

Chester Environmental Partnership February 18, 2020

## DELCORA • Michael DiSantis, Director of Operations and Maintenance

- Charles Hurst, Director of Engineering
- Irene Fitzgerald, Laboratory and Pre-Treatment Manager



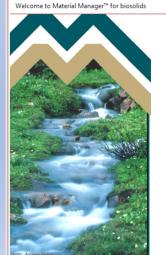
- Trudy Johnston, CEO, Material Matters
- Shannon Gority, Sr. Project Engineer, Material Matters



• Stan Chilson, Charles Winslow, GHD



### MATERIAL MATTERS,Inc.



#### MATERIAL MANAGER<sup>TM</sup> for biosolids

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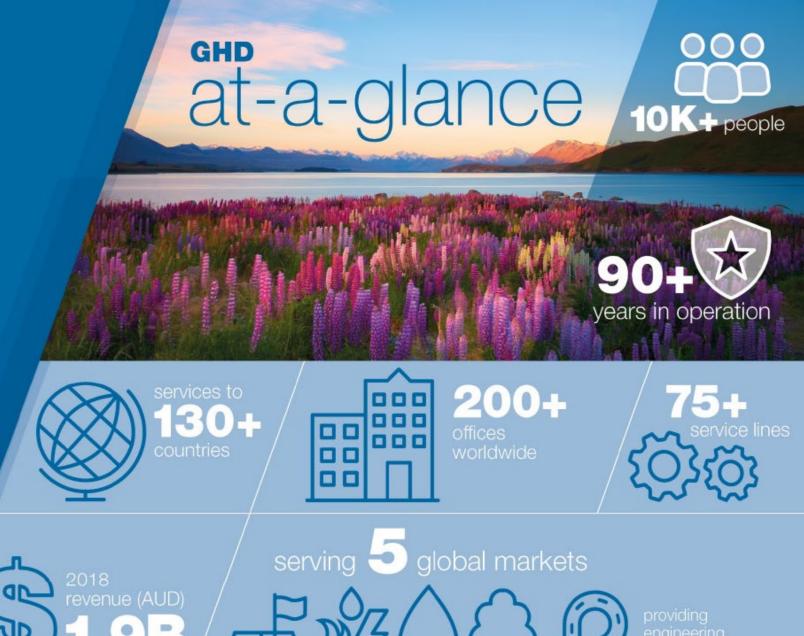
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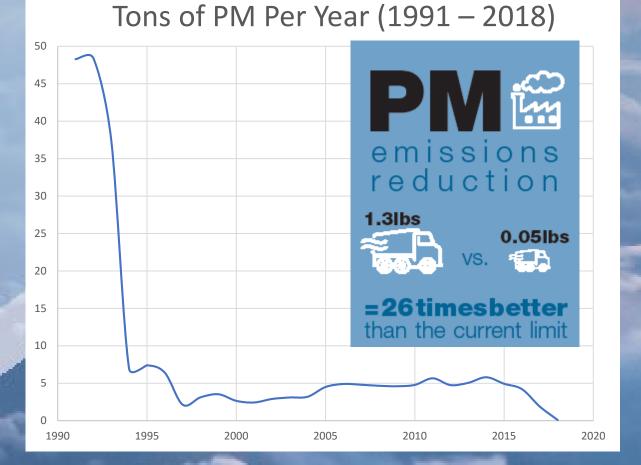
**DELCORA** is committed to Protecting **Public Health &** the Environment at an affordable cost to rate payers.



### DELCORA does more than "meet permits"

Project	Complete	Investment	Benefits	
Secondary Combustion Improvements	2016	\$11M		
Conversion from Fuel Oil to Natural Gas	2011	\$2.3M		
Radiation Monitors	2019	\$100k		
Rerouting Truck Traffic	2017	\$4M		
Trucked in Waste Program	Ongoing	Provides 10% of Authority Revenue		
Solids Handing Optimization	2019	\$8.2M		
Public Health Environmental Protection Environmental Quality of Life				

# DELCORA has a history of Improving Emissions, including those affecting Public Health



The air emissions reductions at DELCORA are considered to be better than the top 3% of the best operated MHF systems in the US. Two-Stage Thermal Oxidization is a State of the Art / Best Available Control Technology (BACT)

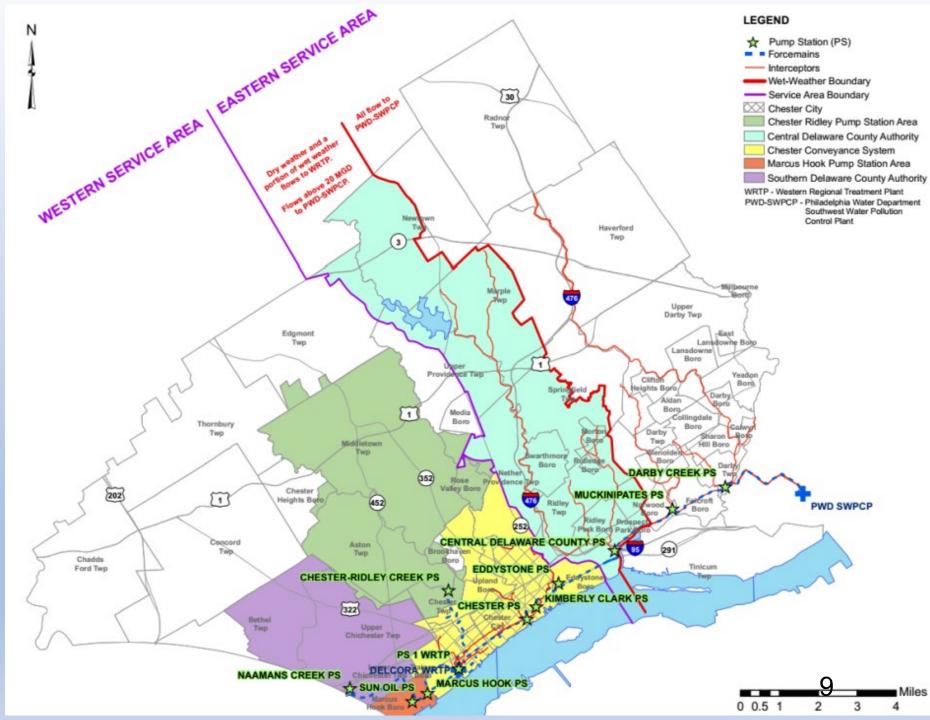
US EPA defines BACT as capable of reduced environmental impact Equal to or better than the best 6% of MHI.

Permit Limit: 1.3 lbs PM / ton solids burned Pre-Project Concentration: 0.9 lbs/ton Post-Project Concentration: 0.05 lbs/ton

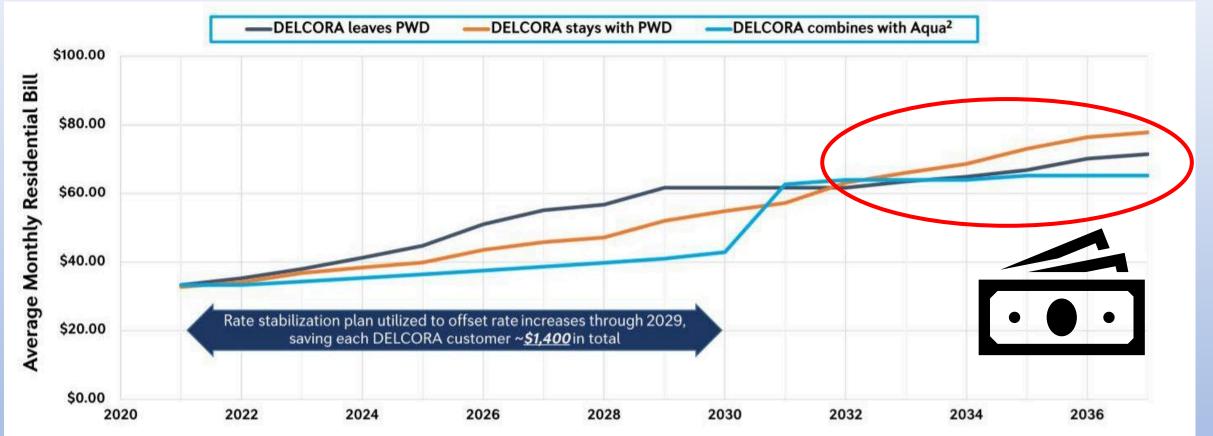




Disconnecting from the PWD system results in customer savings WITHOUT significantly increased emissions



### DELCORA looks ahead to ensure rates are controlled



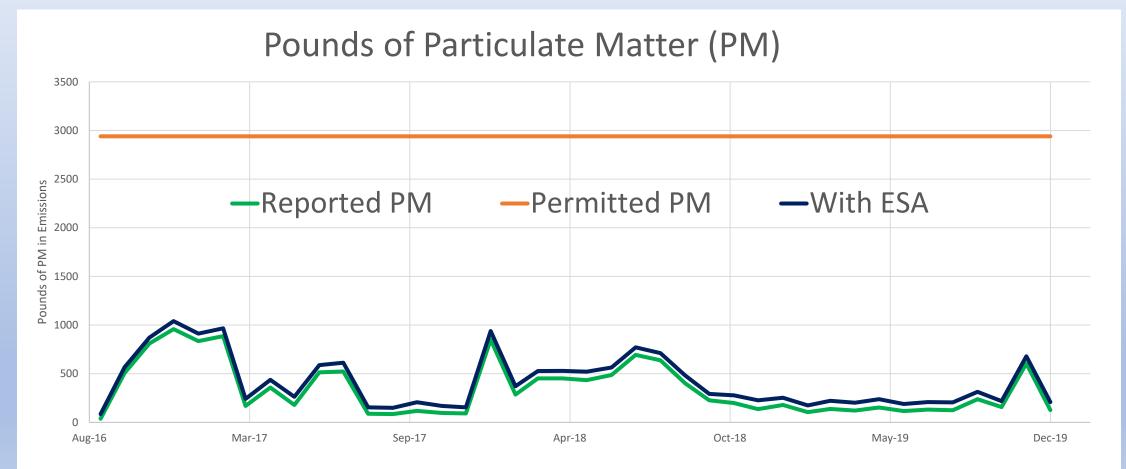
Source: DELCORA projections.

1) Customer bill estimates are based on 70,000 gallons annually. Actual DELCORA customer bills will vary but will be subject to a similar projected trend as shown above.

2) DELCORA customer bills are calculated to increase at a lower rate than the DELCORA standalone bills for a period of time after transaction closes due to upfront proceeds paid to DELCORA.



# Increased solids incineration from the ESA project will NOT appreciably increase PM

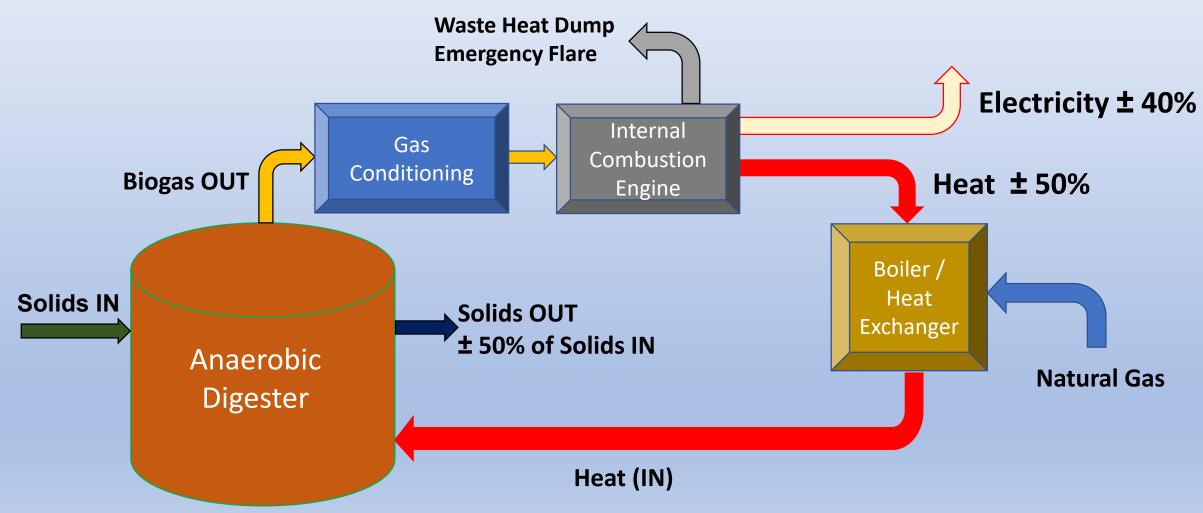




Abandoning Incineration in favor of Anaerobic Digestion does NOT benefit Rate Payers



### **Combined Heat and Power Recovery System**



Anaerobic Digesters at Deer Island, Boston Harbor

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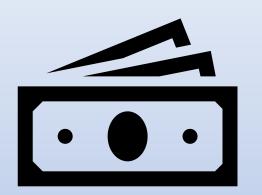






### CHP Components

### Preliminary Construction Cost Estimates



\*Note: Estimates DO NOT include the cost of decommissioning and demolishing the Incinerator Process

#### Digest

- 8 x 1.5 Million Gallon Eggs
- Heat Exchanger
- Biogas Safety Equipment

#### Dewater

- 4 x 250 gallon per minute Centrifuges
- Polymer System
- 50' x 50' Building

#### Recover

- Biogas Storage, Cleaning and Conditioning
- 2 x 2 Megawatt Internal Combustion Engine Driven Generators
- Utility Company Interface

#### Store



- 210' x 210' enclosed truck and front-end loader capable concrete slab
- Odor Controlled
- No heat

### \$70 to \$90 Million

\$7 to \$9 Million

\$14 to \$16 Million

### Solid Product Outlet Costs

	Solids Outlet Scenario	# Trucks Per Day (Annual Average)	\$ Annual Cost
	Incinerator Ash to Landfill (Base Case)		\$870,000
Anaerobic Digestion	100% Cake Beneficially Used		\$5,250,000
	40% Cake Beneficially Used / 60% Cake to Landfill		\$8,320,000
	100% Cake to Landfill		\$11,730,000

Note: All calculations are based on the maximum loading of 96 dry tons per day

## AD Impact on User Rates

# 26%

Increase in User Rates

Increase in Avg Monthly Bill

\$110

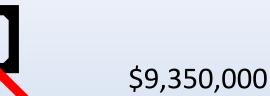
Increase in Avg Annual Cost

#### Debt Service

- Anaerobic Digestion Median Estimate of \$110,000,000
- No reduction for Incinerator Improvements Debt
- \$85,000 a year for every \$1,000,000 borrowed

### Add'l Expense

- \$17,000,000
- 1% Increase in rates for every additional \$650,000 of annual expense
- Average Residential Unit pays \$35 per month in 2020





### Questions?

