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|  | <b>Field Assessment Report</b><br><b>Steam Methane Reformer</b><br><b>US-01-101-R-0100</b> | <b>Date: 03/17/2025</b><br><b>Inspector: O. Olatte</b><br><b>Page 1 of 14</b> |
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|---|-----------|----------------------------|-------|------------------------|----------------|--------------------|--|--|--|--|--|--|--|
| <b>Scope of the assessment:</b>   |           |                            |       |                        |                |                    | External Visual Inspection in as found condition |  |  |  |  |  |  |
| <b>Areas assessed:</b>  |           |                            |       |                        |                |                    |  |  |  |  |  |  |  |
| Radiant   | Penthouse | Ducts                      | Walls | Outlet Pigtailes boxes | Collector pipe | Convection section |  |  |  |  |  |  |  |
| X   | X         | X                          | X     | X                      | X              | X                  |  |  |  |  |  |  |  |
| <b>Attachments:</b>   |           | As found check list report |       |                        |                |                    |  |  |  |  |  |  |  |
| <b>Report</b>   |           |                            |       |                        |                |                    |  |  |  |  |  |  |  |
| <p><b>Radiant:</b> in general, inside the radiant section all components look in good condition.</p> <ul style="list-style-type: none"> <li>• It was observed that six catalyst tubes have been replaced. No bulging observed in the tubes' walls.</li> <li>• Some tunnel slabs present cracking but integrity is maintained. Other slabs have been replaced recently. Tunnels walls are straight, with expansion joint in good condition. No cracking on the walls.</li> <li>• Insulation on walls it is in good visual condition. There is one area where a insulation block was damaged probably by fauna.</li> <li>• Insulation on the roof looks also in good condition but in some areas of the reformer it presents brown marks.</li> <li>• Peep doors are in good condition and functional.</li> <li>• Arch burners from inside the box (tunnels top standing) look in good condition.</li> <li>• External walls show paint worn out. Joints between wall pannels are corroded and, in some cases, flora is growing.</li> </ul> |           |                            |       |                        |                |                    |  |  |  |  |  |  |  |



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**Penthouse:** General condition is good, no great damage observed.

- Burners show good conditions. Valves operative, lightning pipe in good condition and air dampers operatives.
- Gas pipe in good condition. Welds present corrosion that most likely was there before reformer shutdown. Insulation visually is in good condition.
- Air plenums and ducts are in good condition. Insulation is in good condition. Some damage apparently due to the action of the local fauna.
- Instrumentation is in apparently good condition. Unknown operational condition.
- Inlet pigtails in good visual condition. Insulation in place but not fully functional. It looks damaged by water or excessive humidity.
- Tubes tops with insulation in place. Top tube flanges show high temperature oxidation.
- The tube's support system seems to be operative and with no apparent damage.
- Tubes' constant springs with no apparent damage other than superficial oxidation.
- Fuel gas Piping and process gas piping insulation jacketing is in great extent in good condition. Some sections are missing or damaged, allowing water to filter inside.
- No CUI observed affecting piping during this inspection.
- Some rainwater leaks ran through the structure columns corroding trusses and other structural parts.

**Combustion and flue gas Ducts – Air preheater – ID fan:**

- Insulation damaged or missing in piping and ducts exposed to the elements.
- Areas where insulation is damaged present heavy corrosion or signs of water ingress.
- Paint in poor condition, mostly worn out. Some areas of the ducts' plates show naked steel.
- Sections or portions of insulation external jacketing loose and / or fallen.
- Air preheater shows areas of heavy corrosion to structures and exterior panels.
- ID Fan presents lost insulation and heavy corrosion damage from the elements.
- Joints between wall panels or ducts sections or convection modules corroded.
- Air pipe connected to the preheater outlet shows corrosion of flanges.



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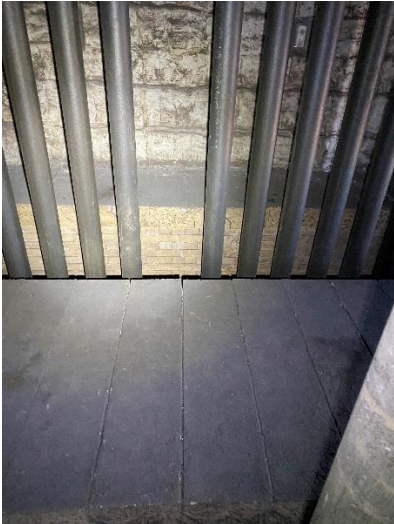
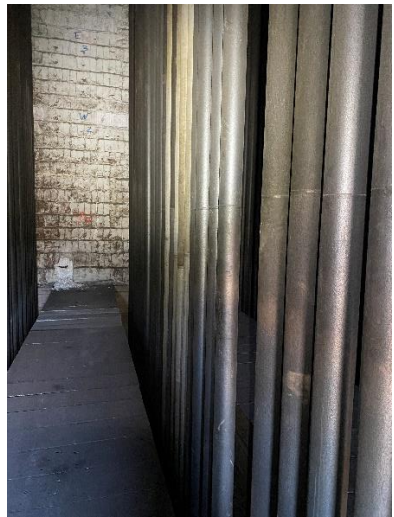
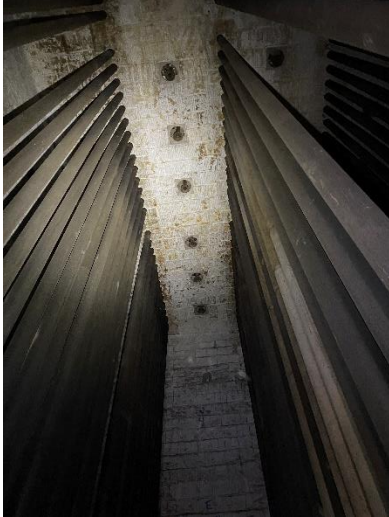
**Bottom section and collector piping:**

- All outlet pigtail boxes are in good conditions.
- Paint worn out.
- Pipes connected to the collector pipe are in good condition and insulation is installed and observed in good condition as well.
- Floor plates are in good condition. No major corrosion was observed.
- Flanges in joints between panels or modules present heavy corrosion.
- Collector paint worn out.
- Collector does not show dents or major damage. No evident signs of overheating.
- Area or collector connecting to the WHB HE-0110 oxidized.
- Collector supportation and foundations are in good condition.
- Piping connecting outlet manifolds to collector pipe is in good condition and insulation in place.

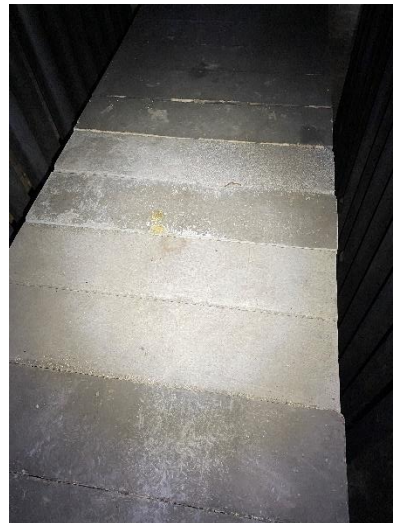
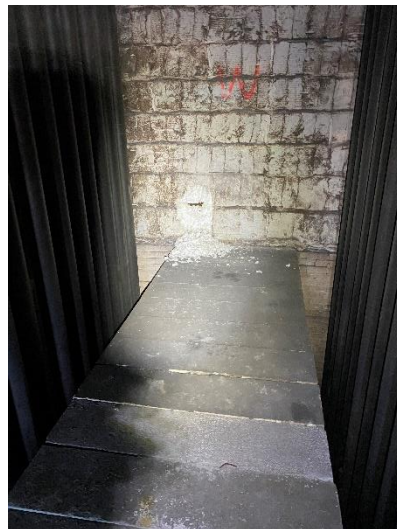
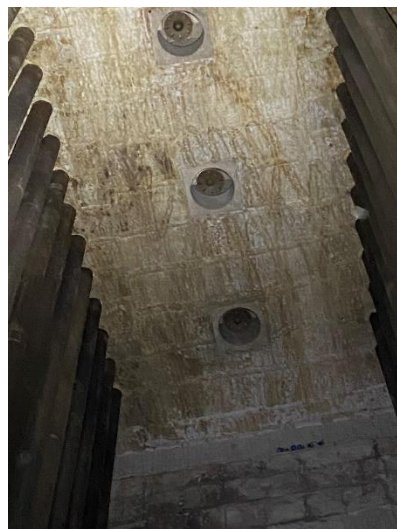
**Transition and Convection sections:**

- Modules panel walls with paint worn out.
- Corrosion in flanges in joints between panels.
- Insulation jacketing debris, likely from the ID Fan in trapped in some structures.
- The roof plate of transition ducts is with paint worn out. No evident signs of corrosion or mechanical damage.
- Mixed feed piping shows insulation lost and corroded.
- Internal inspection of pipeline 104-PRS-02760-8"-6CJ1S01-HC-X" accessing through the space left by check valve C506CJ500 removed, show material corrosion.
- Mixed feed inlet pipe presents areas with no insulation and corroded.
- Mixed feed coil outlet pipe shows insulation in good condition but it is suspected of CUI.

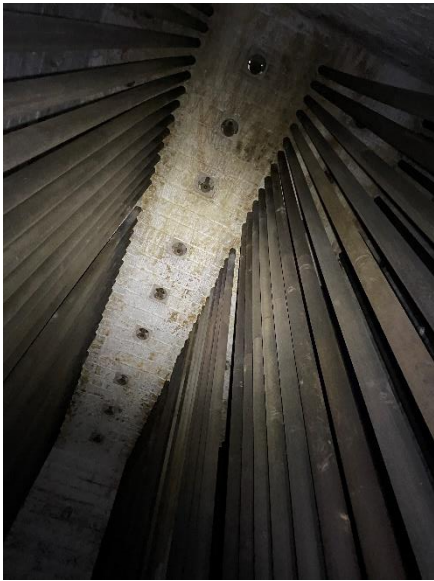
### Radiant box







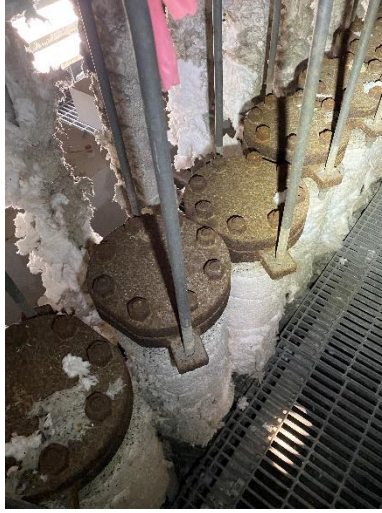




### Penthouse



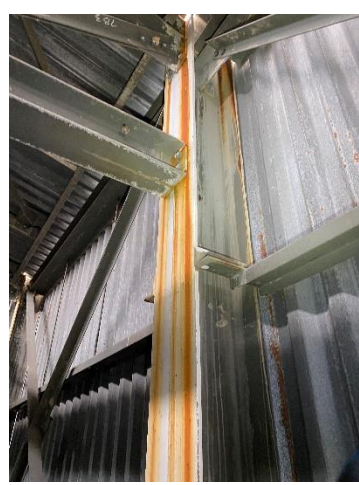




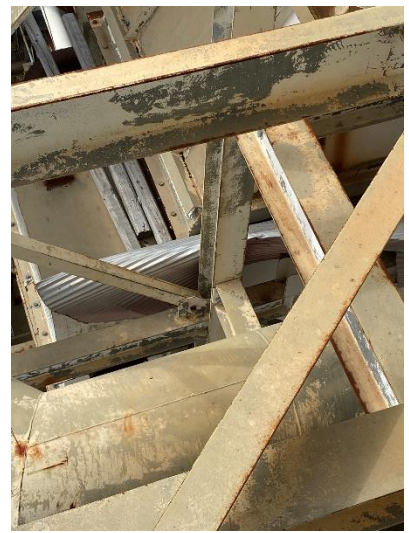




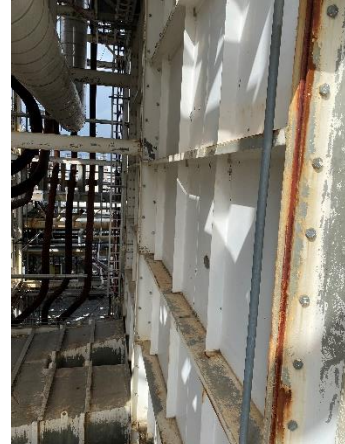








**Convection:**









**Mixed Feed Inlet Pipe:**



**Internal condition of Mixed Feed Inlet pipe.**





**Bottom section of the reformer:**



