CUSTOMER CASE STUDY

Accelerating LNG Operations Surveillance with Scalable PI AF Templates

Standardizing asset visualization and analytics for rapid multi-train deployment

Solution: PI AF Templates & PI Vision Screens **Industry:** Oil & Gas **Use Case Focus:** Operations Surveillance & Analytics

GOALS

- Deploy operations surveillance screens for a large LNG facility before first LNG introduction.
- Create a reusable, standardized data template hierarchy to streamline future train expansions.
- Provide a consistent PI AF data foundation for both PI Vision operations screens and Seeq analytics.
- Improve operational visibility across distributed facility areas, including the control room, administrative offices, and berths.

CHALLENGES

- Inherited an incomplete PI AF database with missing PI tags and inadequate documentation.
- Faced a compressed 5-6 month timeline after previous contractors failed to deliver.
- Needed to support multiple operational areas and stakeholders while maintaining a unified asset hierarchy.
- Had to incorporate missing PI tags incrementally as they became available in the production PI server.

SOLUTIONS

- Developed PI AF templates based on P&IDs for gas inlets, turbines, and utilities.
- Implemented a 3-tier PI Vision screen hierarchy and added volumetric tank calculations.
- Configured element hierarchies to stream unified asset context to Seeq analytics.
- Added startup-event templates for propane unloading, gas turbine operations, and LNG tank loading and unloading activities.

RESULTS

- Enabled remote operational visibility across control rooms, administrative offices, and berths.
- Reduced future engineering effort through reusable, scalable PI AF asset templates.
- Accelerated anomaly detection using rate-of-change calculations for abnormal conditions.
- Established a standardized PI Vision architecture that can be copied and adapted efficiently for future LNG trains.

EXECUTIVE SUMMARY

When contracted resources failed to deliver a critical operations surveillance system for a major LNG facility, the project faced a compressed five-to-six-month timeline prior to first LNG introduction. The engineering team quickly reworked the incomplete PI AF database, standardizing equipment hierarchies with reusable templates for turbines, gas inlets, and utility systems. By designing a scalable three-tier PI Vision visualization structure and integrating the asset model with Seeq analytics, the team restored operational readiness. This solution delivered immediate remote visibility across the facility and created a highly repeatable deployment framework for future train expansions.

Overcoming Compressed Project Timelines

The LNG facility faced a critical operational risk when previous contractors left the PI Asset Framework (AF) database incomplete, leaving only five to six months before the first LNG introduction. To establish readiness, the technical team initiated a complete database rework, starting with the identification of core piping and instrumentation diagrams (P&IDs). They engineered standardized templates for essential equipment, including gas inlet skids, cold and warm side trains, steam turbines, and utility systems. Missing PI tags were identified and progressively integrated into the production server as they became available, establishing a robust, complete data foundation.

Implementing Multitiered Visualization and Analytics

To maximize usability, the team designed a clean, three-tiered PI Vision screen hierarchy consisting of high-level summaries, detailed area overviews, and full-detail screens. They collaborated closely with operational stakeholders to mimic DCS layouts, allowing engineers and operators to remotely monitor active operations. The team also programmed volumetric calculations for storage tanks, unlocking key data previously isolated inside the control room. Finally, this standardized PI AF asset hierarchy was mapped directly to Seeq, providing a unified, single source of truth that powers both real-time screens and advanced analytical workflows.

Driving Scalability and Long-Term Operational Value

The resulting deployment greatly improved site-wide collaboration by bridging the physical distance between administrative offices, control rooms, and loading berths. Operators can now detect emerging anomalies much earlier using customized rate-of-change calculations. Because the architecture relies on standardized asset context and collections, the configuration remains highly scalable. Future train expansions can copy the existing asset hierarchy and templates directly, saving hundreds of engineering hours. This standardized framework ensures consistent plant context across all monitoring platforms, lowering operational risk and accelerating long-term digital adoption.