



FACTS AT A GLANCE

Company: Hood Group, JV Driver, PCL

Web sites: www.hoodgroup.ca,
www.jvdriver.com, www.pcl.com

Description: The oil sands of the McMurray Formation in northern Alberta include the Athabasca, Peace River, and Cold Lake deposits containing 1.7 trillion barrels (270×10⁹ m³) of bitumen in-place, comparable to the world's total proven reserves of conventional petroleum. Calgary is the center for design and project management, and Edmonton the center of most fabrication and off-site construction. Hood Group, JV Driver, and PCL create isometric piping drawings and other deliverables for clients involved in the design, engineering, fabrication, and construction of these production facilities in this remote, extreme environment.

Industry: Energy

Country: Canada

PRODUCTS USED

- SmartPlant® Spoolgen®
- I-Tools®

KEY BENEFITS

- Fast start up and deliverables
- Immediate and improved productivity (by tenfold)
- Greater accuracy, consistency and document control
- Easy compatibility with enterprise and design software
- Reduced data-entry time (by 95 percent)

HOOD GROUP, JV DRIVER, AND PCL AUTOMATE FABRICATION DELIVERABLES WITH INTERGRAPH® SMARTPLANT® SPOOLGEN®

Firms Report Quality and Productivity Improvements While Creating Isometric Drawings and Other Deliverables

IDENTIFYING GOALS

Engineering and construction firms tasked with designing and building large, complex projects face challenges when it comes to developing the numerous drawings, bills of material, material requisitions, and other deliverables required to fabricate and build such facilities. This is especially true when the facilities are in remote, extreme environments, and these firms must perform the fabrication elsewhere to minimize site-based activities. Such is the case in Alberta, Canada, home of the second-largest, proven concentration of oil in the world, most of which is in the McMurray Formation oil sands deposits, a mixture of crude bitumen (a semi-solid form of crude oil), silica sand, clay minerals, and water. The technology for extraction of oil involves large-scale, energy-intensive processing of the deposits, typically by the injection of steam, separation of the oil, and processing of waste. Since 2002, companies have invested US\$150 billion to recover oil from these Alberta oil sands.

Calgary is the center for design engineering and project management, while Edmonton, further north and closer to the oil sands deposits, is the site of most fabrication and off-site construction. They ship the pre-fabricated modules by road for assembly at the production plants. Hood Group, JV Driver, and PCL have been at the forefront in supporting these efforts.

OVERCOMING CHALLENGES

- Link project management with design, fabrication and construction performed at different sites
- Produce accurate fabrication drawings from original design with no redrafting
- Speed the production and delivery of fabrication deliverables
- Optimize workflow from engineering and design through fabrication and construction

REALIZING RESULTS

Hood Group, JV Driver, and PCL have achieved success using Intergraph® SmartPlant® Spoolgen® for the creation of isometric drawings, bills of material, material specifications and other deliverables required for the fabrication of modules that compose

these production plants. Based on ISOGEN®, the industry-standard software for automating piping isometric generation, Spoolgen enables Hood Group, JV Driver, and PCL to simply add information to the original design data to create new fabrication deliverables.

The companies selected SmartPlant Spoolgen based on its ability to integrate with their existing in house systems, allowing them to develop their own customized workflows and provide cost savings and efficiencies to their customers. Another key factor was the software's compatibility with all the leading plant design systems, including Intergraph's SmartPlant 3D, PDS®, and CADWorx®; AVEVA PDMS; and Bentley AutoPLANT and PlantSpace.

Hood Group, JV Driver, and PCL have found SmartPlant Spoolgen well-suited for large, demanding projects at Alberta Oil Sands, including projects such as the \$963 million Syncrude UE-1 Project and the \$590 million CNRL Horizon Project in Fort McMurray, and the \$500 million Scotford Upgrader Expansion 1 Project in Fort Saskatchewan, a joint venture among Shell Canada, Chevron Canada, and Marathon Oil Sands. The software not only automates and speeds up time-consuming tasks, but also reduces errors and ensures consistency of deliverables at each phase of the process, from design and engineering through fabrication, construction, and assembly.

Compared to manual drafting, they report:

- A 95 percent reduction of data-entry time
- Tenfold improvement in productivity
- Elimination of most drafting errors and rework
- Production of consistent quality drawings

This improves productivity in the fabrication workshop, eliminates waste and surplus material, and ensures the right modules get to the construction site at the right time and with the correct erection materials, which in turn benefits the owners; engineering, procurement, and construction firms; and fabricators.

MOVING FORWARD

According to the U.S. Department of Energy, world energy consumption will increase by 44 percent between 2006 and 2030. These vast reserves in the Alberta Oil Sands will be an important resource in meeting this demand. Hood Group, JV Driver and PCL will continue to leverage Intergraph SmartPlant Spoolgen to provide their clients with the required fabrication drawings and other deliverables with speed and accuracy.

ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph's industry-specific software to organize vast amounts of data into understandable visual representations and actionable intelligence. Intergraph's software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph

PP&M provides enterprise engineering software for the design, construction, and operation of plants, ships, and offshore facilities. Intergraph SG&I provides geospatially powered solutions to the defense and intelligence, public safety and security, government, transportation, photogrammetry, utilities, and communications industries.

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