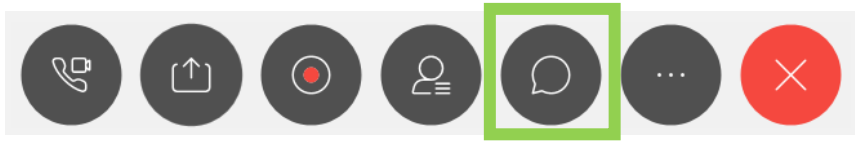
Welcome to the Tire Press Steam and Condensate Tech Talk

Presented by Kelly Paffel, Swagelok Steam Systems Technical Expert

Please ensure your phone or computer is on ***mute*** to prevent background noises.

If you have questions throughout the webinar, please utilize the ***chat function*** located in the tool bar at the bottom of your screen.



Thank you for attending!

Swagelok North Carolina | East Tennessee

Tire Press Steam System Operations Meeting Today's Demands for Reliability and Production Performance

Kelly Paffel

Steam Engineering Support

July 29th, 2020

Tire Press Operations - Optimization

- What is steam quality and why is it important
- Condensate drainage performance issues
  - Main causes for condensate drainage
  - Understand the dynamics of the steam and condensate system
  - How to resolve the most common issues

Tire Press Operation – Increase Performance

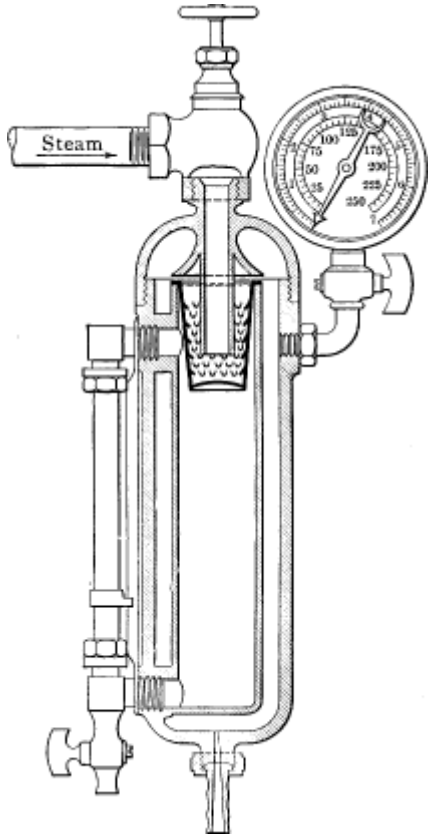
- Condensate recovery -
  - What is the highest reliable method to recovery condensate?
  - What is the highest efficient method to recovery condensate from a Tire Press operation?

Steam Quality

- Why is knowing steam quality important
  - All tire press equipment demands 100% steam quality
  - Low steam quality
    - Reduced heat transfer efficiency
    - Will cause premature component failures
- What is steam quality?
  - The proportion of steam to condensate in a saturated mixture
    - Steam quality of 0 indicates 100% condensate
    - Steam quality of 100 indicates 100% steam
    - One pound of steam with 5% liquid entrainment has a steam quality of 0.95

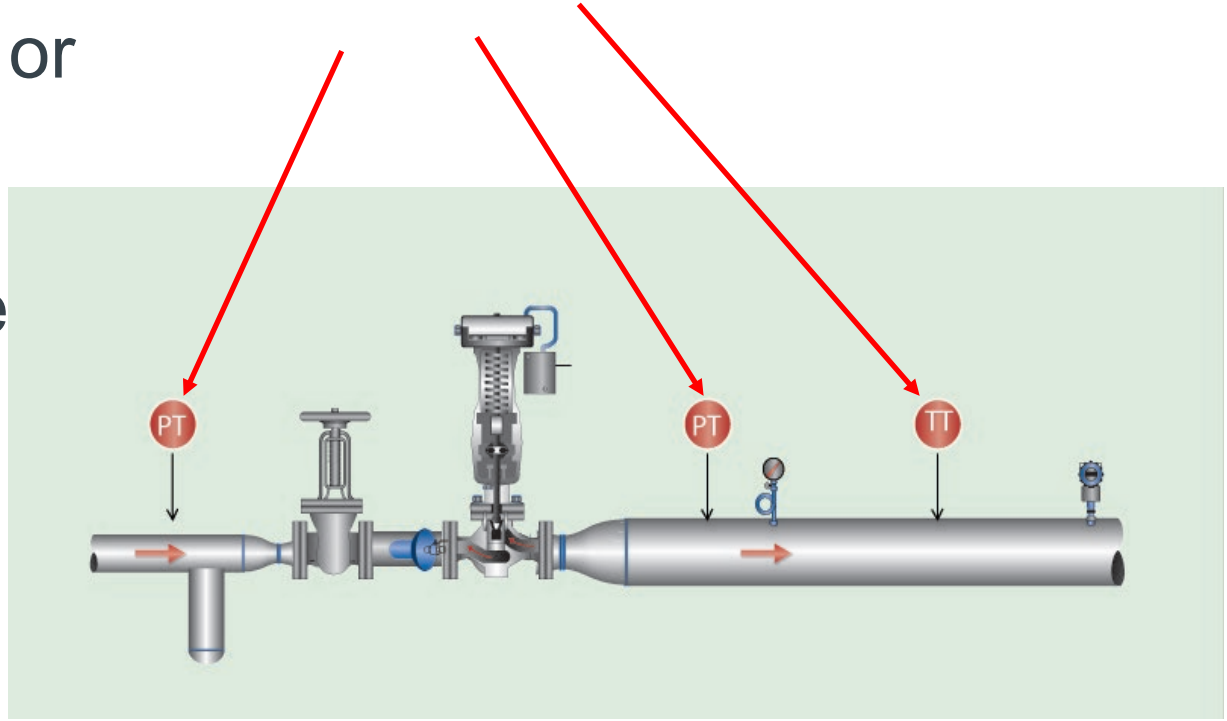
Steam Quality Testing

- Calorimeter
- Pressure reducing valve station
- Visual testing



Steam Quality Testing

- Pressure reducing valve station
  - Pressure transmitters or gauges
  - Temperature transmitter or dial indicators
  - Knowing the degree of superheat after pressure reduction



Steam Quality Testing

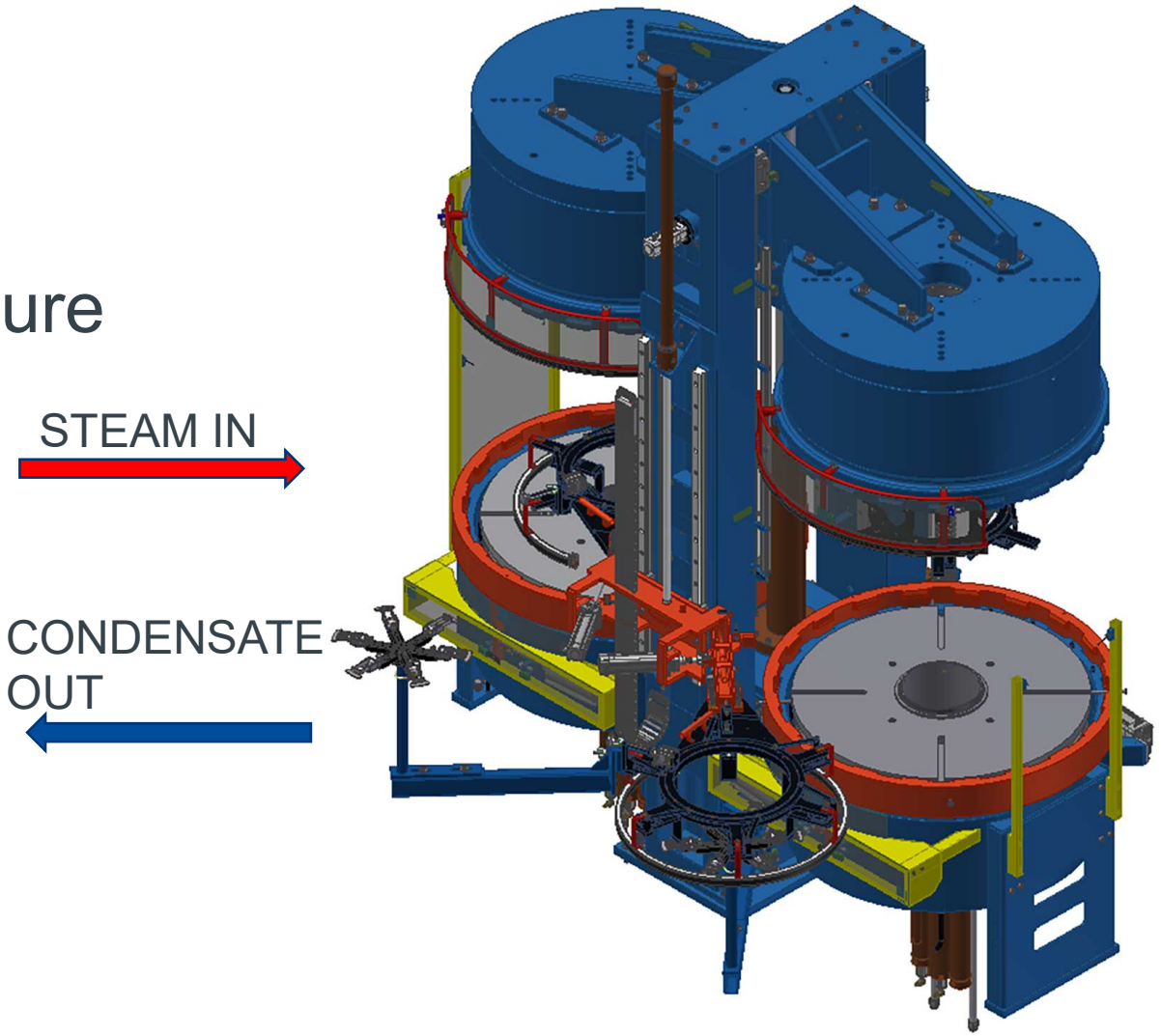
- Visual testing
- Indicating a very good steam quality

Steam Quality Testing

- Visual testing
- Not very good steam quality

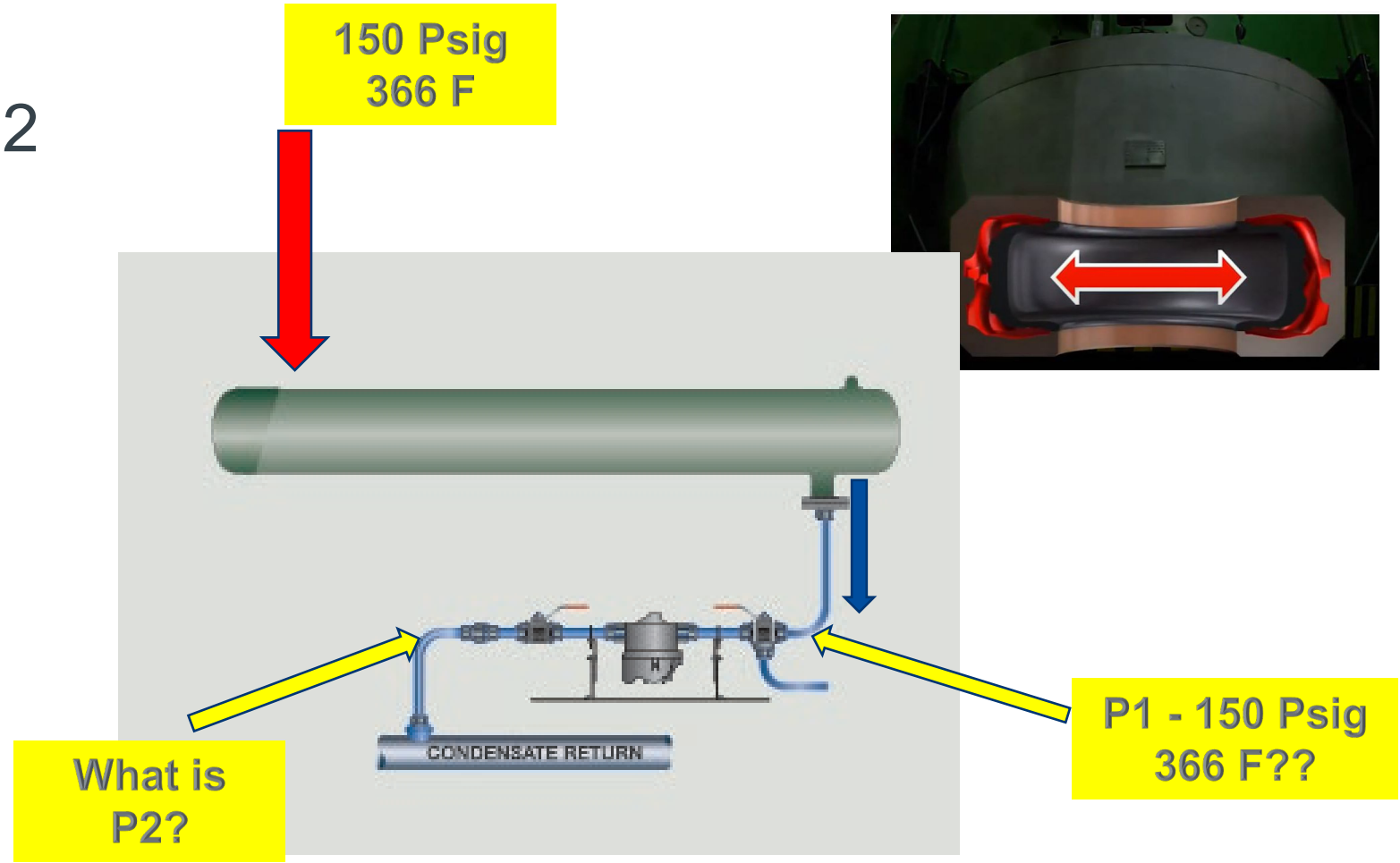
Condensate Drainage Issues

- Main causes
  - Steam trap sizing
    - P1 vs P2
  - Condensate back pressure
  - Steam trap design
  - Installation



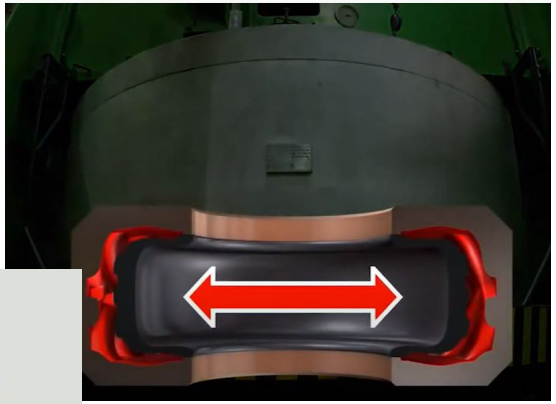
Condensate Drainage

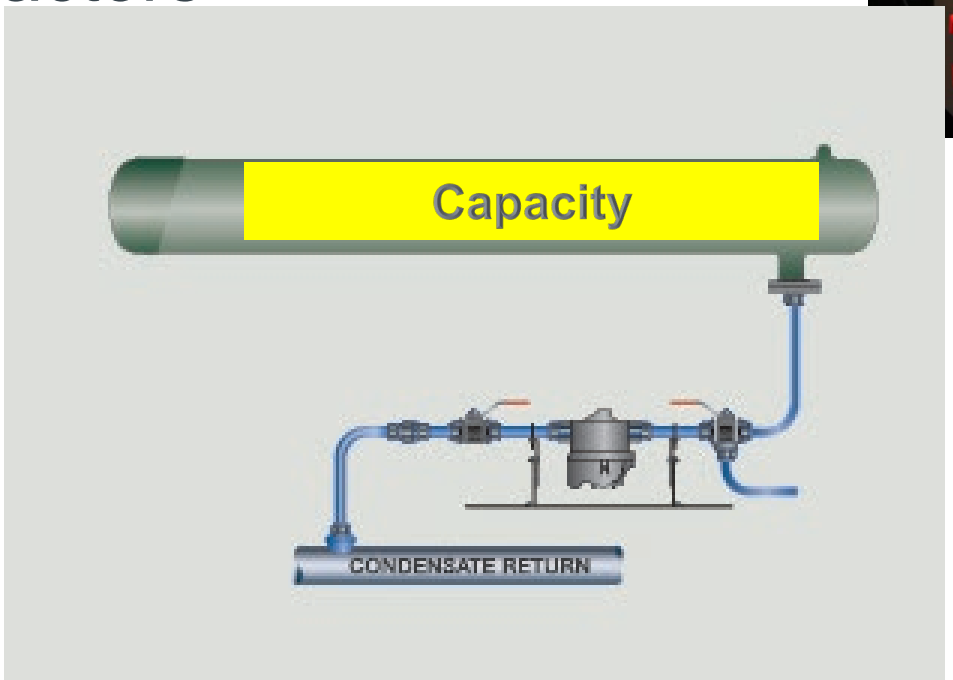
- Steam trap sizing
- Knowing P1 and P2



Condensate Drainage

- Steam trap sizing
- Capacity
- Understanding sizing factors
  - 2 to 1
  - 3 to 1
  - 4 to 1



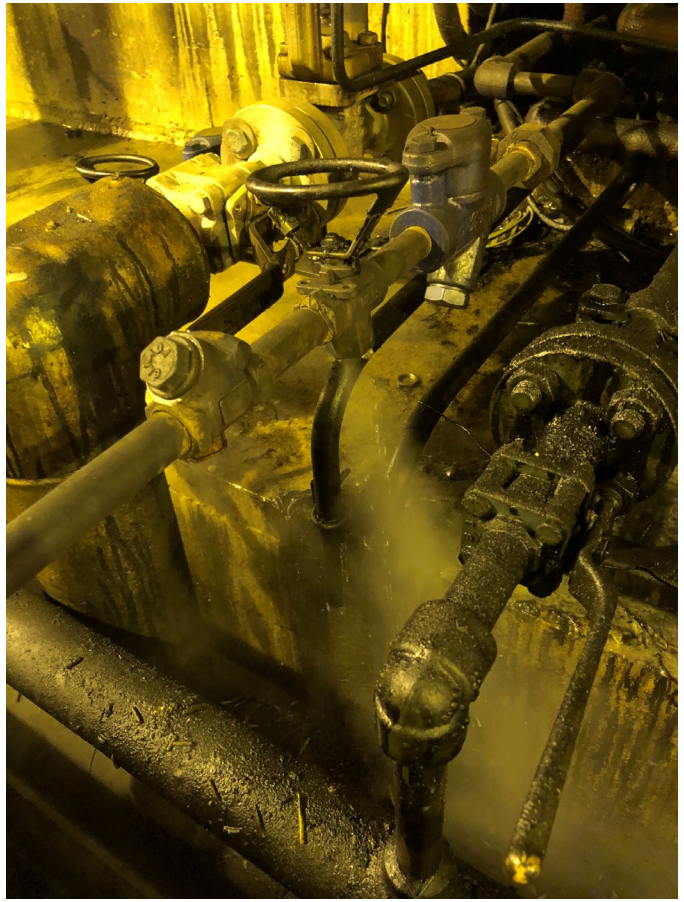


Condensate Drainage

- Steam trap design
  - On/off
  - Continuous flow
- Steam trap testing
  - Visual
  - Temperature
  - Ultrasound

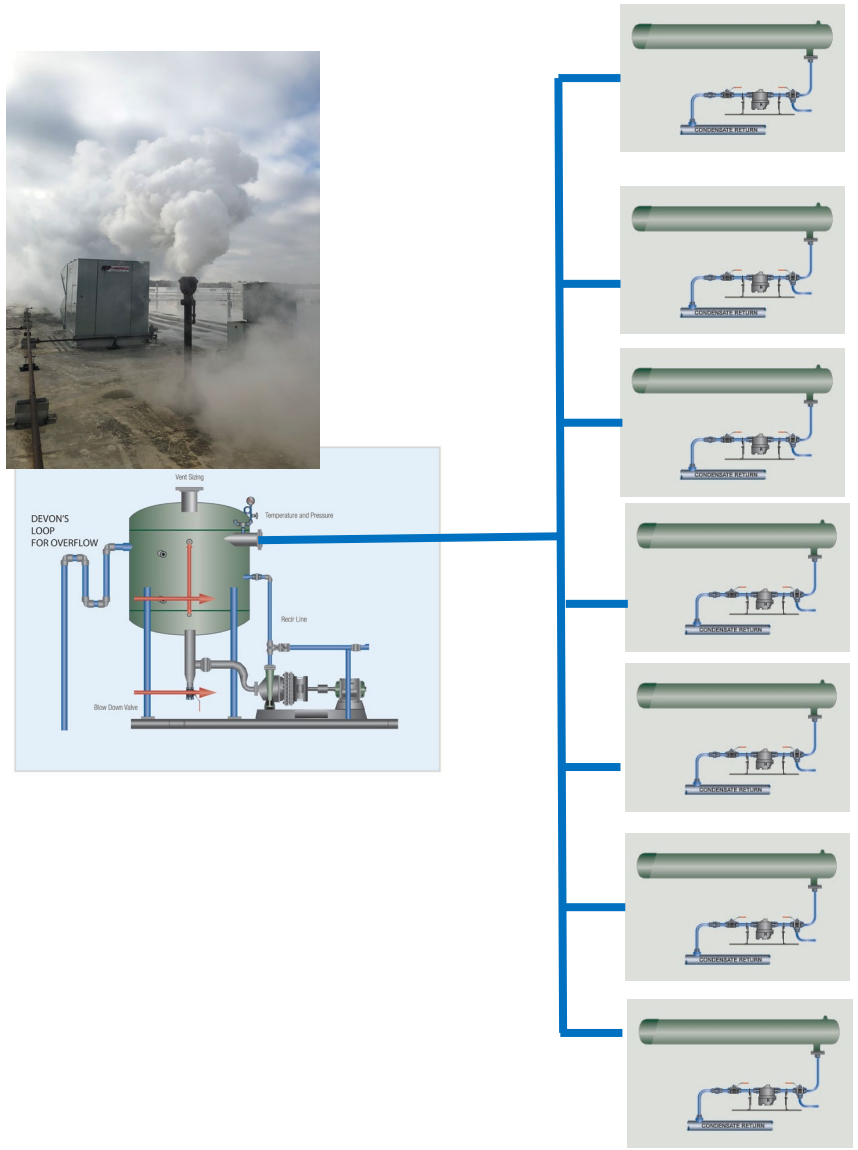
Installation Considerations

- Distance from the tire heat transfer
- Access for plant personnel
- Leakage elimination



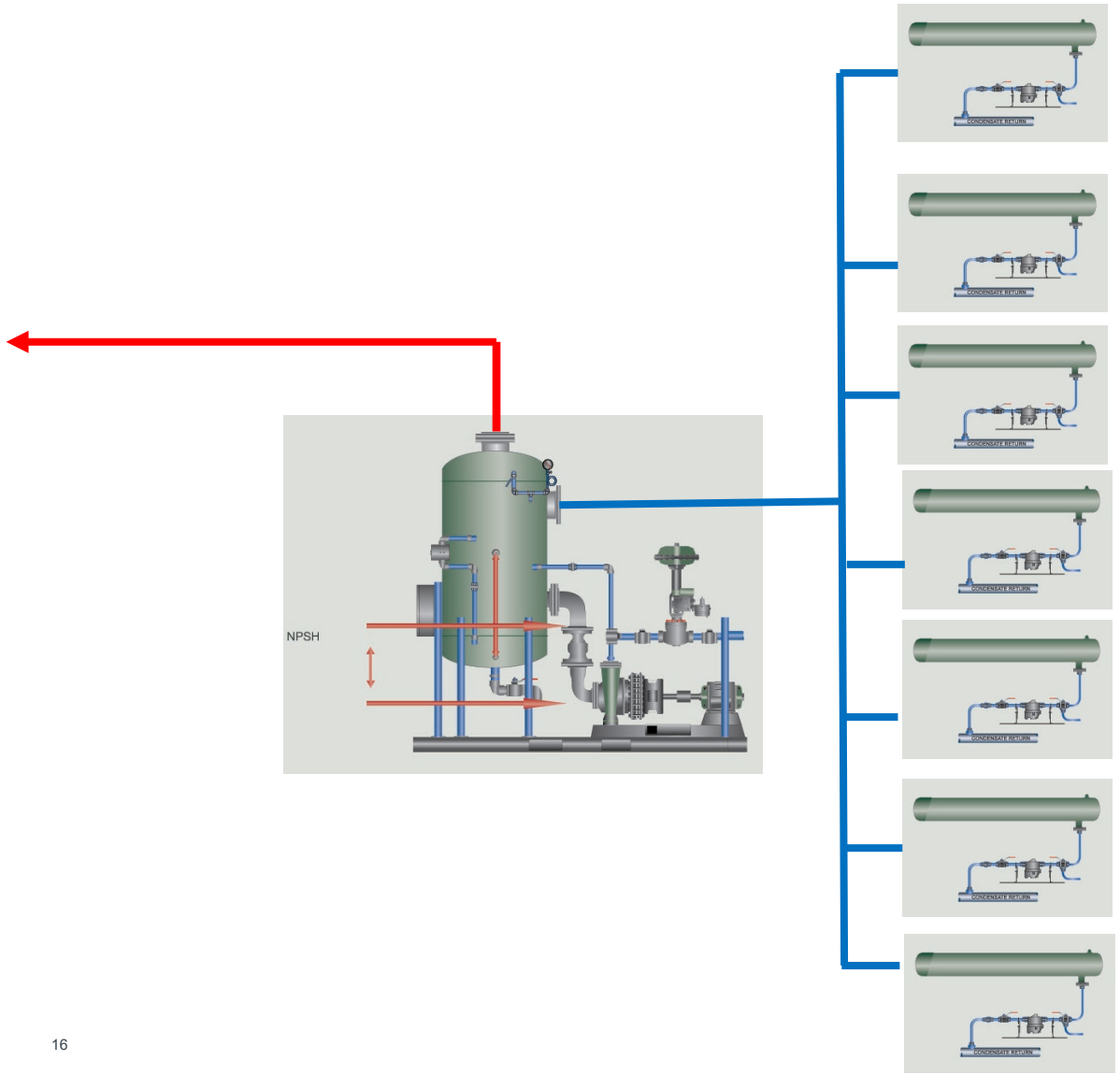
Condensate Recovery Optimization

- Condensate system
  - Pressurized system or non-pressurized
  - Non-pressurized
    - Vent to atmosphere

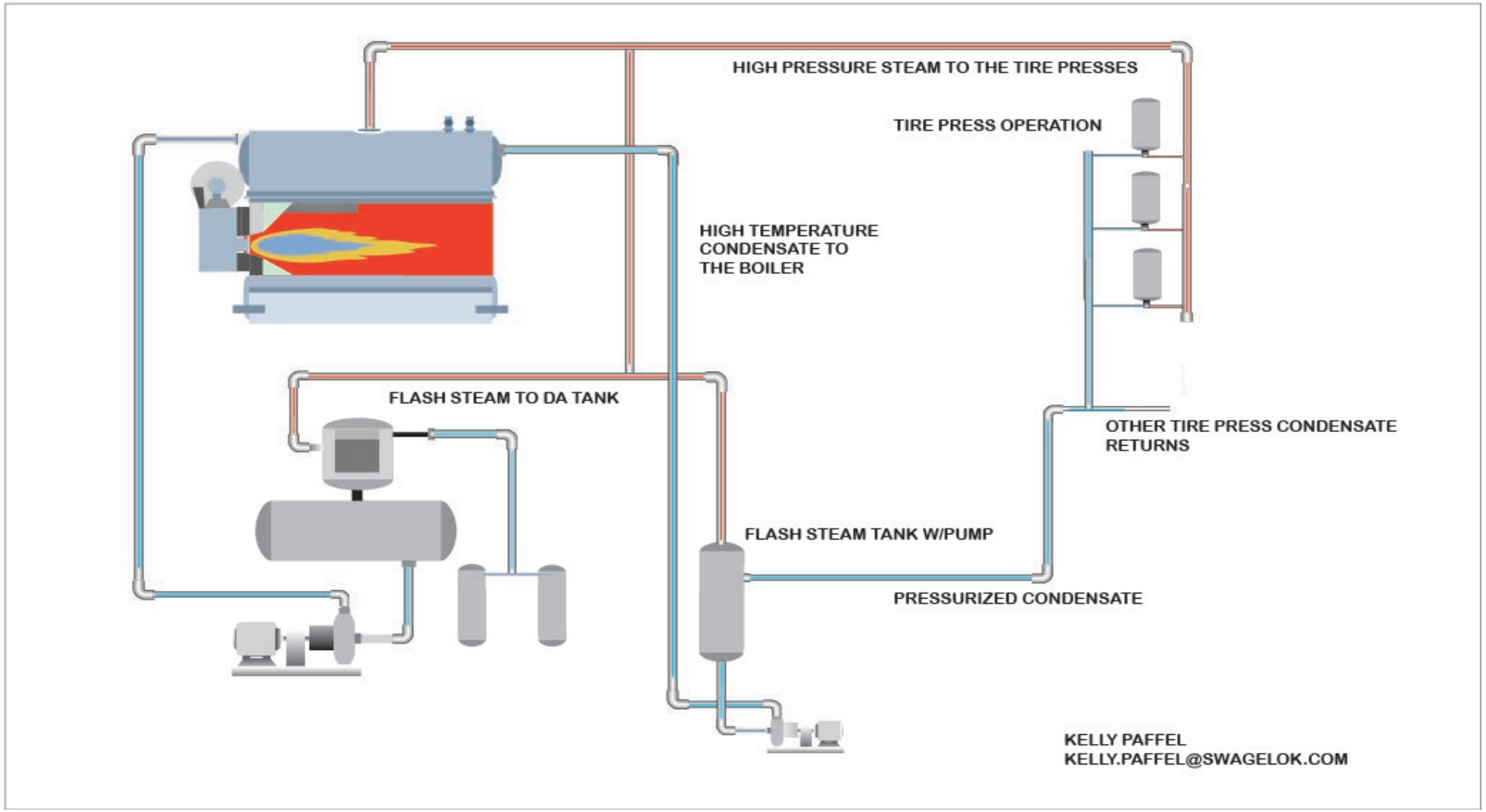


Condensate Recovery Optimization

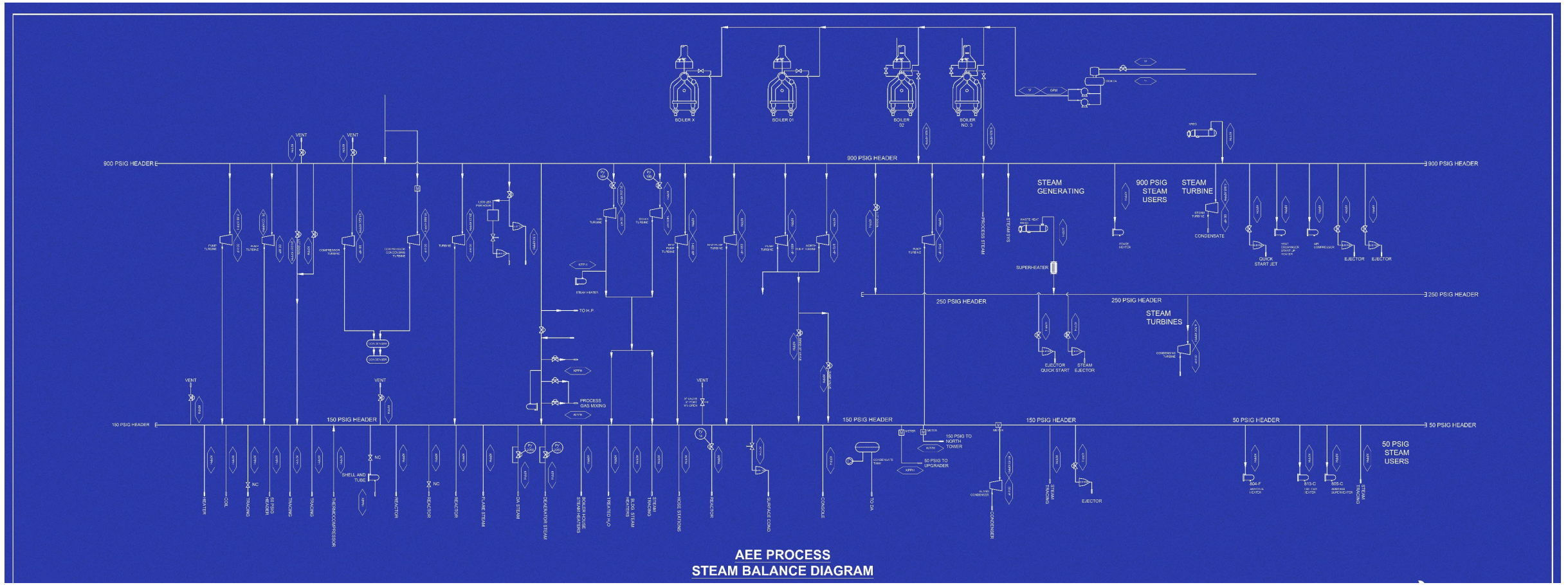
- Pressurized condensate
  - Flash steam;
    - Deaerator
    - Thermocompressed
    - Cascade
  - Condensate;
    - Deaerator system



Tire Industry - Pressurized Condensate Recovery System



Steam Balancing



Conclusion

Swagelok Condensate Drainage

1. 1.) Safety
2. 2.) Testing for steam quality
3. 3.) Proper steam trap sizing
4. 4.) Understand condensate systems
5. 5.) Installation best practices
6. 6.) Reliability of 15 years or more – no reason for premature failures
7. **How do we get started on Monday?**

Questions?

Please View Some of Our Available Products & Services

Flexible Hose

60 Series Ball Valves

Steam Trap Test Station

Condensate Sampling Panel

View our Field Engineering Services

View our Steam Services