

Common HRSG Issues



Peter Allison

502.899.4530

pallison@vogtpower.com

Jake Holvey

502.899.4518

jholvey@vogtpower.com



A Babcock Power Inc. Company



www.babcockpower.com

External Inspection

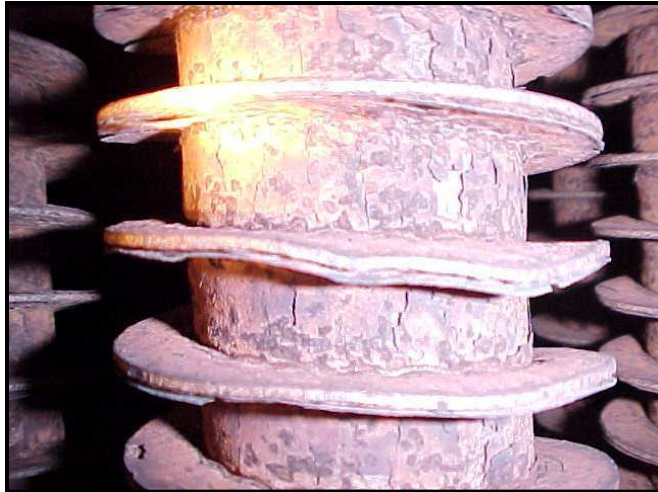
- Expansion joints
- Ductwork
- Hot spots
- Pipe supports
- Pipe penetrations
- Instrumentation
- Heat tracing
- Perform Hot and Cold Condition



Gas Side Inspection

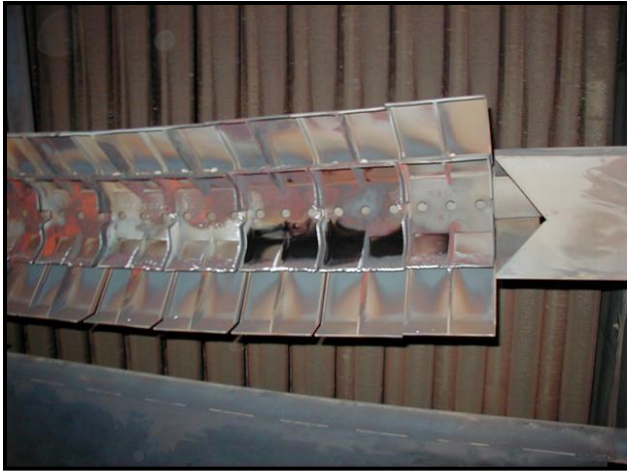
Gas Side Inspection

- Tube condition
- Fin condition
- Liner panels & Insulation
- Baffles

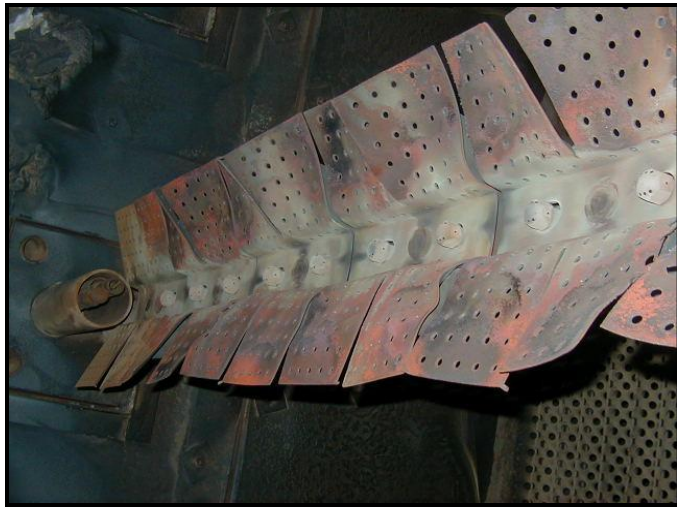


Gas Side Inspection (continued)

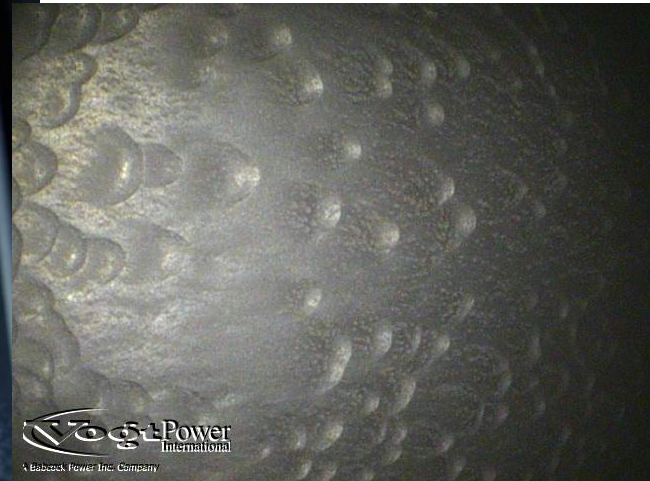
Burners



Catalysts



Water Side Inspection



Comprehensive FAC Inspection

Example

Yellow Videoscope Inspection

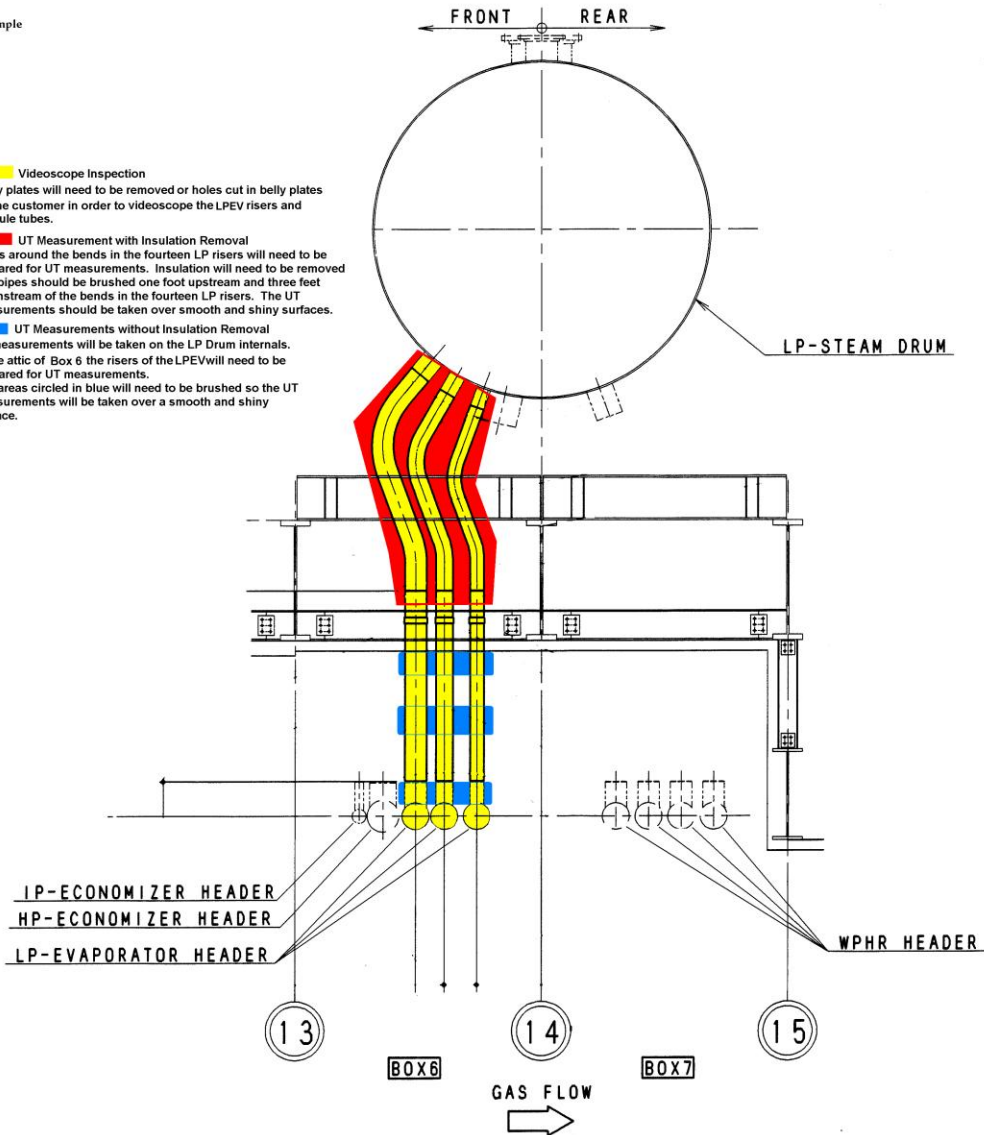
Belly plates will need to be removed or holes cut in belly plates by the customer in order to videoscope the LPEV risers and module tubes.

Red UT Measurement with Insulation Removal

Areas around the bends in the fourteen LP risers will need to be prepared for UT measurements. Insulation will need to be removed and pipes should be brushed one foot upstream and three feet downstream of the bends in the fourteen LP risers. The UT measurements should be taken over smooth and shiny surfaces.

Blue UT Measurements without Insulation Removal

UT measurements will be taken on the LP Drum Internals. In the attic of Box 6 the risers of the LPEV will need to be prepared for UT measurements. The areas circled in blue will need to be brushed so the UT measurements will be taken over a smooth and shiny surface.



Yellow Videoscope Inspection

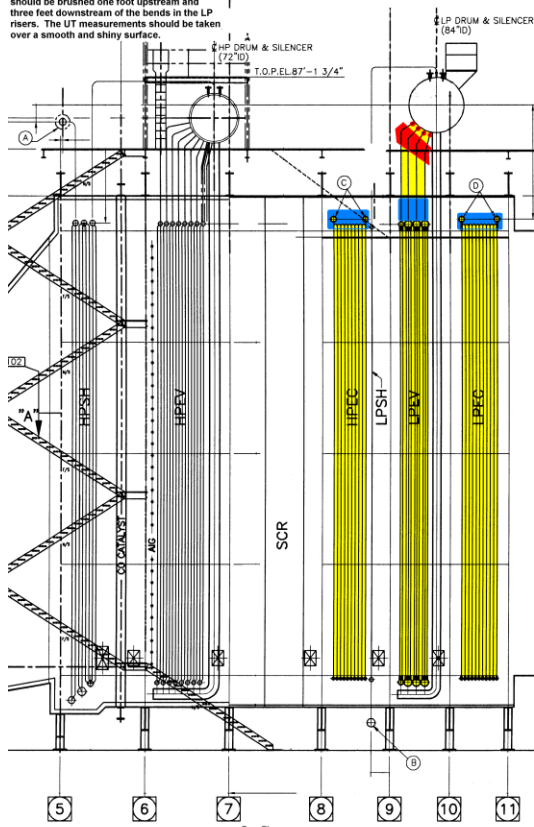
Belly plates will need to be removed or holes cut in belly plates by the customer in order to videoscope the LPEV. If desired, videoscope ports could be installed on the headers of the LPEC and HPEC to allow inspection of the tubes.

Red UT Measurements with Insulation Removal

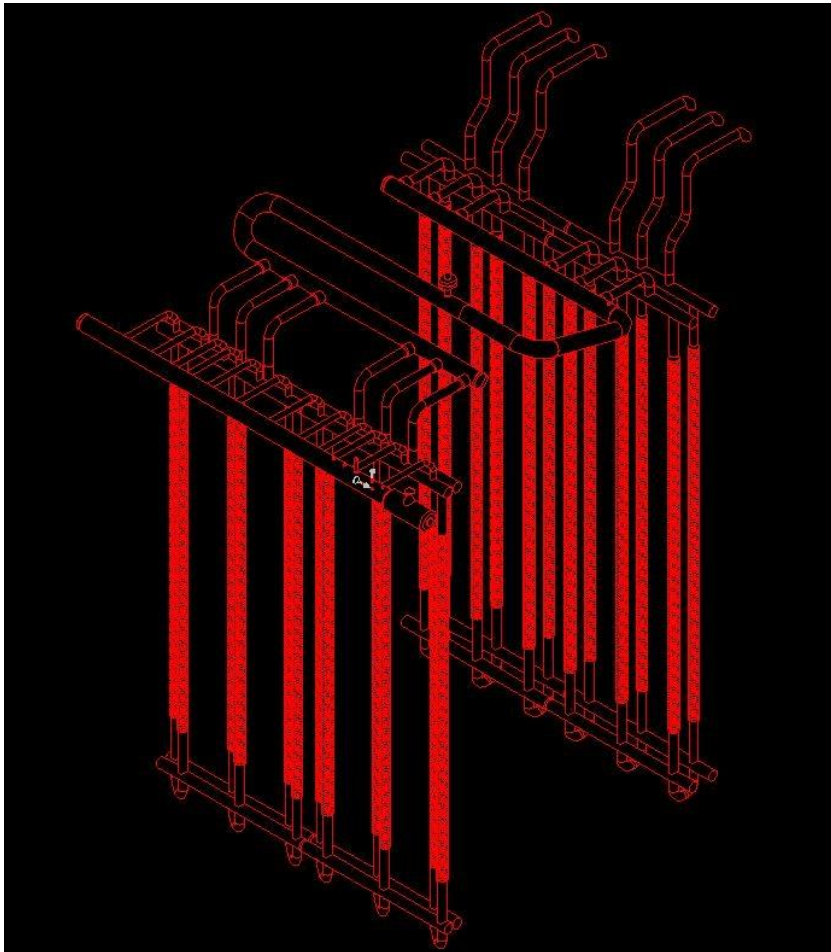
Areas around the bends in the LP risers will need to be prepared for UT measurements. Insulation will need to be removed and pipes should be brushed one foot upstream and three feet downstream of the bends in the LP risers. The UT measurements should be taken over a smooth and shiny surface.

Blue UT Measurements without Insulation Removal

In the attics, HPEC, LPEV, and LPEC risers and return bends will need to be prepared for UT measurements. UT measurements will be taken on the LP Drum Internals. The areas circled in blue will need to be brushed so the UT measurements will be taken over a smooth and shiny surface.



Attemperator Inspection



Quick Review



Vogt Power offers an annual inspection to assess the general condition of the HRSG, its life expectancy, potential problems, etc.

Why Have Frequent Inspections?

When an organization invests millions of dollars in a Combined Cycle Plant, the HRSG is expected to last for many years. An HRSG can last for 30 years as they have few moving parts to cause wear, but obtaining the desired life out of any major piece of equipment requires continuous conditional assessment. As with an automobile or home, proper maintenance increases reliability, life expectancy, and protects the investment. The biggest advantage in annual inspections is in planning for outages and detecting potential problems like the ones pictured here.

HRSG Components:

- | | | | | | | |
|-------------------|-------------------|------------------|--------------------|------------------------|------------------------|----------------------------|
| 1. HP Superheater | 4. HP Economizer | 7. IP Evaporator | 10. LP Superheater | 13. Integral Deaerator | 16. Duct Burner | 19. Stack |
| 2. Reheater | 5. HP Drum | 8. IP Drum | 11. LP Evaporator | 14. Feedwater Heater | 17. Burner Outlet Duct | 20. CO Catalyst |
| 3. HP Evaporator | 6. IP Superheater | 9. IP Economizer | 12. LP Drum | 15. Inlet Duct | 18. SCR | 21. Ammonia Injection Grid |

Next