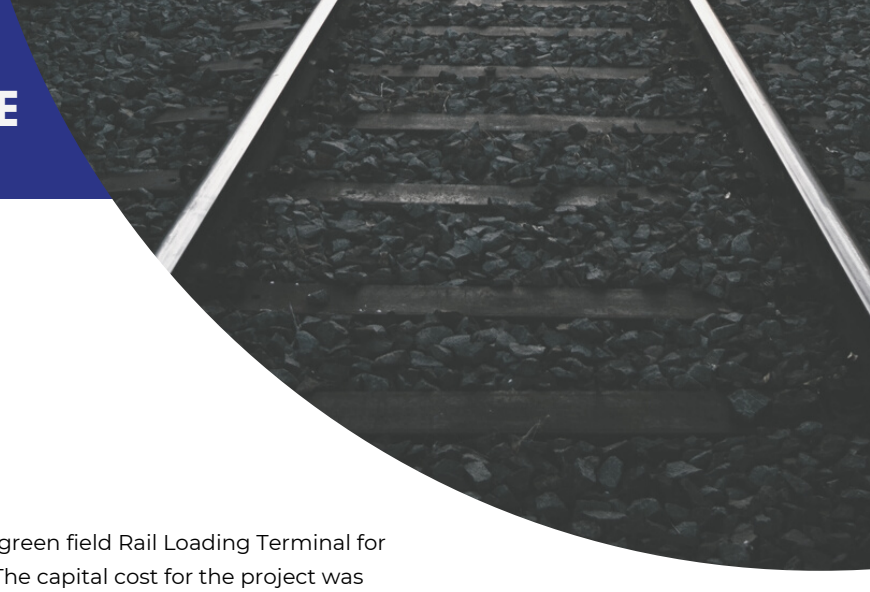
POINT VERGE

PROJECT SHOWCASE



RAIL TERMINAL PROJECT

Overview

This project consisted of the design and construction of a large green field Rail Loading Terminal for propane and butane in the Fort Saskatchewan area of Alberta. The capital cost for the project was $120M. The EPC company responsible for the engineering and design on the project decided to use PointVerge™ (PVL) services for the Materials Management. They were interested to see the results of managing materials using the approach offered by PVL.

Material Management Processes

Materials Execution Plan (MEP) Roles: PVL provided the roles of Materials Management Coordinator (MMC), Cad specifications and parts number database, and QuBR™ report administration. In these roles, PVL worked with the EPC design team, a PVF supplier, and a mechanical contractor to manage the materials throughout the project and to answer any materials requests or questions.

CAD Specifications and Part Numbers: The mechanical piping specifications were received from the client and built into the Cad program database for use by the designers. This was the task of the PVL Cad support individual assigned to the project.
A database consisting of a complete set of individual part numbers designed by PointVerge™ were added to the specifications catalog library and assigned to the Cad specs. The part numbers were designed to allow for pricing information to be referenced in the BOMs being generated throughout the project.

QuBR™ Project Set Up: A project specific account in QuBR™ was configured by PVL for the management of all BOM data exported from the 3D models throughout the project. A set of custom reports were added to the account in preparation for materials control and tracking. These included reports for Quotation Requisitions, Purchasing, Factored Weld Diameter Inches, Insulation & Tracing, Valves, Line Fill Volumes, etc. The reports were designed to support the various individual team members requirements.

Model Management Set Up: A set of 3D Piping Model Collector files were created at the beginning of the detail design phase. These files contained all piping models attached as reference files and were used for the exporting of BOM files during the project. The site was divided into 5 individual areas for construction purposes, and the collector files were created based on each area. This allowed for materials to be quickly identified and monitored based on their specific location and construction schedule and the associated BOM export.

3D Model Auditing: A procedure of exporting BOMs from the 3D collector models was performed daily by the Materials Management Coordinator and uploaded to the QuBR™ project account. The MMC then used QuBR™ to download various detailed reports of pipe, valves, and fittings for use in verifying their compliance to the mechanical piping specifications. At the same time, the part numbers were also checked for accuracy to the Part Numbers database.

Any items found to be problematic and required fixing in the models were gathered into Model Material Update (MMU) reports. These reports were then given to the design lead on the team for distribution to the responsible designers. Any problems identified at the spec level were also sent to the design lead, Cad support, and engineering leads for resolution. The intent was to have materials checked at the design level, instead of being reviewed at the procurement and fabrication levels. This procedure ensured that materials in the 3D models were accurate well in advance of being requested for purchase and fabrication.

BOM PO Reports: As detailed engineering design progressed and reached the stage of material purchase orders being required, the EPC Procurement Lead sent the request to the MMC. The purchasing reports were generated by the MMC and split up by pipe, fittings, valves, studs & nuts, piping supports and was used as Rev 0 for the first purchase order issued by the client. The materials had already been checked during the ongoing auditing process and only a quick spot check was done by the purchasing lead. The BOM was filed by document control and sent to the client's lead purchaser for the creation of the first Purchase Order in their custom system.

Material Management Processes

The client purchaser returned the PO document to the EPC Procurement Lead, who then provided a copy to the MMC. The PO was filed in the materials management section of the project folders to be referenced when required during the project. The PO was sent to the PVF vendor in preparation for materials shipping.

BOM PO Top-Up Reports: At various progress points during the project, updated BOMs were required to ensure all required materials were continually being purchased and delivered for construction. This required an updated BOM to be exported from the 3D models and a delta report generated to compare the latest materials with the previous purchase order. These reports were considered Top Up lists and were generated a number of times throughout the project. QuBR™ and its ability to run a comparison across two separate BOM files is unique to the software and was integral to this process in the MEP. The software was used to run the Top UP reports which were then sent to the PVF vendor to be filled and delivered to the construction companies preferred location.

Material RFIs: There were only 6 RFIs due to problematic materials. They were all associated with 2" piping changes. Using the MEP procedures ensured the materials were verified for specification compliance and quantities before supplying construction. RFI's were limited.

Results

- This project was one of the first large projects where PointVerge™ provided Materials Management services.
- With the use of Materials Execution Plan procedures and QuBR™ software, the flow of materials throughout the supply chain proved to be very effective.
- All members involved extended their satisfaction with this new method of bringing all parties together from the start of a project to ensure materials flowed seamlessly from design, through procurement, and construction, and the client was very satisfied with the results of the entire process.