

Name of Innovation: Application Joint Inspection

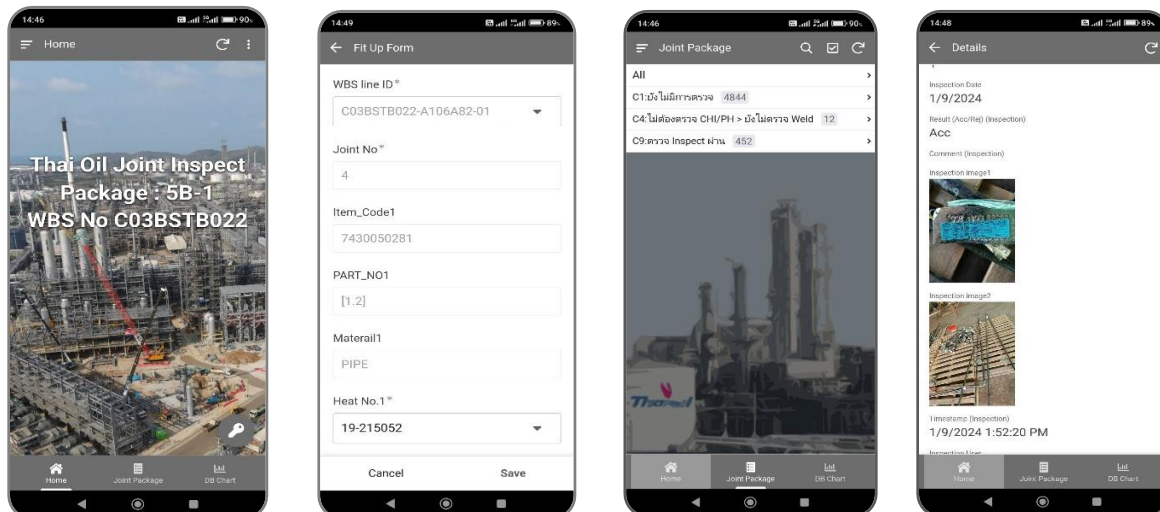
Implementation Date: February 15, 2023

Principles and Concept

Application Joint Inspection has been developed for pipe welding inspection, covering key processes such as assembly, material verification (Heat No.), Preheat procedures, welding, and welding wire issuance control. This application ensures data accuracy by filtering and organizing information according to the project specifications. It enables the identification of essential details, including:

- The material type and size of the inspected joint
- The required Welding Procedure Specification (WPS)
- Authorized personnel for welding tasks
- The quantity of welding wire issued and returned
- Verification of pipe thickness to determine if Preheat is required
- The positioning of the pipe within the blueprint

By implementing this application, the complexity of inspection and record-keeping is significantly reduced, making the process more convenient and accurate. The system pre-filters correct data based on specifications, minimizing the risk of errors and reducing the time required for data recording. Previously, inspections relied on attached documents and summarized specifications for every joint, which increased the likelihood of mistakes and consumed considerable time.





Request Welding Consumable



Fit-Up Inspection



Input Fit-up Data



Weld Inspection



Input Weld Data



Final Inspection

Benefits from Innovation development: Application Joint Inspection

1. Reduction in Inspector Working Time: The inspection time per joint has been reduced from 5 minutes to 3 minutes, resulting in a total time savings of 6 hours and 34 minutes per day (calculated based on an average of 188 joints inspected per day).
2. Reduction in Key Operator Data Entry Time: The data entry time has been reduced from 9 hours and 6 minutes per day (calculated based on an average of 188 joints inspected per day) to just 30 minutes per day.
3. Reduction in Daily Welding Report Submission Time: Previously, the submission process took approximately 15 minutes per day (depending on distance, based on the Thai Oil project), but it has now been transformed into a real-time system.
4. Minimized Risk of Data Errors or Loss: The system verifies data accuracy before recording, reducing the likelihood of errors. All information is stored digitally, preventing data loss.
5. Enhanced On-Site Work Flexibility: The application can be used via smartphones, eliminating the need for extensive paperwork.
6. Support for Retrospective Inspections: Users can review past inspection records, including dates, times, responsible personnel, and inspection details.
7. Support for Digital Data Export: The system allows data to be exported as a database, enabling seamless integration with other software applications.

| <u>Reduction in Paper Costs</u> | <u>Reduction in Working Time</u> |
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| <ul style="list-style-type: none"> • Reduced paper usage by 22,126 sheets per year • Saved paper costs of 6,637 THB per year | <ul style="list-style-type: none"> • Reduce the inspection time for inspectors from 5 minutes per joint to 3 minutes per joint. • Improve the recording process for key operators, reducing working time from 9 hours and 6 minutes per day to only 30 minutes per day |
| <p>** Note: The average is calculated based on the number of joints to be inspected per day, which is 188 joints. **</p> | |

Photograph of the kickoff ceremony for the implementation of the innovative Joint

Inspection Application

