LIQUIDMETAL®
COATINGS & MECHANICAL SOLUTIONS

April 14, 2023

# *Power Station*

## Unit #2

# Aperture slope/Extended side walls

# Fall 2022 Scheduled Outage Report 1.0


Lead Inspector: Chris Pavlick
Area inspectors: Steve Favreau, Greg Safko
Keegan Love, Vigi Zuccolotto
Submitted by: Chris Pavlick
Station Rep:


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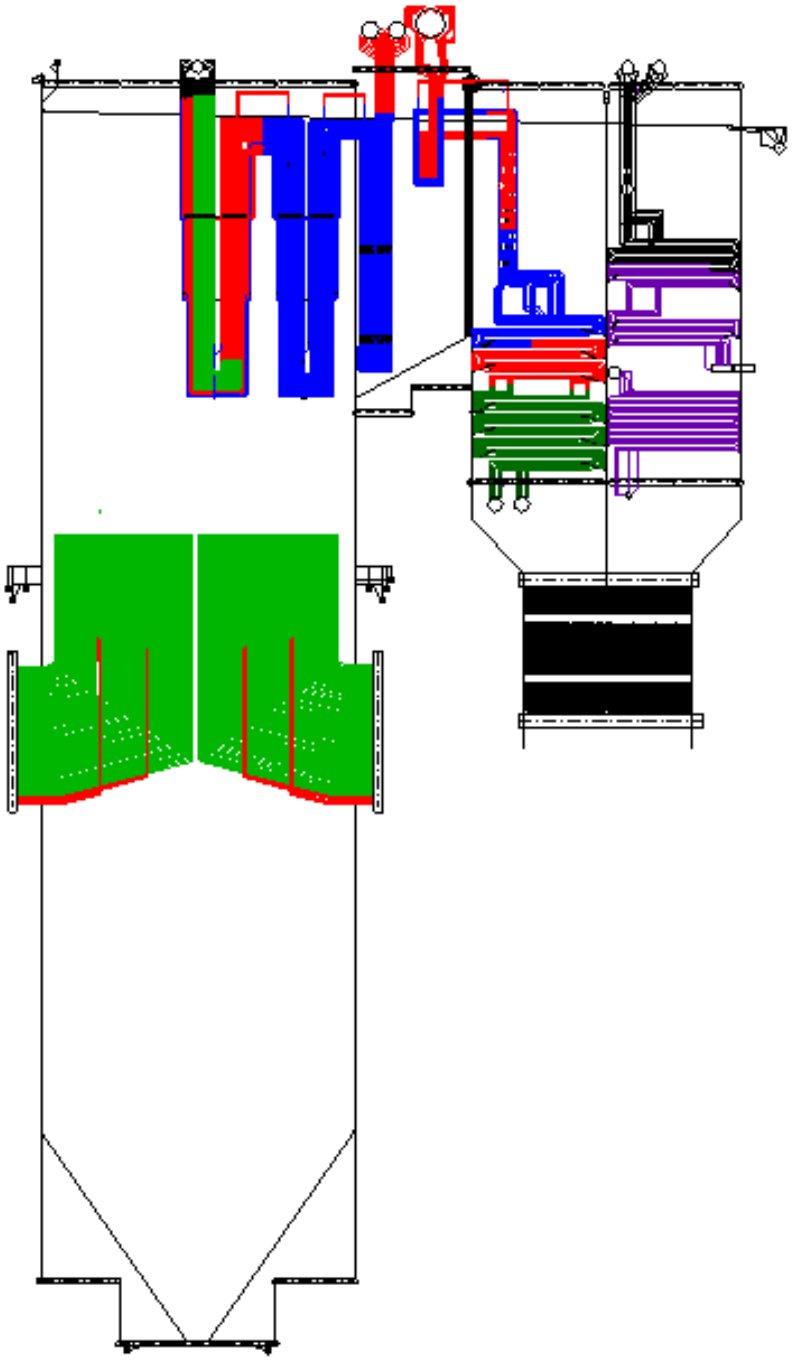
**Company Name**
**Plant – Unit No. 2**
**Fall 2022 Outage**
**Aperture slope& Extended side wall**



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The Aperture slope tubes were inspected from the nose bend to the screen tubes. This report is broken into two sections of the slope to identify the repairs The aperture sidewalls were inspected from the slope. The aperture slope is in poor condition due to retract wash and sliding ash erosion.

There are 378 aperture slope tubes counted left to right.

Items in this report are prioritized as follows:

- **Priority 1** – significant chance of failure / further damage. Repair now.
- **Priority 2** – less likely chance of failure / further damage. Repair if time permits. Plan to repair next outage if no repair is performed this outage.
- **Priority 3** – Information only. Continue to Monitor

**Note:** All UT readings that are taken are on the scale of 70% (shield) 60% (Padweld), and 50% (Dutchman).

**Priority 1**

- (7) dutchmen and (9) Padwelds (Item #1)
- (3) padwelds on the left extended side wall (Item #7)
- (6) padwelds on the left extended side wall (Item #8)
-

**Priority 2**

- (7) membrane cracks (Item #2)
- Several areas of spalled over lay (Item #3)
- Several areas of spalled Flame spray (Item #4 & 5)
- Severe membrane cracks (Item #6)
- (2) membrane cracks in the left extended side wall (Item #9)

**Priority 3**

- Missing refractory at both extended side walls (Item #10)

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# Aperture Slope
# From the bend up 4’

**Priority 1**

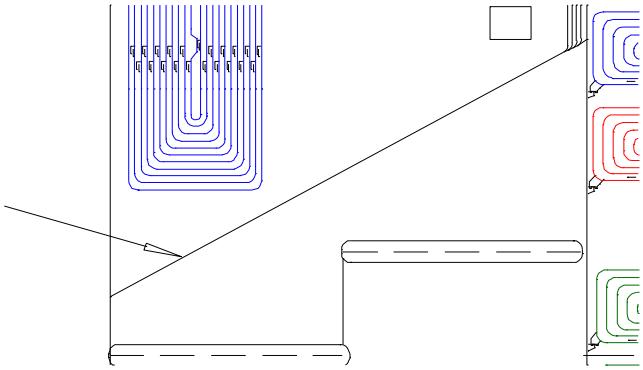
1.There is severe erosion to the tubes from the bend up 6’ under the Finishing Superheats. This is at elevation 1124’-3” to 1128’-3”. This erosion is in retract 9 L/R just under the finishing Superheats. The UT readings across the slope range from 0.041” to 0.174” of the original .250” MWT. There was tube failure on the slope that brought the unit off.

**Recommendation: Refer to the table below for repairs and locations**

| Tube | UT | Repair |
|---|---|---|
| 111 | N/A | Residual erosion from failure install 4’ Dutchman |
| 112 | N/A | Residual erosion from failure install 4’ Dutchman |
| 113 | Failure | Initial Failure install 4’ Dutchman |
| 156 | 0.169” | Padweld 2” x 6” |
| 293 | 0.083” | Install 4’ Dutchman |
| 294 | 0.165” | Padweld 2” x 2” |
| 295 | 0.156” | Padweld 2” x 24” |
| 303 | 0.041” | Install 4’ Dutchman |
| 318 | 0.137” | Padweld 2” x 6” |
| 324 | 0.173” | Padweld 2” x 8” |
| 326 | 0.136” | Padweld 2” x 6” 2 areas above and below existing dutchman |
| 327 | 0.128” | Padweld 2” x 6” |
| 328 | 0.137” | Padweld 2” x 6” |
| 334 | 0.109” | Install 4’ Dutchman |
| 341 | 0.147” | Padweld 2” x 6” |
| 343 | 0.047” | Install 4’ Dutchman |
| 345 | 0.174” | Padweld 2” x 6” |

**Tube material: 1-1/2” OD x 0.250” MW, SA-213-T11**

**Action:**



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**Priority 2**
2.There are (7) vertical and horizontal membrane cracks located in the Aperture slope at elevation 1124'-3" up to 1128-3". This is from slope bends up to the rear of the Finishing Superheat Pendants. These cracks range from 4" to 36" in length and are cause by retract 9 L/R. This is allowing air in leakage in the area.

**Recommendation:** Refer to table below for repairs.

| Tubes | Crack length |
|---|---|
| 116-117 | 36" vertical membrane crack |
| 117-118 | 36" area of horizontal membrane cracks |
| 149-150 | 24" vertical membrane crack |
| 221-222 | 18" area of horizontal membrane cracks |
| 225-226 | 8" vertical membrane crack |
| 231-232 | 4" vertical membrane crack |
| 235-236 | 4" vertical membrane crack |

**Tube material: 1-1/2" OD x 0.250" MW, SA-213-T11**

**Action:**

**Priority 2**
3.There are several areas of spalled cladding located on the Aperture slope at elevation 1124'-3" up to 1128-3". This is from slope bends up to the rear of the Finishing Superheat Pendants. These range from 2" to 48" in length and are cause by retract 9 L/R.

**Recommendation:** Refer to table below for repairs.

| Tubes | Spalled overlay |
|---|---|
| 7 | 6" area |
| 9 | 36" area |
| 25-26 | 24"-36" areas |
| 33-60 | 12"-36" areas |
| 125-135 | 2"-36" areas |
| 140-148 | 6" area |
| 207 | 8" area |
| 214 | 16" area |
| 239-288 | 6"-40" areas |
| 291-373 | 8"-48" areas |

**Tube material: 1-1/2" OD x 0.250" MW, SA-213-T11**

**Action:**

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