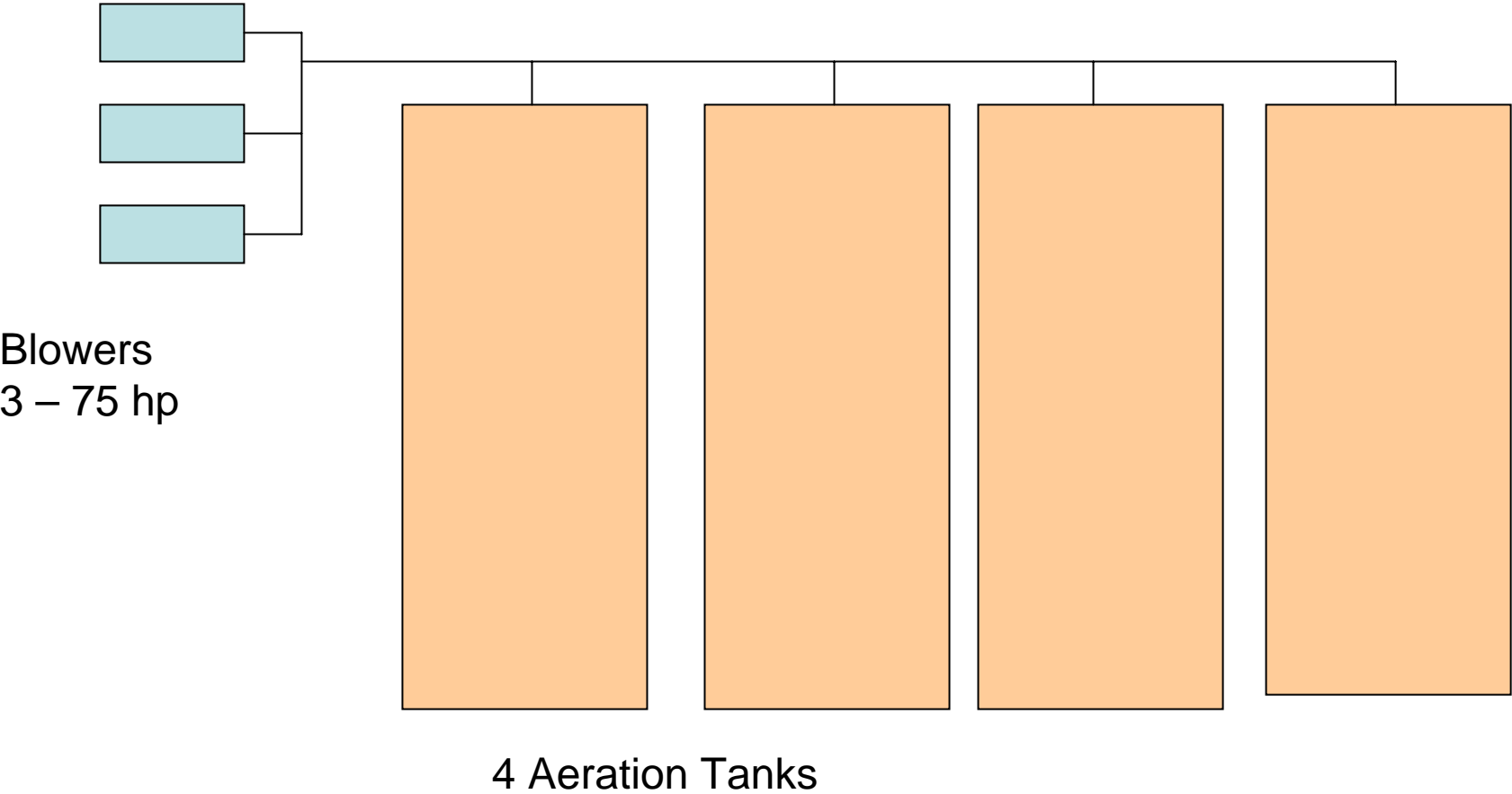


Waste Water Treatment Energy Improvement

United States Military Academy
West Point, NY



System Operation



GOAL/OVERVIEW

- Repair Failing Air Piping System
- Maximize System Efficiency

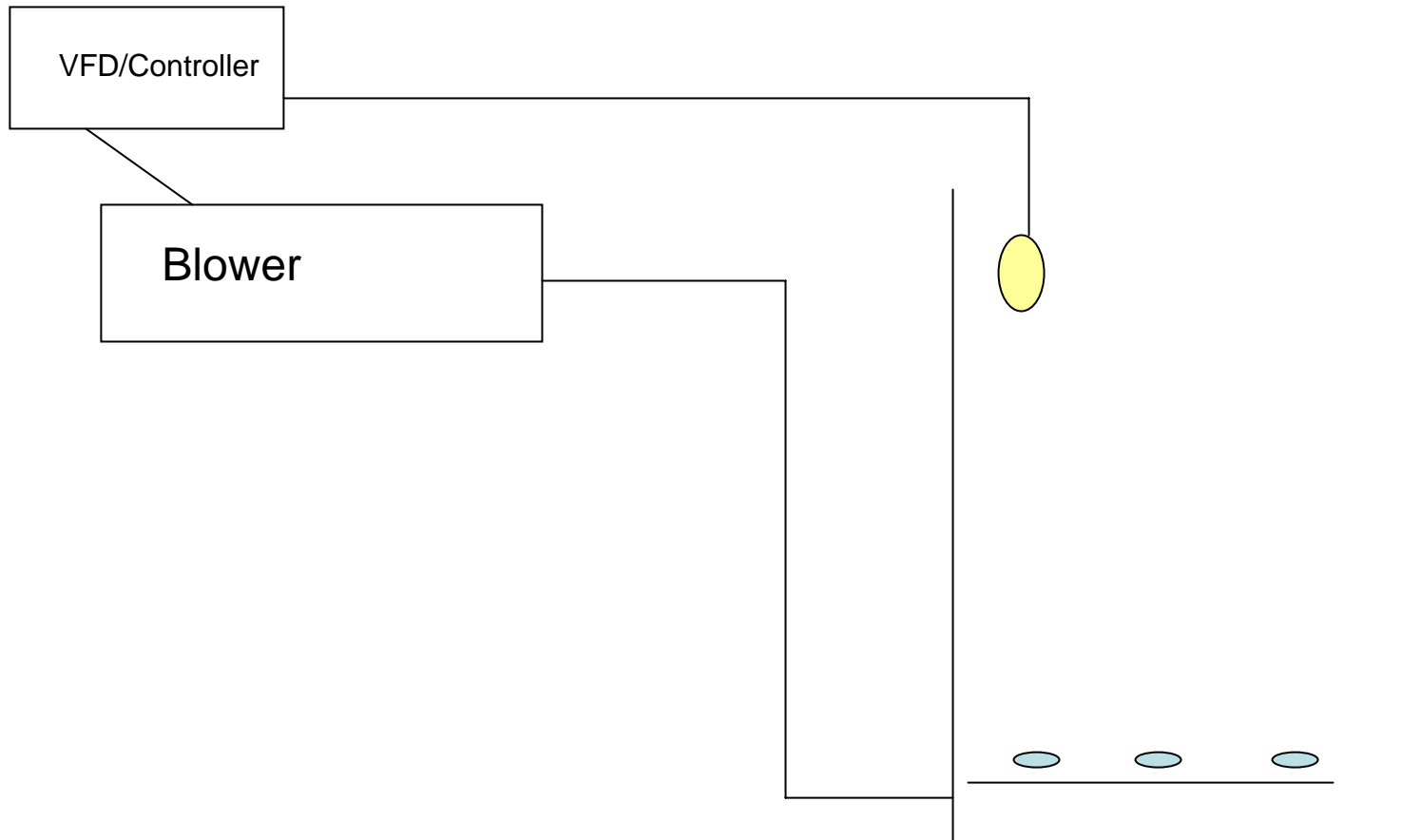
Existing Conditions

- Roll Membrane Diffusers
- Blower #1 Blower #2 Blower #3
 - 12 Months 24/7 9 months 24/7 Stand By
- 112 KW
- Annual Energy 858,000 KWh

RETROFITTED SYSTEM

- Ceramic Disc Diffusers
 - 1-2 mm Bubbles (vs 2-4 mm)
- In Basin Piping – Plastic and Stainless Steel
- Dissolved Oxygen Sensors
- VFD for 1 Compressor
- High Efficiency Motors

Aeration Configuration



Results

- Single Blower Operating at 42 Kw
- 325,000 KWh/yr
- 500,000 KWh/yr Reduction

QUESTIONS?

HELP??

- Solar and Wind Power
- Peak Shaving strategies
 - Gas
 - Electric

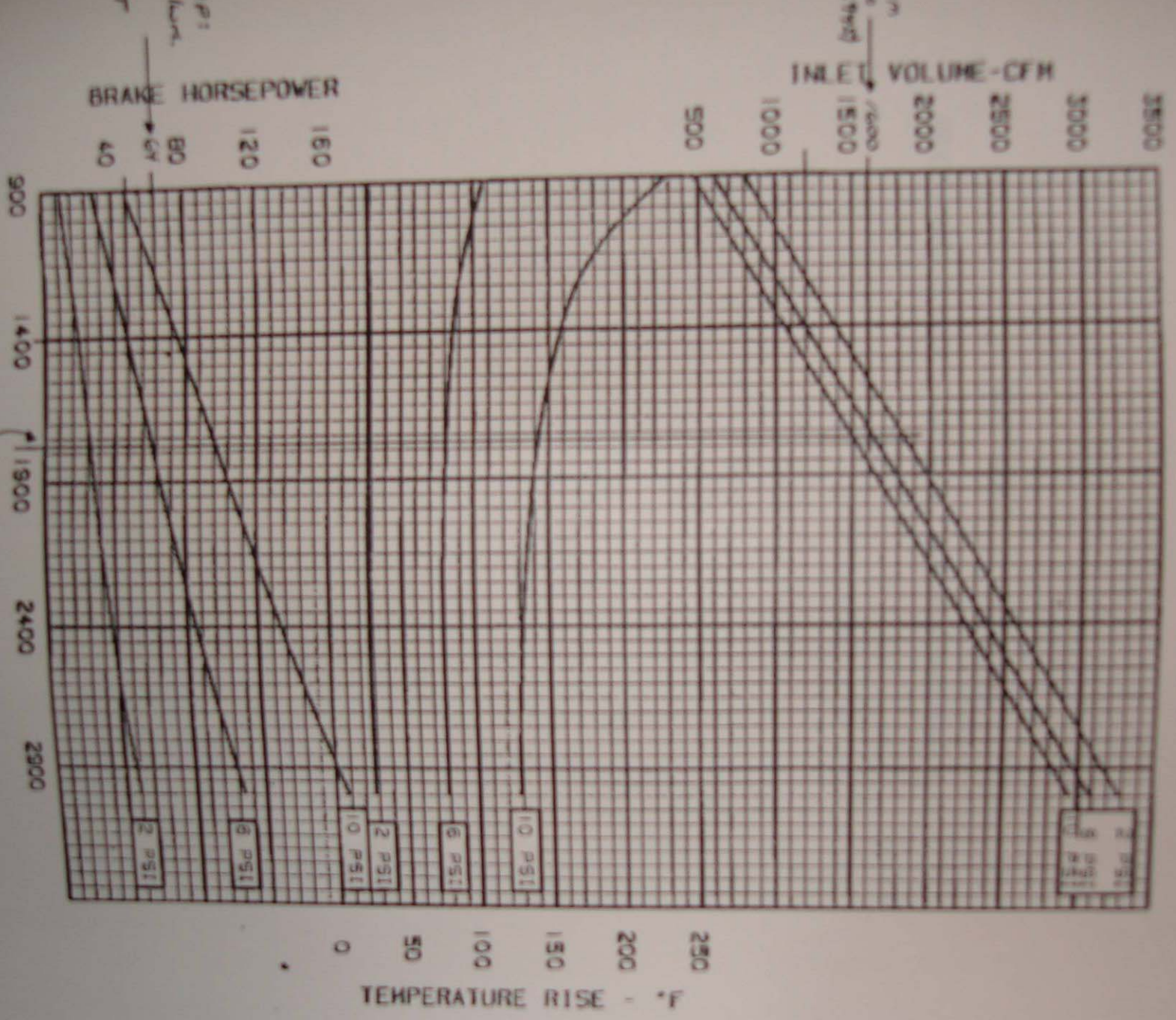
SYSTEM PROCESS

- Diffuse Air Into Waste Water
- Provide Oxygen for Bio Organisms to Live
- Pre Retrofit System
 - Roll Tube Diffusers 3 – 4 mm bubbles
- After Retrofit
 - Ceramic Disc, Fine Bubble 1 – 2 MM bubbles
- Reduces total required air volume
- Dissolved Oxygen Content

System Comparison

- Pre Retrofit
 - 9 Months 2 Blowers, 24/7
 - 3 Months 1 Blower, 24/7

PRESSURE PERFORMANCE
FRAME 624 RCS BLOWER
MAXIMUM PRESSURE RISE 10 PSI
MAXIMUM SPEED 3000 RPM



SPEED-RPM

PC-28-624