



• August 15-18, 2010 • Dallas, Texas •
• Dallas Convention Center •



Underutilized Technologies

DESUPERHEATERS

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Underutilized Technologies Desuperheaters

AGENDA

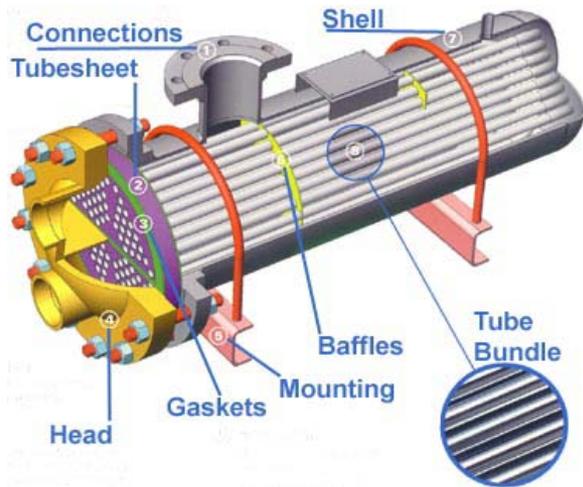
- What is the Technology?
- How Does it Save Energy?
- What are the Advantages / Disadvantages?
- Actual Real-World Test
- Available Products
- Summary / Lessons Learned

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WHAT IS THE TECHNOLOGY?

- Heat Exchanger



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WHAT IS THE TECHNOLOGY?

- Heat Exchanger
- Transfers Excess (Wasted) Heat to Something Needing Heat
- Transfers Heat from Hot Refrigerant Gases
- Transfers Heat to Potable (Domestic) Water

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HOW DOES IT SAVE ENERGY?



- Transfers Heat from Air Cooled Chillers to Potable Water Systems Reducing the Amount of Energy Needed to Heat the Water



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WHAT ARE THE ADVANTAGES / DISADVANTAGES?

ADVANTAGES

- Recovers 10 to 15% of total heat rejected by the condenser
- Simple technology

DISADVANTAGES

- Only heats when chiller runs
- Requires storage or constant use of water

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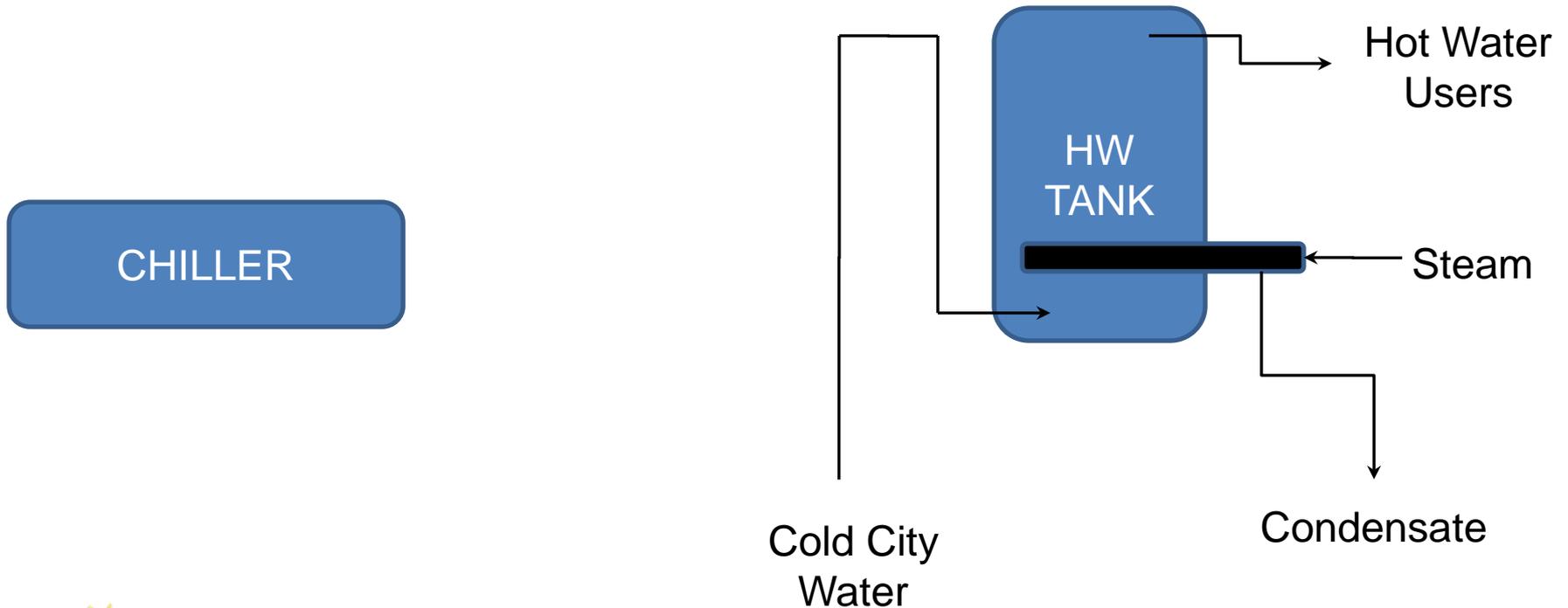
ACTUAL REAL-WORLD TEST

- East Coast Naval Base
- Bachelor Enlisted Quarters
- 80-Ton A/C Chiller w/ Two Screw Compressors
- Steam Hot Water Heater
- Space Available for Water Storage Tank

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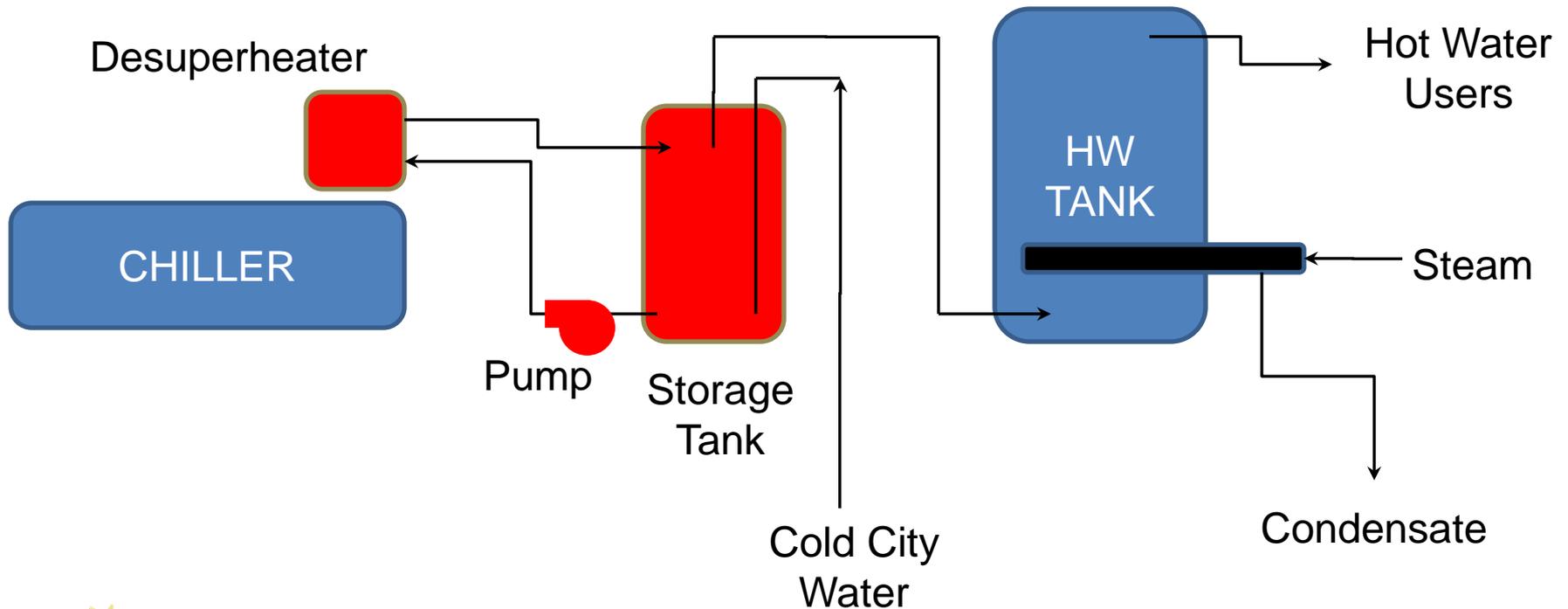
ACTUAL REAL-WORLD TEST



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ACTUAL REAL-WORLD TEST



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ACTUAL REAL-WORLD TEST



- 80-Ton Trane
- Space Above Available for Desuperheater
- Adjacent to Mech Rm

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ACTUAL REAL-WORLD TEST



- Steam Heated Hot Water System
- Space Available for Additional Hot Water Tank

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ACTUAL REAL-WORLD TEST



- Doucette Industries
Dual Circuit
Desuperheater
- Nominal 80-Ton
Capacity

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ACTUAL REAL-WORLD TEST

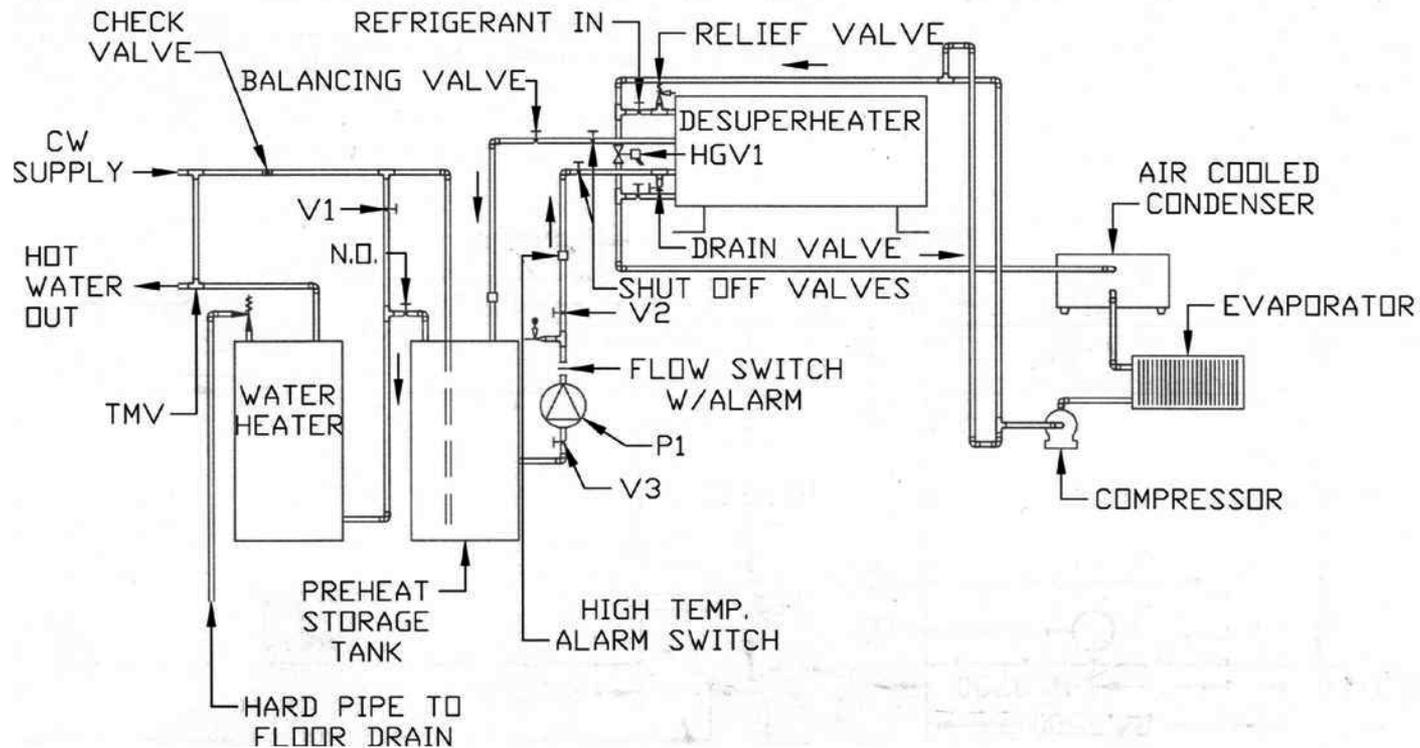


- 1450 Gallon Potable Water Storage Tank
- 20 GPM 1/6 HP Water Circulating Pump

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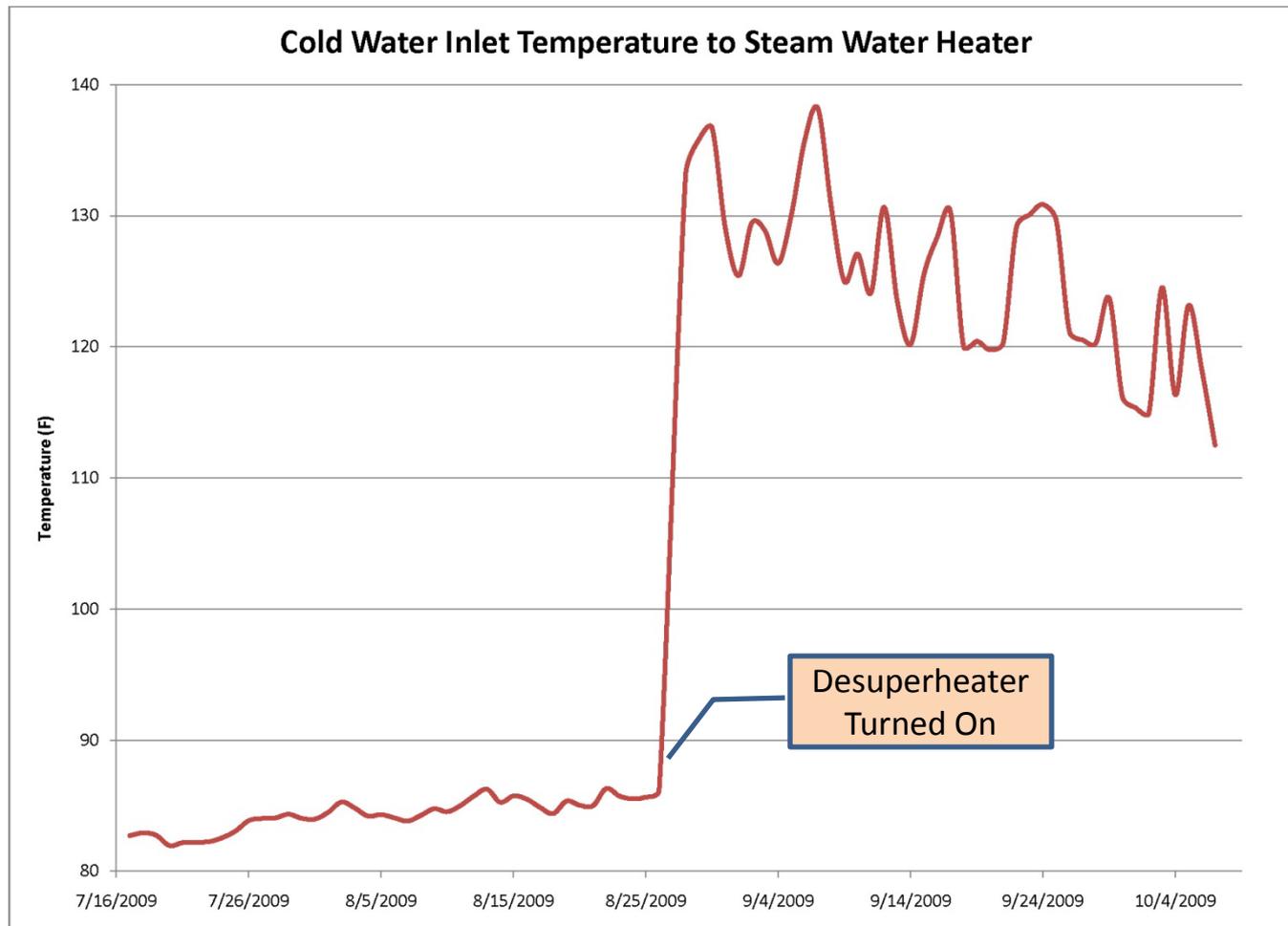
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ACTUAL REAL-WORLD TEST



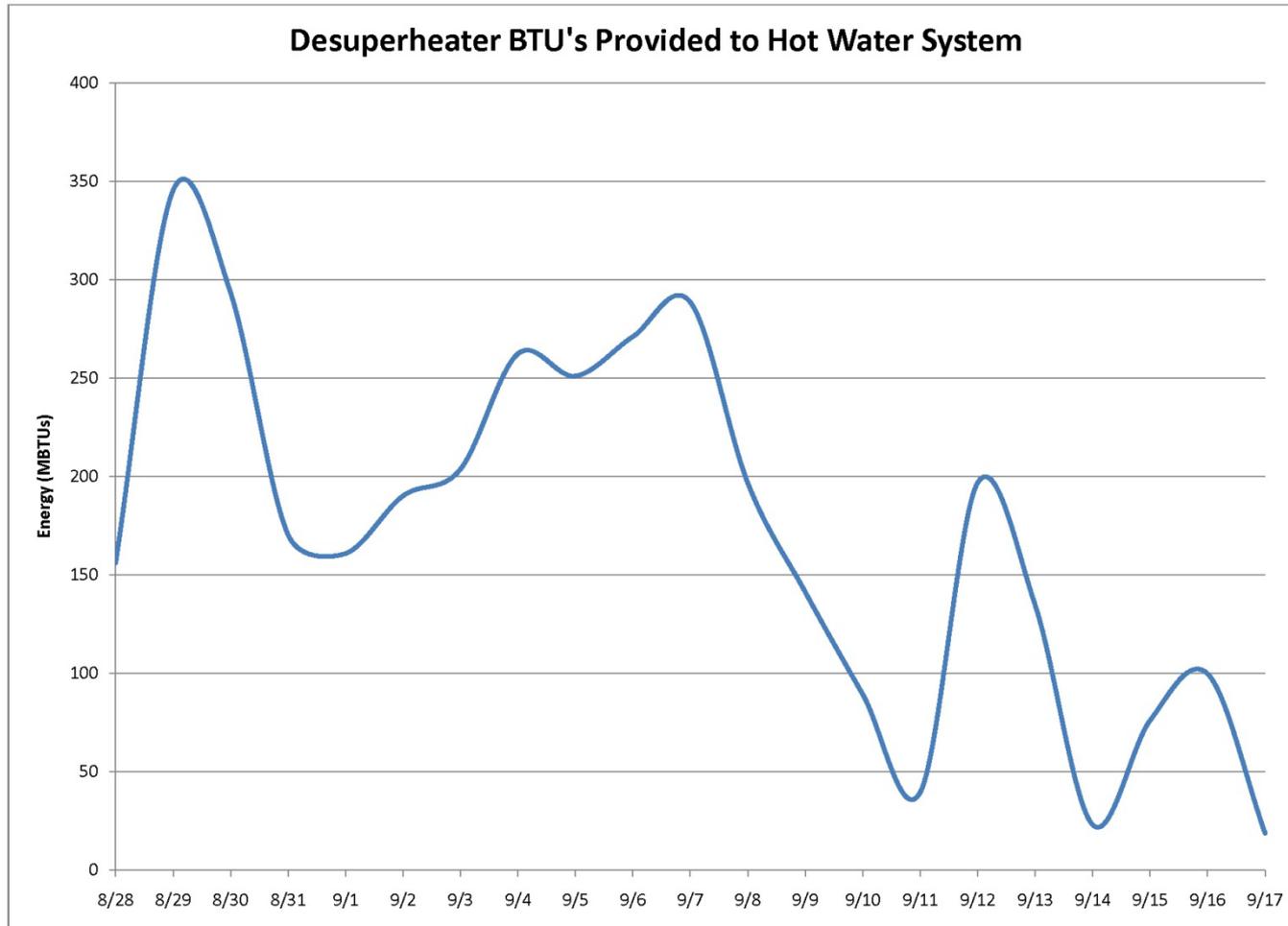
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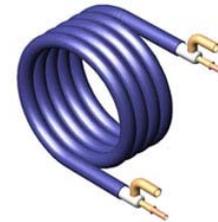


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AVAILABLE PRODUCTS

- Edwards Coils Corporation
- Doucette Industries
- Packless Industries
- Travhotec



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SUMMARY / LESSONS LEARNED

Target Chillers

Type	Compressor	Refrigerant	Make	Discharge Temp
Air Cooled	Reciprocating	R-22	Carrier, Trane, York	225 F
Air Cooled	Scroll	R-22, R-410a	Carrier, Trane, York	180 F
Air Cooled	Screw	R-22, R-134a	York	165 F
Air Cooled	Screw	R-22, R-134a	Carrier, Trane	145 F

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SUMMARY / LESSONS LEARNED

Other Chiller Applications

Type	Compressor	Refrigerant	Make	Discharge Temp
Air Cooled	Centrifugal	R-134a	Turbocor	N/A
Water Cooled Southern Region	N/A	N/A	N/A	<140 F

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SUMMARY / LESSONS LEARNED

- Approximately 25% Energy Savings at Test Site
- Mount Desuperheater to Avoid Trapping of Oil and/or Condensed Refrigerant
- Addition of Hot Gas Bypass Valve to Bypass Desuperheater
- Block and Bypass Valves for Equipment Service
- Water Flow Switch and Alarm

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THANK YOU!

QUESTIONS?



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