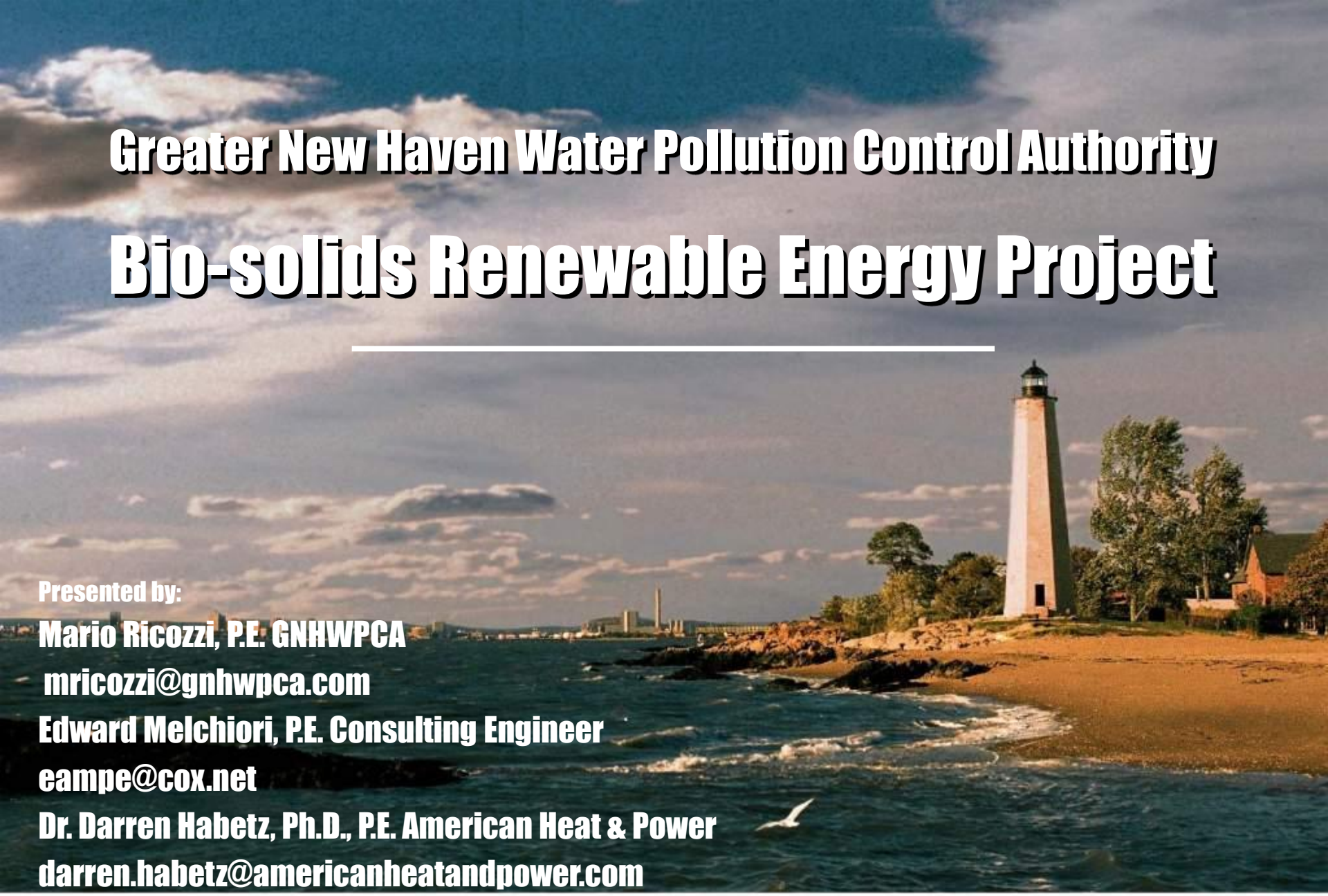

Greater New Haven Water Pollution Control Authority

Bio-solids Renewable Energy Project

Presented by:

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PLANT TOUR NOVEMBER 4, 2009

The Proposal (June 2006)

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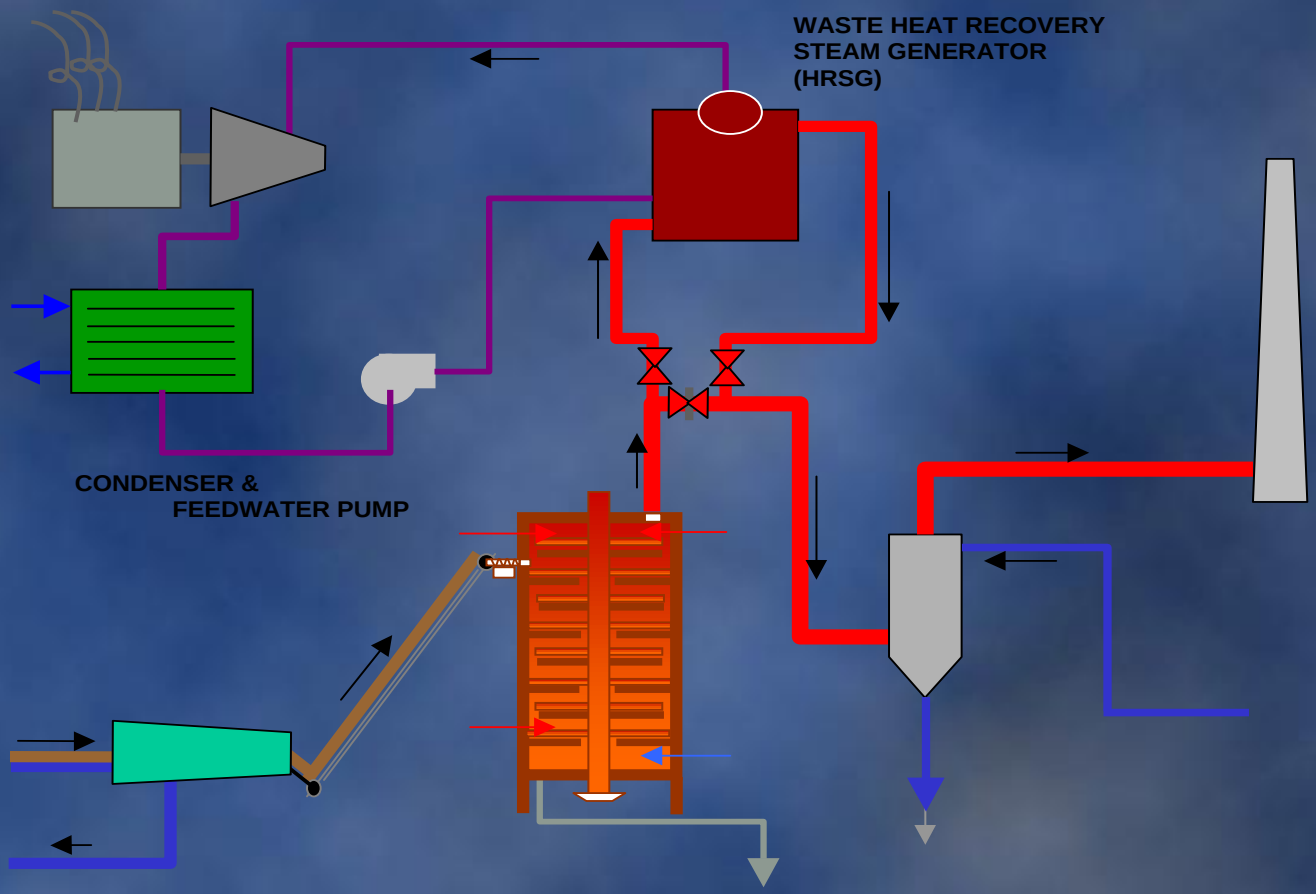

DRESSER-RAND

AHP AMERICAN HEAT AND POWER LLC
A WASTE ENERGY RECOVERY COMPANY

Memorandum of Understanding

January 2007

GNHWPCA
Regional Sewer Authority

Agreement to perform preliminary project design

- Preliminary Drawings
- Building Structural
- Equipment Information
- Process and Operations Narrative
- Pricing Information
- “Go” / “No Go” Decision
- $ 97,500

The Contract (July 2007)

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Dresser Rand in conjunction with American Heat and Power will design, procure, construct, start-up, commission, test and maintain a Plant that will recover heat from the existing multiple hearth incinerator exhaust gas system and use the heat recovered to produce steam that will power a steam turbine driving an electric generator making electricity.

The Economics

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- Capital Cost $5,339,429
- CT DPUC Funding $ 318,780
- CREBs Bonds $2,500,000
- Revenue Bonds $2,839,429
- Net Positive Cash Flow over 25 years $28,721,030
- Net Present Value (NPV) of future cash flows @ 3% inflation rate $17,851,448
- Simple Payback Approximately 5.5 years
- Internal Rate of Return (IRR) 34.13 %
- Annual Avoided Cost range from $ 900,000 to $ 2,400,000 over 25 years

Environmental Benefits

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While the addition of the waste heat boiler and steam turbine plant will not lower the emissions from the incinerator process, the elimination of over 4 million kWh generated at the local power plant will reduce local pollutant emissions.

Power Plant Pollutants	Tons Per Year
Particulate	40
SO2	3.7
NOX	1.3
CO	<1.0
CO2	1,441

Acceptance, Testing, Training and Long Term Maintenance

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- Testing and Acceptance Period
  - Three 24-hour periods at 30, 40 and 50 Tons per day feed rate of pre-tested sludge.
- Training
  - Seven Days, 10 operators.
  - All operators must be licensed.
- Long Term Maintenance
  - Dresser has a 5 Year Long Term Maintenance Contract.
  - Warranty on all equipment and system components.
  - Synagro has daily inspection and check list duties.

Configuration of Existing Multiple Hearth Incinerator

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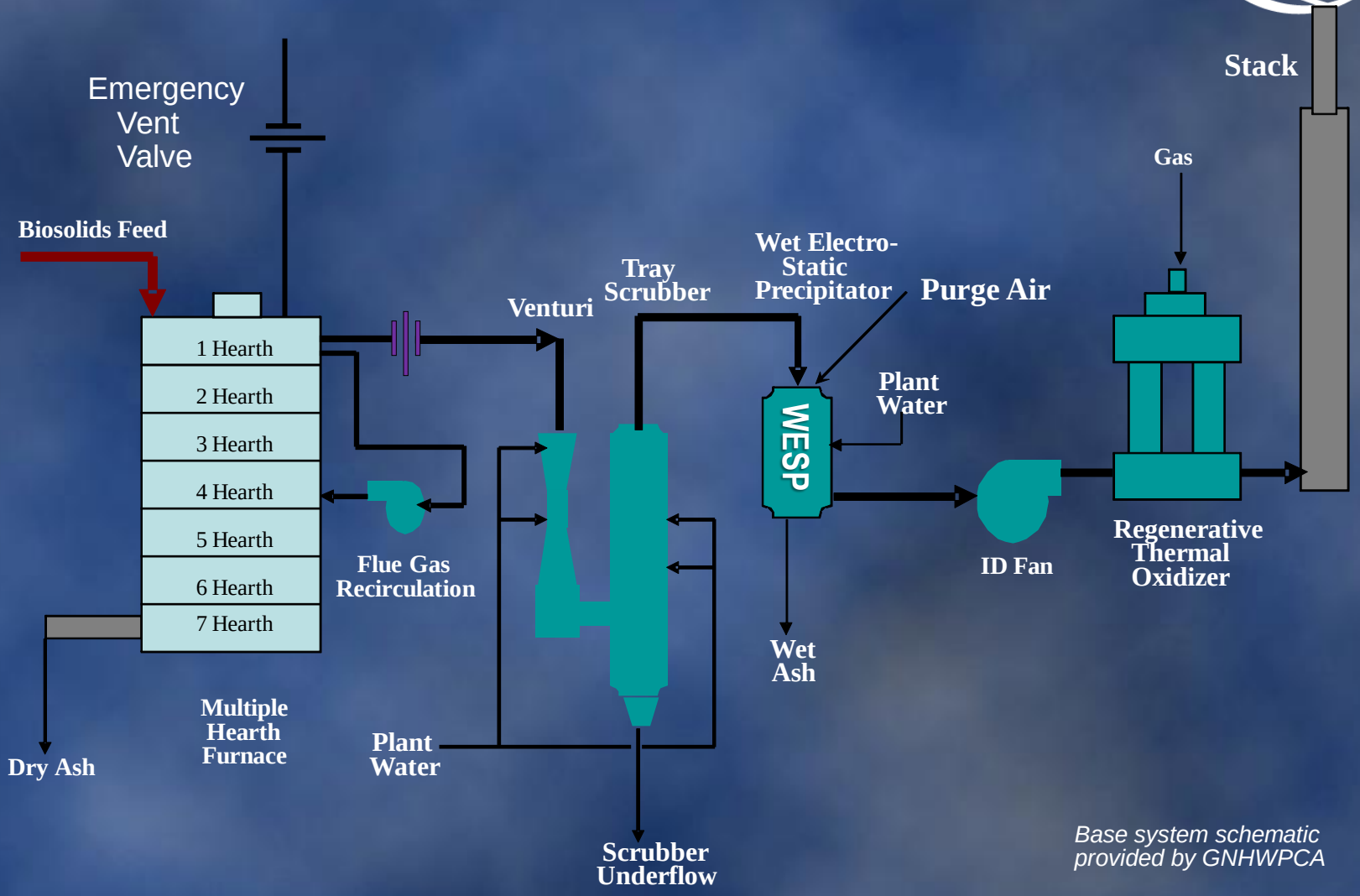

Base system schematic provided by GNHWPCA

Sludge Operations and Incineration Process

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Annual Run-time	8177 hrs per year (93.3% uptime)
Average exhaust temperature	1200° F
Sludge average solids content	26%
Average sludge caloric content	7800 Btu/lb

Annual Sludge Operating Rates

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Rate Dry Tons/Day	Frequency of Occurrence	Annual Dry Tons
12.26	3.97 %	165.8
18.70	3.97 %	252.9
23.28	6.62 %	525.1
27.51	9.93 %	930.7
33.16	11.26 %	1,272.1
37.99	15.23 %	1,971.3
42.27	19.87 %	2,861.6
47.02	18.54 %	2,970.1
51.76	10.60 %	1,869.3
Average Tons per Day		37.62
Average Tons per Hour		1.57

Thermal Analysis of Incinerator Exhaust Gases

GNHWPCA
Regional Sewer Authority

- Sludge Characteristics

Sludge Feed Rate	42 Dry Tons per Day
Solid Content	26 %
Volatile Organics	78 %
Ash	22 %
HHV of Fuel (Dry Basis)	7,750 Btu / lb
LHV of Fuel (Dry Basis)	7,260 Btu / lb
Total Natural Gas Usage	2,850,000 Btu / hour
Total Natural Gas per Dry Ton	1.628 MMBtu / Dry Ton

Thermal Analysis of Incinerator Exhaust Gases

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- Exhaust Gases

Exhaust Gas	9,038 SCFM
	28,846 ACFM
Excess Oxygen	29 %
Sludge Combustion Air	4,561 SCFM
Inlet Air Temperature	60° F
Final Hearth Exit Temperature	1195° F

Reconfigured Multiple Hearth Incinerator with Steam Turbine

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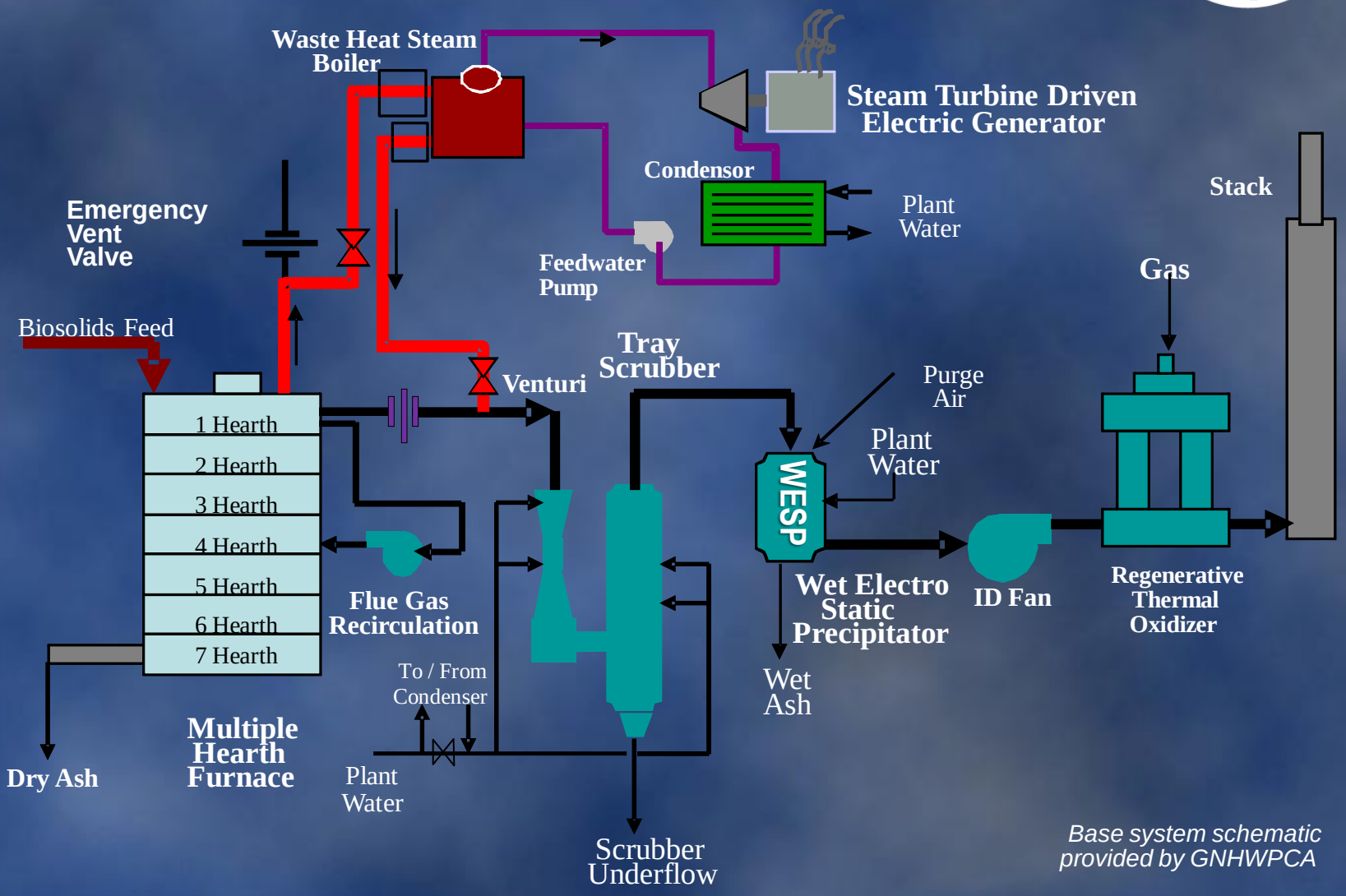

Base system schematic provided by GNHWPCA

Thermal Analysis of Incinerator Exhaust Gases

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- Typical Steam and Power Production

Steam Temperature	600° F
Steam Pressure	400 PSIA
Steam Production Rate	8,850 lbs / hour
Gross Power Output	628 kW
Steam Output	7,687 lbs / hour
New Power Gen kW	512 kW

Renewable Energy Plant
Floor Layout

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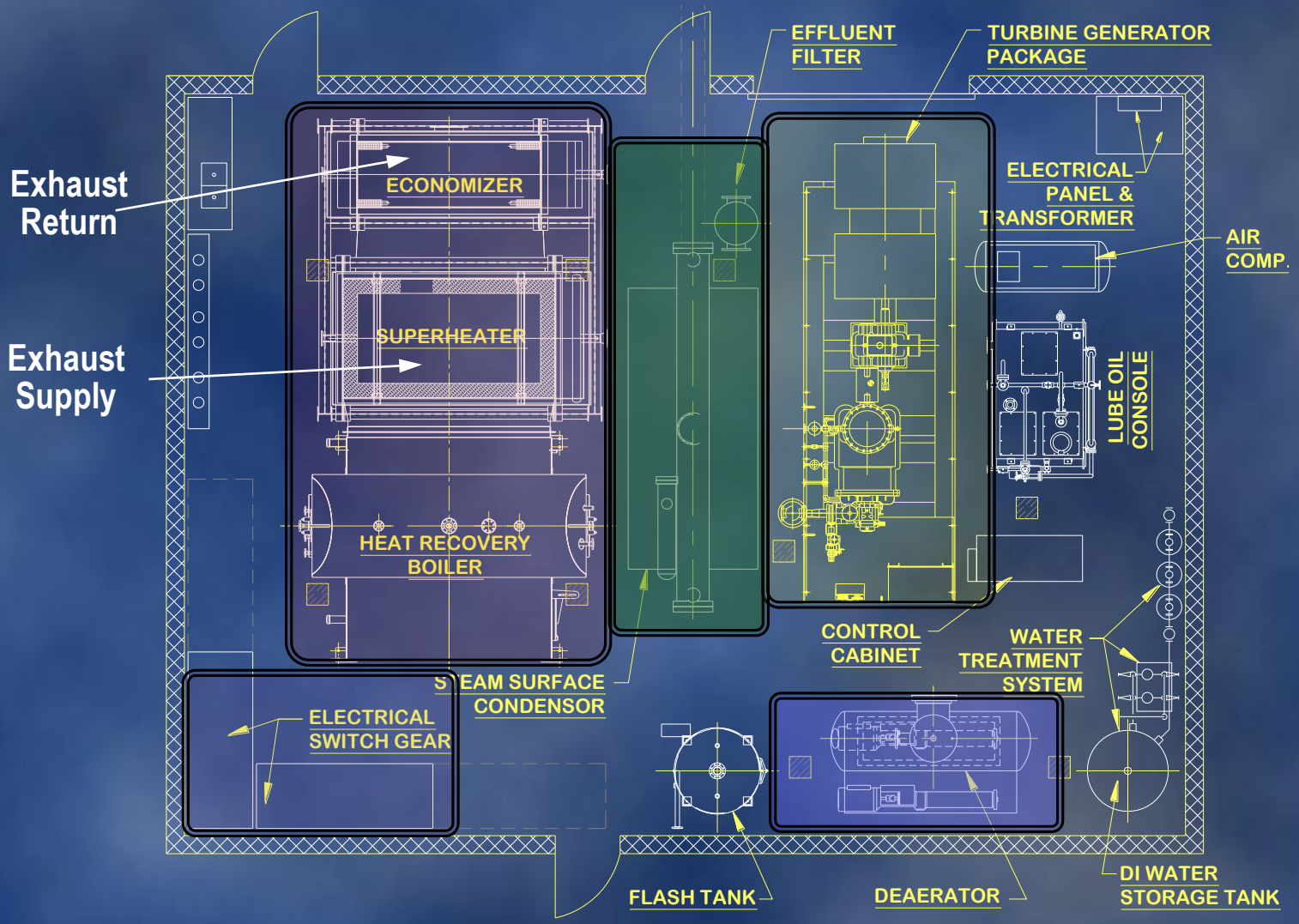

Biosolids Energy Plant

Acceptance and Testing

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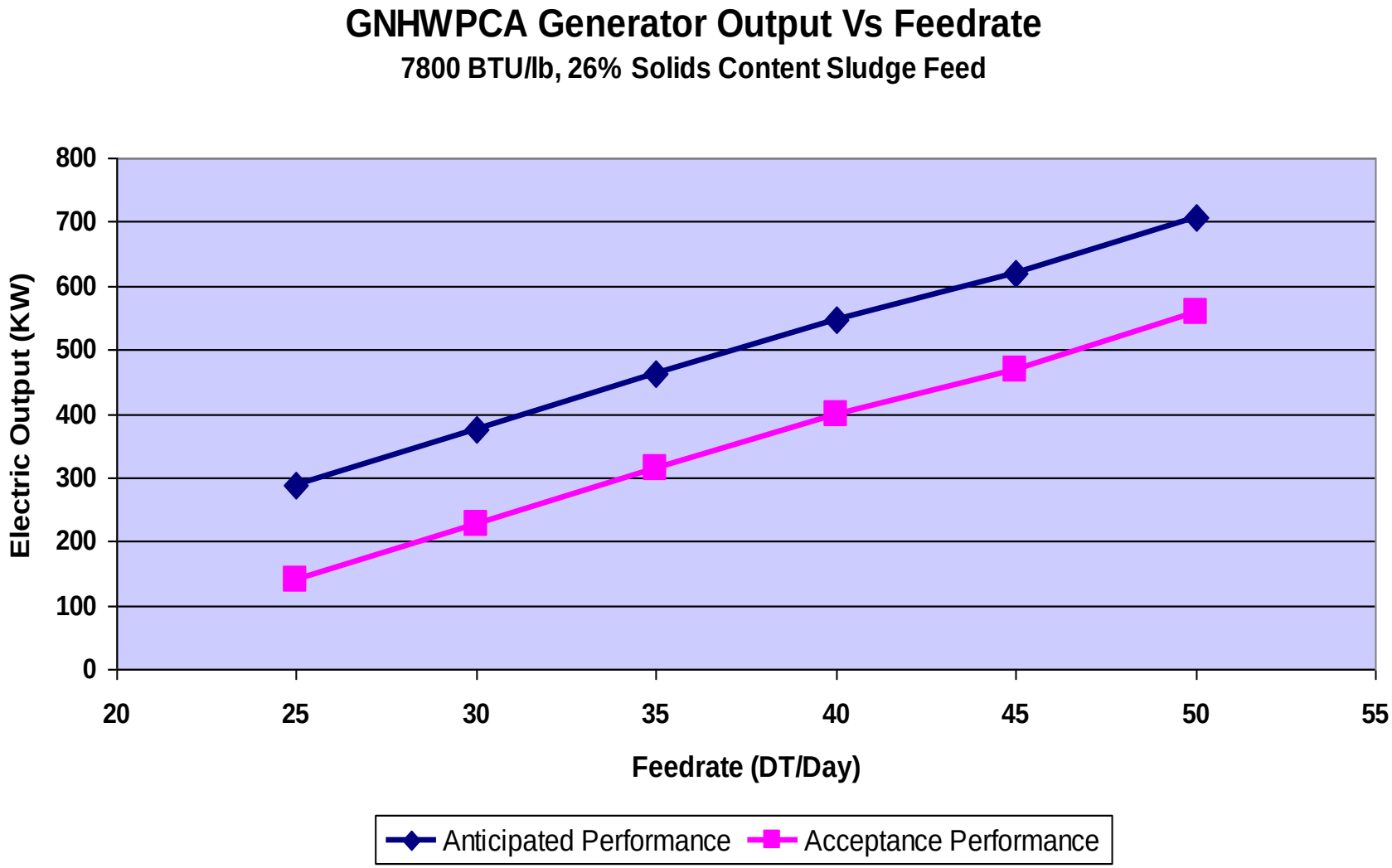

Acceptance and Testing

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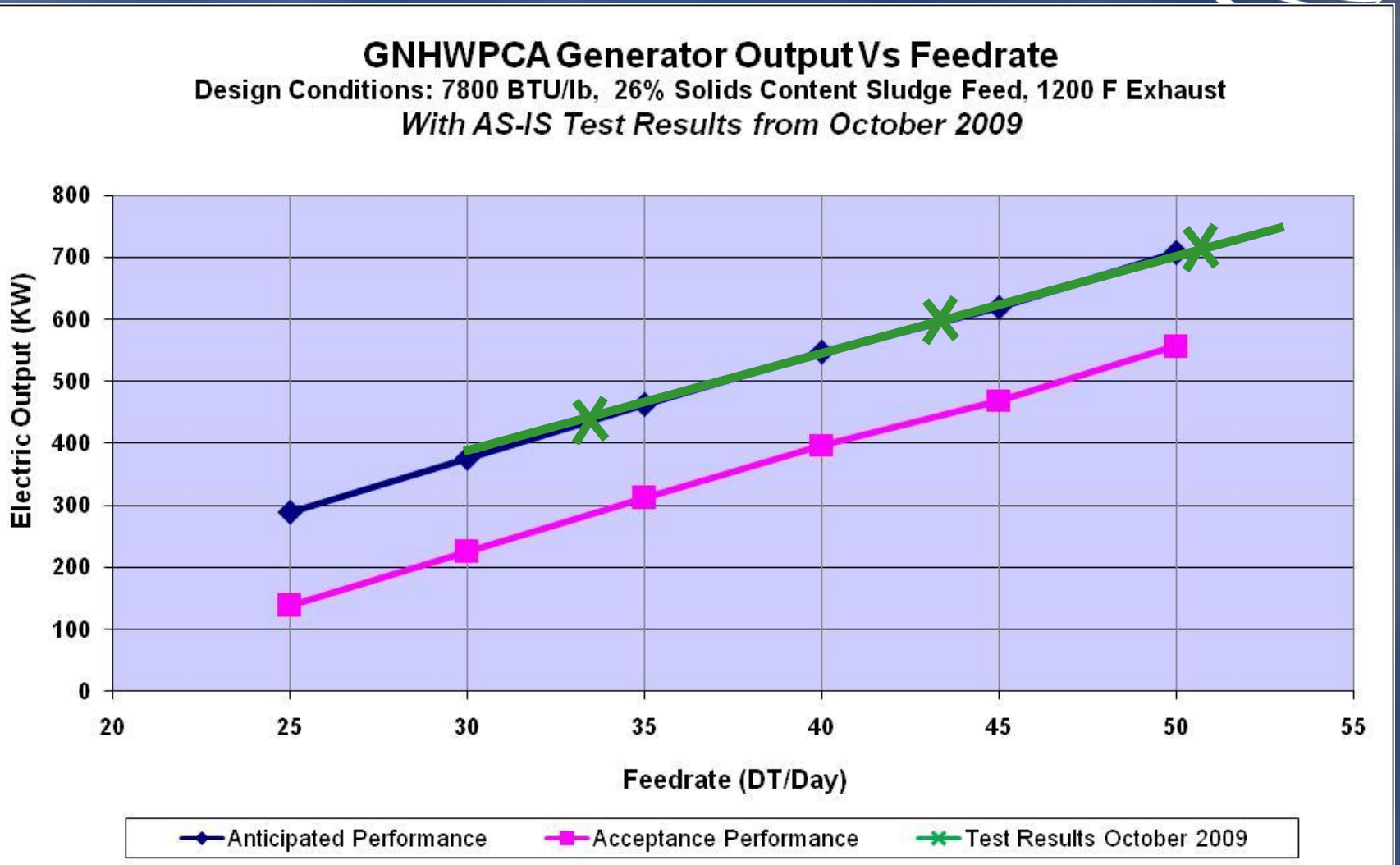

Control Panel Screen

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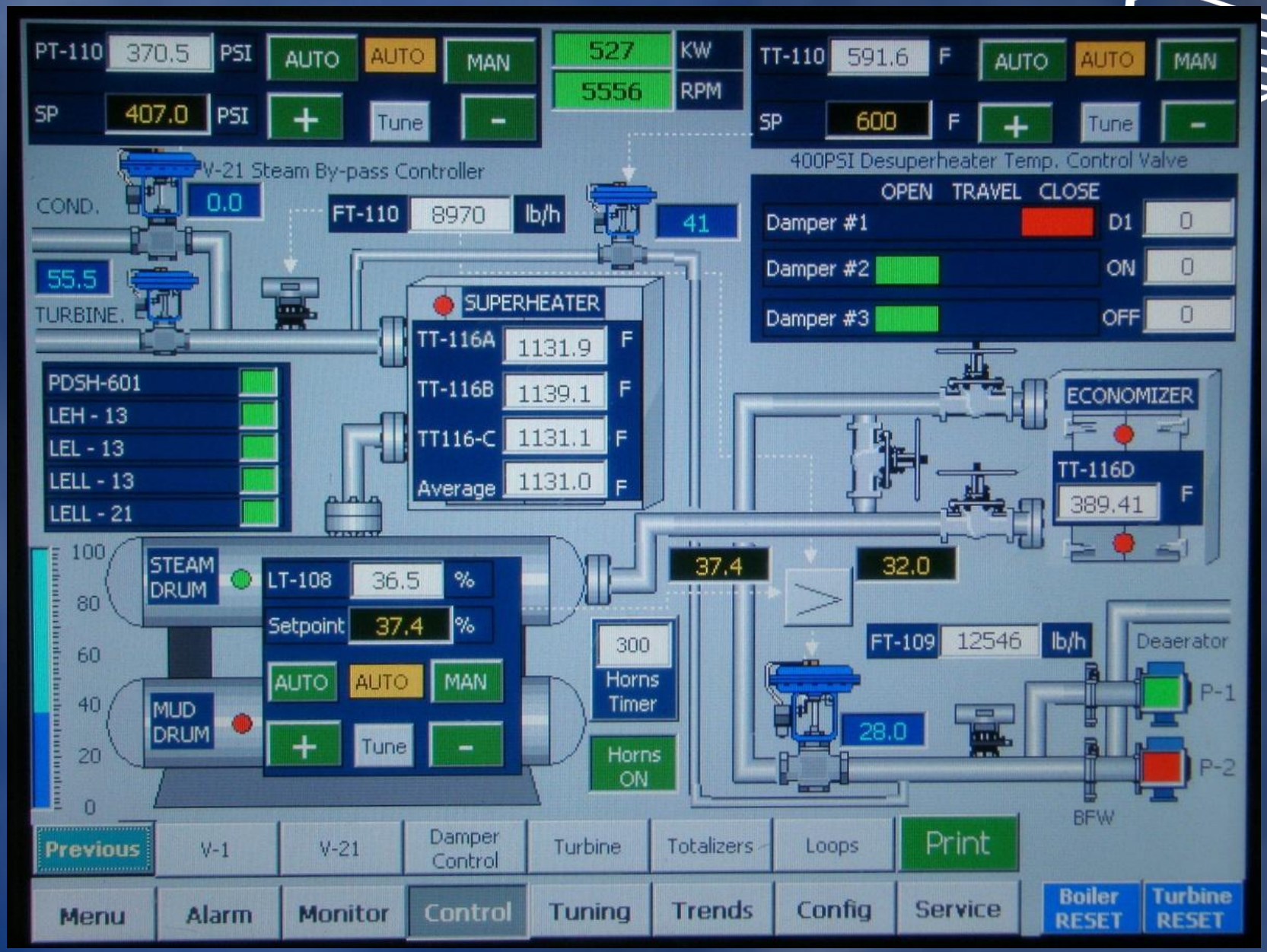

Acknowledgements

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DRESSER-RAND

E.A. MELCHIORI, P.E.
Consulting Engineer

AHP AMERICAN HEAT AND POWER LLC
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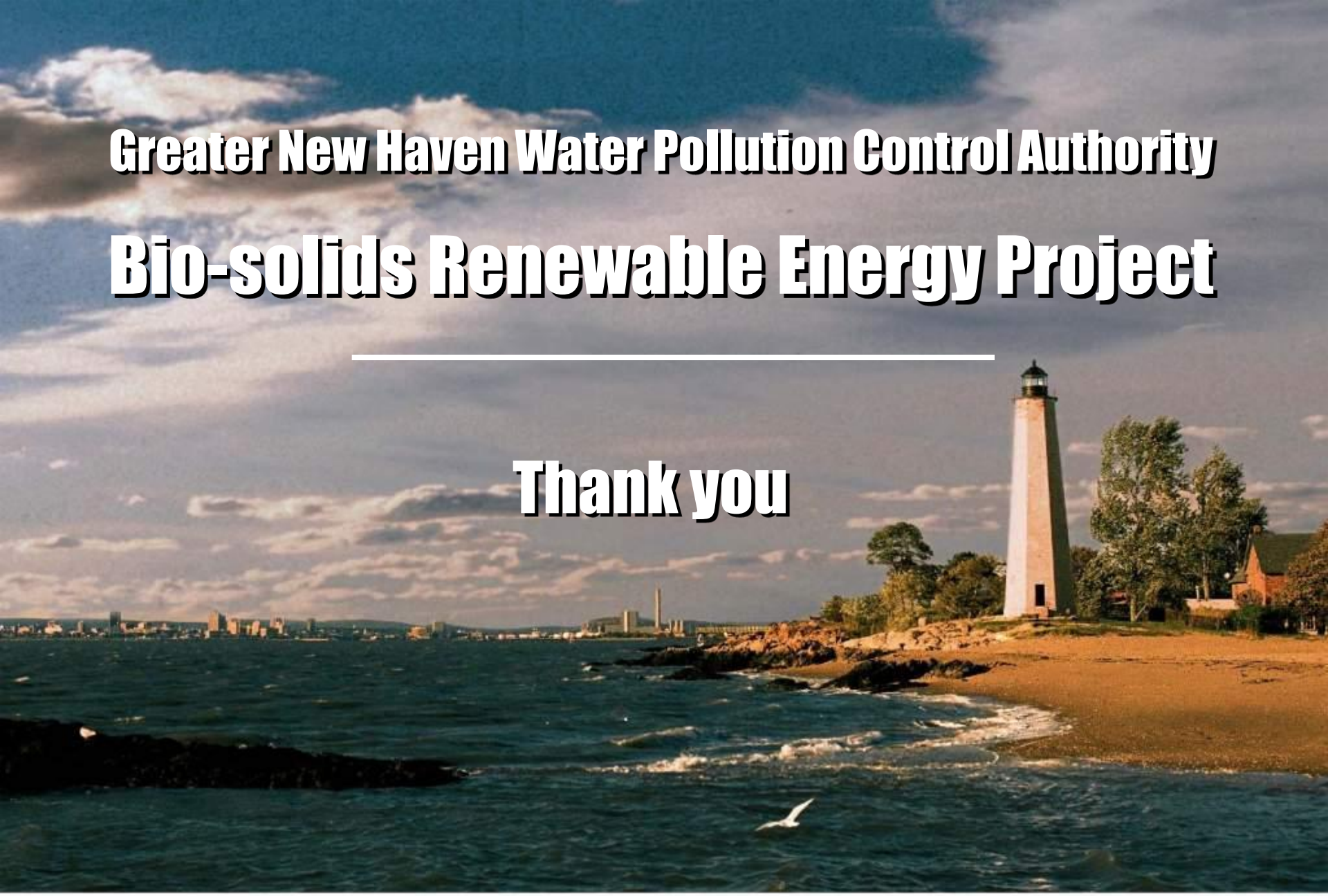
CH2MHILL
OMI

SYNAGRO



Any Questions?