

CUSTOMER PROFILE

Industry
Upstream Oil & Gas

Pilot Scope
80 critical assets (compressor trains, gas turbines, wells, generators)

Asset Type
Gas turbine-driven centrifugal compressor

Value Delivered
\$6M

GLOBAL SUPERMAJOR AVERTS \$6M COMPRESSOR SHUTDOWN AFTER UPTIMEAI DISTINGUISHES SENSOR DRIFT FROM MECHANICAL FAILURE

The thrust bearing temperature was rising toward a trip threshold. Everything else was stable. The question was whether the problem was the bearing or the sensor reading it.

A False Trip Is as Costly as a Real Failure

Gas turbine-driven compressors on reinjection service operate under 99%+ availability targets. A 12-hour forced shutdown carries a \$6M production impact. The protective logic is simple: if thrust bearing temperature reaches the trip threshold, the machine shuts down. No override.

But trip logic can't distinguish a real thermal event from a drifting sensor. A faulty RTD reading 90°C triggers the same shutdown as an actual bearing at 90°C. The production loss is identical. The root cause is an inexpensive sensor.

When Every System Monitors the Same Parameter, Useful Warning Signs are Overlooked

Threshold alarms fire when a number hits a limit. Condition monitoring trends the value over time. Neither asks the question an experienced engineer asks first: is anything else on this machine changing?

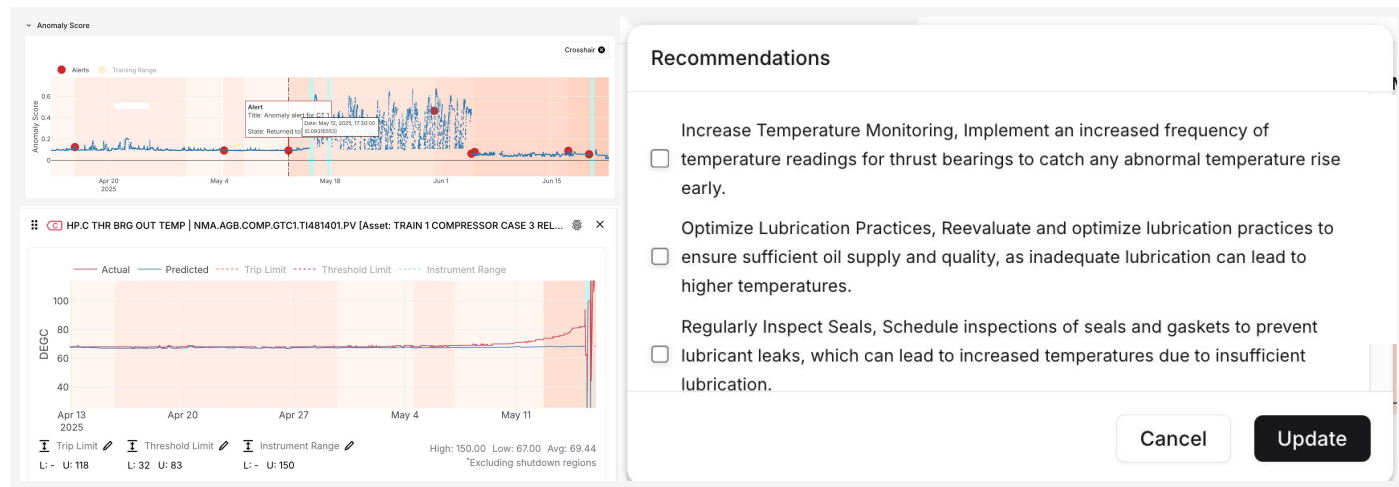
If temperature is climbing but vibration, axial position, lube oil, speed, and flow are all stable, the most likely explanation isn't the bearing, it's instrumentation. But that reasoning doesn't exist in a threshold system. The alarm fires, and the machine trips.

80 Critical Assets, One Integrated View

This operator launched its digital reliability program with UptimeAI covering 80 critical assets. Each compressor train is modeled as a connected system—turbine, gearbox, and compressor in a single view rather than isolated equipment monitors. The company saw ROI quickly and has since expanded: a redesigned alert interface for faster investigation, Seeq integration for cross-team analysis, and SAP integration underway for automated work notifications.

The Catch: Sensor Drift, Not Bearing Degradation

UptimeAI correlated a rising temperature against five stable parameters and pointed to the sensor, not the bearing.



UptimeAI flagged abnormal thrust bearing temperature on a reinjection compressor. The reading had climbed 20°C over several days. Axial position, vibration, speed, inlet flow, and turbine speed all remained normal. The isolated temperature increase with no correlated mechanical or process change pointed to sensor malfunction rather than bearing degradation.

UptimeAI correctly diagnosed RTD element drift due to insulation degradation and recommended the company replace and recalibrate the RTD. Bearing temperature returned to normal levels. No bearing inspection. No rotor cooling. No shutdown. A low cost fix instead of a \$6M event.

Ensuring Asset Reliability For All Assets

Ensured Asset
Availability Above 99%
Contractual Target

Quantifiable Gains

- \$6M in production value protected
- 12-hour forced shutdown avoided
- Availability maintained above 99% contractual target
- 3 reliability-engineer days saved by eliminating unnecessary bearing teardown

Operational Shift

- Trip events investigated by reasoning across the full machine signature, not reacting to individual thresholds
- Sensor health issues separated from equipment health issues before they trigger protective shutdowns
- Reliability engineers focused on actual mechanical risks instead of chasing false thermal events

What's Next?

The operator is expanding UptimeAI across its upstream fleet—applying the same reasoning to compressor trains, turbines, wells, and generators across the portfolio.

About UptimeAI

UptimeAI provides AI reasoning agents that help industrial operations teams make goal-oriented, real-time optimal decisions. Our solutions achieve 90%+ pilot-to-production success rates and are trusted by leading companies in cement, oil & gas, power generation, chemicals, and metals industries. Backed by industry leaders including ABB, Yokogawa, and Mitsubishi.

Learn more: www.uptimeai.com | info@uptimeai.com