

Advanced DX Ammonia Case Study:

Shepherd's Processed Eggs

Spanish Fork, Utah

Presented by:

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Air Treatment Corporation

Background



Shepherd's Processed Eggs

- Family owned for 50 years
- Processes approx. 1 million eggs per day
- Fresh, hard boiled, and pasteurized liquid egg products
- New 10,000 sq ft facility added to expand value-added products business

Customer Concerns



- Existing facilities running with large number of air-cooled condensing units operating with different HCFC and HFC refrigerants.
- Strong desire to move to a ‘natural’ refrigerant in new facility.
- Initial resistance to using ammonia due to concerns about:
 - Toxicity and worker safety
 - Added regulatory burden
- Combined use of glycol and DX ammonia (ADX) resulted in system ammonia charge under 500 lbs

Equipment Selection

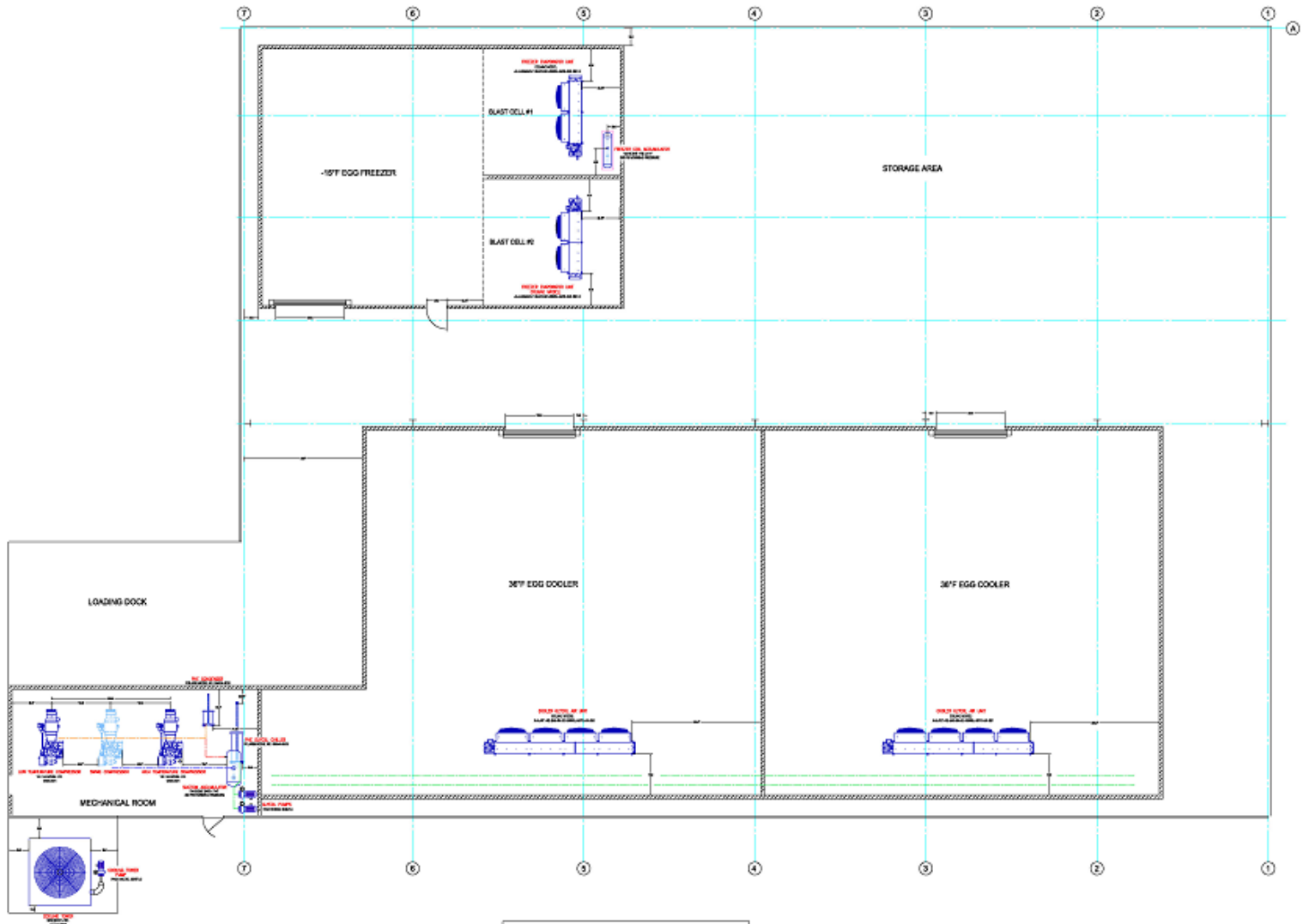


- Ammonia circuit
 - Colmac ADX evaporators in freezer
 - Enhanced ID tubes – patented
 - Tank distributor – patented
 - Motorized EEV
 - Water-cooled condensing w/ PHXR condenser
 - PHXR flooded glycol chiller
 - Still eliminates water
- Glycol circuit
 - Colmac enhanced tube glycol coolers
 - Allowed VERY close approach temperatures
 - Eliminated need for defrosting

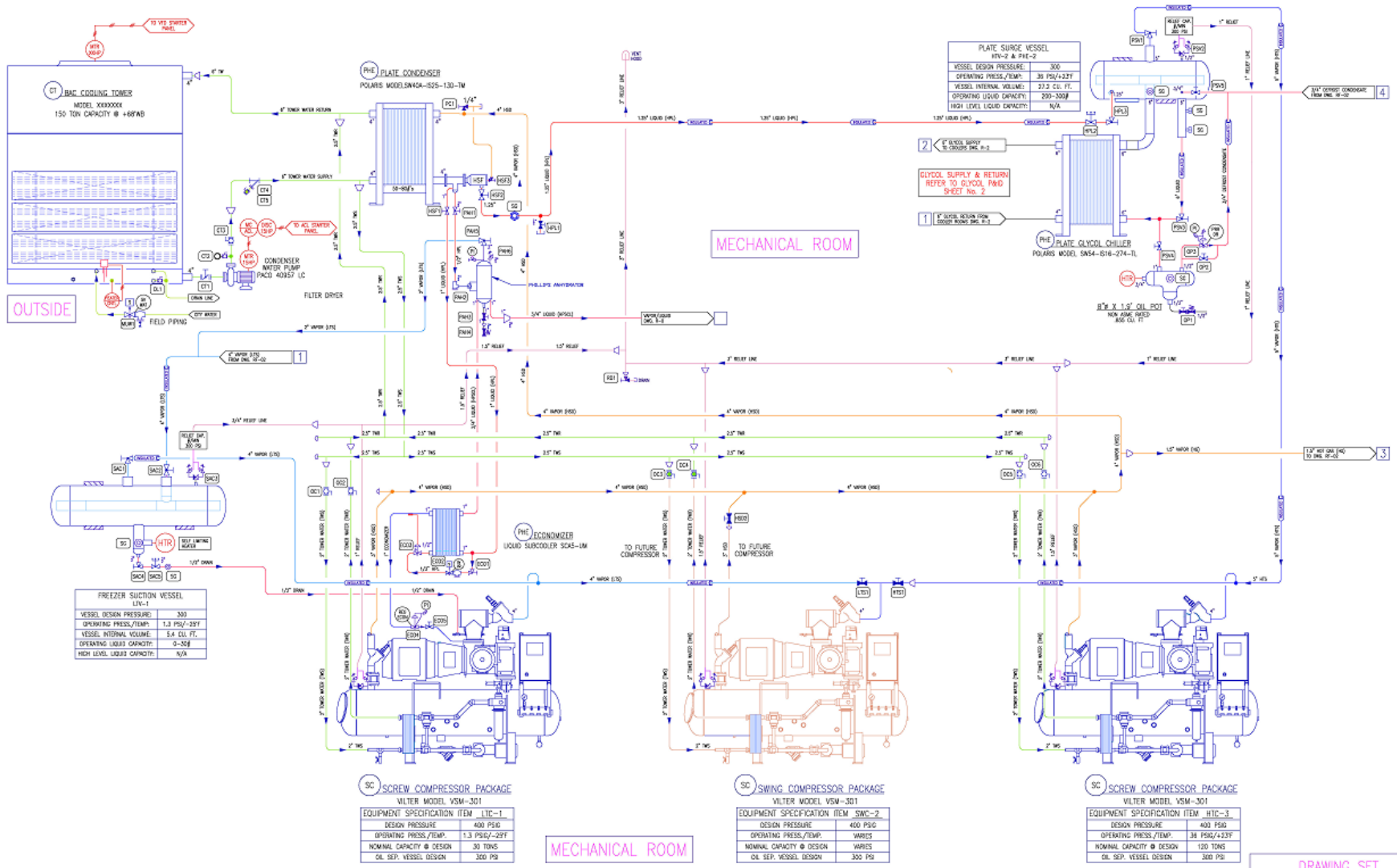
Plant Layout



Inc.



EQUIPMENT PLAN VIEW
SCALE: 1/8" = 1'-0"



DRAWING SET
SHEPHERD 822 FARM PROJECT
JULY 2014

Compressor and Control Panel



"The Heat Transfer Experts"

Cooling Tower and Condenser



*"The Heat Transfer Experts"*₈

Glycol Chiller



"The Heat Transfer Experts"

Enhanced Glycol Air Coolers



*"The Heat Transfer Experts"*¹⁰

ADX Freezer Evaporators



*"The Heat Transfer Experts"*₁₁

Valve Groups and Water Still



"The Heat Transfer Experts"

Results



- Ammonia charge: 400 lbs (3 lbs NH₃/TR)
- Estimated pumped ammonia charge 5,000 lbs
- First cost:
 - \$125,000 less than pumped ammonia
 - \$180,000 less than R507
- Cost of Operation
- Maintenance Costs

Advanced DX Ammonia



Thank you!
Questions?

*"The Heat Transfer Experts"*₁₄