

Steam System Assessment Tool (SSAT)

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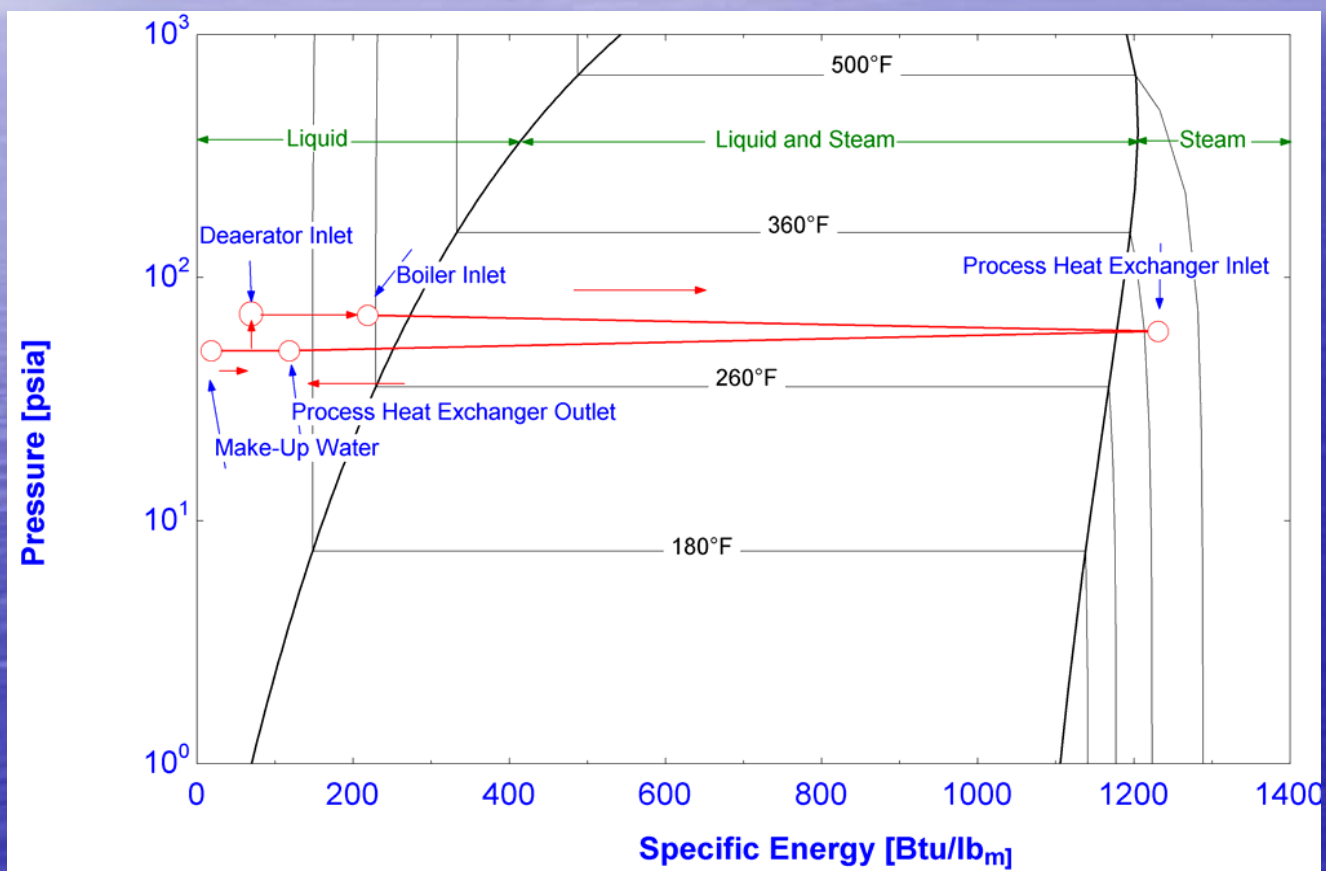
Introduction

- Components
 - Boiler
 - Process heat exchanger
 - Steam traps
- Cost saving opportunities
 - Improve boiler efficiency
 - Increase condensate recovery
 - Reduce steam trap losses

Case Study

- Medium sized industrial facility
 - Process temperature = 300 degrees F
 - Steam Usage = 5,000 lb_m/hr
 - Cost of Natural Gas = \$8.50 per 1,000 ft³
 - Boiler efficiency = 75%
 - 50% of condensate does not return to boiler
 - Steam trap maintenance is done every 3-5 years

Energy Diagram



Sample Calculations

- Increase boiler efficiency from 75% to 85%
- Increase condensate recovery from 50% to 75%
- Reduce steam trap losses by inspecting traps at least annually

Conclusions

Cost Saving Strategy	Improvement	Cost Savings (\$/yr)
Increase boiler efficiency	10%	64,000
Increase condensate recovery	25%	14,000
Reduce steam trap losses	100%	11,000

Additional SSAT Capabilities

- Use alternative boiler fuel
- Reduce boiler blow down rate
- Install blow down flash system
- Change steam generating conditions
- Install back pressure turbines
- Install condensing turbine
- Preheat feedwater
- Install condensate flash system
- Improve pipe insulation (need 3 E Plus software)

Next Steps

- Download SSAT software
 - <http://www1.eere.energy.gov/industry/bestpractices/software.html#ssat>
- Training
 - 2 hour webcast – Preparation for site visit
 - 1 day workshop – Preparation for use of SSAT
 - 2 ½ day workshop – Steam Specialist
 - http://www1.eere.energy.gov/industry/bestpractices/steam_systems.html