On unconventional fuel and the politics of moving it

Exxon Spill Points to Leak Detection Failings

By [Elana Schor](#)
May 1, 2013

An important fact is tucked away on page 5 of the federal [accident report](#) for ExxonMobil's March 29 Arkansas pipeline leak that the Sierra Club released to the public today.

It may sound more boring than relevant, but bear with me: A Supervisory Control and Data Acquisition (SCADA) system was working normally on the ill-fated Pegasus pipeline at the time of the rupture and helped Exxon verify that an accident had occurred. Pegasus did not, however, have a Computational Pipeline Monitoring (CPM) program in place on the pipe.

Let's first demystify SCADA and CPM. SCADA is a basic infrastructure monitoring system, where remote hubs relay data back to central monitoring point, using fiber-optic cable or other communications equipment. Rising concern over hackers' ability to wreak havoc within refineries, pipelines, power plants, and other energy outposts [centers on](#) the potential for SCADA manipulation.

CPM is an added layer of algorithmic pipeline monitoring that typically focuses on a handful of leak detection variables, such as line balance, mass balance, and pressure/flow. It might be tempting to envision CPM as an improvement on or update to a SCADA system, but [a recent federal report](#) on the lackluster state of pipeline leak detection showed otherwise.

In an analysis of 197 hazardous liquid releases (going beyond crude oil) between 2010 and 2012, federal contractors found SCADA helpful in the detection or confirmation of 30% of pipeline leaks where it was active. CPM had a worse record, assisting in the detection or confirmation of 25% of pipeline leaks where it was active.

Here's what else we know about Exxon's SCADA: The Pipeline and Hazardous Materials Safety Administration issued [a 17-page warning](#) to the company in late 2012 of multiple alleged deficiencies with the system. Some of them [I reported on](#) two days after the Arkansas spill, but others pointed to an internal bureaucracy where wheels weren't turning efficiently. For example, PHMSA noted that Exxon

> " did not adequately define how various teams interact; for example, Alarm Management Team versus the Alarm Rationalization Team … [and]

> did not adequately define and consistently use the terms "Critical," "Major," and "Alert" … "

In addition, the agency reported that Exxon's "Leak Detection elements were not connected to the Alarm Management Plan."

The pipeline operator's response was enough for PHMSA to close the case on March 1, twenty-eight days before at least 5,000 barrels of heavy oil leaked in Mayflower, Ark.

PHMSA "anticipates progressing with a rule-making related to leak detection in 2013," its chief told Congress in [a cover letter](#) accompanying the contractors' study. But while the public waits for that rule-making, Exxon's case — and that of Enbridge's 2010 Michigan spill, where SCADA but not CPM also was in place — suggests that merely requiring the installation of more technology may not make oil pipelines any safer.