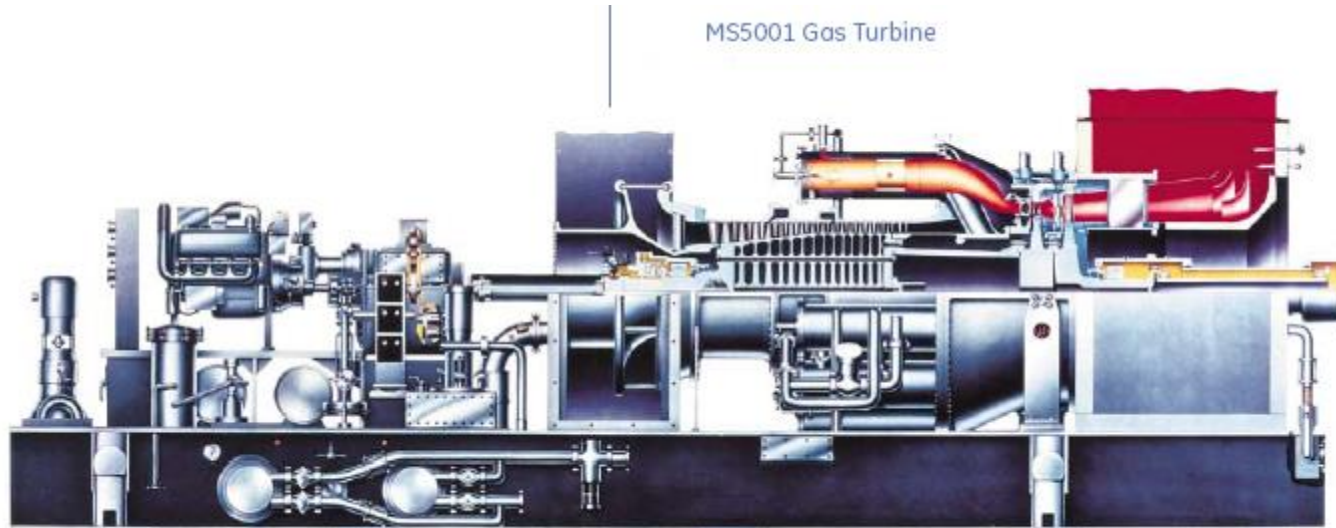


CT1 Alameda Unit 1



Unit 1 Borescope Findings and Staff Recommendation

CT1 Alameda Unit 1



An employee found metal parts on the ground around Unit 1 stack while he was conducting his weekly rounds at facility. Unit 1 was taken out of service and a borescope inspection was conducted.

Unit 1 Borescope Findings

- **Scope of Work:**
 - Advanced Turbine Support conducted Borescope inspection of CT Exhaust

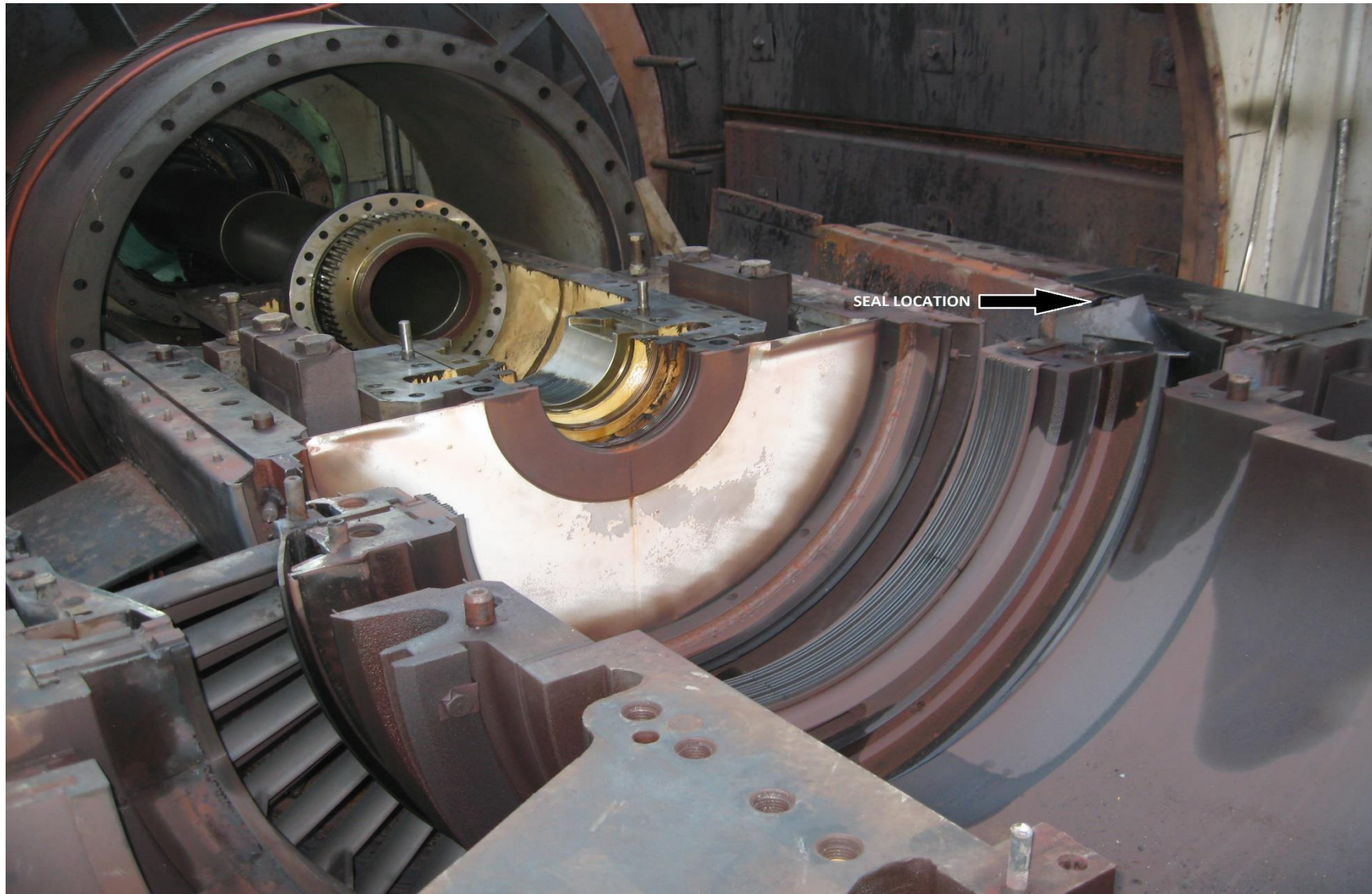
- **Major Findings:**
 - Found Air Baffle Exhaust Seals missing from the 7 o' clock to noon position. Product material is 316 SS.



Unit 1 Air Baffle Exhaust Seal As Found



Unit 1 Air Baffle Exhaust Seal Location



U1 Repair and Upcoming 2018 Outage

- **Turbine Parts:**

PO was issued for new exhaust flex seal, 4-6 week lead time.

- **2018 Outage :**

- Alameda outage scheduled for March 12th thru March 23rd.

- **Proposed Outage:**

- We are proposing moving the scheduled outage to January in conjunction with U1 repairs.
 - ♦ Conduct mobilization of contractor equipment Jan 10th & 11th.
 - ♦ Start U1 & U2 outage Jan 15th @ 0700.
 - ♦ Contractor to mobilize Jan 15th to start U1 repairs.
 - ♦ Return U2 and BOP back to service Jan 26th @ 1600.
 - ♦ Return U1 back to service for option A, Jan 30th.
 - ♦ Return U1 back to service on option B, Feb 15th.

U1 Repair and Estimated Cost

- Two options were presented based on T&M:
 - Contractor will try to extract seals without removing rotor, if option A is unsuccessful, option B with rotor removal will follow.

Option A:

Work Schedule, Duration & Crew Size:

- Schedule: 5 days per week, 12 hours per day, 1 shift per day
- Crew Size: 1 TFA, a working foreman and 6 millwrights
- Duration: 10 Working Days (no holidays/weekends)

Scope of Work:

- 1. Mobilize crew and tooling to site
- 2. Remove vertical exhaust duct
- 3. Remove top half forward exhaust plenum wall
- 4. Remove top half exhaust and turbine shells
- 5. Remove old flex seal
- 6. Install new flex seal, supplied by NCPA
- 7. Install top half exhaust and turbine shells
- 8. Install top half forward exhaust plenum wall
- 9. Install vertical exhaust duct

Cost: Estimated - \$220,000

U1 Repair and Estimated Cost

■ Option B: Gas Turbine Rotor Removal:

Work Schedule, Duration & Crew Size:

- Schedule: 5 days per week, 12 hours per day, 1 shift per day
- Crew Size: 1 working foreman and 6 millwrights
- Extended Work Duration: 12 Working Days (no holidays/weekends)
- Utilizing existing crew but will need to add unit alignment and start-up support cost

Scope of Work:

- Record alignment reading prior to rotor removal
- Removal of roof panels and inlet plenum
- Disassemble compressor cover and IGV
- Removal of fuel, water and diesel piping
- Removal of all HGP components (Fuel Nozzles, Baskets, Transitions)
- Rotor removal and inspection of 2nd stage buckets
- Reassembly of unit, final alignment and start up support

Cost:

- Additional Estimated cost- \$300,000

Gas Turbine Repair Recommendation

- Staff is seeking recommendation for Commission approval of a General Services Agreement for exhaust baffle seal replacement on Alameda Unit 1.
- Option A initial cost not to exceed \$250K with approval to spend up to \$600K, pending vendor disassembly of the unit to include option B, if necessary.
- Approve Budget Supplement for Option B in the amount of \$350K. This will not be collected and implemented unless Option A is not successful.