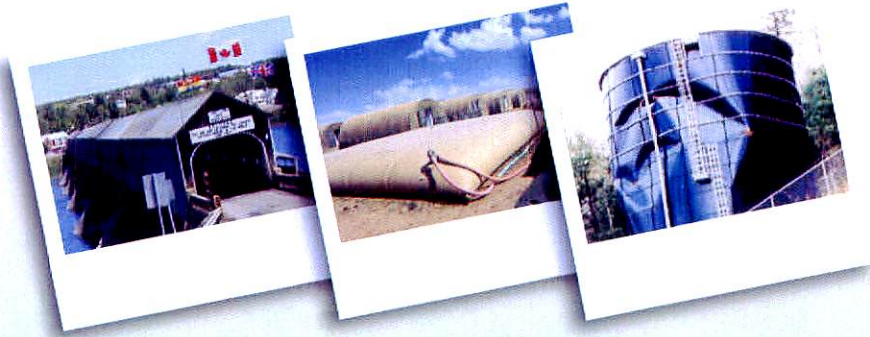


Storage Tanks, Containment & Spills



A diverse range of case histories and new developments is reviewed in *ES&E's* semi-annual look at tanks, containment systems and spill management.

Hartland NB wins uphill battle to fight fires throughout town

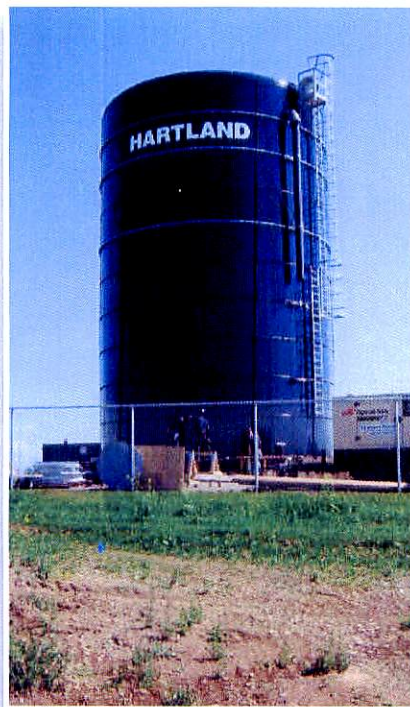
By Dean Potratz

On May 7, 2005, the town of Hartland, New Brunswick, experienced one of the worst fires in its history when Craig Manufacturing Ltd., a major employer and manufacturer of heavy equipment such as dozers and graders, began to burn.

"We were pumping water out of our reservoir and the river and had other fire departments here to help us," says Fred Roberts, public works supervisor and deputy chief of Hartland's volunteer fire department.

Much of Craig Manufacturing, then located along the eastern bank of the St. John River, which runs through the town, was in ruins. While several other commercial buildings were also damaged, the pride of Hartland, the 100-plus-year-old world's longest covered bridge, was untouched. In an agricultural region rich in potato production, the town also attracts tourists year-round.

The fire brought home the town's need for an upgraded water system,



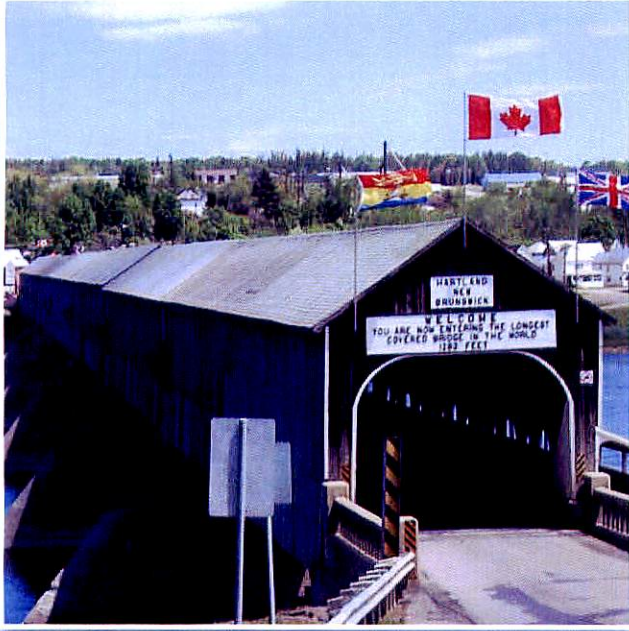
The town now has a 250,000-gallon Aquastore® tank.

with the capacity to supply firefighters with the water and pressure they need to protect both of the town's two zones.

The lower elevation zone along the river had the benefit of water pressure from the original hillside reservoir, but the upper elevation zone, the top third of the hillside and above, had no water storage of its own. It needed multiple booster pumps running 24/7 to bring water from the reservoir below and achieve adequate water pressure.

The inadequate system had to supply the largest Canadian-owned potato chip processing plant, Humpty Dumpty Snack Foods Inc., at the top of the hill, as well as the 900 citizens of Hartland. If the power went out, "we might get a call in the middle of the night from Humpty Dumpty," says Mr. Roberts. A backup diesel-driven pump would then kick in to keep water flowing. The pump also ensured the company would have water for fire protection.

Clearly, something had to be done to modernize the town's water system as



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the old reservoir only held 88,000 gallons of water and that was all that was in reserve for fighting fires. The town already had the new system underway when Craig Manufacturing burned.

The town now has a 250,000-gallon Aquastore® tank on top of the hill, and so much water pressure that they have had to put in pressure-reducing zone valves to reduce the pressure downhill. The booster station used to run 24/7 (to supply the upper elevation zone), and now it runs approximately eight to nine hours a day.

Stability of the water system and storage through power interruptions is a key objective met, along with reduced operating costs and power savings.

Hartland fills its old reservoir by pumping water to it from town wells. From there, a pump (there were three and now only one 50hp pump is needed) sends water to the Aquastore tank. Hartland pumps roughly 250,000 to 275,000 gallons of water per day.

Mr. Roberts points to three goals for the upgrade: better fire protection throughout Hartland, consistent water flow to Humpty Dumpty, and better water quality.

The engineer's view

Ken Hannah, of Godfrey Associates, Saint John, New Brunswick, the consulting engineers for the project, says Hartland had simply "grown up" the hillside above the original reservoir, splitting the population into the two zones. Working with Hartland, Godfrey Associates picked the site for the new water structure, land that was once a potato field. It was obtained from McCain Foods Ltd.

In addition to the water storage structure, Godfrey Associates specified the upgrading and extension of water mains, pump upgrades, transition lines and other infrastructure that brought the total cost to over \$1.25 million. The cost was shared by the federal, provincial and municipal governments, which made it possible for Hartland to undertake the sizeable project.

Selection of the water holding structure was key. "The Aquastore came in as better economic value," says Mr. Hannah. "Selection was based on capital costs; the Aquastore's lifetime value and lower maintenance costs are bonuses. We recognized that with the glass-fused-to-steel coating there would be savings down the road."

To Mr. Hannah, stability of the water system and storage through power interruptions is a key objective met, along with reduced operating costs and power savings from going to a start/stop rather than continuous pump operation. The whole system has operated trouble-free.

Greatario Engineered Storage Systems of Innerkip, Ontario, supplied the Aquastore system to the Town of Hartland and handled all the tank on-site construction.

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