Safety Roundtable

2018 Frame 6B User Conference
Ponte Vedra Beach, FL

frame-6-users-group.org
SAFETY ROUNDTABLE

• Contact Information

Jeff Gillis
Gas Turbine Technology Lead

ExxonMobil Research and Engineering Company
22777 Springwoods Village Parkway
Spring, TX  77389
832.625.5271
william.j.gillis@exxonmobil.com
SAFETY ROUNDTABLE TOPICS

General
• Life-saving rules
• Compartment entry

Safety Systems
• Hazardous gas detection
• Fire Suppression Systems

Maintenance
• Fall protection & PPE
• Scaffolding & Access
• Safety professional & other personnel
• Inlet filter house fire prevention & escape
• Rescue considerations
• Fuel Nozzle failures resulting in casing breach
6B User Forum
Mission Statement of the GE6B Users Group

To provide an open forum through conferences and technological aids, to the Owners/Operators of GE6B generator systems for effective communication, discussion, and information dissemination regarding the operation, maintenance, inspection, troubleshooting, and repair of such systems to maximize equipment performance and reliability.

Controlled by Users

Combustion Turbine Models Supported Within This Users Group

GE MS6001B

All model numbers based on the above number is also supported.

Colloquial Names for these Combustion Turbine Models

Frame 6  General Electric Frame 6B  Fr6  F Class Unit  Frame CT  Frame Gas Turbine  Frame GT  John Brown

Navigating This Site

Site Map: this is an outline format of the menu options in the black navigation bar at the top of this page.
6B USER FORUM SAFETY THREADS

• Unit has a number of hard to open inside door operators on the compartment doors and are looking to upgrade the hardware to crash bars. There are also some ill-fitting doors that have warped and rusted through the years that we are looking to replace.

• Looking for experience as to what type of functional tests are typically done on water-mist fire suppression systems as part of initial commissioning of the unit.

• Does GE have written directives concerning operating gas turbines with the compartment doors open and/or operating without the CO₂ system in operation?

• Have any users studied and arc flash labeled panels on the DC Exciter equipment?

• Looking for advice on a Flame Detector Retrofit Project

• Looking for alternatives to IGD combustibles detectors and how do you handle turbine compartment heat for detectors?
6B Safety TILs
https://gepowerpac.service-now.com/til_new/
SAFETY TILs AFFECTING 6B TURBINES

2044  DRY FLAME SENSOR FALSE FLAME INDICATION WHILE TURBINE IS OFFLINE
This TIL is applicable to GE gas turbines with GE Reuter Stokes FTD325 dry flame sensors. GE part numbers are 113T1419P001 (hot-end) and 113T1419P101 (cool-end) for 2-piece sensors and 124T5712P0001 for the 1-piece sensor. TIL provides recommendations to identify and address false flame indication when the turbine is down (offline), mitigating the risk of operating with an unhealthy flame sensor.

2028  CONTROL SETTINGS FOR GE REUTER STOKES FLAME SENSORS
This TIL is applicable to all GE gas turbines using Mark™ V controls and GE Reuter Stokes flame sensors. In addition, units retrofitted to Mark Ve or Vle migration panels that use GE Reuter Stokes flame sensors may be affected. Check, and if necessary, correct the control panel settings that determine when the flame sensor reading is considered a valid flame detection reading.

2025  GE REUTER STOKES FTD325 DRY FLAME SENSORS FALSE FLAME INDICATION
Provide recommendations to mitigate the risk of a sensor false flame indication to prevent continued fuel delivery to the gas turbine when there is no flame in the combustion system. False flame indication may be caused by slow sensor response and/or a no-light sensor output greater than specification limits.

1986  BRAID-LINED FLEXIBLE METAL HOSE FAILURES
To notify users of a safety concern where certain braid-lined flexible metal hoses having ABI markings may fail, causing an over-pressure event in the gas turbine enclosure or machine damage.
SAFETY TILs AFFECTING 6B TURBINES

1918  6B RIVERHAWK LOAD COUPLING HARDWARE AND TOOLING SAFETY CONCERN
During hydraulic tensioning of Riverhawk style studs on load coupling flanges, a potential risk of injury exists if the stud internal threads are not properly cleaned and operating instructions published by Riverhawk are ignored. Improper use of the tool can cause the tensioning tool to jump and injure the individual in direct contact with the tool.

1838  ENVIRONMENTALLY INDUCED CATALYTIC BEAD GAS LEAK SENSOR DEGRADATION
To alert users to safety risks associated with potential degradation of catalytic bead gas leak sensors due to exposure to known toxins.

1793  ARSENIC AND HEAVY METAL MATERIAL HANDLING GUIDELINES
This TIL is applicable to all gas turbines that use fuel from carbon-based feed-stocks, such as coal, petroleum coke, and heavy oils. This includes all integrated gasification combined cycle (IGCC) gas turbines. To advise customers to be aware of safety concerns regarding gas turbine components that have the potential for arsenic and/or heavy metal surface contamination.

1713  6B, 6FA, 6FA+E & 9E FALSE START DRAIN SYSTEM RECOMMENDATIONS
Follow Inspection and Maintenance manual recommendations and confirm the false start drain system is operating correctly after a false start event.
SAFETY TILs AFFECTING 6B TURBINES

1707 OUTER CROSSFIRE TUBE PACKING RING UPGRADE
To inform users of the availability of upgraded crossfire tube packing rings. Upgraded parts result in reduced hot air leakages into the turbine compartment thereby reducing the associated safety risks.

1700 POTENTIAL GAS LEAK HAZARD DURING OFFLINE WATER WASHES
To warn users of the potential for gas leaks during an offline water wash and to recommend steps to provide adequate safety.

1633 LOAD COUPLING PRESSURE DURING DISASSEMBLY
Potential safety issue with coupling disassembly procedure GE has developed procedures for disassembly of the rigid coupling. Failure to follow the disassembly procedure may result in injury to personnel.

1628 E AND B CLASS GAS TURBINE SHELL INSPECTION
Inspect exposed external surfaces of gas turbine shells for cracks at the first opportunity, and to inspect accessible internal and external surfaces of the shells at the first available Hot Gas Path Inspection (HGPI) or Major Inspection (MI). Any through cracks may lead to hot gas leakage and a potential for personnel safety risk.

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1612 TEMPERATURE DEGRADATION OF TURBINE COMPARTMENT LIGHT FIXTURES
Light fixtures 302A4577P001 can deteriorate due to compartment temperatures, leading to an exposed circuit at the bulb socket. This exposed circuit can create an electric shock hazard during routine bulb replacement.

1585-R1 PROPER USE AND CARE OF FLEXIBLE METAL HOSES
To provide detailed guidance and recommendations for installation, handling, and inspection and acceptance criteria for Flexible Metal Hoses (FMH).

1577 PRECAUTIONS FOR AIR INLET FILTER HOUSE LADDER HATCHES
Communicate an available safety improvement for the Air Inlet Filter House (AIFH) that would mitigate risk of falls if the ladder way trapdoors were left open.

1576-R1 GAS TURBINE ROTOR INSPECTIONS
Recognizing that all components of high technology equipment have a finite life and in efforts to continuously enhance reliability and availability of customer’s gas turbines, GE is further communicating its existing rotor life management recommendations.
SAFETY TILs AFFECTING 6B TURBINES

1574  6B STANDARD COMBUSTION FUEL NOZZLE BODY CRACKING
Applies to Essen-built 6B units with standard combustion system. Fuel nozzle bodies may crack due to a manufacturing error.

1573  FIRE PROTECTION SYSTEM WIRING VERIFICATION
To inform users of correct wiring terminations for Zone 1 of the fire protection system between the Gas Turbine compartment and the Gas Module compartment (ML 0991 or A160)

1566-R2  HAZARDOUS GAS DETECTION SYSTEM RECOMMENDATIONS
To inform users of best practices for Hazardous Gas Detection System configuration, response to alarms, system upgrades and recommended enhancements. Reason for latest revision- to communicate updated requirements for units that are performing fuel system modifications

1565  SAFETY PRECAUTIONS TO FOLLOW WHILE WORKING ON VGVS
To heighten safety awareness for those who work on or near VIGVs or VGVs. It is intended for use in conjunction with all other safety programs and procedures. This TIL provides general guidelines and precautions prior to performing maintenance on VIGVs and VGVs.

1557  TEMPERATURE REGULATION VALVES CONTAINING METHYLENE CHLORIDE
To inform users of the presence of Methylene Chloride in fluid systems using “Bulb and Capillary” automatic temperature regulating valves and the need to add a MSDS sheet to the O&M manual.
SAFETY TILs AFFECTING 6B TURBINES

1556 SECURITY MEASURES AGAINST LOGIC FORCING
To advise users to protect GE digital controls from unauthorized logic forcing while the unit is in operation.

1554 SIGNAGE REQUIREMENTS FOR ENCLOSURES PROTECTED BY CO2 FIRE PROTECTION
This TIL communicates the updated signage requirements that should be applied to a) access to spaces that include CO2 Fire Protection, b) access to spaces into which released CO2 can migrate and c) at manual discharge stations.

1537-1 HIGH GAS FLOW AT STARTUP - LRATIOHY LOGIC SEQUENCE
Applies to gas turbines not manufactured in Greenville prior to 2002. There is a possible issue with the start-up control sequence related to high gas flow protection.

1522-R1 FIRE PROTECTION SYSTEM UPGRADES FOR SELECT GAS TURBINES
To advise users of a fire protection system wiring & heat detector issue.

1520-1 HIGH HYDROGEN PURGE RECOMMENDATIONS
To inform users of the risk associated with operating gas turbines with high hydrogen content fuel without the protection of a nitrogen (or other inert gas) purge system.
SAFETY TILs AFFECTING 6B TURBINES

1429-R1 ACCESSORY AND FUEL GAS MODULE COMPRESSION FITTING OIL LEAKS
To describe the importance and method of correcting lubricating, hydraulic and trip oil leaks promptly and inspecting for such leaks at regular intervals.

1368-2 RECOMMENDED FIRE PREVENTION MEASURES FOR AIR INLET FILTER HOUSES
To inform users of the hazards associated with filtration components, and provide additional recommendations for fire prevention.

1275-1R2 EXCESSIVE FUEL FLOW AT START-UP
To inform users of the start-up characteristics for gas turbines, in order to diagnose deterioration of the start-up sequence due to; calibration drift, sensor imprecision, or hydraulic system wear, or leakage passed through the Stop Ratio Valve (SRV). Additionally, to warn users of the risks of altering the control logic constants or re-loading control logic software without proper GE technical assistance.

1159-2 PRECAUTIONS FOR WORKING IN OR NEAR THE TURBINE COMPARTMENT OR FUEL HANDLING SYSTEM OF AN OPERATING GAS TURBINE
Communicate precautions when working in or near the turbine compartment or fuel handling system and emphasize the importance of following these precautions.
SAFETY TILs AFFECTING 6B TURBINES

1052-3AR1 ASBESTOS MATERIALS IN GAS & STEAM TURBINES & GENERATORS

Advise customers of the potential locations of asbestos-containing materials in GE gas and steam turbines and generators. This information is being provided so that appropriate actions may be taken by each customer to comply with regulatory trends concerning asbestos. The information provided is generic and applies to units in the "as-shipped" condition.
6B PSSBs
PSSBs AFFECTING 6B TURBINES

20161220  GT Upgrade – Impact on HRSG
During a recent HRSG evaluation on an existing installation, it was determined that a previous GT upgrade had been implemented without sufficient evaluation of the safety impacts on the HRSG. The upgraded GT operation resulted in HRSG steaming capacity greater than the nameplate rating and the installed safety valve relieving capacity.

An evaluation of the HRSG and balance of plant systems for all GT upgrades that may affect the downstream systems is necessary to ensure safe continued operation of plant equipment.

20161209  Gas Turbine Water-Cooled Flame Sensor False Flame Indication
GE Reuter Stokes water-cooled flame sensors (GE specification 362A1052) detect flame in GE gas turbine combustion chambers.

Unscrewing the lens assembly from the sensor body can break the seal and allow ingress of moisture into the sensor body. A sensor disassembled in this manner should not be used as it may report incorrect flame-on or flame-off conditions.

Improper disassembly can occur by applying torque to the sensor body rather than the hex nut when removing the sensor from the sight tube. It may also occur by turning the hex nut while simultaneously holding the sensor body with the cooling water jacket and preventing the sensor body from rotating with the hex nut.
PSSBs AFFECTING 6B TURBINES

20161117  Lifting and Rigging Devices
Lifting machine parts with eyebolts has been done for many years and these are still used today. But eyebolts have limitations. If used or installed incorrectly they can fail and lead to damaged parts, severe injury and even death. Improper installation, using the wrong type of eyebolt and bent or deformed eyebolts are frequently seen issues.

20161104  Gas Turbine Operational Safety GEK Update
A review of recent fleet events indicated that some preventable near misses had occurred and should be communicated to owners in order to help mitigate the risk of exposure to unsafe events. In most cases, these events were caused due to defeats of existing safety measures or failure to apply existing safety recommendations. This PSSB is intended to supplement and reinforce GEK-111309 "GE Product Safety Recommended Best Practices" which has recently been updated.

• Exhaust purge timer
• Excessive firing fuel flow
• Exhaust spread protection