Changing the Definition of Unpiggable: A Case Study with APA Group on the Inspection of an "Unpiggable" Critical Natural Gas Pipeline and Avoiding Shutdown by Launching via Hot Tap - An Australian First

Across the globe, there are many pipelines that prove difficult to inspect using traditional methods. Whether the pipeline infrastructure has challenging features, impassable components, or little- to no-flow, these lines have been considered impractical or simply impossible to inspect … Until now.

History

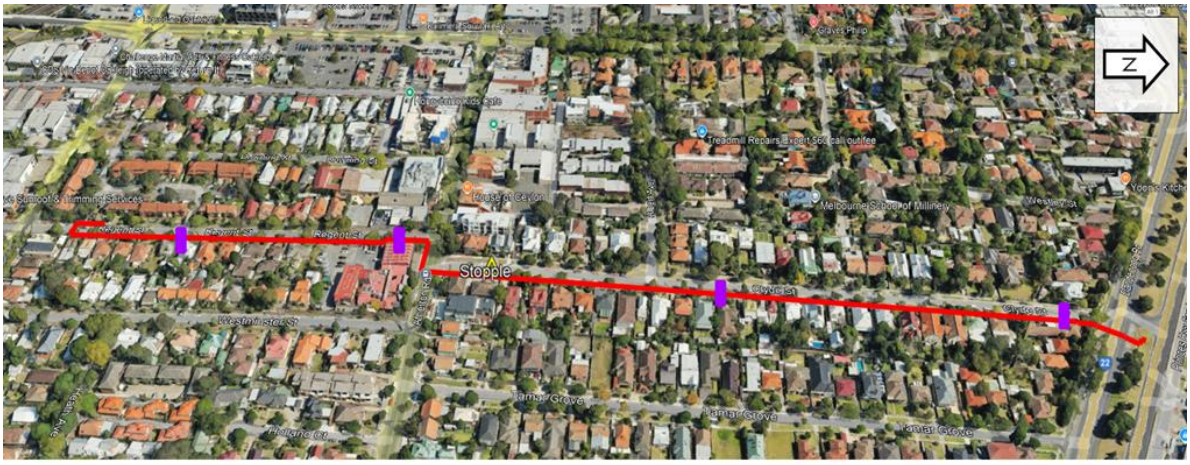
The 8" T15 pipeline in the Oakleigh suburb of Melbourne is critical for local gas distribution within the community; however, due to the lack of a launcher/receiver and other challenging features, the T15 pipeline had never been inspected. In 2016, APA Group began a search for technology to assess the integrity of the T15 pipeline to ensure continued safe operation and, after contacting numerous service companies, APA came across the Pipe Explorer MFL Robot. At the time, however, the technology was not available in Australia until sometime in 2021. In March 2024, APA and Intero commenced investigating the technology as a potential solution for the T15 Pipeline and reached technical approval in October 2024. Following detailed site visits, technical workshops, and project planning, in February 2025 the T15 pipeline was successfully inspected for the first time.

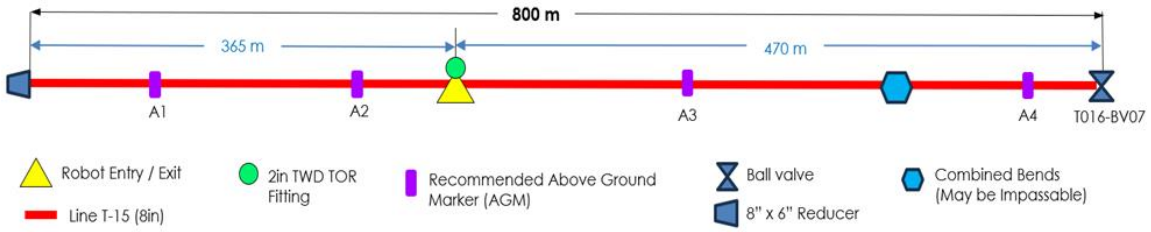
Technology

Since 2010, Intero Integrity has been mitigating the challenges of traditional pigging by utilizing their fleet of tetherless robotic crawlers known as Pipe Explorer MFL Robots. Ranging from 6 to 36 inch in diameter, these robots perform Magnetic Flux Leakage (MFL) sensing, Laser Deformation Sensing (LDS), and video inspection on challenging-to-inspect pipelines either in- or out-of-service. For in-service inspection, Pipe Explorer MFL Robots do not require permanent launchers and receivers to be installed on the pipeline. Instead, the robots launch through size-on-size hot tap fittings.

Inspection

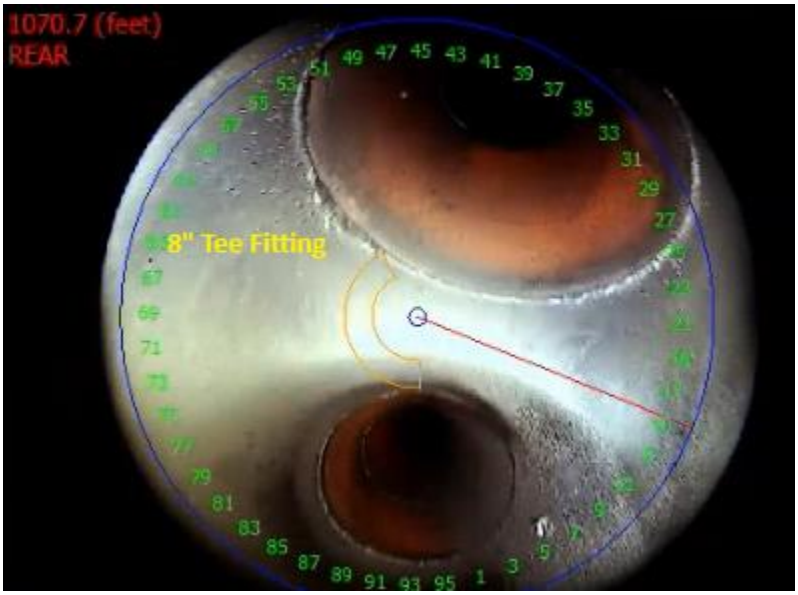
For the T15 inspection in Oakleigh, the Pipe Explorer entered and exited via a single Hot Tap entry. The scope of the inspection covered two segments, totaling 800m across two days of inspection, during Australia's summer period of low gas demand. The time zone difference between Melbourne and Toronto enabled real-time overnight coverage evaluation, allowing APA to approve DQA reports before the start the next day's work. The project unfolded seamlessly, with APA's leadership and technical teams actively engaged on-site throughout the process.





Results

APA was successful in inspecting 684m of the planned 800m of the Oakleigh pipeline and was able to collect high quality MFL, Laser Deformation, and video data with over 99% coverage. The live video streaming allowed APA to make real-time operational decisions such as deciding to continue the inspection of the branch when an expected 90-degree bend unexpectedly turned out to be an unbarred tee which, ultimately, allowed for the complete segment to be inspected.



Conclusion

With the successful completion of this once perceived unpiggable pipeline APA and Intero have pushed the boundaries in Australia of the definition of “unpiggable pipelines”.