

A large industrial generator is the central focus, with its massive circular end cover partially open. Several workers wearing white hard hats and dark clothing are positioned around the generator, appearing to be inspecting or working on it. The scene is set in a dimly lit industrial environment, with the generator's metallic surfaces reflecting some light. The overall tone is professional and technical.

Generator Test & Inspection Recommendations

AGT*Services, Inc.*

Generating timely repair solutions

INSPECTION GOALS

- Identify detrimental deterioration / conditions
- Apply intelligent / timely corrective action

Inspect How Often?

DEPENDS UPON

- On line monitoring
- Operating hours
- **Operating duty**
 - **Base load**
 - **Cyclic**
- Known issues
 - **OEM TIL's / OMM's / etc.**
 - **Contamination**
- Maintenance history
- Operating incidents



On Line Monitoring

- Noise
- Vibration
- Oil in drains
- Operating temperatures
- Partial discharge
- Hydrogen purity / consumption
- Water chemistry

Operating Hours

- More hours / more action
 - **Steady state vibration**
- Low hours
 - **How stored**
 - **A few long runs or many short runs?**

Operating Duty

- Base load
 - Steady state vibration
 - Minimizes differential expansion
 - Minimizes “shuffling the deck”
- Frequent Start Stop
 - Repeated differential expansion / movement
 - Repeated mechanical movements

Known Issues

- Applicable TIL's / OMM's
 - Wedge loosening
 - Core loosening
 - End winding / phase ring resonance
 - Insulation susceptible to migration
 - Strand plugging / loss of cooling

Maintenance History

- Contamination
- Wedge looseness
- End winding looseness
- Insulation migration
- Water leaks
- Test results

Operating Incidents

- Overheating
- Motoring / Single phase
- Synch out of phase
- Loss of coolant

Owner Goals/Plans

- Retire in near future
- Operate until the end of time
- Upgrade in foreseeable future
- Cost options:
 - **Major repairs**
 - **Multiple outage costs**
- Risk tolerance
- OMM budget vs. capital budget

Inspect How Often?

OEM PARTY LINE

- Major inspection every 5 years

CONDITION PROJECTION

- Unit now & then
- Predicted operation
- Predicted Owner situation

Outage Interval Crystal Ball

- **Frequent start / stop**
 - **5 years**
- **Wedge system**
 - **New & dry – 10 years**
 - **New & oily – 5 years**
- **End winding**
 - **History**
 - **Same as wedge system**
- **Core Tightening (if loosening is an issue)**
 - **185" & shorter – 10 years**
 - **186" & longer – 5 years**



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