

Oil spill clean-up breaking new ground in city

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Sentinel and Enterprise

Article Launched: 08/10/2008 06:05:46 AM EDT

FITCHBURG -- A Fitchburg paper manufacturer is using cutting-edge, environmentally friendly technology to clean up a decade-old oil spill site in the Cleghorn neighborhood.

Officials are using natural products, like coconut, soy bean and orange extracts to change the physical characteristics of oil that's imbedded about 20 feet underground to make it easier to remove.

The process is a more cost-effective and environmentally friendly technique compared to the alternative of digging a hole and removing the effected soil from the ground, according to company officials.

"We're in the business of making paper," said Thomas Shannon, the director of engineering and facilities for Munksjo Paper. "But this is a solution that will take care of the problem. So that's a good thing."

The Swedish-based Munksjo Paper Inc., makes laminate papers for furniture and flooring in its Fitchburg factory on River Street, and has been since 1910.

In the 1990s the company suffered a release of number-six oil from a 5,000 gallon oil holding tank on the company's property.

Number six oil is an immobile, thick substance.

Numerous techniques were undertaken to contain and remove the oil from the soil, including excavation and using mechanical oil recovery systems.

Munksjo officials had some concerns when they tried to remove the oil.

For example, the Nashua River runs adjacent to the site where the spill occurred underground.

The Depot Street bridge also sits within close proximity of the site.

Underground piping posed another challenge to cleaning up the thousands of gallons that spilled into the ground.

"There are several complexities of this site to clean it up," said Michael Bricher, who Munksjo hired to help develop a plan to clean up the spill.

Bricher is a senior engineer for Somerville-based Triumvirate, an environmental engineering firm. Munksjo hired him in 2006 to develop a plan of how to clean up the site.

The traditional approach to cleaning up such a spill would be to remove the oil-soaked soil.

But when those traditional approaches to cleaning up the oil weren't successful, Shannon began looking to emerging technologies.

Various techniques were considered, including selective-soil excavation, steam-enhanced extraction, or expansion of the existing oil recovery system.

Because of cost, timeliness and risk potential, each of those potential processes were eliminated.

Bricher began researching alternative, new-technology methods for the oil remediation. He came across VeruTEK Technologies, Inc., a Bloomfield, Conn. company specializing in such new technology. The company was in the process of testing a new technique in New York.

"So we began looking at this as an alternative," Bricher said.

The new process uses a chemical surfactant -- meaning it acts like a soap -- to bond to the oil and to break it up. The chemical destroys the oil on site, cleansing the soil.

In December, 2007, VeruTEK visited the Fitchburg site and said their product could be used to clean the spill.

VeruTEK officials tested the oil, the groundwater, the site and its characteristics. They even developed a chemical made specifically for the Munksjo site that would target the oil in the effected soils.

The chemical also can bond to the oil and make it more fluid, which makes it easier to remove. Vacuums are used to extract the material from below ground.

Bricher said to his knowledge it's the first time the technology has been used in Massachusetts.

"In the future there's going to be more emphasis on remedial technology," Bricher said. "Because the science has improved so much."

Bricher said Fitchburg's Munksjo factory is on the cutting edge of using the technology.

Six weeks into the process Bricher said results have been "amazing."

About 60 percent of the oil has already been removed from the site. Work will continue this summer and fall, with a targeted completion date of October.

Shannon said he's glad to get the oil removed from the site.

"This just takes care of the situation," Shannon said.

On a tour of the area, Bricher showed how the process looks remarkably simple. One tube pumps the chemical solvent into the ground.

Beside the pump sits a small tent where two VeruTEK officials monitor the process.

City and state inspectors have also visited the site to inspect the work.

Board of Health Director Stephen Curry said it's exciting to have the work being done in Fitchburg.

"It's very interesting," Curry said. "It's a new, innovative way to take care of the problems without tearing up the earth."

Curry said he had heard of the technology before Munksjo began using it in Fitchburg, but he wasn't aware of it being used by another organization in the state.

"It's definitely an impressive operation," Curry said.

Ed Coletta, spokesperson for the state's Department of Environmental Protection, compared the process to new minimally invasive surgeries that doctors perform.

In the past, for example, when a patient had knee surgery, doctors would open up a patient's knee and operate. Now, doctors can make small incisions in the skin and work with limited invasion.

Coletta said he doesn't know of any other organization in the state that's used the process, but he said it could be happening in another region and he wouldn't know about it.

"Recovery systems are not new, but this is a somewhat new technology to have the chemical added to the site," he said.