

# 2012 Watershed Science & Technical Conference

September 14, 2012

**FLATLINE™**

Innovative Process

## **TRANS TERRA TECHNICAL GROUP (3TG)**

- **IS A GROUP OF SCIENTIST, CONTRACTORS, OPERATORS, ENGINEERS, AND BUSINESS SPECIALISTS.**
- **OUR FOCUS IS TO DEVELOP A SUSTAINABLE WASTEWATER TREATMENT PROCESS.**
- **IT IS BASED ON THE FLATLINE™ PROCESS**

# TRANS TERRA TECHNICAL GROUP (3TG)

## THE FLATLINE™ PROCESS:

- IS PROTECTED BY 2-US PATENTS AND ADDITIONAL US & FOREIGN PATENTS PENDING
- HAS BEEN IN PILOT TESTING SINCE 2010
- MOVED TO PRODUCT DEVELOPMENT 2012 W/  
FULLY AUTOMATED 30,000 GPD (SANITARY) –  
60,000 GPD (CSO).





Pulse Drive

Inlet



LogMeln - Remote Session

6:45:37 PM  
8/30/2012

FLAT LINE SYSTEM

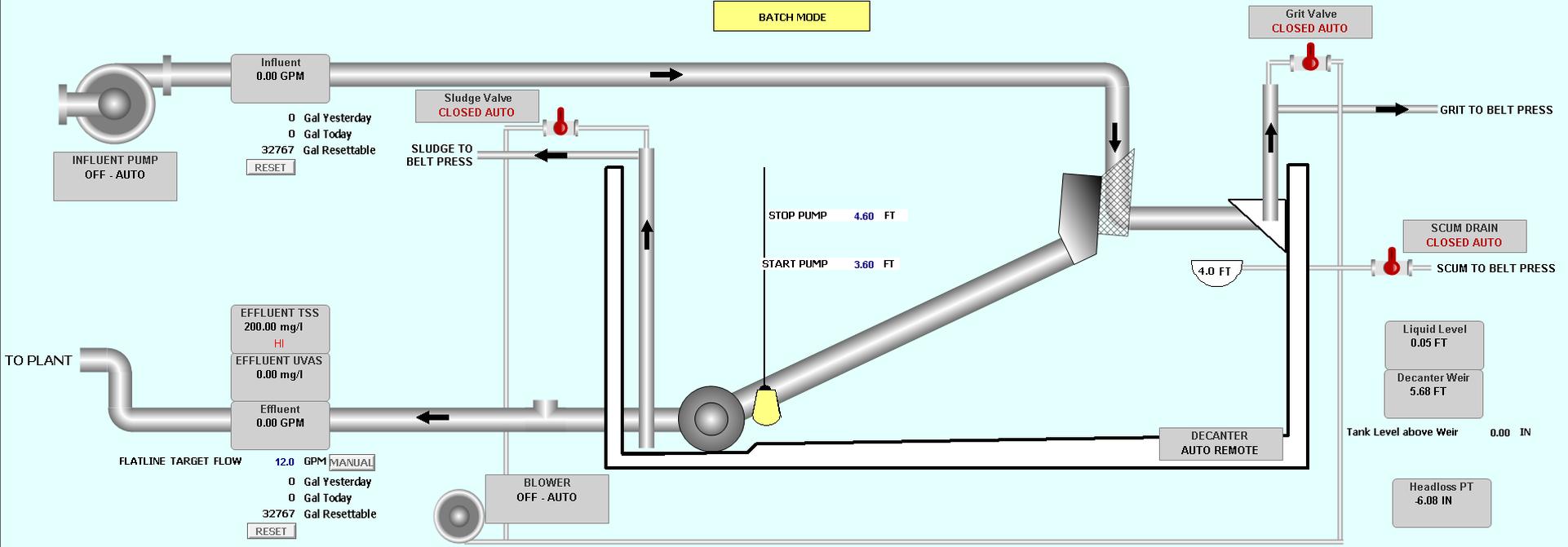
OFF

BATCH MODE

CYCLE STATUS

OFF

State Time 0.00 MIN

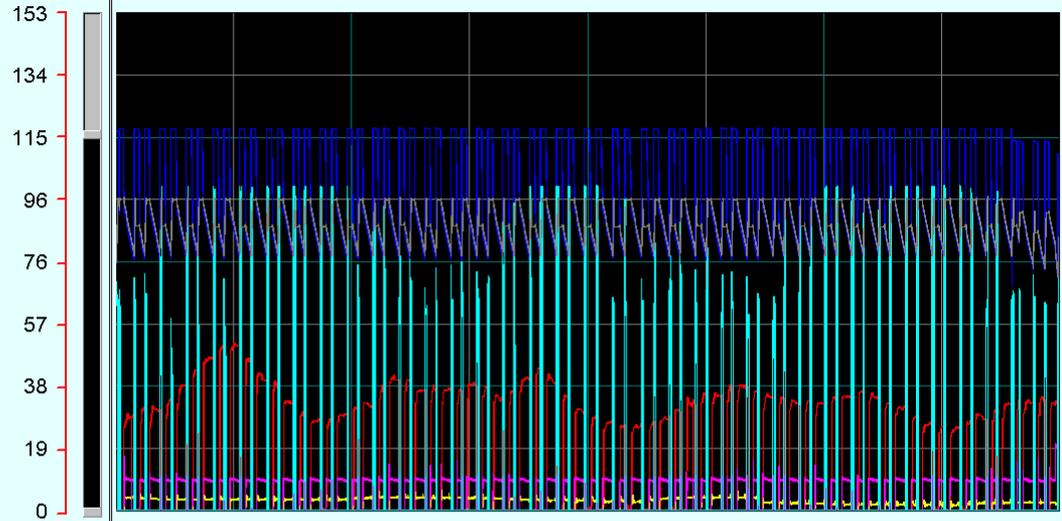


FLATLINE TARGET FLOW 12.0 GPM MANUAL  
0 Gal Yesterday  
0 Gal Today  
32767 Gal Resettable  
RESET

Date	Time	Comment	State	Class	Type	Priority	Name	Value	Limit	Operator
29 Aug	15:09	Effluent TSS Hi Alarm	UNACK	DSC	DSC	1	FL_EFFLUENT_TSS_HiAlm	ON	ON	SCADA1/itm
27 Aug	16:23	Chlorine Pump Rate Channel Alarm	UNACK	DSC	DSC	1	FL_CHLORINE_PUMP_FB_ChannelAlm	ON	ON	SCADA1/None
27 Aug	16:23	Coagulant Pump Rate Channel Alarm	UNACK	DSC	DSC	1	FL_COAGULANT_PUMP_FB_ChannelAlm	ON	ON	SCADA1/None



Aug 20 14:28:20 Aug 21 08:32:23 Aug 22 02:36:26 Aug 22 20:40:29 Aug 23 14:44:33



FL\_EFFLUENT\_LIVAS 0 0

FL\_Headloss\_Value 0 0

FL\_DECANTER\_1\_POSITION 6 6

FL\_EFFLUENT\_FLOW\_gpm 0 0

FL\_INFLUENT\_FLOW\_gpm 67 64

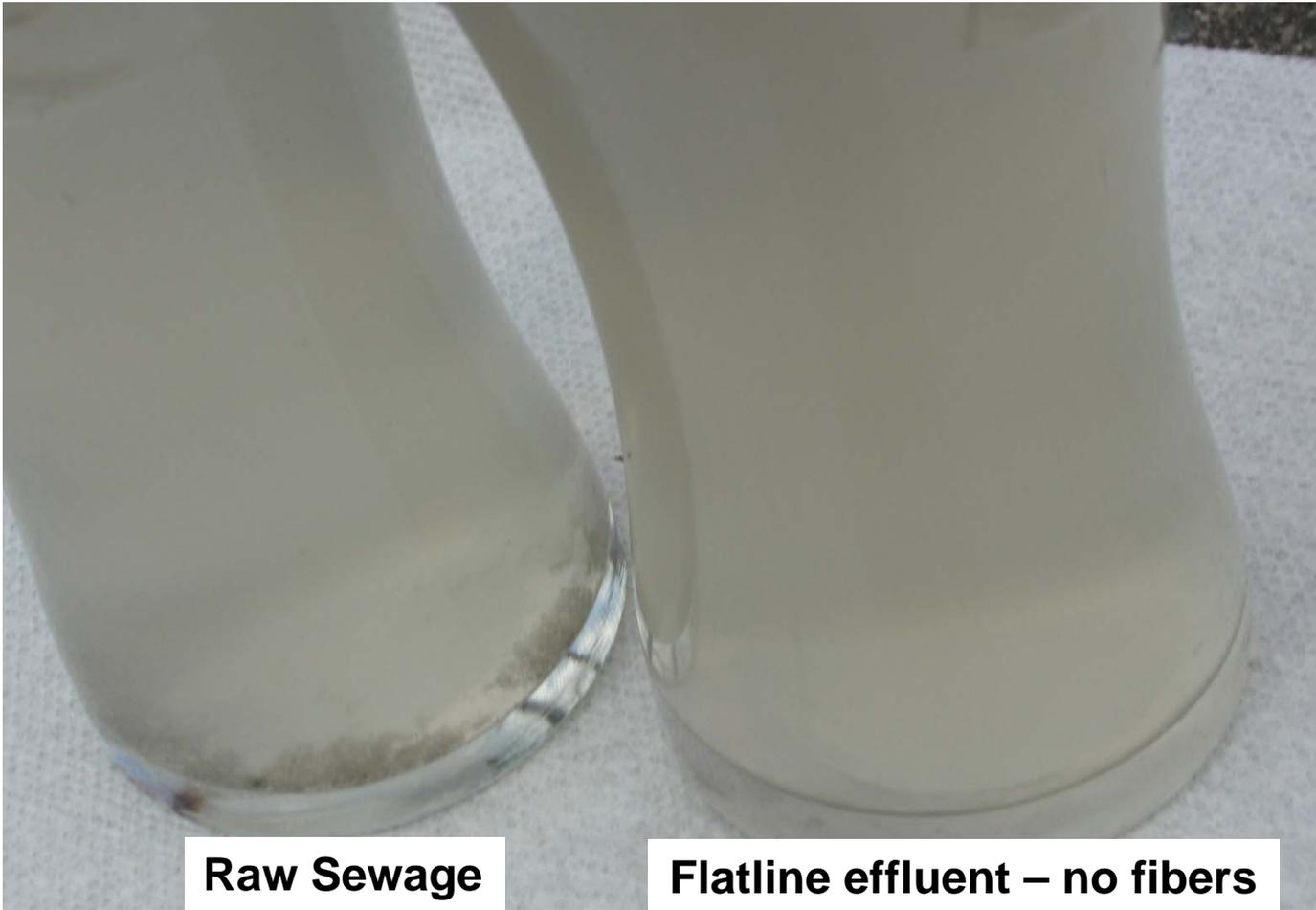
FL\_TANK\_LEVEL 3.97 4.18

14:28:20 14:44:33

Zoom In 3d 16m 13s Zoom Out

4 hours 1 hour 30 minutes 10 minutes

Date	Time	Comment	State	Class	Type	Priority	Name	Value	Limit	Operator
29 Aug	16:09	Effluent TSS Hi Alarm	UNACK	DSC	DSC	1	FL_EFFLUENT_TSS_HiAlm		ON	SCADA1/lim
27 Aug	16:23	Chlorine Pump Rate Channel Alarm	UNACK	DSC	DSC	1	FL_CHLORINE_PUMP_FB_ChannelAlm		ON	SCADA1/None
27 Aug	16:23	Coagulant Pump Rate Channel Alarm	UNACK	DSC	DSC	1	FL_COAGULANT_PUMP_FB_ChannelAlm		ON	SCADA1/None

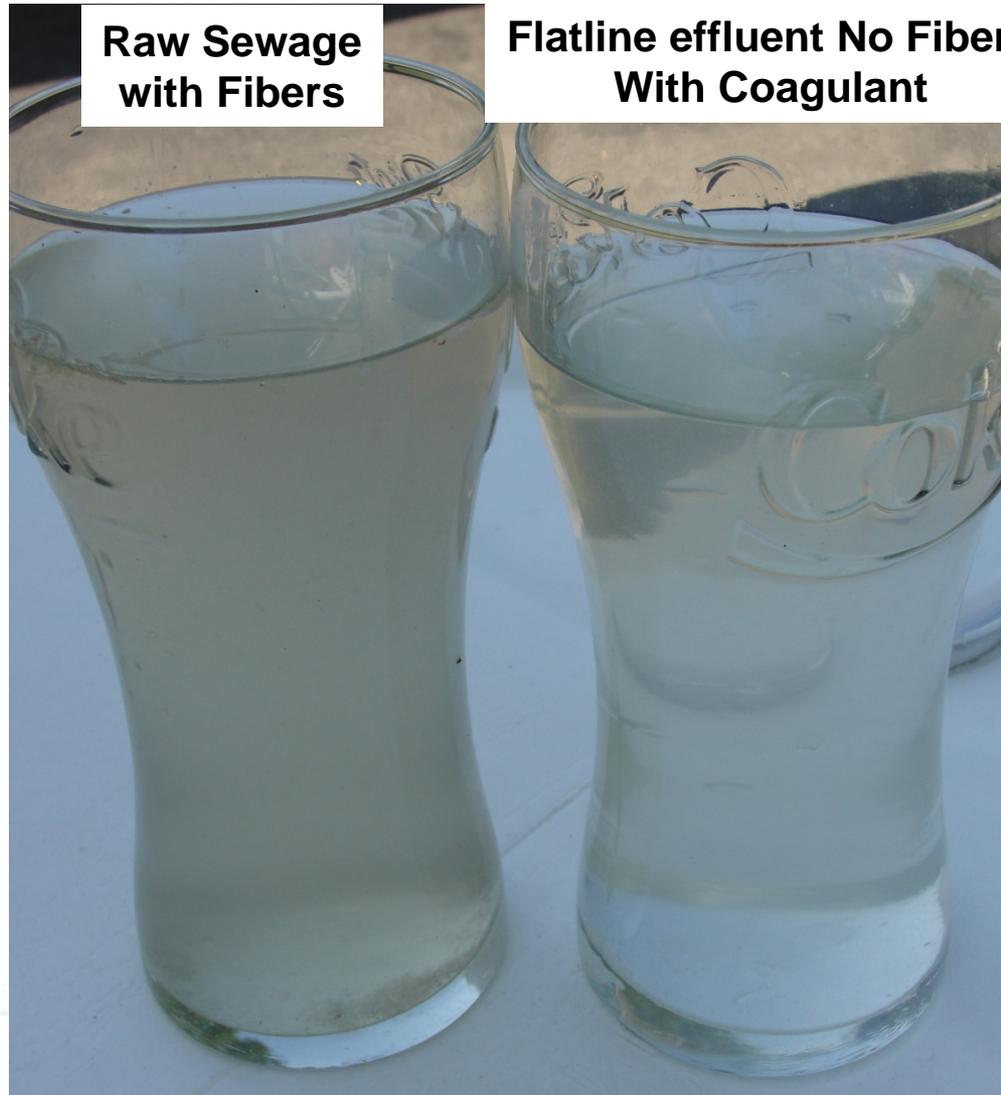


**Raw Sewage  
Fibers**

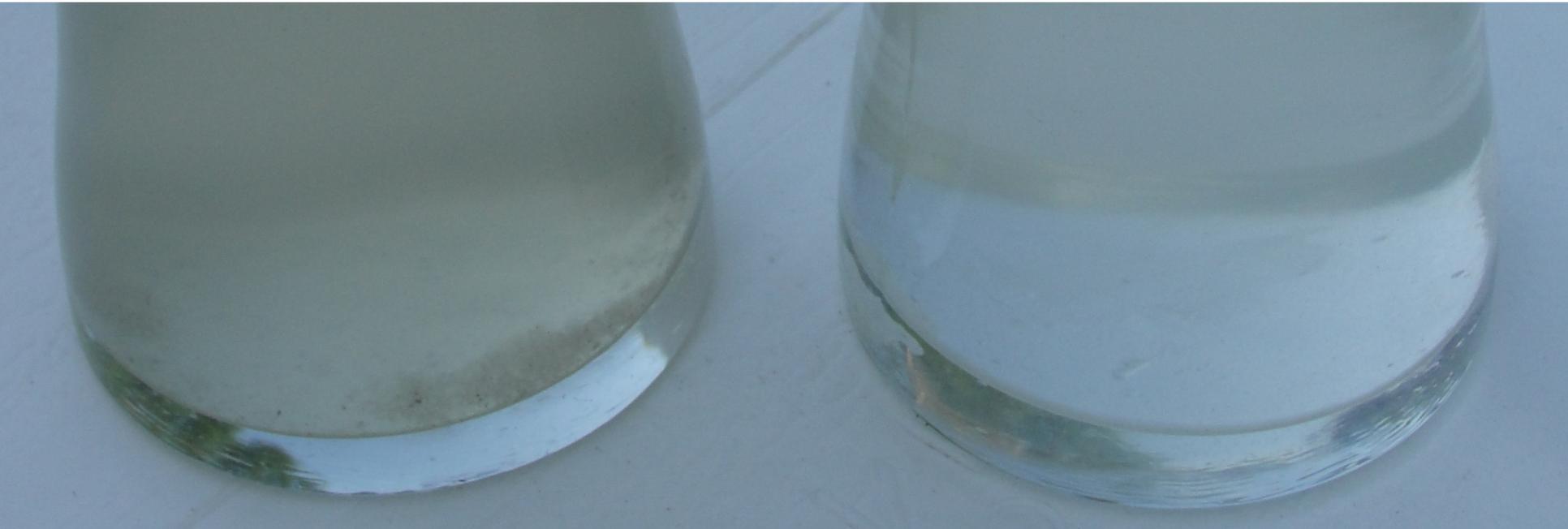
**Flatline effluent – no fibers  
No Coagulant**

**Raw Sewage  
with Fibers**

**Flatline effluent No Fibers  
With Coagulant**



		Inf BOD	Inf SBOD	Inf CBOD	Inf TSS
8/9/12	Influent	70	21	55	74
	Flatline Eff.	<4	<4	<4	30
	% reduction	94.3%	81.0%	92.7%	59.5%



**Raw Sewage with fibers**

**Flatline effluent – no fibers  
Coagulant**

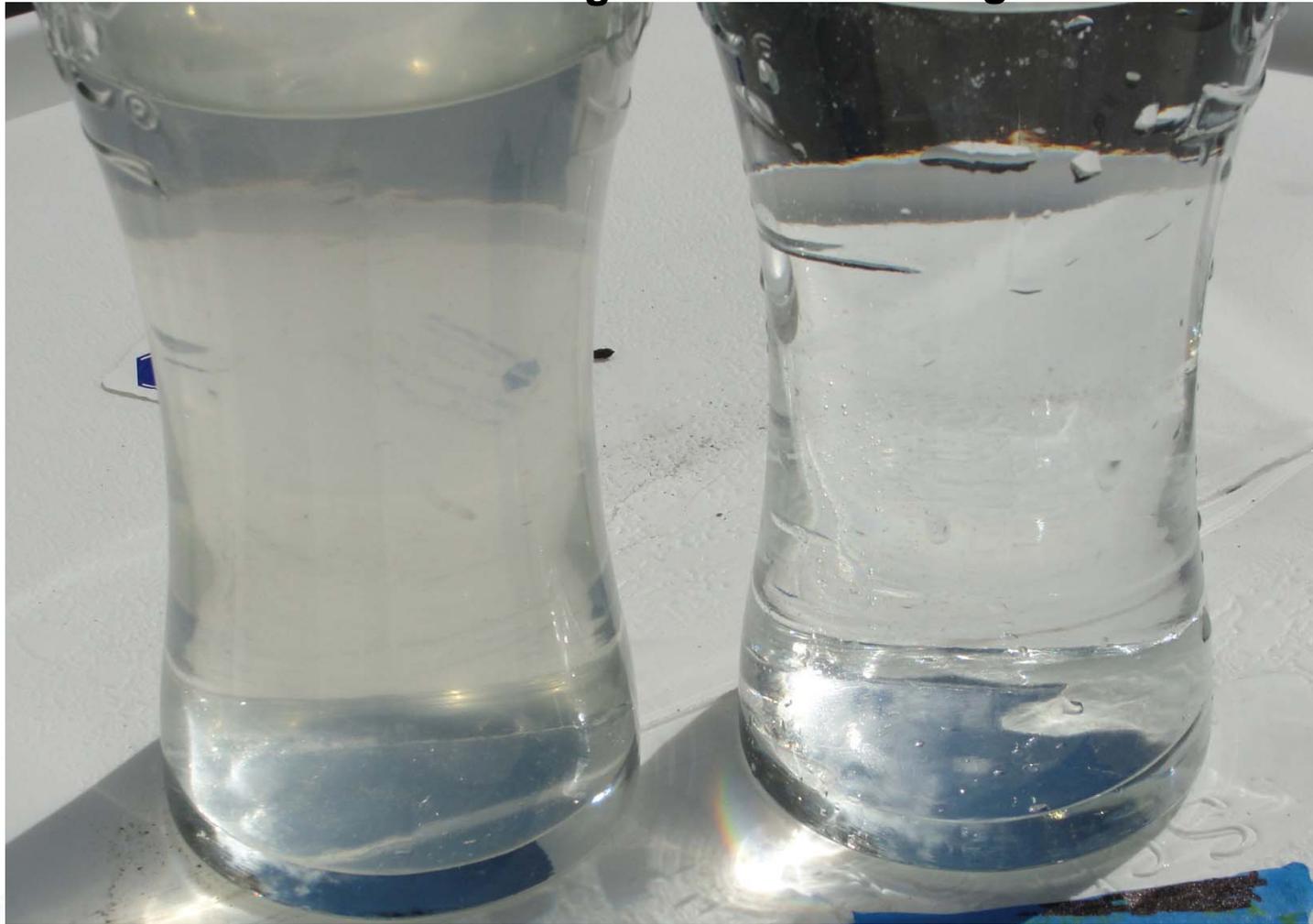


Flatline Effluent

The forefront of efficiency

**Flatline Effluent w/ Coag**

**Drinking Water**





**Fibers foul membranes**



## New Fibers are a Problem



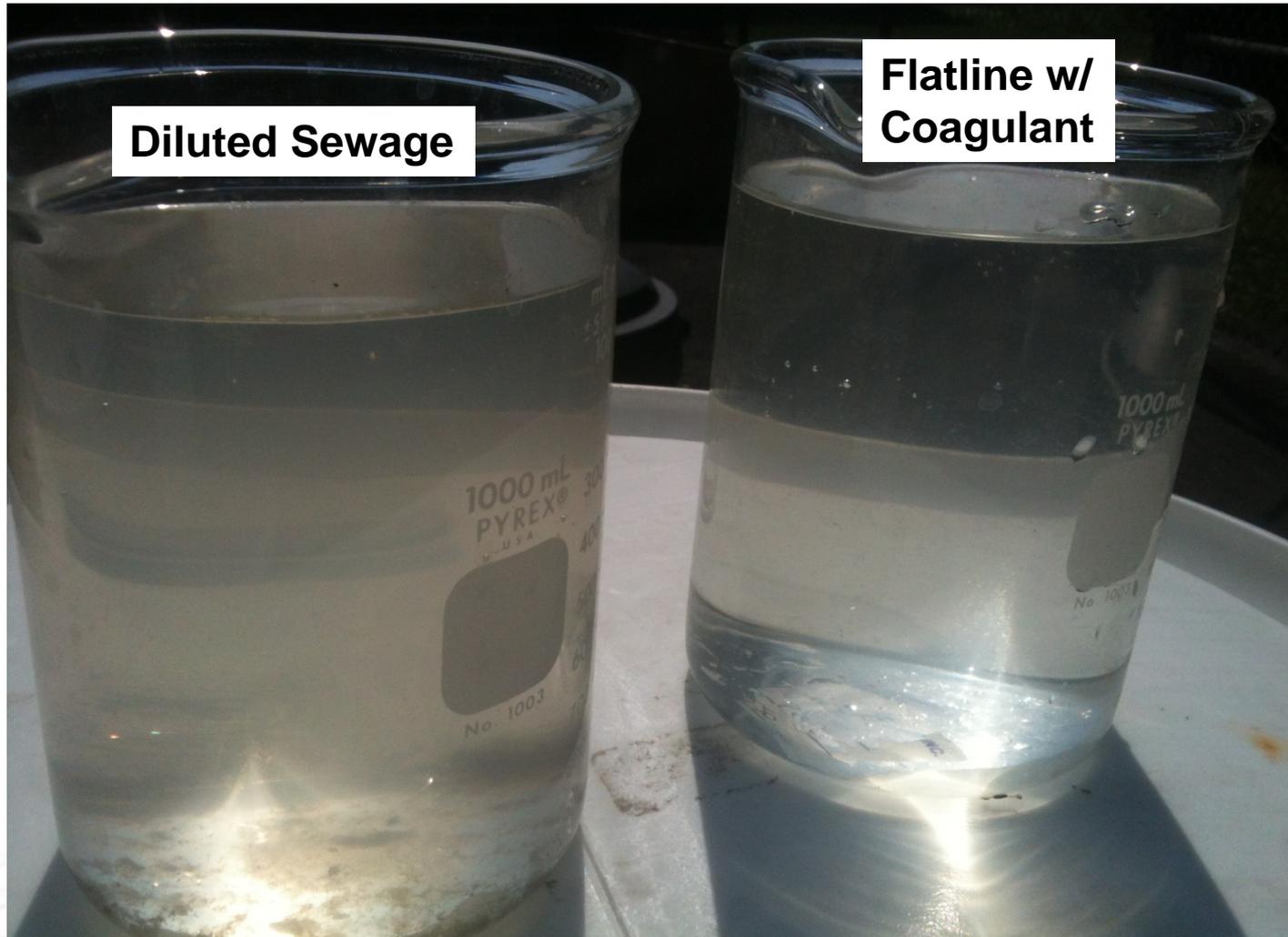
Fibers pass through a 3.0 mm  
Screen and foul MBRs and other  
downstream equipment



**Whitehall, NY – Raw sewage after 1.9” rainfall in 35-minutes**



**Whitehall, NY – Raw sewage after 1.9” rainfall in 35-minutes**



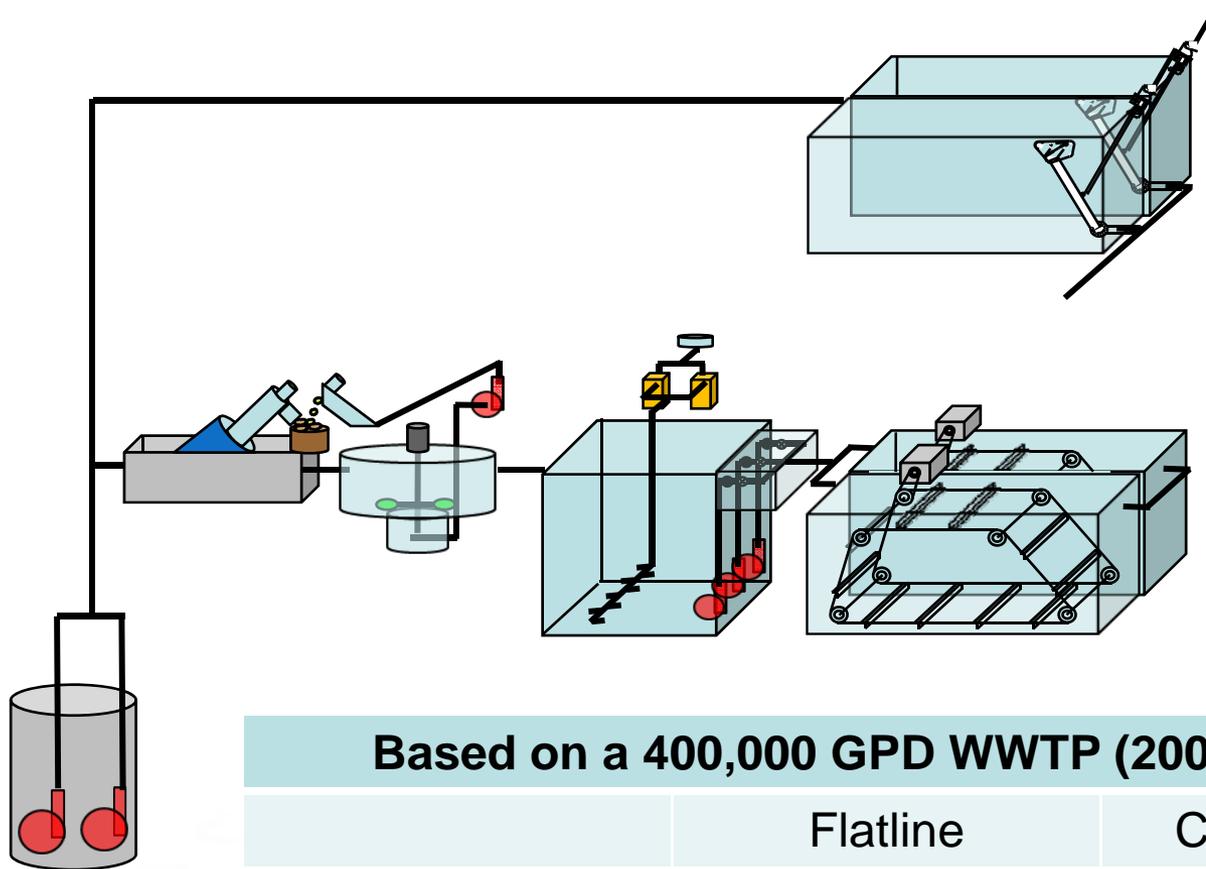
**Whitehall, NY – Raw sewage after 1.9” rainfall in 35-minutes**



**Whitehall, NY – Raw sewage after 1.9” rainfall in 35-minutes**

Rain Event 9-7-12	BOD <sub>5</sub>	SBOD	CBOD	TSS	Phos.
Inf. Sample	48	20	29	55	1.2
Eff. Sample A	6.3	4.6	5.3	12	0.19
Eff. Sample B	13	4.7	7.9	25	0.29
Average Removal	79.9%	76.8%	77.2%	66.4%	80.0%
SPDES Discharge Limit	30 mg/l			30 mg/l	3.6 lbs/day

**Whitehall, NY – Raw sewage after 1.9” rainfall in 35-minutes**



**Flatline™**

**Reduces energy & Sludge  
Production by 50+%**

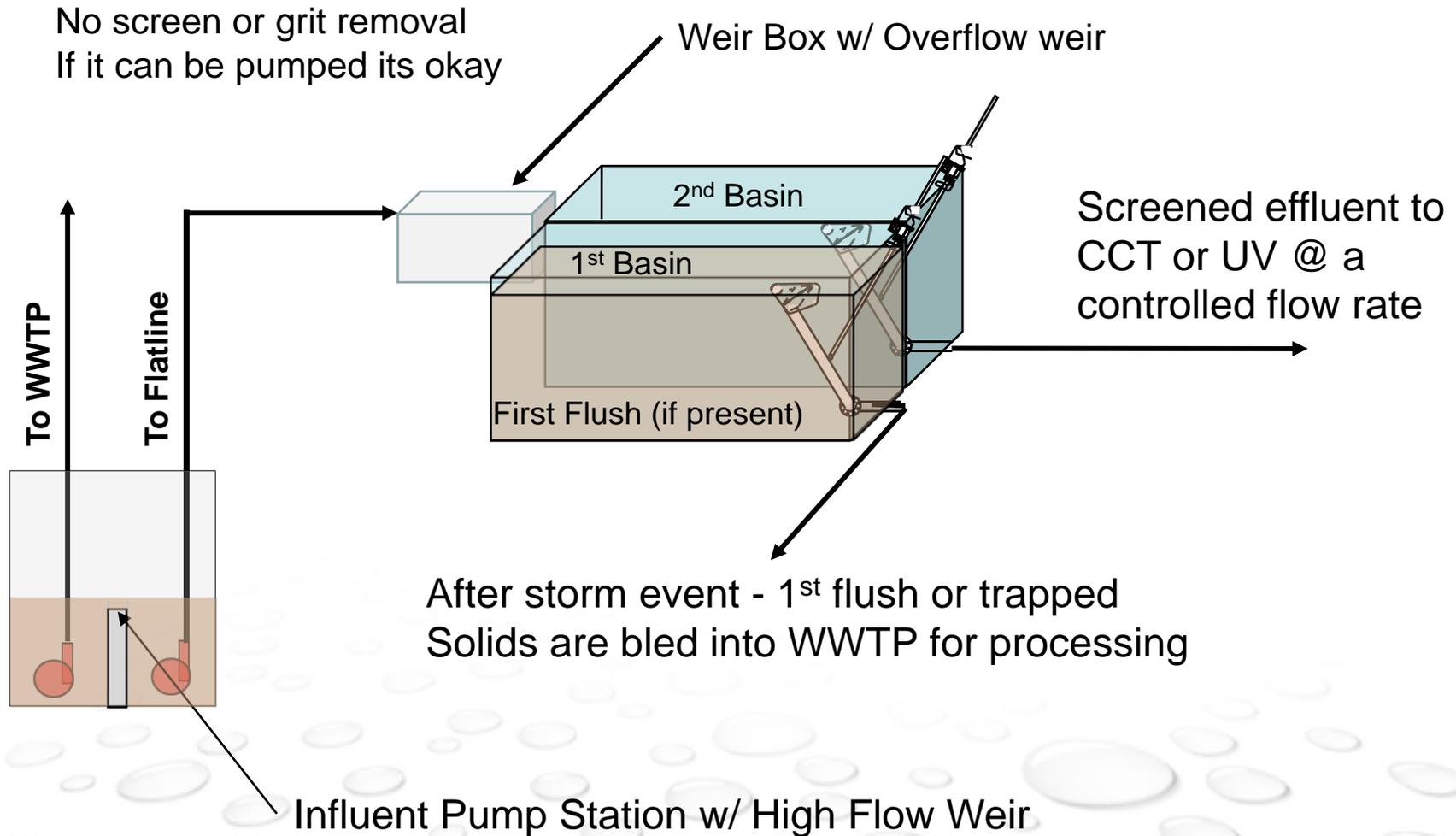
**Simplified Design &  
Operations**

**Conventional**

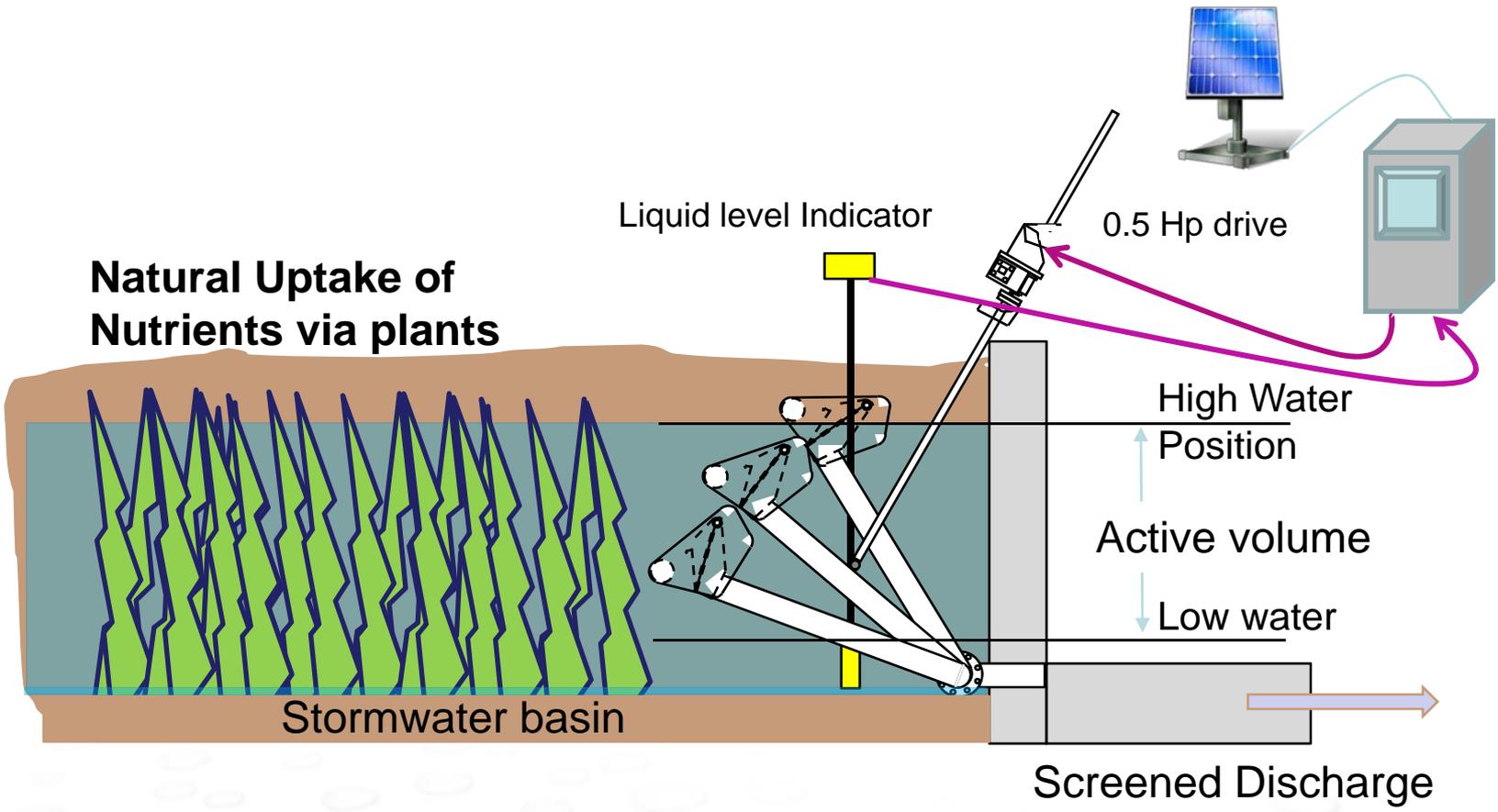
**Based on a 400,000 GPD WWTP (2009 Costs)**

	Flatline	Conventional
Connected Hp	31.5	70.5
Capital Cost	\$ 950,000	\$ 1,200,000
Footprint (Sq. Ft.)	1,500	3,200

# Combined Sewers or I & I



# STORMWATER



The greater the Active Volume (depth) the smaller the footprint

- **PILOT AVAILABLE WEEK OF 10/8**
- **NEEDS A NICE WARM HOME**
- **WILL REDUCE ENERGY & SLUDGE PRODUCTION BY 50+% - SHOULD PILOT TEST**

**HAPPY TO ANSWER QUESTION**

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**LIKE US ON [FACEBOOK.COM/FLATLINEWATER](https://facebook.com/FLATLINEWATER)**

**• 585 267 5004**

**THANK YOU**