



Water Reclamation Facility Operations Update

April 28, 2017

Agenda

- 9:00 am** Welcome
- Meeting Purpose
- WRF Treatment Process
- Plant Overview
 - Current status
 - Plan Moving Forward
- 10:00 am** Discussion
- 10:30 am** Adjourn



Welcome!

- Introductions
- District Update
- Meeting Purpose

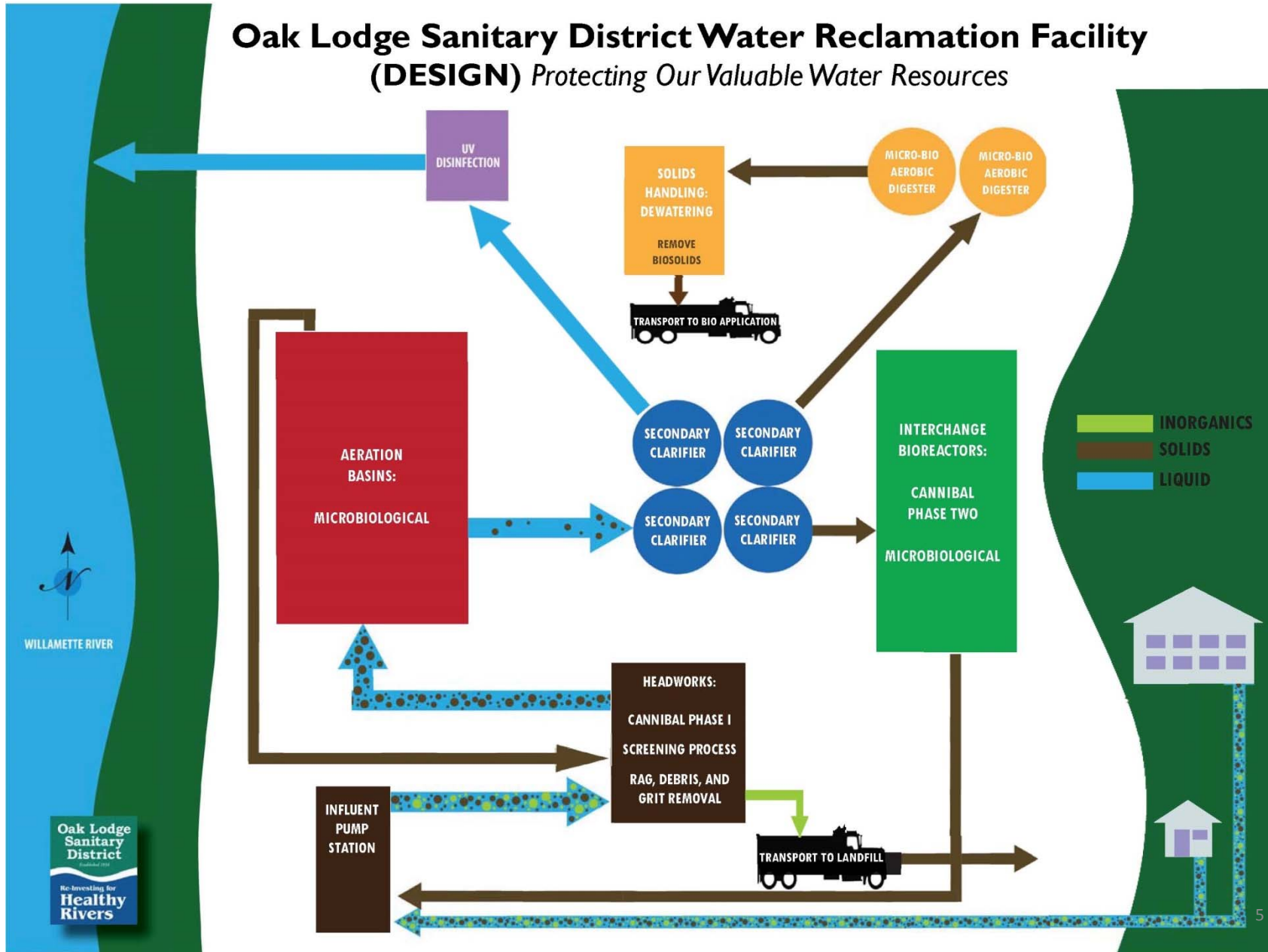




WRF Treatment Process

Plant Overview

Oak Lodge Sanitary District Water Reclamation Facility (DESIGN) Protecting Our Valuable Water Resources



Challenges Operating Cannibal Plant

- Increased solids are difficult to manage during wet weather
 - Solids wash-out
 - Settling issues
 - All equipment online, unavailable for maintenance
- Plant Operations not predictable



Attempts to make Cannibal work

Consultation with the Design Engineer, CH2M

- Changes to the Interchange Bio-Reactor operation to obtain more anaerobic conditions
- Increased inventory of plant solids
- Evaluated Digester Aeration System
- Evaluated Post Aerobic Digestion
- Aerobic Digest Loading Evaluation
- Aerobic Digester Conversion Schematic Design

Confirmation operating conditions with manufactures

- Digester Mixing and Aeration with Mixing Technology Systems (MTS)
- Turbo Blower with NPG Neuros

Consultation with Hemphill Water Engineering

- Evaluation of Aerobic Digester loading
- Evaluation of Aeration System
- Evaluation of Anaerobic Digester modifications

Other:

- Byo-Gon microbiology booster additive
- ATP testing to measure microbe energy



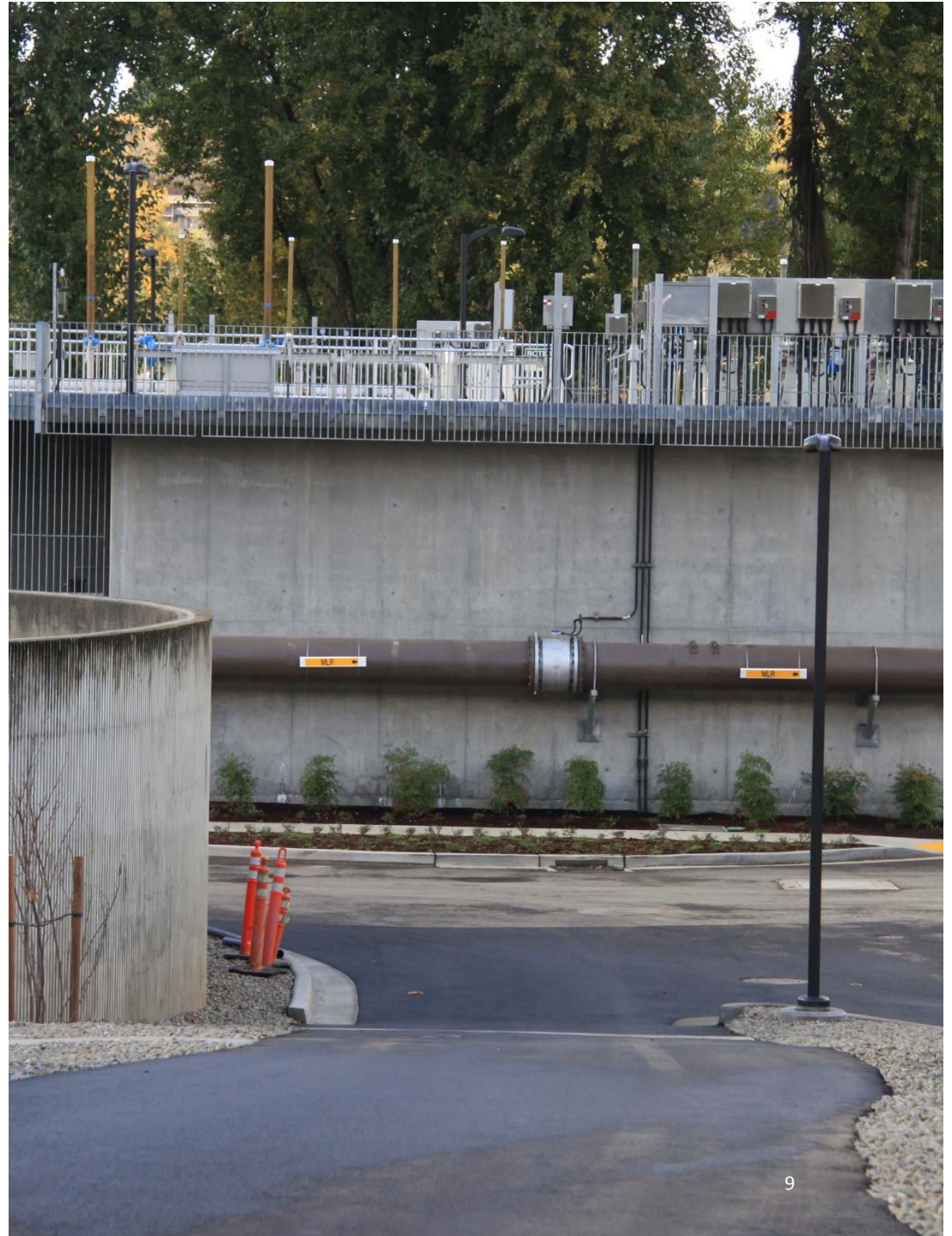
Optimization Results

- Confirmed equipment functioning as designed
- Results were inconsistent under various recommendations
- No noticeable improvement with Cannibal reduction
- Challenges in high flow scenarios



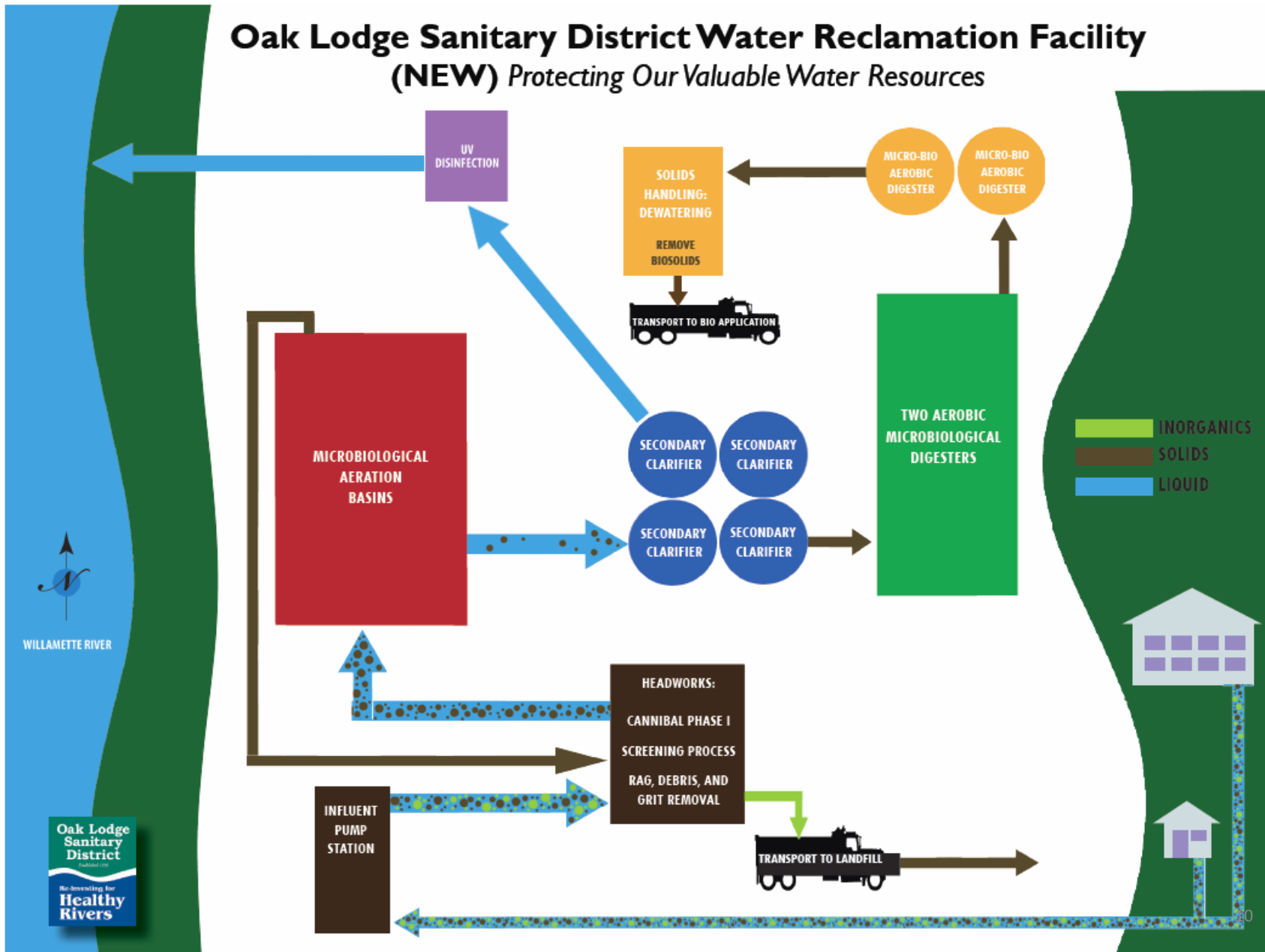
Changes Made October 2016

1. Convert Interchange Bio-Reactor tanks to aerobic digesters
2. Stabilize treatment process
3. Received reassurance from Operational Specialists (HDR Engineering)



Configuration Change—October 2016

Oak Lodge Sanitary District Water Reclamation Facility (NEW) *Protecting Our Valuable Water Resources*



Results of Process Changes

- Improved solids destruction in Digester train
 - Meet 503 regulations for Class B biosolids = land application
 - Potential for Class A biosolids
- Plant performed excellent in record winter rain events

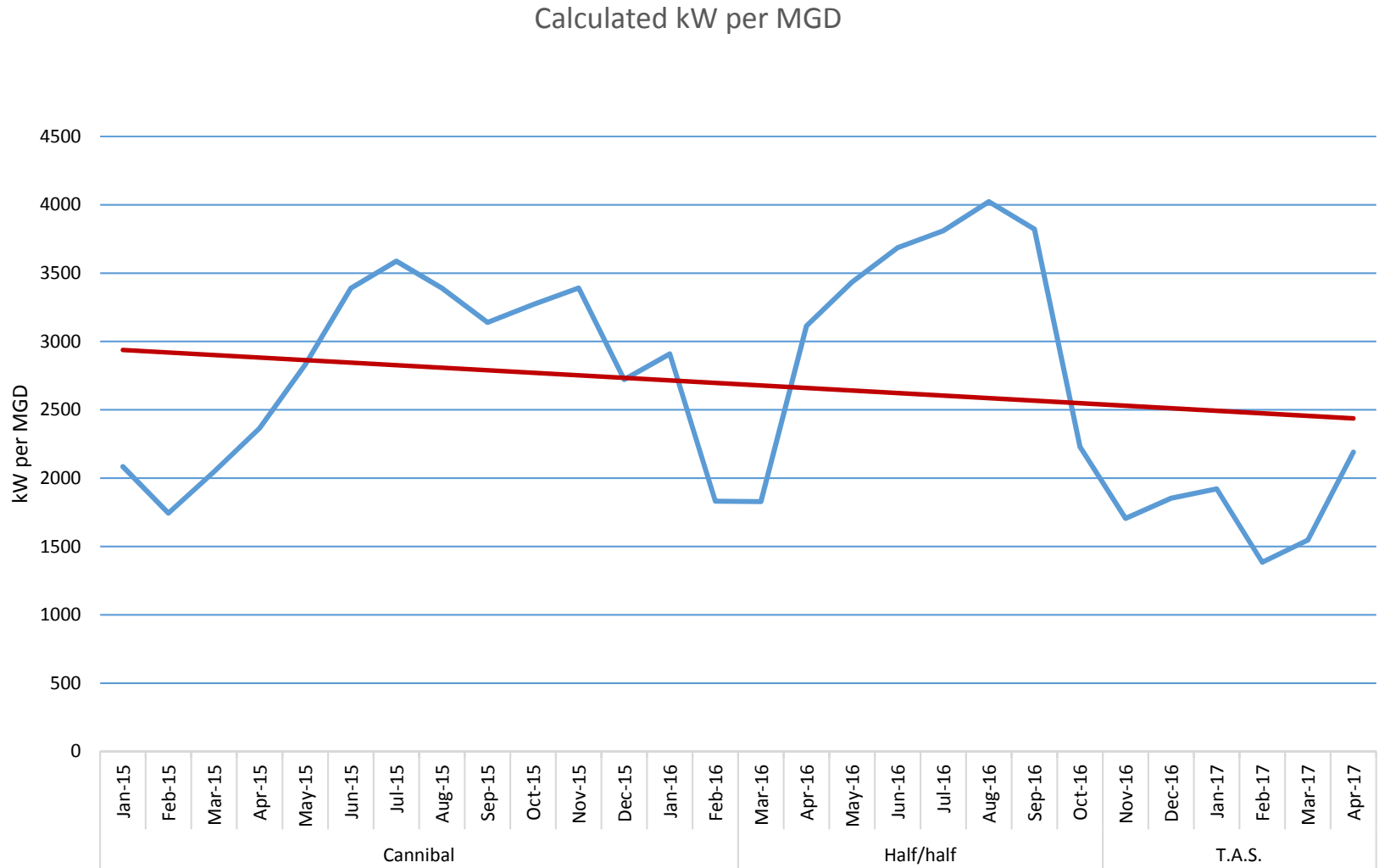


City of Albany – Toured and Compared Notes 4/18/2017

- Former Cannibal plant
 - Currently operating as traditional activated sludge
- Landfilling solids
 - High cost/labor intensive
 - Dependent on 3rd party haulers
- Exploring additional capital project options to process solids
- Odor problems



Comparisons (so far)



Comparisons (so far)

| | Hauling Costs Today | | Electrical Use | Truck Loads | Anaerobic Digester Rehab |
|------------------|--|-------------------|--|-------------------------------------|---|
| Cannibal | Sewage sludge (landfill) | \$ 352,646 | \$221 KWH/MGD | 2015-16 Nov-Feb 32.5 Truck Loads | \$400,000 CIP Expenditure |
| Digestion | Class B (Madison) | \$ 83,812 | \$141 KWH/MGD | 2016-17 Nov-Feb 23.5 Truck Loads | Repurpose \$400,000 on other improvements |
| | Class A | TBD | | | |
| Savings: | Solids utilized for beneficial re-use | \$ 268,834 | 36% Reduction in Electrical Use | 30% Reduction in Hauling | |
| Losses: | | | | | |

Comparisons

| | Staffing and Scheduling | What Operators Say | What Process Specialist Says |
|------------------|---|--|--|
| Cannibal | Hauling 3 to 4 times per week | More automation, so easier to operate but not a stable operation. | Limited options, many "near miss" violations, too many solids held in the plant. Concerning with more stringent permit limits and inflow and infiltration impacts on effluent quality with Cannibal. |
| Digestion | Biosolids Hauling has reduced by over 30% | More labor intensive to operate but stable operations. | More options trigger more planning but a much more reliable process. |
| Savings: | 30% additional FTE | Peace of mind-Less Stress and Frustration | Clear Path Forward |
| Losses: | | Operating isn't simple. The plant wasn't designed to operate this way | More time spent on planning and training with operators |

Results of Current Configuration

- Expected improvement in solids reduction by Digester train
 - We don't have enough data yet to draw conclusions
- Filamentous bacteria no longer present
- Faster plant recovery time after wet weather events
- Preliminary results of hauling reduction from averaging 11 loads/month to 4-5 loads/month



Path Forward

- Continue operating new facilities as traditional activated sludge plant for one year to stabilize collect data on:
 - Efficiency
 - Power consumption
 - Chemical consumption
 - Fuel consumption/hauling
- Data set will be compared to data collected during Cannibal operation
- Data analysis may use consultant (HDR) review and will guide the decision for the best path for future WRF operations.





Questions?