



TEAMS - Inspections

Turbine Evaluation, Analysis & Maintenance Scheduling

Background

The most effective way to assess the overall condition of a steam turbine generator is to implement a regular monitoring program. Regular steam turbine generator inspections can identify component degradation and areas where efficiency, reliability and availability can be improved.

A properly managed monitoring and maintenance program can significantly reduce the probability of unanticipated component failure, allow parts to be ordered based on anticipated need, and eliminate unnecessary maintenance work. With regular monitoring, you will be able to assess trends in your turbine’s performance, steam path condition and operating practices. Early identification of negative trends can result in efficient implementation of preventive procedures and effective scheduling to minimize downtime.

The overall result is reduced maintenance costs, increased availability and avoided down time or production loss.

Solution

TEAMS inspections will support your condition-based maintenance program and planning. You can choose from four different inspections; increasing in surveillance scope from Checkup to Max, depending on your needs. All four levels can be performed while your equipment is on line.



Checkup: (~1 Day) **Visual inspection** and **operational data** collection to learn about the status of your equipment and determine which TEAMS inspection program is recommended based on your equipment needs.



Lite: (~2 Days) Primarily **mechanical** evaluations to help prevent unplanned outages and improve reliability and availability.



Base: (~3 Days) **Mechanical** and **thermal** evaluations to help improve steam turbine generator performance and efficiency.



Max: (~4 Days) **Mechanical** and **thermal** evaluations **plus maintenance planning** to help ensure more effective outages and better parts planning.

TEAMS Inspection scopes from Checkup, Lite, Base to Max

Your TEAMS engineer will perform all inspections recommended for your equipment, so you will always have a single point of contact. After each TEAMS inspection, your engineer will host an exit meeting with you and all operating personnel, where you will discuss findings and suggested actions—all of which will be provided to you in a formal report.

Features

TEAMS Checkup



A TEAMS Checkup inspection begins with a general assessment of the equipment. The TEAMS engineer first performs a walk-down of the equipment, making specific notation of any observed deficiencies. Specific inspections include various conditions that can affect optimum equipment operation or present safety hazards.

TEAMS Lite



Regular TEAMS Lite inspections provide a mechanical health assessment of the equipment over time, which your TEAMS engineer will discuss with operating personnel.



TEAMS Lite - example of Bearing Vibration Historical Trends

Typical TEAMS Lite data measurements and analysis may consist of:

- Vibration monitoring and analysis
- Lubricating oil and control oil systems analysis
- Component condition assessment

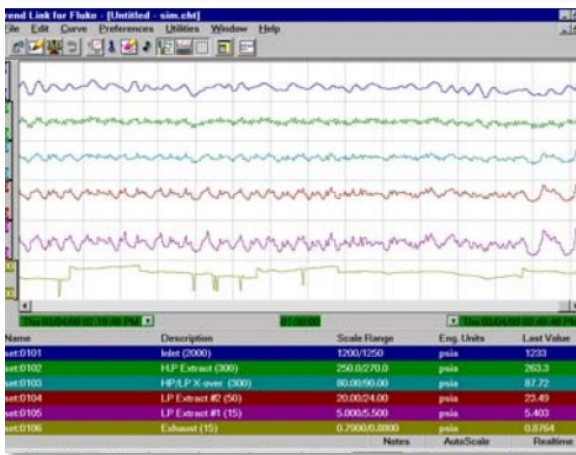
TEAMS Base



Regular TEAMS Base inspections provide mechanical evaluations and insights about your system's thermal performance characteristics.

Your TEAMS engineer will discuss these insights and review developing trends with operating personnel. Typical data measurements and analysis may consist of:

- Steam Path Performance trend analysis
- Enthalpy drop evaluation
- Auxiliary systems vibration monitoring and analysis



TEAMS Base Example: real-time steam path operation data

A TEAMS Base Inspection should be performed directly after a major inspection to provide a detailed performance reference baseline data point for:

- Regular TEAMS data monitoring of the equipment operating conditions
- Equipment performance trend evaluations



TEAMS Max

The TEAMS Max inspection includes all the items of the Checkup, Lite, and Base, plus allows for detailed maintenance and parts planning about a year ahead of an upcoming major inspection.

Benefits

With GE's fleet-wide experience and a close working relationship with equipment operators and maintenance personnel, you can expect TEAMS inspections to:

- **Increase production time** by identifying potential equipment issues early and mapping out a repair and maintenance plan
- **Increase plant reliability and availability** by extending major outage intervals based on assessed equipment condition
- **Lower overall maintenance costs** by avoiding unplanned outages and through condition-based maintenance
- **Improve maintenance and parts planning** by prioritizing equipment conditions observed and early identification of replacement parts needs
- **Reduce long-term costs** by providing periodic turbine performance evaluations and regular equipment operation surveillance

Application

TEAMS Inspections can be performed on all GE OEM and other OEMs steam turbine generators, in any industry. These inspections are conducted while the equipment is in operation.

The scope performed in each regular surveillance is flexible and can be customized to specific needs over the lifetime of the equipment.

References

GE started with TEAMS Inspections in the early 1970s and has performed several hundred TEAMS surveillances for individual sites, or as part of customer agreements that included a fleet wide condition-based maintenance program.

Majority of references are in the USA. *These inspections were previously named Steam Turbine Evaluation Program (STEP) inspections.*

To learn more about this offering, contact your GE sales representative or visit us at www.ge.com/power or www.ge.com/power/services/steam-turbines/industrial

