



PIPELINES

Above The Fray

Elevated oil and gas transportation solution offers environmental advantages

ENVIRONMENTAL CONCERNS regarding the safe transport of oil in North America is dominating headlines. Protesters have lined up against the Keystone XL pipeline designed to take Canadian barrels south, while the Northern Gateway project, which would see oil sent by pipeline to the B.C. coast and hence by ocean-going tankers to Asian markets, has also drawn the ire of environmentalists and First Nations opposition. For the industry, easing the public's concerns is critical to any project's future success.

To help allay similar environmental concerns, California-based CivTek International has offered to introduce environmentally enhanced oil pipeline and bulk freight rail and passenger service in what's called Sustainable Transportation Solutions (STS). The elevated transportation solution consists of an enhanced set of patented and intellectually protected transportation technologies. CivTek touts minimal environmental impact with a minimal ground footprint analogous to high voltage cross-country transmission lines.

CivTek International calls itself an infrastructure solutions, program management and multi-disciplined life-cycle integrator. It focuses on core industries and infrastructure related to energy, water, air, agriculture, transportation, waste management and ancillary technologies. As one element of its core competencies, CivTek is the strategic alliance partner of STS in the Americas and Turkey.

STS enhances environmental performance in part by not building roadbeds and costly earthworks that can cause scars on the land. Because it is above grade, STS eliminates costly culverts, drainage and earthwork while increasing safety. Due to separated grade elevated construction, it eliminates hazardous traffic conflicts around

mines and within urban settings and dangers to wildlife in rural areas. STS also decouples pipeline product from underground aquifers. And because these systems were originally designed for remote arctic conditions, STS can safely operate 365 days each year in all types of weather.

For initial installation of STS, any number of a combination of equipment to access the site can be used, such as helicopters, air ships, ice roads or other wintertime low tire pressure tundra vehicles, if work is being done in the Arctic, for example.

Intermediate columns or pylons are placed every few hundred feet and an efficient, patented tension structure is erected and supported by the pylons. These systems come in a variety of configurations, depending on local needs.

"The point that I would like to emphasize, from a sustainability aspect, is to construct the facility in a manner that offers minimal environmental footprint," says Thomas Young, PE president and chief executive officer of CivTek. "Immediate benefits [are that] STS eliminates most earthwork and drainage. It allows for free migration of animals. STS eliminates the need to construct and maintain costly haul roads. STS eliminates access to remote regions that ground-based haul roads provide to joy riders."

After several years of unsuccessful attempts with conventional rail, an STS EcoFreighter is now under design to be constructed in India for Jindal Steel & Power Limited. Feasibility and engineering works have commenced that will identify which components of the system JSPL will manufacture for the system. Design and construction of the system will begin in 2013 and 2014, respectively. Other projects are in the planning stage in Western Australia and Asia for the

TAKING TO THE AIR

Capable of combining rail and pipeline infrastructure, CivTek's elevated transportation solution offers an alternative to conventional oil and gas transport over challenging terrain and onto ocean-going tankers.

mining industry, in Southeast Asia and Turkey for passenger systems, and in the United States for port, harbour and passenger solutions.

The development of the technology has progressed substantially since a test track was built in 2001. In close consultation with the mining industry, the current systems have been developed to meet the biggest challenges facing mining project owners as they move into production, the company says.

CivTek was invited to speak at a Canadian Energy Research Institute conference in Calgary earlier this year, where Young presented CivTek's pipeline, harbour and port, bulk freight and passenger STS solutions to the Canadian marketplace.

STS transport and track structure engineers have progressively developed patentable solutions that deliver a transport system that adds the freedom of mobility of a conventional road to be applied to the STS railway. Improved cornering around a smaller 50-metre radius opens up new and shorter corridor options and the company's intelligent weight transfer system of its "bogie" design allows it to take on inclines of up to 10 per cent, enabling STS to travel over mountains rather than expensively cut through them.

The STS system can be built out to deep water to load and offload bulk ships, eliminating the construction of costly shore-based port facilities or dredging near shore. In terms of a pipeline system, the added rail system allows for easier access for maintenance, Young says.

"We combine rail access on top of the pipeline for the purposes of maintaining that pipeline," he notes. "In Canada, I think what would be most attractive initially in bridge crossings, ultimately to building out complete pipeline systems.

"Once the community sees the success with the bridge crossings, then I think they would be interested in using the systems for applications throughout the total length of a pipeline project, particularly as you move farther north and get into unstable muskeg and permafrost-type conditions. STS will perform particularly well in Arctic conditions.

"For pipelines, CivTek systems reach very large span lengths. STS achieves faster construction with pre-fabricated sections."

STS can also incorporate an apron underneath to capture any possible leaks. ■

Richard Macedo

CONTACT FOR MORE INFORMATION

Thomas Young, CivTek International
Tel: 916-869-4097
Email: tyoung@civtek.com