

CUSTOMER CASE STUDY

Maximizing LNG Cooldown Operation Efficiency

BKOAI streamlined an LNG cooldown cargo operation by deploying a Seeq dashboard that centralized critical parameters and automated threshold alerts, supporting an efficient cooldown while reducing operational risk

Solution: Seeq Dashboard

Industry: LNG

Use Case Focus: Asset Integrity

GOALS

- Safely cool down LNG cargo piping and tanks from 80°F to -260°F during unloading.
- Mitigate structural failure risks through continuous, automated thermal monitoring.
- Improve remote visibility so engineers and operators can monitor cooldown status from anywhere.
- Reduce the risk of missed threshold exceedances during the cooldown process.

SOLUTIONS

- Deployed a Seeq dashboard for real-time automated thermal monitoring and alerting.
- Tracked pipe parallelization, thermal displacement, and top/bottom temperature delta.
- Monitored tank trending to prevent thermal stratification and rapid rate-of-change issues.
- Integrated manual readings with live PI tag data into a unified dashboard for clearer operational visibility.

CHALLENGES

- Manual tracking of hundreds of temperature relationships increased the risk of human error and missed threshold exceedances.
- Thermal stress, cracking, and stratification threatened piping and tank integrity.
- Fragmented manual readings and live PI tag data made it difficult to maintain a unified view of the cooldown process.
- Rapid temperature changes created a high risk of leaks, cracks, and equipment damage if abnormal conditions were not identified early.

RESULTS

- Enhanced safety and reliability by detecting abnormal thermal behavior early.
- Reduced structural risks, including piping leaks, cracks, and unplanned shutdowns.
- Unified data views by seamlessly integrating manual readings with live PI tag data.
- Enabled remote monitoring through a web-based dashboard, allowing engineers and operators to track cooldown progress from anywhere.

EXECUTIVE SUMMARY

BKOAI streamlined an LNG cooldown cargo operation by deploying a Seeq dashboard that centralized critical parameters and automated threshold alerts. The dashboard continuously monitors thermal behavior during cooldown from 80°F to -260°F, combining manual readings with live PI tag data. By tracking pipe parallelization, thermal displacement, top/bottom temperature delta, tank trending, and rapid rate-of-change issues, the solution supports a more efficient cooldown while reducing risks to piping and tank integrity.

Managing Extreme LNG Cooldown Conditions

During LNG unloading, piping and tanks must cool from 80°F to -260°F. Manual tracking of hundreds of temperature relationships increased the risk of human error and missed threshold exceedances, while thermal stress, cracking, stratification, and rapid temperature changes threatened equipment integrity.

Centralizing Monitoring and Automated Alerts

BKOAI deployed a Seeq dashboard for real-time automated thermal monitoring and alerting. The system tracks pipe parallelization, thermal displacement, top/bottom temperature delta, tank trending, and rapid rate-of-change issues while integrating manual readings with live PI tag data into one unified view.

Improving Safety, Reliability, and Remote Visibility

Early detection of abnormal thermal behavior reduces the risk of piping leaks, cracks, equipment damage, and unplanned shutdowns. The web-based dashboard also enables engineers and operators to monitor cooldown progress remotely from anywhere, improving visibility and response during cargo unloading.