CT1 Alameda Unit 1

Unit 1 Borescope Findings and Staff Recommendation
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 12\textsuperscript{th} thru March 23\textsuperscript{rd}.

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