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Q. & A. Clarifying Questions of Liability, Cleanup and Consequences

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On the evening of April 20, the [oil rig Deepwater Horizon](#) exploded about 50 miles off the Louisiana coast in the Gulf of Mexico, killing 11 workers and injuring 17 more. Two days later it sank in 5,000 feet of water.

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Crude oil soon began streaming out of a broken pipe attached to a well a mile below sea level. Within days much of the nation was transfixed by a frantic effort by [BP](#) and the federal government to plug the leaks and contain a massive spill threatening the gulf coastline and the ocean itself.

As the crisis has unfolded, confusion has soared about the [oil spill](#)'s gravity, the potential effects on coastal residents, the risks to wildlife and who will foot the costs of the cleanup.

Following is an oil spill primer.

Q : Who owned the oil rig?


A : The nine-year-old rig was owned by [Transocean](#), a giant Swiss [offshore drilling](#) contractor. It had been leased to BP for roughly \$500,000 a day.

Q : Who is legally responsible for the spill?

A : BP and Transocean have been named by the Coast Guard as "responsible parties," which means they must cover all cleanup costs, including those incurred by the Coast Guard and other government employees.

They will also have to compensate people and businesses for things like property damage, lost business revenue and harm to ecosystems. BP's liability bill is capped at \$75 million and Transocean's probably at \$65 million, but those caps could be lifted if

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the companies were found to have acted with gross negligence or to have broken rules that led to the spills.

Or the government could rule that the spill involves more than one incident, which would mean higher caps. And three senators have introduced legislation to raise the \$75 million cap to \$10 billion.

[Cameron](#), the company that manufactured a “blowout preventer” that failed to function after the explosion, and [Halliburton](#), which performed drilling services like cementing, could in turn face claims from BP or Transocean.

Third parties like fishermen could sue the responsible parties or companies like Cameron and Halliburton. The companies’ insurers face claims, too.

Q : How much will the cleanup cost?

A : It depends on how much hits shore. Exxon spent \$3.4 billion in cleanup costs, fines and compensatory payments for the [Exxon Valdez](#) spill in Alaska in 1989. But even far smaller spills can be costly; when the freighter Cosco Busan hit the Bay Bridge near San Francisco in 2007 and spilled 50,000 gallons of fuel, the cleanup cost \$70 million.

Q : How big is the spill?

A : Using spotter planes, buoys and other techniques, [the National Oceanic and Atmospheric Administration](#) projects that by Friday, the spill will measure 240 miles east to west and about 100 miles north to south. Yet the pattern is hardly symmetrical — more like an egg dropped on the floor — and the density of the oil differs widely. Some of the oil has evaporated, some has sunk to the bottom and some has been burned.

NOAA has not estimated the total amount of oil spilled. But the spill has been unfolding for more than two weeks at an estimated rate of 210,000 gallons a day; a highly speculative estimate would be 3.3 million gallons so far.

Q : How close is the oil to the coast? Will it spread to Florida and the Atlantic Coast?

A : That’s one of the hardest questions to answer. Oil from this spill could hit hundreds of miles of coastline — but might not.

On Thursday, the oil hit [Freemason Island](#), a Louisiana bird sanctuary. Given the pattern of winds and currents, more areas along the gulf are likely to be hit — anywhere from Louisiana to Florida — but whether many will be drenched in thick concentrations remains an open question.

Likewise, currents will eventually carry some oil out of the gulf and into the Atlantic Ocean, but it is hard to predict when and how much. NOAA publishes daily forecasts at www.deepwaterhorizon.noaa.gov.

Q : Is this the worst oil spill ever? When did we last see one of this magnitude?

A : Two giant spills have occurred in the Gulf of Mexico. In 2005, [Hurricane Katrina](#) caused a spill of eight million gallons, mostly from onshore storage tanks that chiefly contained oil products, not crude. In 1979-80, the Ixtoc 1 well blowout caused 140 million gallons to flow into the Bay of Campeche in Mexico.

Ixtoc did not cause major onshore damage. Katrina did, but the human costs of the



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devastation largely masked the effects on wildlife and ecosystems. In 1989, the Exxon Valdez dumped 10.8 million gallons of much heavier crude very near the beaches of Prince William Sound.

If the current gulf leak is estimated at 210,000 gallons a day, it would take several weeks for the spill to reach the size of any of these.

But in sheer volume, all of these spills are dwarfed by the oil that flowed when retreating Iraqi troops blew up oil terminals and wells in Kuwait in early 1991: more than 300 million gallons.

Q : What is being done to plug the leaks?

A : Robots operated by BP and supervised by the Coast Guard used underwater cutting tools this week to shear off the ragged end of a broken pipe, attach a valve to the new end and then close it. On Thursday, a 100-ton steel funnel, four stories high, arrived at the scene. The idea is to lower it onto the sea floor on top of the well and collect all the oil from the opening at the top.

If that fails, the fallback is a “relief well” drilled at an angle to intercept the one that is leaking. But that will take months.

Q : How can they stop the oil from spreading?

A : Fishing boats are towing booms that collect floating oil, but when the waves and winds are high, the oil slops over.

Q : Are plants, animals and ecosystems threatened?

A : Yes. Once the oil comes ashore, there is the risk of damage to some of the nation’s most delicate ecosystems, like wetlands sheltering everything from pelicans to crabs to fragile grasses. Yet the spill also threatens fish and anything else that feeds on plankton that floats on gulf waters. Biologists express particular concern for turtles, which may ingest clumps of oil after mistaking it for food like grasses.

Q : What about the damage to the gulf fishing industry, then? More broadly, how many jobs could be lost because of contamination?

A : The gulf fishing industry is crucial to hundreds of thousands of jobs, but it is not clear how large an area will be hit by the spill and therefore shut down to fishing. Already thousands of workers have been idled because coastal Louisiana east of the Mississippi River has been closed down.

Q : Will the spread of the slick affect seafood?

A: Almost certainly, beginning with shellfish that are “filter feeders” like oysters and are nourished by pumping water through themselves. Louisiana has extensive oyster beds. (So does Florida, although the slick may not get that far.)

“I would look at your filter feeders first, and then your crabs and your shrimp, on up the food chain to coastal fishes,” said [Ron Kendall](#), director of the Institute of Environmental and Human Health at [Texas Tech University](#).

Yet much of the shellfish and finfish sold in the United States is imported from distant places, including 80 percent of the shrimp.

Q : What about seafood already in the marketplace?

A : It’s fine, said Michael L. Herndon, a spokesman for the [Food and Drug Administration](#), because NOAA has closed off the affected areas to fishermen. The F.D.A.

has mobile laboratories and will be aggressively testing fish in the gulf, he added.

Q : Will the spill affect the price of gasoline?

A : For now, that appears unlikely. The accident has not interrupted oil production.

But depending on how far the slick spreads, it could slow oil deliveries by barges serving coastal refineries or delivering oil products up the Mississippi.

American refineries export a million barrels a day of oil products. If deliveries are delayed, exports are slowed and storage facilities fill up, companies may have to reduce the amount of crude that they process, which could interfere with domestic supplies.

Q : Who will investigate the accident?

A : By statute, the responsibility lies with the Coast Guard and the [Mineral Management Service](#), part of the [Interior Department](#). But there have been some calls for a special commission like the one that investigated the last [space shuttle](#) crash, in 2003, or the Three Mile Island accident of 1979.

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