Power Plant Upgrade

With EdgeWise Plant 2.0 Stantec Reduces Modeling Time by more than 50% in Complex Coal Plant Upgrade

Goal: Deliver accurate, as-built CAD model of a 14 story coal plant on a very tight deadline

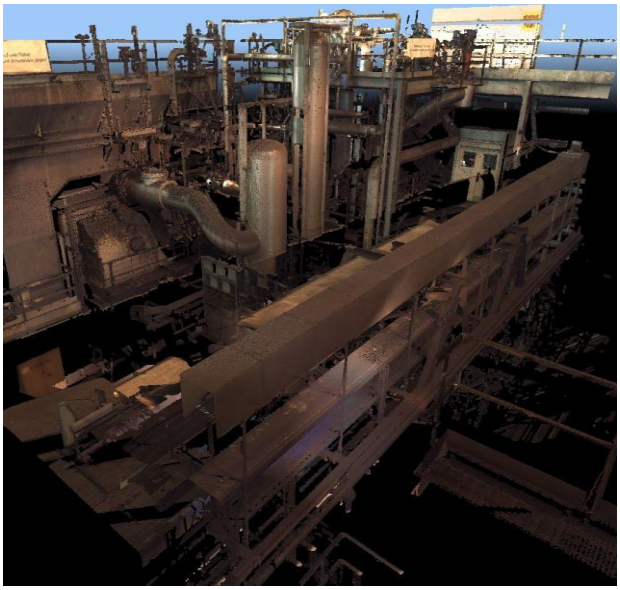
EdgeWise Benefits:
Reduced modeling man-hours by more than 50% and allowed Stantec to meet the client deadline

Hardware/Software Used

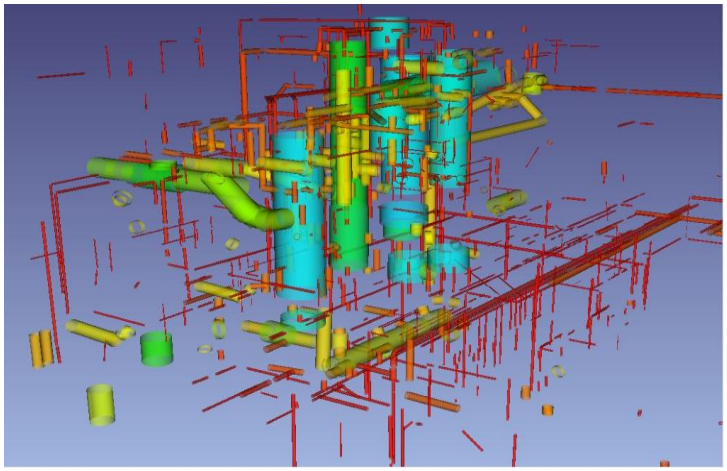
- 2 Faro Photon 120 laser scanners
- EdgeWise Plant 2.0
- AutoCAD

Overview: Stantec was recently involved in a large upgrade to an existing coal burning power plant in Saskatchewan, Canada in which laser scanning was used to generate an accurate 3D as-built of the existing conditions.

A 3D CAD model primarily of piping, tanks and structural steel was required as an end deliverable so Stantec chose to use Edgewise Plant in several heavily congested areas to automatically extract 3D piping and other cylindrical features from the point cloud.



Field Work: Two FARO Photon 120 laser scanners were utilized on the project over a course of 2 weeks to scan the fourteen floor coal power facility. In order to bring survey control throughout the facility a Trimble S6 robotic total station was utilized along with a Leica Lino laser plumb instrument. It was a challenging task due to the heavily congested areas, heavy equipment and multiple floors on the facility.



Modeling: The scan data was registered using the Faro Scene software then imported into the Leica Cyclone software for further processing. Edgewise Plant was used in many of the heavily congested areas of the power facility due to its automated pipe modeling capabilities. The registered Faro FLS files were read and processed directly into Edgewise Plant, one of the great benefits of the software.

The area in this example was comprised of 22 individual overlapping scans with many individual pipe-runs and metal railings. With the new mega batch processing capabilities, Edgewise Plant was able to automatically process and extract cylinders from the 22 scan files in just over one hour with minimal user interaction. Edgewise Plant automatically detected over 2000 individual cylinders from the scan data, which was then merged in Edgewise using the built in cylinder cleaning tools. In addition to the cylinder extraction, Edgewise Plant was used to extend and connect pipe runs as well as add elbow

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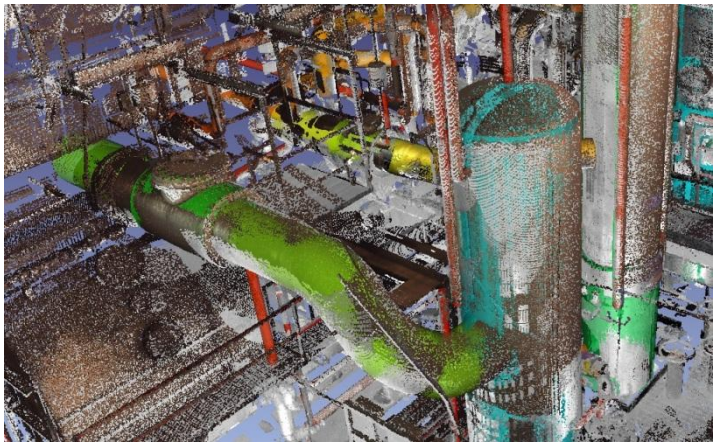


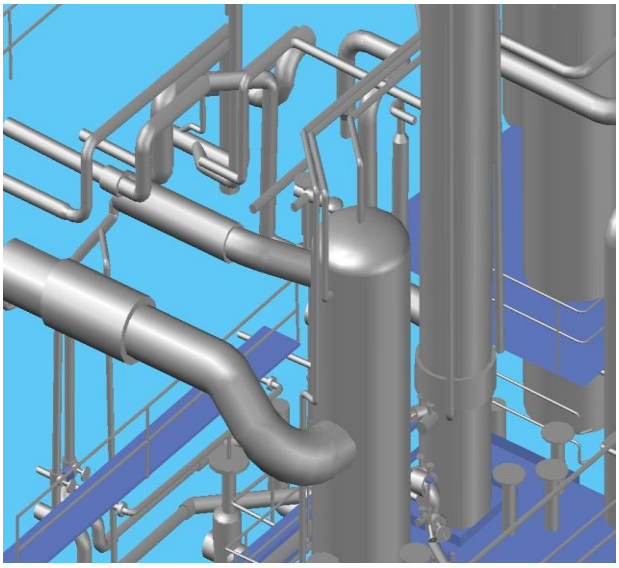
Bottom Line:
Edgewise Plant 2.0 allowed Stantec to decrease the amount of man hours during the 3D modeling process by utilizing the software and computer processing power to complete the automated extraction. After Edgewise Plant completed the automated extraction, the 3D modeling team took on more of a quality assurance role within the project ensuring the completeness of the final model. Edgewise Plant has proven to be a valuable tool allowing Stantec to continue to be one of the leaders in laser scan processing and 3D deliverables.

Company Profile: Founded in 1954, Stantec provides professional consulting services in planning, engineering, geomatics, architecture, environmental and project management for infrastructure and facilities projects. Stantec utilizes phase-based and time of flight laser scanning instruments on industrial, transportation and architectural projects, providing clients with a diverse offering of 3D laser scanning and modeling services.

connections directly inside the software using its finishing tools. The cylinders and elbows were then exported to Leica Cyclone for further modeling using the COE (Cyclone Object Exchange) export functionality inside of Edgewise Plant for a seamless exchange between the software products.

Edgewise Plant allowed Stantec to reduce modeling time by over 50% in these congested areas due to the automated cylinder extraction and batch processing in its latest 2.0 version. Much of the redundant pipe modeling was eliminated by using Edgewise Plant allowing for a quicker turnaround of the final deliverable to the client.

At the end of the project it was determined that Edgewise Plant 2.0 is not only beneficial in congested areas but within an entire project. The batch processing capabilities allows for fast automated cylinder modeling in both congested and wide-open areas so future projects will use Edgewise Plant throughout.



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