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**National Geographic**

## **Colorado Flooding Imperils Oil and Gas Sites, Causes Spill**

**Cleanup under way at South Platte River after tanks leak crude.**



An overturned crude oil storage tank lies in the South Platte River on Tuesday. Hundreds of natural gas and oil wells, along with pipelines, were shut down by flooding.

Photograph by John Wark, AP

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**In the wake of unprecedented massive flooding over thousands of square miles in Colorado, government officials and private companies are rushing to secure the region's heavy concentration of oil and natural gas wells, and prevent dangerous chemicals and toxic waste from contaminating the region's water. (See related quiz: "[What You Don't Know About Oil Spills](#)."**)

Late Wednesday, [reports emerged](#) that at least 5,250 gallons of crude oil had seeped into the South Platte River in the north-central part of the state. The oil was leaking from damaged Anadarko Petroleum tanks. "Anadarko is responding and has absorbent booms in the water," said a statement from the state's Department of Natural Resources (DNR). Another [report noted](#) that Noble Energy was seeing a "limited amount of natural gas" leaking from one of its wells. (See related story: "[As the Arctic Melts, a Race to Test Oil Spill Cleanup Technology](#)."

Inspectors have yet to reach many of the well sites, in part because many roads remain inaccessible, according to Todd Hartman, a spokesman for the Colorado DNR.

"You have operations that are entirely underwater," Hartman said.

In the meantime, crews are monitoring the wells by air and from boats, and also relying upon pressure sensors to remotely monitor conditions inside the wells, according to Colorado Oil and Gas Association president Tisha Schuller. (See related photos: "[Oil Spill Sullies Popular Beach in Thailand](#)."

"As soon as they can get in, they're going in," Schuller said.

### **Wells and Waste at Risk**

It remains unclear exactly how many wells have been affected by the flooding, but the association says that nearly 1,900 wells have been "shut in," meaning that operators have stopped the flow of oil and natural gas to prevent leakage. Crews had to be on-site to shut down some of the wells, while others were equipped for remote shutdown, Schuller said.



A gas well is surrounded by floodwaters in this September 17 photo.

Photograph by R.J. Sangosti, Denver Post/Getty Images

But although no wells appear to be leaking, there are even more serious potential worries, said Amy Mall, a senior policy analyst with the Natural Resources Defense Council in Washington, D.C. Well sites often contain tanks of toxic wastewater and supplies of potentially hazardous chemicals used in the drilling or extraction processes, which might be damaged by floodwaters and spring leaks.

The sites also contain what Mall called a "spider web" of myriad pipes connecting the wells to tanks or processing equipment, any of which potentially can fracture. If such failures occur, these substances could be picked up by floodwaters, and then contaminate streams, rivers, reservoirs, and other bodies of surface water, Mall said.

Mall said that groundwater contamination, however, probably isn't a major worry. Although the drilling practice of hydraulic fracturing creates fissures that critics say put groundwater at risk of contamination, almost all of the wells in the affected area appear to be active wells that already have been drilled, and little or no fracking currently is going on, according to Mall and other environmentalists who have been monitoring the situation.

Industry official Schuller agreed with that assessment. "We don't know of any wells [in the flood area] that were being drilled or fracked," she said.

### **"Still in Triage Mode"**

Schuller acknowledged that potential leaks of chemicals and toxic wastewater from the well sites was a "reasonable concern," but said that so far, there's no evidence of it occurring. To the contrary, she said, inspectors have found only "minor incidents" at the sites, including a free-floating tank that turned out to be empty, and other tanks that had been knocked askew on their foundations by floodwaters, but which hadn't failed. There also were two broken pipelines—one of which was repaired by an on-site crew, while the other was shut down remotely. (See related photos: "[Arkansas Oil Spill Darkens Backyards, Driveways.](#)")

Colorado DNR spokesman Hartman said that when the inspectors finally do reach the wells, they rely mostly upon visual examination, rather than tests or instruments. "We're looking for sheens on the water, damaged equipment, and obvious things such as an oil tank that might be overturned and leaking," he explained. "We want to get the low-hanging fruit first, and deal with any obvious problems. We're still in triage mode."

How long that inspection process will take remains unclear. Gary Wockner, program director of the Colorado chapter of Clean Water Action, said that environmental regulation in the state is so underfunded that there are only 18 government inspectors to check the wells. "Essentially, we're relying upon the industry, which has the financial resources, to inspect, regulate, and police itself," he said.

One operator, Encana Oil & Gas, said in an email that it had restarted 52 of its 397 shut-in wells. "At this point, we have not found any significant spills or releases, but can't rule out future discoveries until inspections are completed," Encana spokesman Doug Hock said. (See related story: "[Oil Spill Spotlights Keystone XL Issue: Is Canadian Crude Worse?](#)")

*This story is part of a [special series](#) that explores energy issues. For more, visit [The Great Energy Challenge](#).*