DENVER — For several days last month, Steven Jensen smelled the oil, wafting up over his rolling wheat farm near Tioga.

But in that part of northwestern North Dakota, where the rush to tap the Bakken shale field is roaring, the scent of crude is hardly uncommon. It was not until Sept. 29 that Mr. Jensen came across a six-inch spurt of oil gurgling up from his land and reported a spill.
As it turned out, a Tesoro Logistics pipeline had ruptured, spreading more than 865,000 gallons of oil across seven acres of Mr. Jensen’s farm. The spill is one of the largest inland oil pipeline accidents in the United States.

On Sept. 29, Steven Jensen came across a six-inch spurt of oil gurgling up from his land and reported a spill.

State officials, who responded to the spill after being notified by Tesoro, said the oil posed no immediate environmental risk. Fortunately, they said, the accident occurred in a remote area, away from water and homes. But the rupture has raised fresh concerns about the ability of pipeline companies to detect problems before it is too late.

Such fears have been heightened as the Obama administration nears a decision on the proposed Keystone XL pipeline, which would carry a type of Canadian crude to American refineries on the Gulf Coast that is especially difficult to clean if spilled.
“This section of the pipeline was not required to have leak monitoring or pressure sensors,” said Kris Roberts, an environmental geologist with the North Dakota Department of Health, who is leading the state’s response to the spill. “And it didn’t.”

Indeed, the federal Pipeline and Hazardous Materials Safety Administration mandates that companies have some means of detecting leaks on their pipelines but offers little other guidance.

The regulations emphasize the protection of environmentally sensitive areas and population centers, leaving more isolated sections of pipeline monitored less stringently.

Moreover, there are no minimum performance standards for leak detection, so there is no way of knowing how well a company’s system works.

Tesoro officials said the company had monitored the pipeline’s pressure remotely but acknowledged that was not enough. The company would not speculate on the length or cause of the spill, which the pipeline agency is investigating. It first learned of the accident the day Mr. Jensen discovered it, after he called another oil company with a pipeline in the area.

State officials did not alert the public of the accident until more than a week later, which Mr. Roberts said was because the spill posed no danger and was swiftly contained.

A Tesoro spokeswoman, Tina Barbee, said in an e-mail that an internal inspection last month detected “anomalies” with the pipeline. But Tesoro was still waiting for details when Mr. Jensen discovered the spill.

The company estimated that the hole from which the oil leaked was about a quarter-inch in diameter. “We will continue to work tirelessly to fully remediate the release area,” said the company’s chief executive, Gregory J. Goff, in a statement.

Carl Weimer, executive director of the Pipeline Safety Trust, which advocates tougher pipeline regulations, said the federal government had moved too slowly to bolster leak detection standards.

“Even though people have been calling for better leak detection, it is usually a landowner who finds the spills,” Mr. Weimer said. “It runs counter to what the industry tells us, that they can detect and shut off these spills in a minutes, when they actually go on for days.”

A spokeswoman for the federal pipeline agency, Jeannie Shiffer, said detection rules were still in the process of being updated.
In 2010, the agency announced that it was considering establishing minimum leak detection standards for all pipelines, and an initial public comment period has already occurred.

A 2012 study commissioned by the pipeline agency found that emergency responders or members of the public were more likely to detect hazardous liquid pipeline spills than pipeline companies themselves. In another 2012 report, the National Transportation Safety Board found that Enbridge Energy workers were not properly trained to recognize alarms, which contributed to a large 2010 oil spill in Michigan that went undetected for 17 hours.

Lois Epstein, a civil engineer and pipeline expert for the Wilderness Society, said that based on Mr. Jensen’s account of the North Dakota spill and the size of the hole, oil may well have been leaking for weeks.

“Many of us have been asking for this for over a decade,” said Ms. Epstein, referring to leak detection standards. “We really have regulatory paralysis in terms of pipeline safety requirements.”

In North Dakota, where the cleanup continues, Tesoro said it would use additional monitoring equipment to detect any future problems. “The controls we had in place did not prevent this release, and we find that unacceptable,” Ms. Barbee said.

So far the oil has been contained to a small sliver of Mr. Jensen’s property, which he cannot now farm. But he is still concerned about lingering effects the spill may have on his land.

Recently, a Tesoro executive sat down with Mr. Jensen at his home over hot apple pie. The executive said the company would not abandon his land before the oil was gone, Mr. Jensen recalled: “They promised to make it right.”