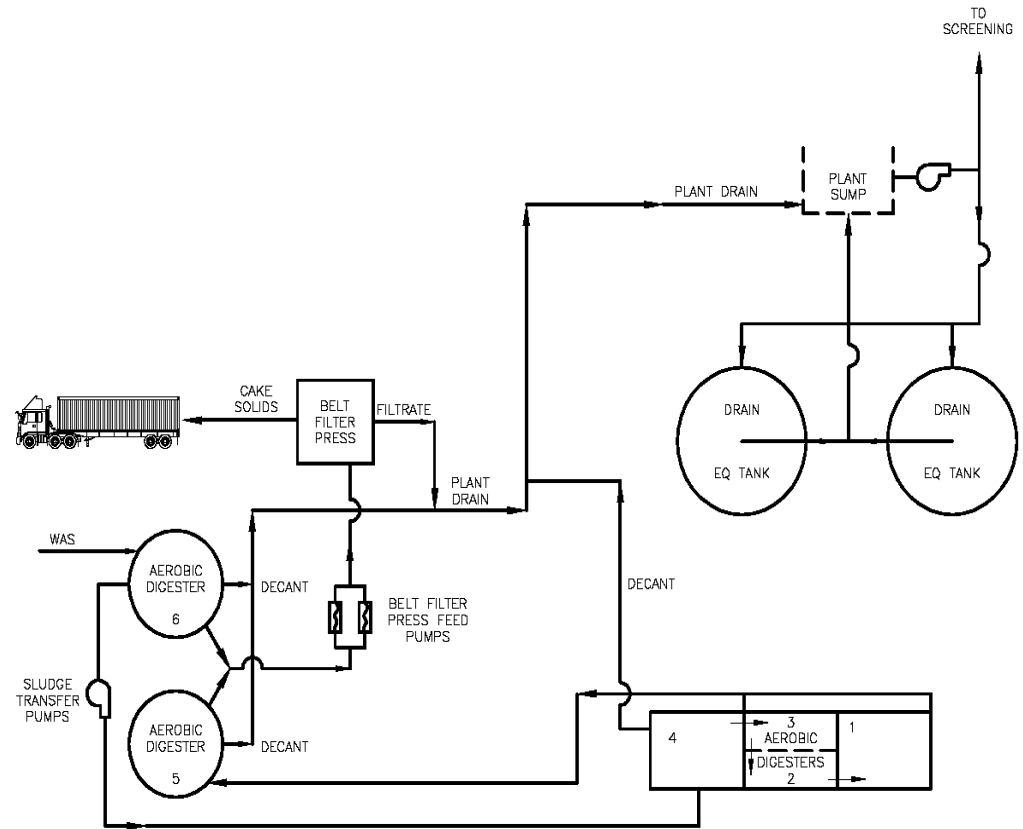
Cake Concentration: 17%

Cake Disposal

Mass: 4,200 lbs dry/ day

Mass: 12 wet tons / day

Loads: 15 per month



Current Biosolids Disposal Practice

Class B Requirements

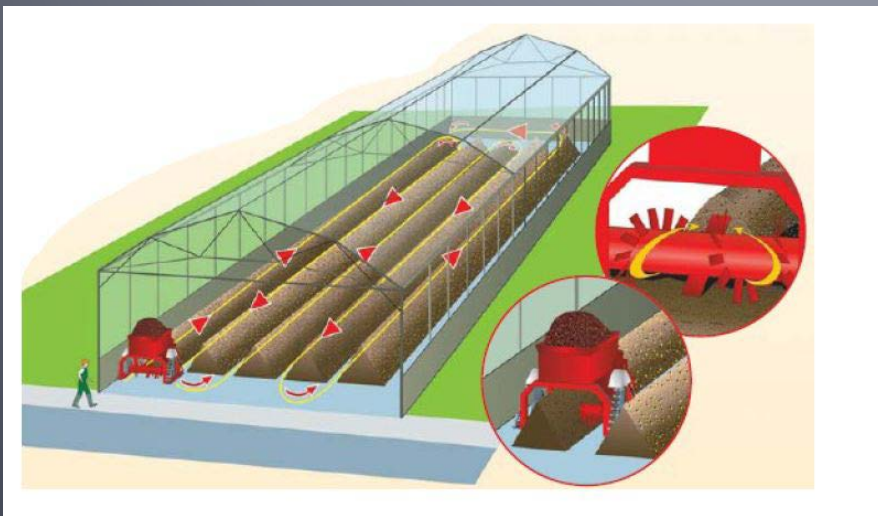
- Pathogen Reduction: Aerobic Digestion
- Vector Attraction Reduction: Volatile Solids Mass Reduction

Disposal Method

- Contract to H&H
- Method of Disposal: Class B Cake Land Application
- Current Cost: \$14.06 per Cubic Yard
- Current Cost: \$18.75 per Wet Ton



Class A Biosolids Treatment Alternatives



Treatment Alternative: In-Vessel Composting

Treatment Objective:

Maintain 55°C (131°F) for 3 Days

Duration:

Air Drying – 7 Days

Vessel Composting - 3 to 5 Days

Issues:

Mixing

Odors Generation

Land Requirement

65 to 75% Solids Product

Costs:

Capital Costs: \$3.1 Million

Operating Costs: \$5 per Wet Ton



Treatment Alternative: Solar Dryer

Vendors:

Kruger – Solia

Parkson – Thermo-System

Components:

Greenhouse Structure

Windrow Turner

Air Ventilation System

Issues:

Long Cycle Time

Odors Generation

Large Land Requirement

65 to 75% Solids Product

Costs:

Capital Costs: \$4.7 Million

Operating Costs: \$13 per Wet Ton



Treatment Alternatives: Thermal Dryer

Vendors:

Therma-Flite
Fenton Environmental - Fendex

Type:

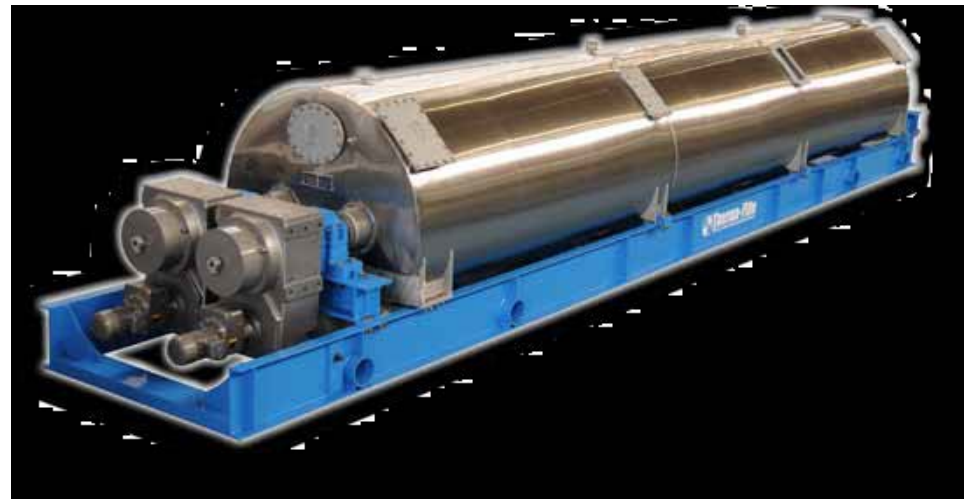
Indirect – Thermal
Fuel – Natural Gas

Issues:

Side Streams
Energy Usage
Complex Operation

Costs:

Capital Costs: \$2.9 Million
Operating Costs: \$35 per Wet Ton



Treatment Alternative: Alkaline Treatment

Vendors:

Schwing – Bioset
N-Viro

Components:

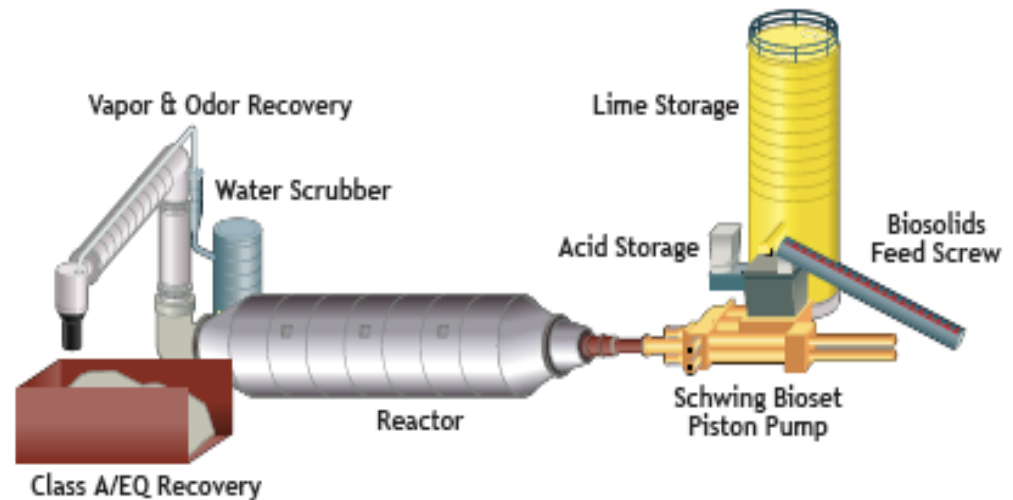
Lime Silo
Acid Storage
Reactor
Odor Control
Material Storage Bins

Issues:

Lime Addition Adds Mass
Ammonia Odors
Chemical Handling

Costs:

Capital Costs: \$1.4 Million
Operating Costs: \$26 per Wet Ton



Treatment Alternative: Chemical Treatment + On-Site Composting

Vendors:

BCR Environmental

Components:

Chemical Storage and Feed
Contact Tank
Blending Pad
Blowers



Concerns:

Large Footprint
Odor Generation
Source of Green Waste

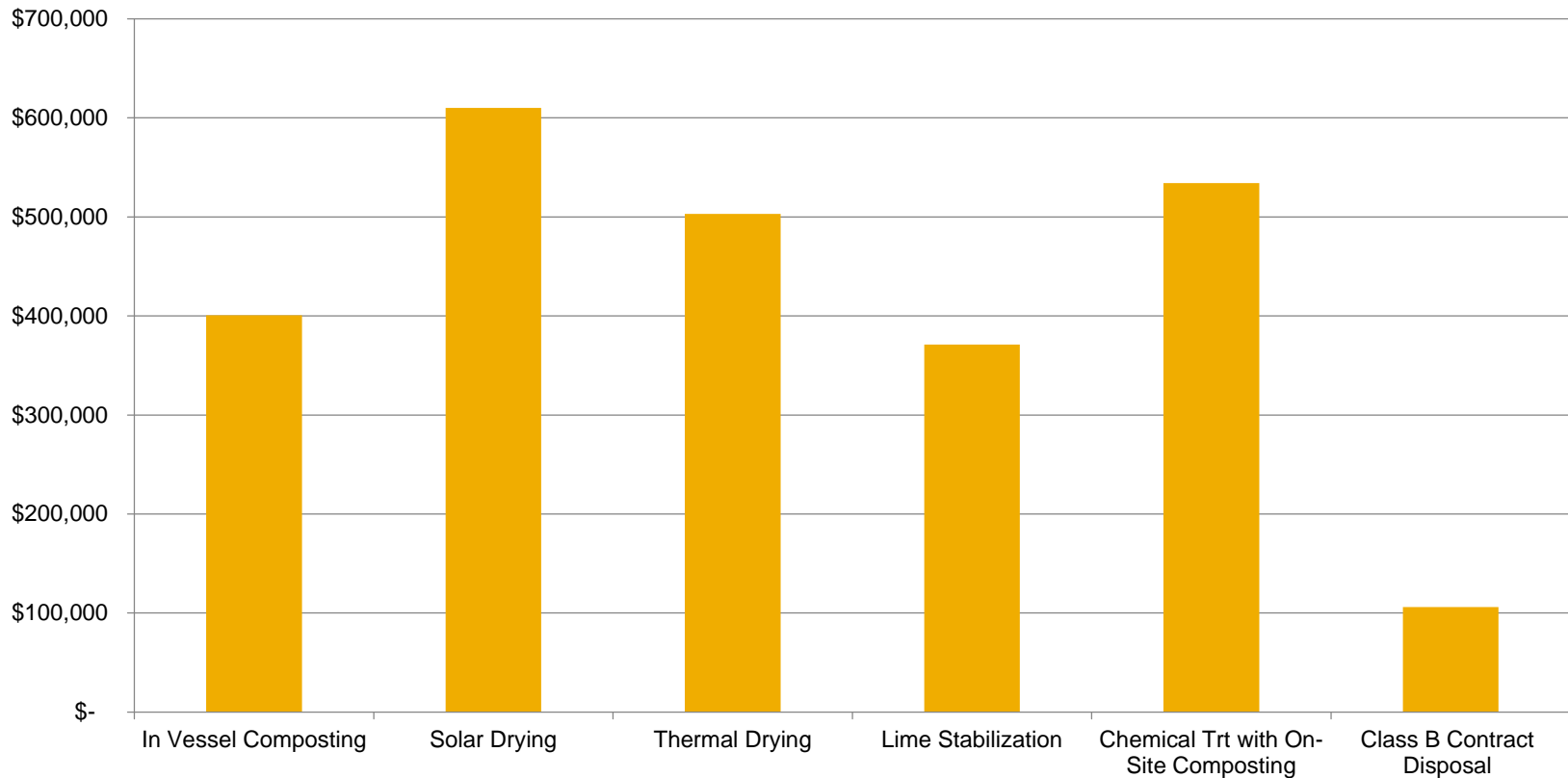
Costs:

Capital Costs: \$3.3 Million
Operating Costs: \$43 per Wet Ton



Alternative Comparison

Projected Total Annual Cost



Annual debt for capital investment based on an annual interest rate of 6% over a 20-year period.

Assumes an annual inflation rate of 2.5%

Total cost for each alternative includes annual capital investment, annual O&M cost and disposal costs

Conclusions

Capital Costs:

\$1.4 to \$4.7 Million

Operating Costs:

\$5 to \$43 per Wet Ton

Annualized Costs:

\$60 to 100 per Wet Ton

Current Class B Land Application Costs:

\$18 per Wet Ton



Questions

