



Marc LaBerge (left) is helping Devon Canada develop greener technologies for pipeline construction.

Photo: Devon Canada

# Smaller shoes

New pipeline trenching and wellsite road building practices reduce Devon's surface impacts  
by R.P. Stastny

In the world's second-biggest country, you'd think a 15-metre swath of pipeline right-of-way or a 20-metre-wide wellsite access road wouldn't be a big deal. And over the course of the last half a century, maybe it wasn't.

But as Bob Dylan so eloquently put it, the times they are a-changin', and with the wider adoption of low-till or no-till agricultural practices, farmers are less tolerant of sunken trenches (as unconsolidated dirt over a pipeline compacts over time). They also increasingly resent the inefficiency of having to work around freshly laid pipes, the lost productivity typically associated with pipeline right-of-ways in the first year and, at times, having to deal with other lingering topsoil issues.

So regulators hear about these problems.

Companies end up making costly amends.

And in turn, people like Devon Canada's Marc LaBerge and Kevin Stark ponder ways to reduce surface impacts. At stake, after all, is the much larger issue of access to land.

A new Devon initiative called Innovative Pipelining Strategies was born of a collaborative effort involving producers, contractors, inventors, landowners, and regulators. This strategy reduces right-of-way impacts by about 50 per cent and has been mandated Canada-wide within Devon. It also earned the company a Stewardship of Excellence Award last year from the Canadian Association of Petroleum Producers.

"The most important thing we've learned in minimizing pipeline surface disturbance is that whatever dirt we excavate needs to go back into that same trench," explains LaBerge, Devon's leader of facilities construction.

As basic as that sounds, the problem is that dirt bulks up when it's brought to surface. So it doesn't all fit back in the trench after the pipe is in place, which then requires spreading the excess over the width of the right-of-way and covering it with topsoil. Not surprisingly, the ensuing spring melt and rains often make a mess of it.





Photos: Devon Canada

Mulched access roads (top and middle) and new pipeline construction techniques are helping Devon reduce its environmental footprint.

have been reduced to 12 metres in width along straight runs, from 15 metres, and 11 metres is the ultimate goal.

Compacting trench dirt in hilly, wild areas has the added advantage of locking a pipeline in place. This reduces the stresses on the pipe. It also reduces water incursion into the ditch through unconsolidated soil, which minimizes soil erosion over the pipe and can prevent a pipeline floating to surface during spring runoff.

The costs? Packing dirt adds a bit at the front end, but the full-cycle costs are lower due to minimal spring cleanup requirements, fewer field grading issues, fewer pipeline repair incidents, and—less tangibly but arguably more importantly—farmers are more open to working with Devon.

Another surface land initiative at Devon changes how wellsite access roads are built in wooded areas. Instead of surveying a traditional 20-metre right-of-way and building a ditch-cut road, Devon manages to squeeze through an eight-metre corridor. The felled trees are then reduced to mulch and wood chunks, which are used to build up a driving surface over the remaining stumps and root mass.

“You can then drive directly on that track into the wellsite and do completion operations,” says Stark, Devon’s manager of surface land. “This reduces our footprint by about 50 per cent.”

To be clear, this practice doesn’t replace wood-fibre matting the industry has used in some muskegs areas. Devon’s wood-fibre access roads are for high ground and only to short stretches of bog—50 to 100 feet—where larger wood chunks the size of chopped firewood are laid down.

“We did a trial south of Grande Prairie, where we drilled a D&A [dry and abandoned] well—which isn’t what we tried to do—but, in this case, we went back after six months to reclaim it,” Stark says. “All we had to do was back in a truck with a hoe and remove the wood mulch. Since the stumps and root mass are left in place, it re-vegetated with native species within six months. We’re very pleased with it. SRD [Sustainable Resource Development] is very pleased with it. Alberta Environment is very pleased with it.”

Devon now uses this practice wherever possible. Sufficient wood material is required, so not all wooded areas are suitable. The access road also has to be of a certain length. Equipment drivers may also need a few pointers on dealing with the wood surface, but otherwise, it’s business as usual.

As for costs, both the front-end and reclamation costs are lower than for conventional access-road construction.

An interesting footnote to Devon’s environmental efforts is how regulators have responded. Seeing a company striving to reduce its footprint, utilize waste material, and keep things as natural as possible has fostered a more collaborative regulatory process that tends to move more smoothly and more quickly. ■

So to ensure all the dirt fits back in the trench, Devon uses a wheel packer or other tamping device. “We do that in layers as dirt is returned to the ditch,” LeBerge says.

Compacting the dirt solves the problem of sunken ditches. Right-of-way land can immediately return to production. But compacting also reduces the width of topsoil stripping, and the trench itself can be narrower.

“We’ve gone from stripping 10 to 15 metres of topsoil down to just one metre,” LeBerge says. “The excavation, which used to be anywhere from three to five feet wide, is now reduced to something under two feet, and as narrow as 12 inches.” In forested areas, where Devon follows the same mandate, right-of-ways