



Petromax Refining: 7x Faster CUI Inspections and 37% Savings with ARIX Technologies

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Project Overview

Petromax Refining Company LLC is a Houston-based energy supplier specializing in providing bulk petroleum products, particularly aviation turbine fuel, to the U.S. Department of Defense and other government agencies.

Petromax required a comprehensive Corrosion Under Insulation (CUI) inspection to maintain the integrity of its critical operational assets. Petromax previously relied on established manual inspection methods, which, while effective, required significant time and resources. With an impending turnaround and limited time, they sought a solution that could enhance efficiency without compromising accuracy.

Client Challenges

Petromax faced several obstacles in their traditional CUI inspection process. The timeline of previously used methods risked extending their scheduled turnaround, which in turn had subsequent effects on their production timelines and operational risks. Limited inspection coverage left critical areas unchecked, further complicating the reliability of inspection outcomes.

Additionally, safety concerns and high costs associated with manual inspections, such as the need for scaffolding and extended labor, highlighted some challenges of conventional approaches. Recognizing these limitations, Petromax sought a solution that would provide comprehensive inspection coverage, enhance data accuracy, reduce safety risks, and streamline the overall inspection process.

- ❖ **Time Constraints:** Previous inspections spanned several months, with the potential to delay turnaround schedules and increase the risk of operational delays.
- ❖ **Limited Inspection Coverage:** Traditional methods only allowed for partial coverage, leaving potential blind spots in critical areas.





- ❖ **Safety & Cost Concerns:** Manual inspections often require temporary scaffolding and additional labor, often resulting in prolonged exposure to hazardous environments.
- ❖ **Previous Inspection Approaches:** While traditional inspection methods provided valuable insights, Petromax recognized the opportunity to further optimize efficiency, enhance inspection data, and improve reporting transparency with a more advanced solution.

The Solution

ARIX Technologies provided a robotic-enabled CUI inspection service, an innovative approach that enhances speed, safety, and comprehensiveness while complementing traditional inspection methods. The advanced robotics solution performed full coverage scans of various pipelines and critical pipe circuits without the need for scaffolding or rope access crews.

Key Features of ARIX's Robotic Inspection Solutions

- ❖ **Full-Coverage Pipe Inspections:** Delivered **360° complete assessments** of the target assets, eliminating blind spots associated with traditional spot checking.
- ❖ **Significant Time Savings:** Reduced inspection timelines from approximately **10 months to just 39 days** (<2 months).
- ❖ **Cost Efficiency:** Lowered costs by streamlining labor requirements, reducing scaffolding needs, and optimizing workforce deployment.
- ❖ **Advanced Data Insights:** Provided comprehensive digital reports with enhanced visibility into asset conditions.
- ❖ **Minimal Disruption:** Enabled accurate assessments without interfering with ongoing plant operations.

Key Outcomes

- ❖ **Time Reduction:** Completed work **7x faster**, allowing Petromax to complete inspections more quickly than prior methods permitted, helping them meet operational deadlines more efficiently.



- ❖ **Cost Savings:** Overall *inspection savings were 37%*, leading to significant financial benefits.
- ❖ **Improved Accuracy:** Achieved superior inspection coverage with higher-quality data output for predictive maintenance.
- ❖ **Operational Impact:** Helped Petromax maintain its turnaround schedule without delays.
- ❖ **Client Satisfaction:** Petromax praised ARIX's efficiency and stated they would continue working with the company for future inspections.

Data Quality Enhancements

- ❖ Delivered **85%+ inspection coverage**, surpassing traditional spot-checking methods.
- ❖ Integrated data seamlessly through ARIX's advanced inspection portal, offering accurate reviews to inspection results.
- ❖ Eliminated human error with automated data collection and ensured reliable, repeatable accuracy.

Safety Improvements

- ❖ Maintained a **0 TRIR (Total Recordable Incident Rate)**, underscoring ARIX's commitment to safety.
- ❖ Minimized time spent working at heights and reduced the number of on-site personnel, mitigating risks significantly.

CLIENT QUOTE

"The ARIX team exceeded our expectations. They delivered a fast, efficient, and highly accurate inspection, allowing us to stay on schedule without compromising safety or quality. We'll definitely be working with them again in the future."

– Toby Mares

Maintenance Manager at Petromax Refining



Petromax's Perspective

By leveraging ARIX Technologies' robotic CUI inspection, Petromax was able to achieve superior efficiency, cost savings, and overall safety improvements. The results reinforced ARIX's value proposition in the industry, demonstrating how advanced robotics and data analytics can complement and enhance traditional inspection approaches.

