

Fairbanks firm builds mats to protect tundra from oil rigs

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Lots of innovative ideas have gone from scribbles on cocktail napkins to reality, including new composite mats designed to stabilize drill rigs and protect North Slope tundra from the crush of the 2.5 million pound machines.

The idea is not unlike the coasters that protect table tops from libations at the Fairbanks bar where Dennis Swarhout and Craig Simon sketched up the idea in 1999. Shortly after, the men formed Composittech LLC and turned their bar-napkin doodle into a highly engineered product they say is stronger, lighter and safer than massive wood-and-steel mats that have historically been used at Alaska's oil fields.

"This is the best, meanest drill rig mat known to man," Simon said.

The company said their newfangled fiberglass "safety mat" also can be used as a loading ramp, boat launch, shop floor or as a temporary bridge. They can be used in sequence over muddy roads and muskeg to leapfrog drill rigs and heavy machinery from site to site.

BP Exploration (Alaska) Inc. has leased 50 of the Fairbanks-made drill rig mats for the past year. So far, they are getting high marks from BP and other oil companies.

"Everybody seems to like these," said Scott Grieve, a BP drilling field engineer at the North Slope. "I don't doubt these could be successful."

The initial run of 50 prototype mats last year had up to 30 people employed for several months.

The drill rig mats are 28 feet long, 8 feet wide and weigh 4,200 pounds, several hundred pounds less than a standard wood-and-steel mat that can swell to more than 6 tons when wet, Simon said.

Composittech's mats are non-absorbing, made from huge sheets of reinforced fiberglass with a grid of composite rods sandwiched between for strength.

The mats have a non-slip surface and are painted high-visibility yellow. They are less than half the thickness of a standard 6-inch wood-and-steel mat, making it easier for small vehicles to drive onto them, Simon and BP's Grieve said.

Swarhout and Simon said the mats have been tested at a load strength of 35,000 pounds per square inch, far stronger than wood-and-steel mats.

Cost for each mat is about \$26,000, or about 10 times more than a standard mat, Simon said.

The additional cost, according to Simon, is worth it since the composite mats will last far longer and don't suffer "blow throughs," oil field lingo for when a drill rig breaks through a mat, often with expensive results.

"Some rigs cost more than \$1 million to get out of a hole," Simon said.

BP's Grieve said none of the 50 new mats have been broken by the multimillion-pound drill rigs during a year of use on the North Slope.

Unlike rigid steel-and-wood mats, Compositech's mats flex, allowing them to conform to uneven ground. The flex, while advantageous, has caused some of the bolts that hold the mats together to break. The company is currently testing stronger bolts to remedy the problem.

Simon and Swarthout went on a tour of eastern Russia in late August to sell the idea of the mats.

Simon and Swarthout also are pitching a portable road and pad system made of high-density plastic to oil field companies.

Compositech is a distributor for Louisiana-made Dura-Base, a system of interlocking pads that can create temporary roads over nearly any terrain.

Simon and Swarthout say the system will save companies millions of dollars in road construction costs over time. The plastic roads can be reused and don't "scar" the environment like gravel roads can, Swarthout said.

Alyeska Pipeline Service Co. tested the portable road system in July at mile 72.3 of the trans-Alaska oil pipeline.

Jim Lagomarsino, an Alyeska project manager, said the portable road system holds promise and will be used at three different projects this year. One project will use about 300 feet of the Lego-like road to get equipment to a stretch of the Sag River, which is eroding near the pipeline and needs shoring up.

"I think this will give us the opportunity to do our work without marking up the environment," Lagomarsino said. "I think this is the tool we've been looking for, for awhile."

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