

ENERGY SERVICES TEAM & PARTNERS



Robert Kelley



Gary Kelly



Gary Brooks



John Evon

Cost Savings From Energy *Energy Assessments*



Easy Ways to Reduce Consumption

Energy Cost Trend



Compressed Air



Lighting



Motors



Steam





Compressed Air

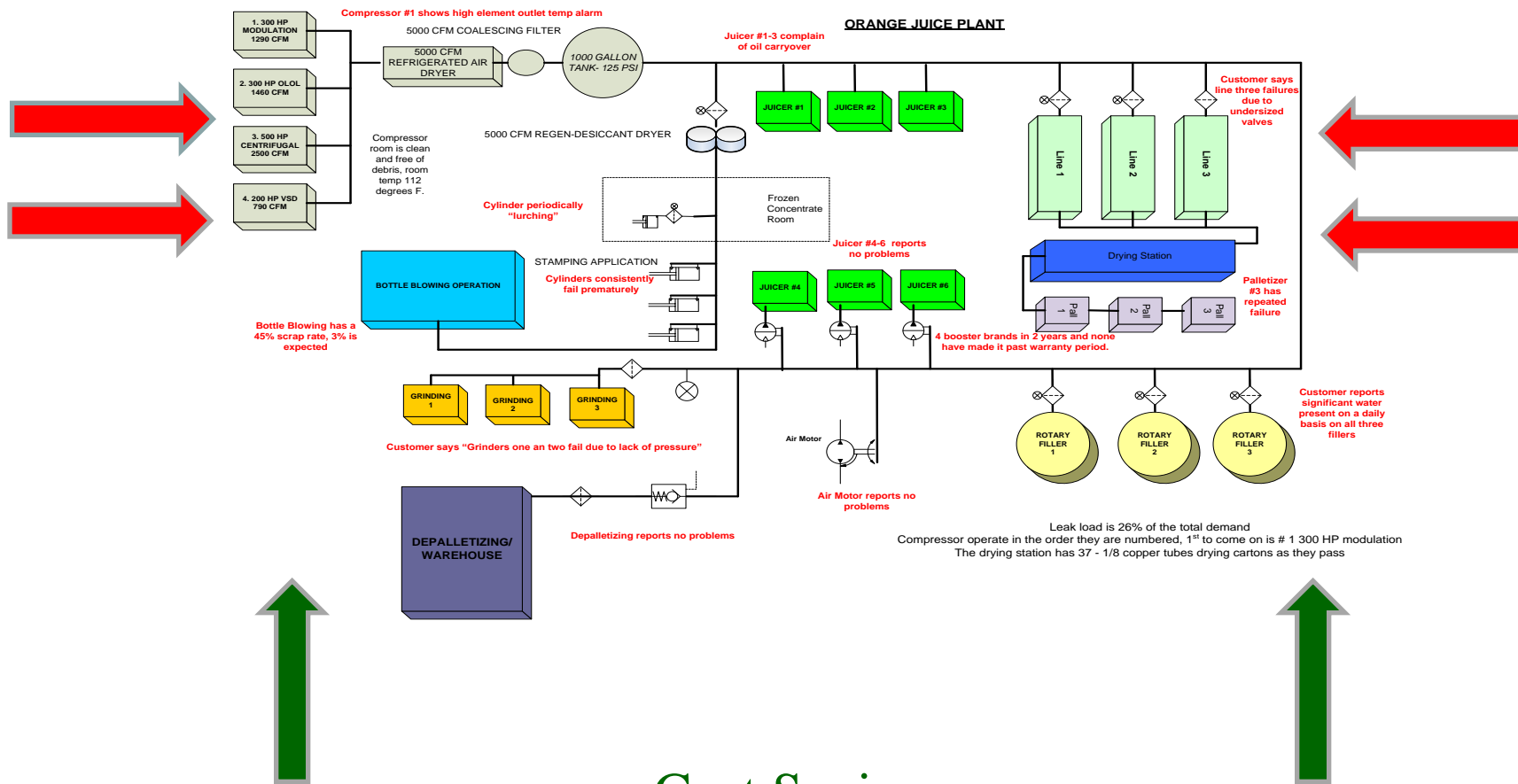
The View From the Bottom

Supply Side

Demand Side

Compressor houses / distributors

Pneumatic manufacturers



Cost Savings

Motion Industries EST

Compressed Air *Capabilities*



Comprehensive evaluation of compressed air system. Focus on both the supply and demand sides of the system.

Key Areas

Compressors

Storage

Pneumatics

Dryers

POU filtration

Machine analysis

Filters

Air quality

Inappropriate uses

Piping systems

Dewpoint

Leaks

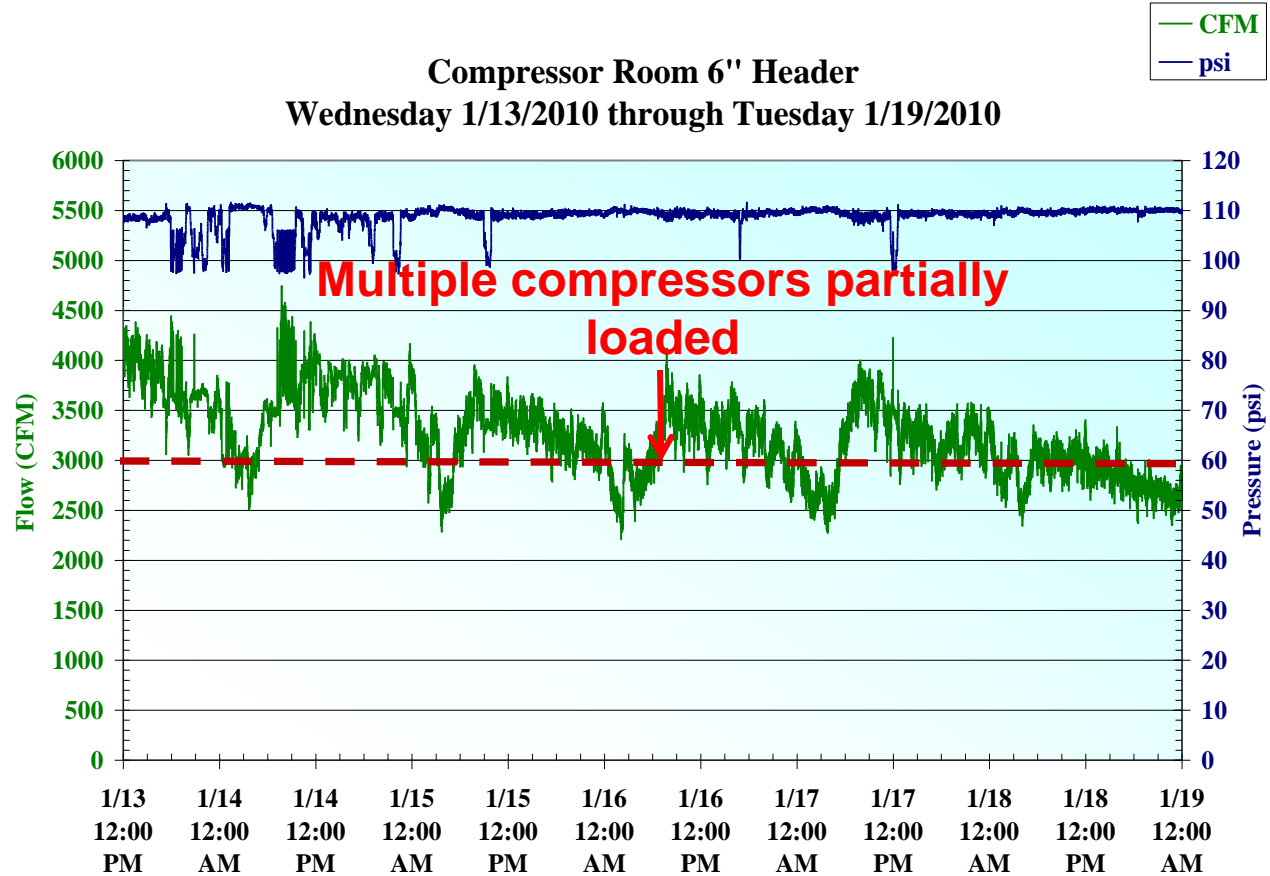
Compressed Air *Flow & Pressure*



Sage Flow Meters



Compressor Room 6" Header
Wednesday 1/13/2010 through Tuesday 1/19/2010



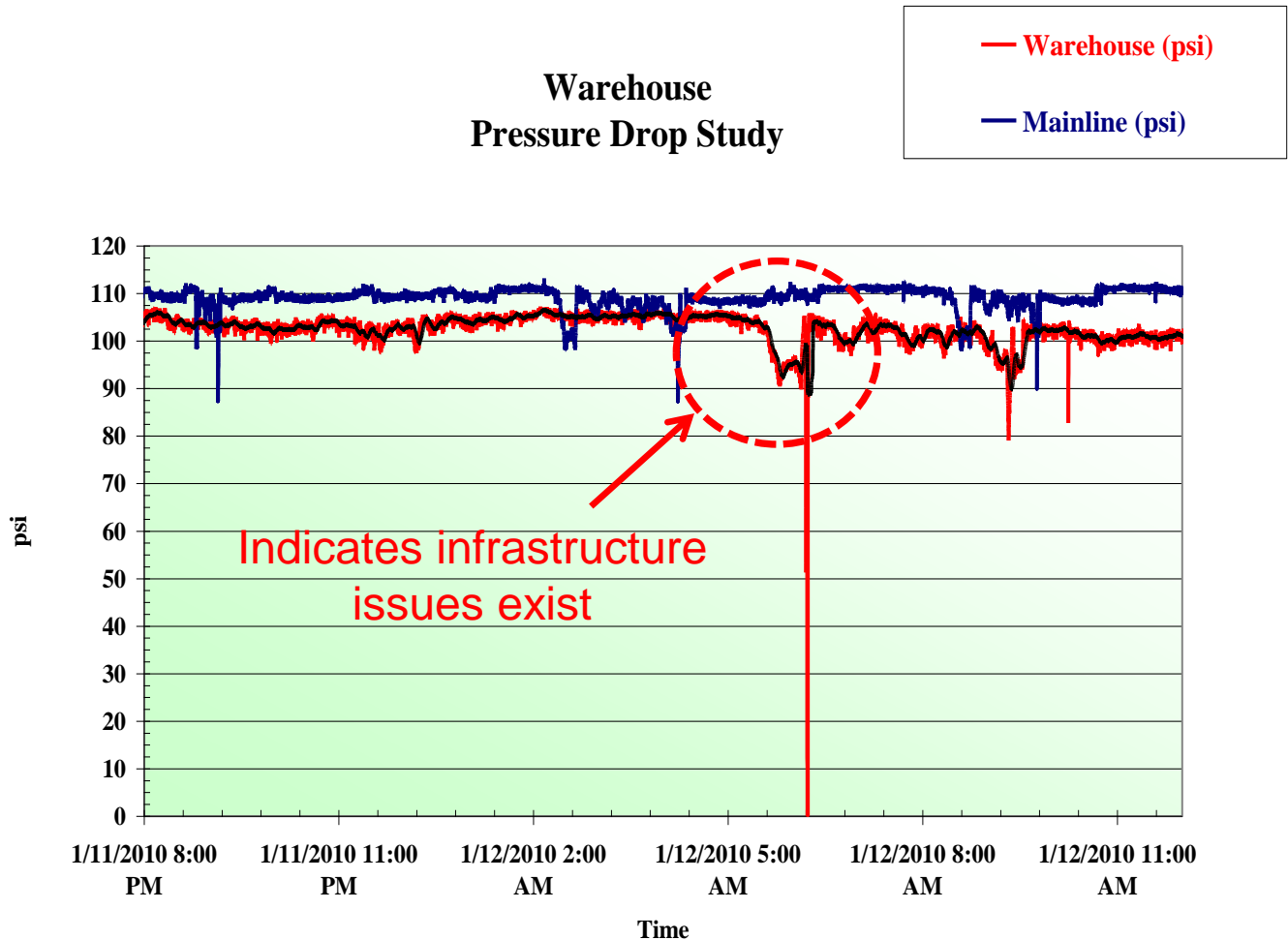
SMC ISE Pressure Sensor



Compressed Air

Piping, Storage & Pressure Assessment

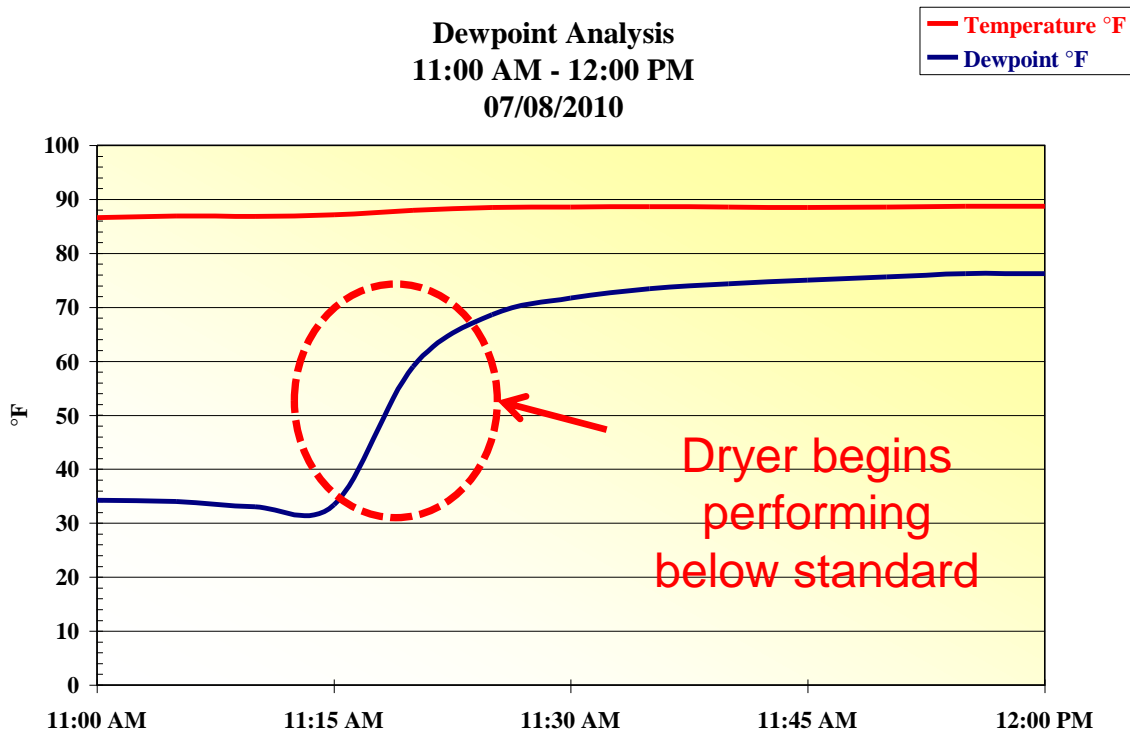
- Pressure drop studies conducted to ensure storage and piping are working to deliver compressed air appropriately





Compressed Air *Dewpoint Analysis*

- Handheld dewpoint hygrometer for spot measurements and data logging of dewpoint and temperature capable of very dry measurements (-76°F)

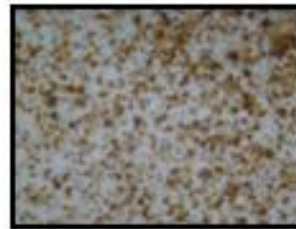


Vaisala Portable Hygrometer

Compressed Air *Air Quality*



- Quantifying the levels of oil mist, particulate and water per cubic foot of air
- Independent lab testing
- Catalyst for leaks?
- Meet ISO standards?



Plant E



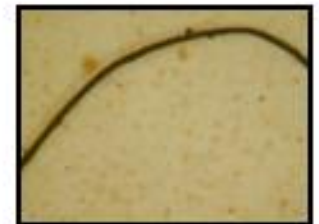
Plant H



Clean Filter



Plant N



Plant T



Compressed Air

Ultrasonic Compressed Air Leak Detection

- Capable of sensing a 0.1mm leak @ 6 psi from 70 feet away
- Utilizes 40 kHz ultrasound band that eliminates ambient parasite noise
- Leaks tagged and logged for easy repair/replacement.



SDT Parabolic Dish



**SDT 170
Leak Detector**

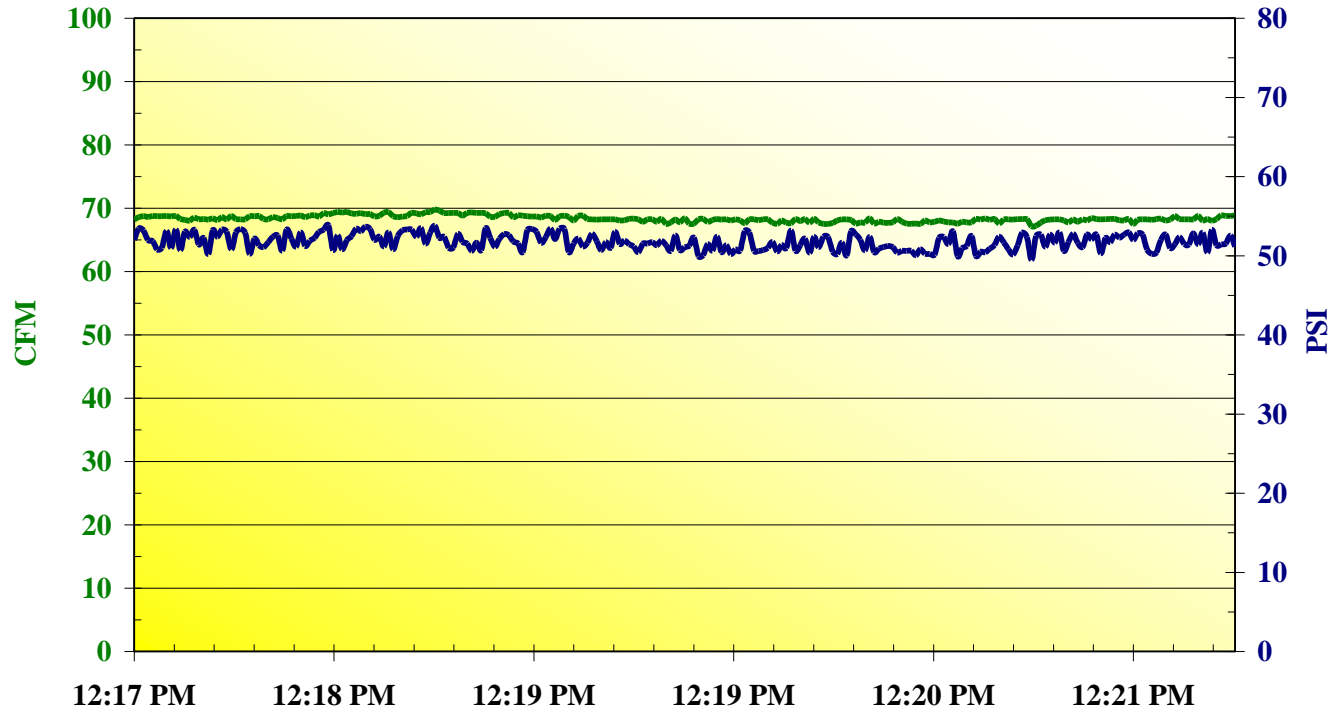
Compressed Air

Point of Use Air Blow Application



CCE Air Blow Test
Line 2 Plastic Tray Washer
Thursday 06-05-08

— CFM
— PSI

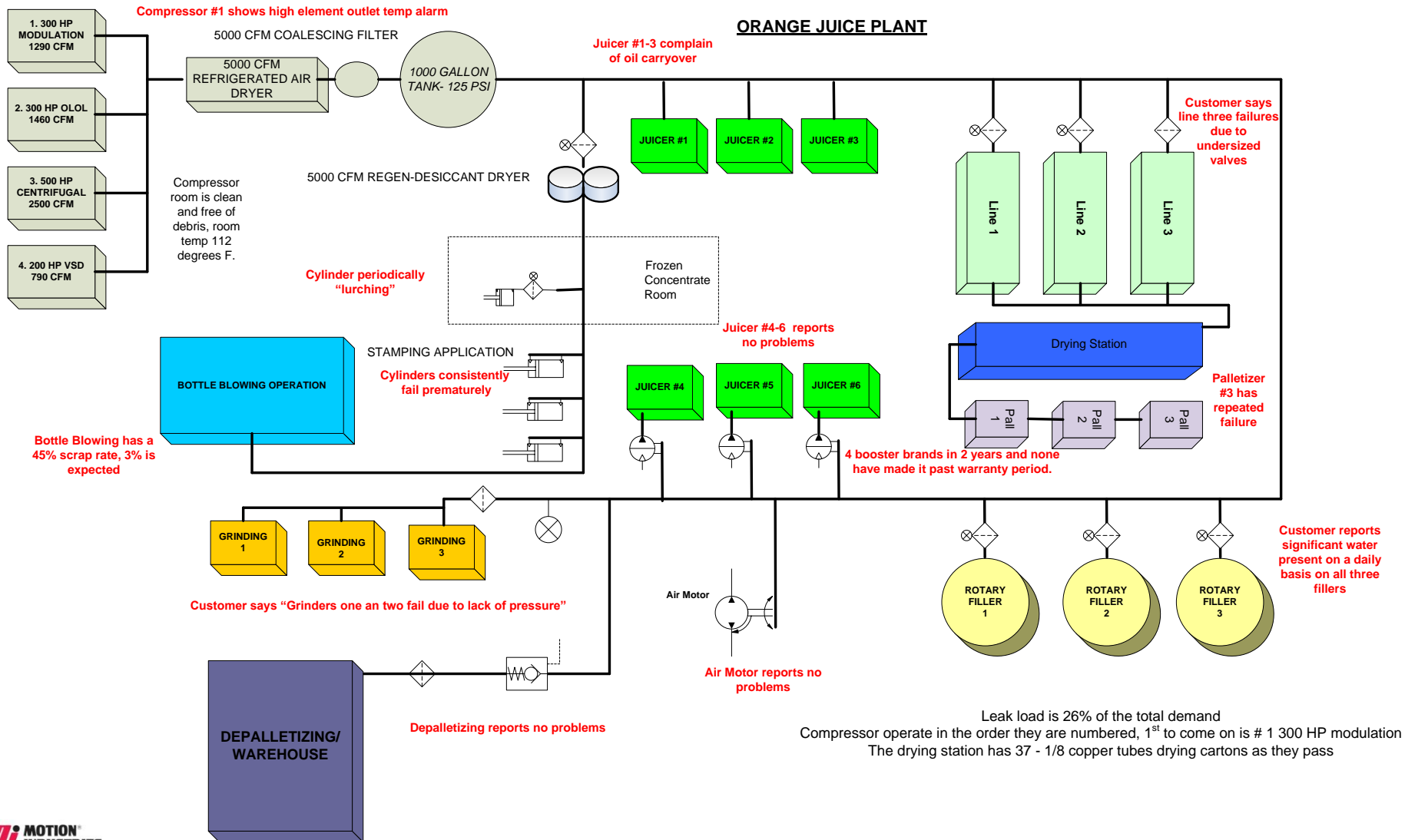


Current demand 68 CFM - annual cost **\$8,640**

Solution - 5 horsepower blower - annual cost **\$2,541**

Compressed Air

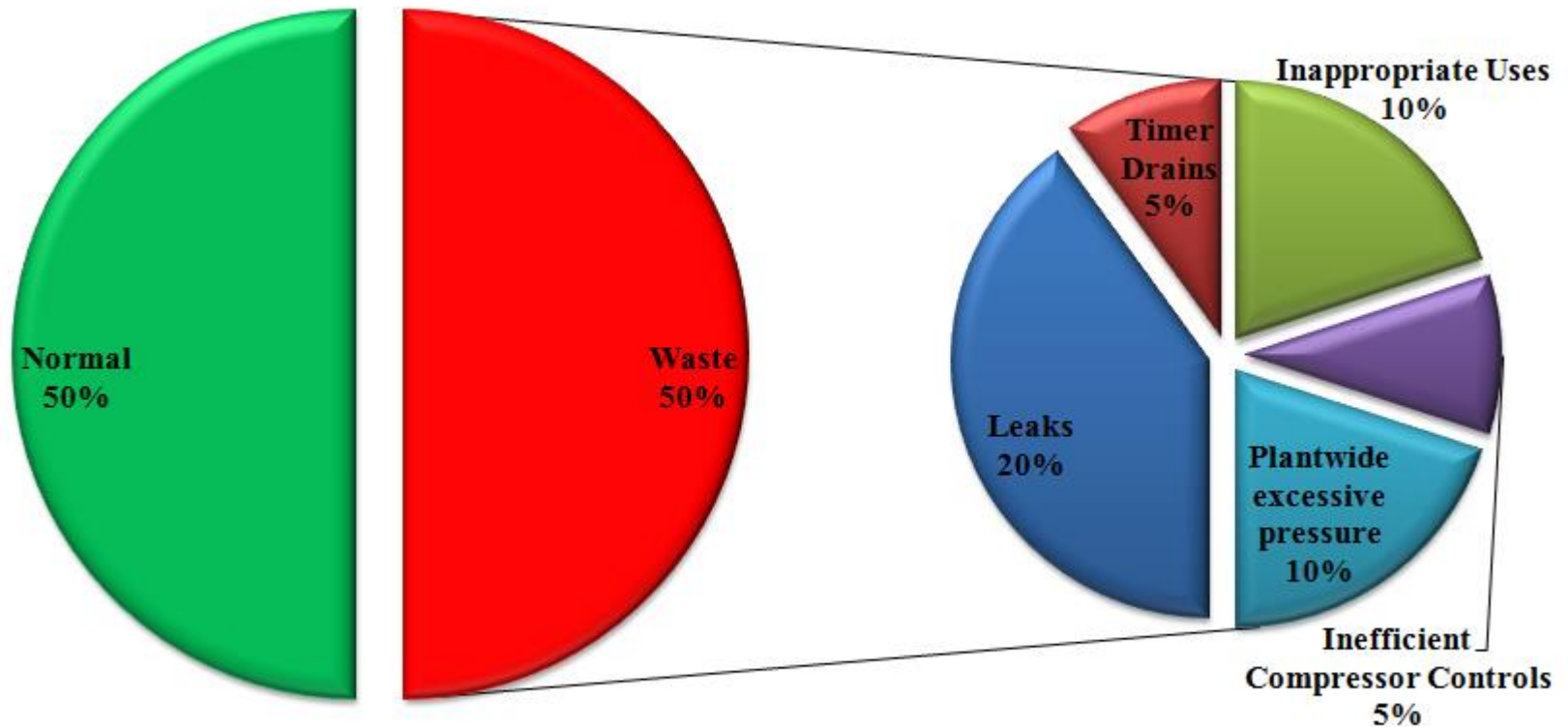
Post Audit Investigation



Compressed Air *Waste Factors*



Energy Uses in a Compressed Air System





Compressed Air

Sample – Cost of Compressors

Area	Actual Flow	Waste	Net Required Flow
Body Shop & Assembly	20,000 CFM	12,500 CFM (63% of actual flow)	7,500 CFM (38% of actual flow)
Paint	7,000 CFM	3,500 CFM (50% of actual flow)	3,500 CFM (50% of actual flow)
Total	27,000 CFM	16,000 CFM (60% of actual flow)	11,000 CFM (40% of actual flow)

Cost of waste:

- Two compressors in excess
 - 5,200 hours per year
 - **\$751,340** annually wasted

Compressed Air

What Customers Can Expect



- Leak report within 7-10 days allowing plant to begin repairs
- Comprehensive solution based report within 4-6 weeks analyzing all findings
- Presentation discussing report and results
- Weekly follow-up with local Motion Account Representative with support from the Motion EST