

Tracy Generating Station ACC Inspection



Spring - 2009

Unit Specifications

HRSG ~290 MW MAXIMUM

~1 YEAR OPERATION

PH CONTROL: AMMONIA

PH RANGE: 9.8 – 10.2

Lower Duct Findings

DHACI Rating: A

**EVIDENCE OF MINOR FAC (FLOW ACCELERATED CORROSION)
IN LOWER DUCT**

**EARLY STAGE FAC IN THE DUCT WALL
BENEATH THE TURBINE**

**EARLY STAGE FAC ON LEADING EDGE OF
1ST TURNING VANE**

NO FAC AT RISER ENTRIES

**EVIDENCE OF FAC DECREASES WITH
DISTANCE FROM TURBINE EXHAUST**



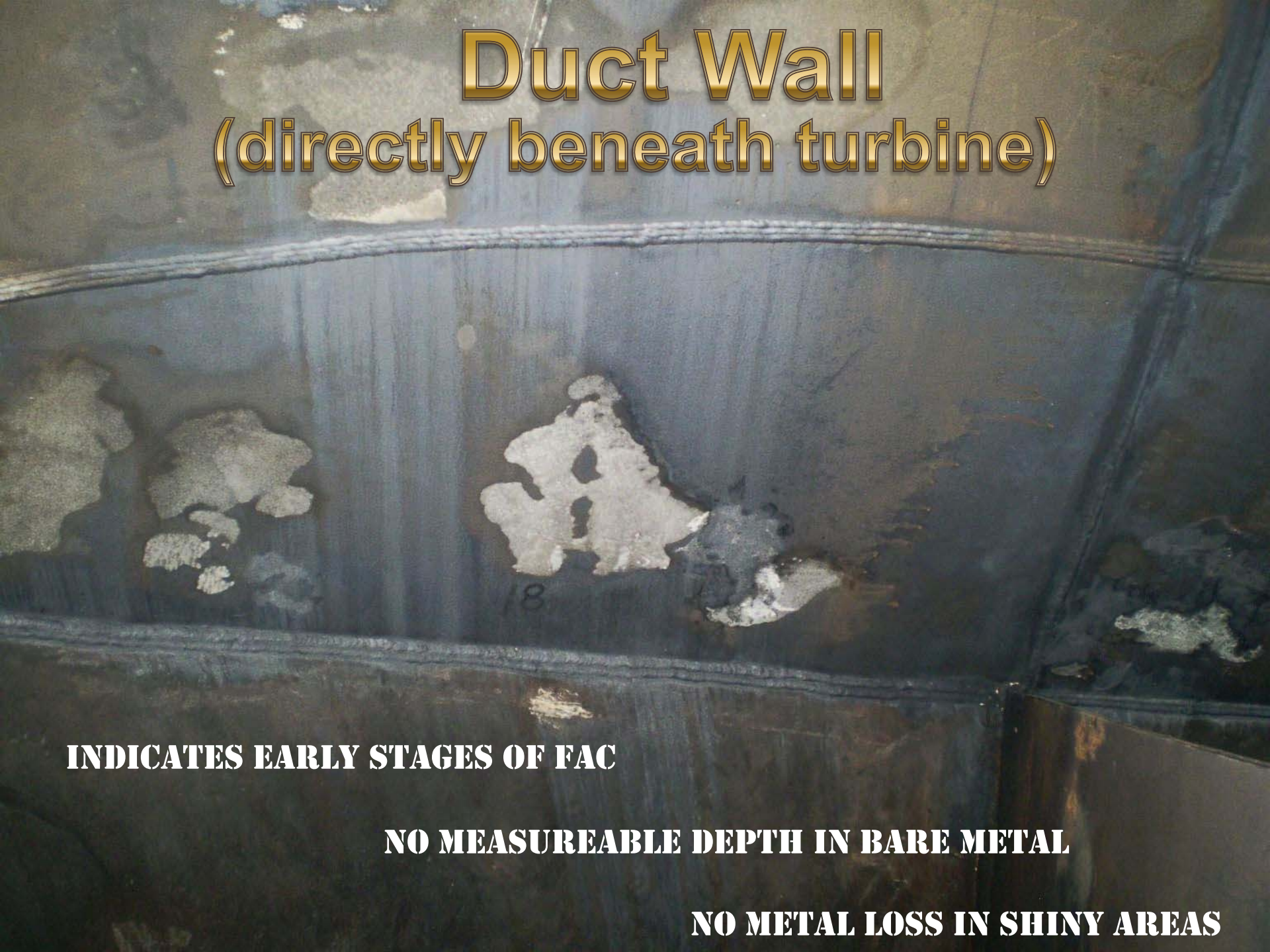
LP Turbine
steam exhaust duct

Lower Duct
~22 Feet From LP Turbine



Minor FAC noted, as evidenced by
the ring of bare metal around black oxide

Duct Wall (directly beneath turbine)



INDICATES EARLY STAGES OF FAC

NO MEASUREABLE DEPTH IN BARE METAL

NO METAL LOSS IN SHINY AREAS

1st Turning Vane



Beginning Stages of FAC on leading edge



Riser Entry

No FAC present on ANY risers

Upper Duct Findings

DHACI Rating: 1 or 2

NO BARE METAL ANYWHERE IN 4 OF 6 UPPER DUCTS

**MINOR BARE METAL AT A FEW TUBE ENTRY
WELDS IN 2 OF 6 UPPER DUCTS**

**RETENTION OF AMMONIA IN DUCTS
WITH VALVES MINIMIZED RUST
IN STANDING WATER**



ENTRIES TO 6 ROWS

**ROW 1 & 4
NEAREST TURBINE**

**MOV VALVES PRESENT
ON ROWS 2,3,5 & 6**

Distribution Risers



ENTRY AREAS

Upper Duct Access



**ACCESS
ENTRY**

Upper Duct 1 Platform

Upper Duct 1



Slight visible FAC at turning vane
noted on duct 1 & 4 (nearest turbine)

Ducts 2, 3, 5 & 6 showed no FAC

Upper Duct Walls

No bare metal noted

No bare metal noted

Upper Duct Cross Bars



Upper Duct 1



Slight FAC on tube entry welds

Upper Duct

4

STANDING WATER

BARE METAL

SLIGHT FAC ON WELDS


Duct 4 – CLOSE UP



**INSPECTOR NOTED
“SMOOTH” FEEL**

**Black Oxide
(at tube entry)**





Allows ammonia to escape
from the standing water

Duct Entry
(with valve open)



Rust in
Standing Water
(with MOV left open)



Duct
(MOV closed)

Improved passivation with the presence of ammonia

Duct (MOV closed)

Little or no rust found
when MOV is closed



CONCLUSIONS

- × **HIGH PH, ESPECIALLY IF IMPLEMENTED FROM UNIT STARTUP, MINIMIZES FAC IN ACC'S**
- × **RETAINING AMMONIA WHEN OFFLINE REDUCES OXIDATION IN STANDING WATER**