

TEAMS Inspections

Turbine Evaluation Analysis & Maintenance Scheduling



Reliability & Availability – Extend major outage intervals and avoid unplanned outages.



Early detection of abnormal conditions– early identification of replacement parts needs & improve asset life management.



Reduce maintenance & long term costs– leveraging condition-based maintenance, planning repair & maintenance.

Background

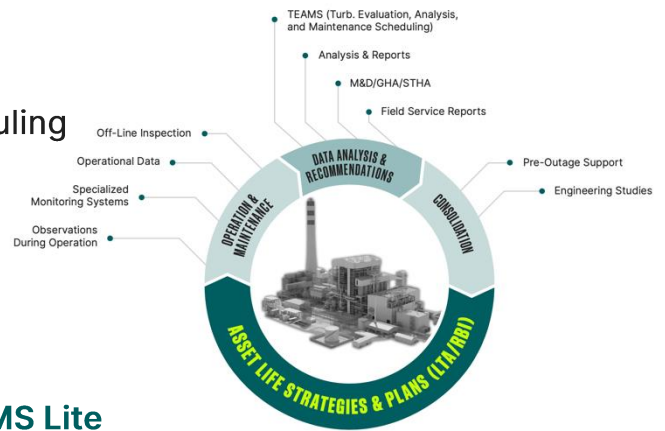
The most effective way to assess the overall condition of a steam turbine generator is to implement a regular monitoring program. Regular inspections can identify component degradation and areas where efficiency, reliability and availability can be improved.

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.

Solution

TEAMS inspections will support your condition-based maintenance program and planning. You can choose from two different inspections; increasing in surveillance scope depending on your needs. Both levels can be performed while your equipment is online.

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.

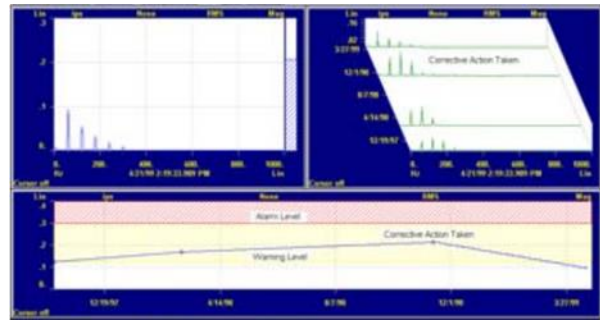


TEAMS Lite



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

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
- Upon request:
 - Motion amplification video to identify vibrations, relative mechanical motion, misalignments, imbalances, structural issues and potential mechanical failures that are otherwise invisible to the naked eye.
 - Visual leak detection of compressed air gas and leaks via acoustic imaging to quickly identify leaks (if any) over a large area quickly and with precision.

TEAMS Base



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

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

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

Applicability

This product is applicable to all GE Vernova steam turbines and generators 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 Vernova started with TEAMS Inspections in the early 1970s and has performed several hundred surveillances for individual sites, or as part of customer agreements that included a fleet wide condition-based maintenance program.

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

For more information, contact your Steam Power sales representative at: governova.com/steam-power

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