



Refractory Turnaround Inspections: Driving Value from Digitization & Predictive Analysis with AssetCORE

AT A GLANCE

Customer: Supermajor Oil and Gas Company

Product Used: AssetCORE

SUMMARY

By implementing tailored digital workflows in AssetCORE, this supermajor oil and gas company was able to reduce time spent on refractory inspections during turnarounds by 50%, saving millions of dollars in the first four deployments. These savings were facilitated by the digital refractory inspection workflow, which allows for the intuitive capture of almost unlimited visual data and automated assessments via checklist cross-checks against the company's own internal standards.

CHALLENGES

Turnarounds make time a priceless commodity. Often refractory units are on a six-year cycle, so there is little room for delays. Teams of inspection specialists must work in tight and confined spaces. The inspectors must be able to quickly and accurately document anomalies observed and quantify the degradation for repair. Repair teams take the inspection report and begin the repairs as quickly as possible. All work to remediate defects must be recorded and documented. Due to efficiency limitations with the collection and reporting process, legacy refractory inspection reports contained limited data—often with only a few pictures— which was not enough information for engineers to decisively assess risks resulting in inspection recycle. Insufficient report data could lead to excess repairs.

THE SOLUTION: ASSETCORE

The refractory principal engineer oversaw the digitization of the refractory inspection process and engaged with the AssetCORE team. It was clear that digitization would lead to higher efficiencies, improved record keeping and a fast efficient flow of information to relevant parties. Consequently, it was decided to run a pilot project at one European refinery location.

AssetCORE's developers, working closely with the refractory team, helped create the digital refractory workflow. The digital checklists can capture valuable imagery and critical measurements, perform calculations and return results - all during the inspection, quickly and easily. These measurements are checked against the company's own set of internal standards, eliminating guesswork on assessment findings and providing efficiency gains.



The ease of use of the AssetCORE platform drove the rapid adoption. The comprehensive AssetCORE platform includes a mobile app for field use and a cloud-based desktop application for ease-of-use in the office. Downloading the app from the app store has made the adoption process fast. Once installed, the app is intuitive and easy to learn and use. The AssetCORE app allows teams to easily mark up images to ensure anomalies are clearly and correctly communicated to repair teams. Furthermore, AssetCORE makes reporting almost instantaneous, ensuring repair teams can begin work without delay. The platform is also easy to use and allows contractors and SMEs to effectively use the features almost instantly.

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The screenshot displays the 'Alpha Refinery (Site)' interface in the AssetCore software. A large blue hexagonal overlay in the upper right corner contains the text '50% TAR TIME SAVINGS WITH ASSETCORE'. The interface is divided into several sections: a top navigation bar with tabs like 'OVERVIEW', 'RELATED PROJECTS', 'FINANCING', 'RELATED ASSETS', 'LIBRARY', 'NOTES', and 'FORMS'; a left sidebar with navigation options like 'Assets', 'Findings', 'Tasks', 'Libraries', 'Asset Management', 'Assets', 'Data', 'Composites', 'Schedules', 'User Management', and 'Workspaces'; and a main content area. The 'Related Projects' section is active, showing a table of projects with columns for Name, Parent, Priority, Type, Asset, Owner, Management Company, Labels, Status, Asset Condition, Work Done (%), Start Date, End Date, and Updated. Below this, the 'Findings' section is visible, showing a table of findings with columns for ID, Asset Path, Project, Component, Location Date, Location Code, Account, Gas Price, Severity, Type, Sub Type, Thumbnail, Labels, Priority, Asset By, Next Inspection, and Defined On. The interface is clean and professional, with a dark blue header and a light gray background.



THE RESULTS

The first test of the digital refractory inspection workflow was at a single European site. Overall, the workflow decreased the inspection and report writing time by 50%. This time savings continued the next three U.S. plants in the first quarter of 2023, and adoption is projected to increase as word spreads.

**"IT'S UNBELIEVABLE! INSPECTIONS WERE ALMOST COMING IN FASTER
THAN I COULD GET THEM REVIEWED AND BACK OUT TO THE TEAM."
- DIGITAL REFRACTORY PRINCIPAL ENGINEER**

A major factor is the faster report writing and processing of refractory inspection reports. The system reduced typical time from 48 to 24 hours or less.

The benefits can be applied to nearly any kind of checklist-based inspection. The lead for implementation on the project utilized AssetCORE as both a tool to complete inspections and a training system as well, and the AssetCORE platform enabled inspectors to directly upload a variety of media directly into the report (photos/audio/videos) and manage these files easily.

One inspection saved tens of thousands of dollars because more pictures made the assessments more accurate and eliminated work that would have otherwise been executed.

Ultimately, the supermajor oil and gas company saved millions across several sites in the first three full deployments in just one quarter (not counting the European pilot).

The techniques and workflows created to successfully roll out digital inspections in AssetCORE have had a wider effect than just refractory. These inspections also hold potential with routine Fired equipment inspections. Fired equipment engineers use similar techniques on a monthly basis. The ability to do calculations within the checklist delivers insight nearly in real-time and makes the digital inspection workflow even more powerful.

WANT TO LEARN HOW ASSETCORE CAN SPEED UP YOUR NEXT TURNAROUND?

AssetCORE replaces paper, spreadsheets and disconnected files with digital inspection workflows built around your own standards. Capture more data in the field, get reports to repair teams almost instantly, and give engineers the information they need to make confident decisions during a turnaround.

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