

TIMELINE

It didn't begin with the fracking but the crack just grew...

1825 In Chautauqua County, New York, William Hart discovers natural gas reserves. Uses gas to light buildings in Fredonia; town's official seal features five burners representing those lights.

1908 An early form of hydraulic fracturing is used to separate granite from bedrock.

APRIL 4, 1930 Gas leaked into the sewer system in New York City, New York, and later exploded. 6 people were injured, 5,000 were evacuated from nearby buildings, and telephone cables were damaged.

MAY 24, 1930 A runaway horse smashed a wagon of lumber against a crude oil pipeline in Ripon, Wisconsin. The oil ignited and spread to nearby oil tanks, causing a blaze that destroyed a number of buildings.

JULY 30, 1930 Excavation in Fairport, New York caused a major gas explosion. 3 people were killed, 10 were injured, and a 4 family house was damaged by the blast and following fire.

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1940'S Worried about German subs targeting tankers, government supports construction of oil pipelines from Texas to East Coast. After the war, pipelines are approved for gas transport as well.

APRIL 4, 1940 A gas compressor plant exploded in Braintree, Massachusetts, killing four people and injuring 12 others.

AUGUST 14, 1943 The recently built "Big Inch" crude oil pipeline developed a leak near Lancaster, Pennsylvania, delaying the first batch of crude oil from that pipeline from reaching Philadelphia, Pennsylvania.

1944 The "Big Inch" crude oil pipeline ruptured in Connelville, Pennsylvania, with the crude spill killing fish along a 12-mile (19 km) stretch of the Laurel Hill creek.

JULY 4, 1946 A crew working to connect a new gas main in Peru, Illinois, when the old gas main exploded killing 5 of the crew, and injuring 7 others.

1947 Hydraulic fracturing is used for the first time to extract natural gas.

1948 The Federal Water Pollution Act of 1948 was the first major U.S. law to address water pollution. Made it unlawful for anyone to discharge any pollutant from a point source into navigable waters (Post WWII). [1]

OCTOBER 18, 1948 Vapors from a leaking butane pipeline at a refinery in Texas City, Texas spread out along a nearby highway, causing a number of cars to stall. The gas then exploded, killing 4 people, and seriously burning 17 others.

NOVEMBER 19, 1948 A "Big Inch" pipeline pumping station exploded and caught fire near Seymour, Indiana, causing \$3,000,000 in damage, and injuring 17 workers at the station.

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MARCH 4, 1949 A section of the "Little Big Inch" exploded and burned in North Vernon, Indiana, burning a mother and her infant. It was the fourth explosion on that pipeline in Indiana that year.

1949 Halliburton becomes the first company to use hydraulic fracturing to extract natural gas at an industrial magnitude. The technology used then bears little resemblance to what is used in contemporary fracking procedures. Drilling operations could not use the same pressures or magnitudes that they can today, so they could only extract natural gas present in loose geological formations.

1950 Natural gas use begins steady climb, nearly double over next two decades.

1954 Federal government establishes price controls for interstate gas sales, making it more lucrative to sell in states where it's produced. Shortages ensue across Midwest and East Coast.

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1970 Gas share of US energy consumption peaks at 30 percent (25 percent today).

1972 The Clean Water Act (CWA) is the primary federal law in the United States governing water pollution. Its objective is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. [1]

1974 Congress passes the Safe Drinking Water Act to protect underground sources of drinking water. The Environmental Protection Agency requires Underground Injection Control permits under the SDWA for any injection of a fluid (42 U.S.C. Sections 300h to 300h-8). The EPA also bans the injection of most hazardous materials and mandates regulation of all injected materials. But this same year the EPA rules that hydraulic fracturing does not fall under the regulatory power of the SDWA because its primary purpose is the extraction of natural gas, rather than the injection of hazardous material. Because of this, fracking operations are able to proceed unhindered by the new regulations.

1976 Resource Conservation and Recovery Act passed to regulate hazardous waste; gas will be made exempt.

1977 Facing record cold, Pennsylvania Gov. Milton Shapp orders schools closed for three days because of gas shortage. On the same day, Carter proposes Emergency Natural Gas Act, deregulating the industry.

1980 Superfund Act 1980. The Superfund law is officially known as the Comprehensive Environmental Response, Compensation, and Liability Act. The federal Superfund program, administered by the Environment Protection Agency is designed to investigate and clean up sites contaminated with hazardous substances. [2]

NOVEMBER 18, 1984 A Williams Companies 6 inch pipeline ruptured in New Brighton, Minnesota, causing a spill of 40,000 to 50,000 gallons of jet fuel in an industrial area. There were no injuries. On November 25, a 30-inch gas transmission pipeline, constructed in 1955 and operating at 1,000 psig pressure, ruptured at a location about three miles (5 km) west of Jackson, Louisiana. Within this sparsely populated area, five persons involved with the pipeline construction were killed and 23 persons were injured. Additionally, several pieces of construction equipment were damaged extensively. Lack of proper ground support under the pipeline when a nearby section of that pipeline was upgraded and replaced was identified as a factor in the failure.

1986 Congress passes Community Right to Know Act requiring companies to report toxic releases. Pleading trade secrets for fracking fluids, gas drillers get exemption from this law.

MARCH 1986 A backhoe snagged a natural gas distribution line in Fort Worth, Texas, causing a break that leaked gas into an unoccupied building. Later, that building exploded, injuring 22 people, destroying the unoccupied building, and damaging 40 other buildings. 57 automobiles in the unoccupied building were damaged or destroyed.

1987 Gas industry granted exemption from Clean Water Act amendments designed to keep pollution out of storm water. An EPA report indicates water contamination in Jackson County, WV. The report shows that frack fluid had leaked from fractures in a well drilled by Kaiser Exploration and Mining Company and into the private water well of James Parson.

APRIL 2, 1987 Water Quality Act, 100th congress, enacted, provided Pollution Control Act, also known as the Clean Water Act. Provisions include: authority to continue the Chesapeake Bay Program. [1]

DECEMBER 29, 1989 Shock waves from an explosion ruptured a 30 inch gas transmission pipeline operating at 350 psi in the Hall Gage section of New York City, New York. The rupture was 11 feet long, and escaping gas ignited, killing 2 people, injuring one other person, and destroying 2 buildings and 50 automobiles.

1990 Gas drillers given de facto exemption from Clean Air Act. [3]

JANUARY 2, 1990 An Exxon under water pipeline located at the mouth of Morse Creek discharged approximately 13,500 barrels of No. 2 heating oil into the Arthur Kill waterway between New Jersey and Staten Island, New York.

1990 Oil Pollution Act, was passed by the 100th U.S. Congress. It works to avoid oil spills from vessels and facilities by enforcing removal of spilled oil and assigning liability for cost of cleanup and damage. [4]

MARCH 30, 1990 A Buckeye Partners 10-inch pipeline ruptured from over-stress, due to a landslide in Freeport, Pennsylvania, resulting in the release of approximately 1,300 barrels of mixed petroleum products. Spilled petroleum products entered Knapp's Run, a small creek emptying into the Allegheny River and, eventually, the Ohio River. The product release resulted in extensive ground and water pollution and interrupted the use of the Allegheny River as a water supply for several communities. Damage to the pipeline and environmental cleanup and restoration costs exceeded \$12 million.

MAY 6, 1990 A spool on a pipeline ruptured off of the Louisiana coast. 13,600 barrels of crude oil were estimated to have spilled.

AUGUST 29, 1990 A private contractor laying conduit for underground power lines ruptured a pipeline that fouled a Western Branch creek with diesel fuel in Chesapeake, Virginia. Over 67,000 US gallons (250,000 L) of fuel were spilled.

A natural gas explosion and fire destroyed two row houses and damaged two adjacent houses and three parked cars in Allentown, Pennsylvania. One person was killed, and nine people, including two firefighters, were injured. A cracked gas main, that was stressed by soil erosion from a nearby broken water line, was the cause of the gas leak.

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MARCH 4, 1992 A gas distribution pipeline failed in Utica, New York, killing 2 people.

1992 President George H.W. Bush's EPA chief, Bill Reilly, meets with industry execs including Enron CEO Ken Lay, praises gas', "relative environmental cleanliness."

DECEMBER 3, 1992 Pipeline company workers ruptured a natural gas liquid (NGL) pipeline, causing a vapor cloud to drift across I-70 near Aurora, Colorado. The cloud later ignited, burning 6 motorists.

JUNE 9, 1993 A cinder block duplex at in Cliffwood Beach, New Jersey, exploded as a New Jersey Natural Gas Company (NJNG) contractor was trenching in front of the building. The gas explosion killed 3 residents of the duplex, and seriously injured 3 others.

1993 Ford develops natural-gas-powered Crown Victoria that ends up in cab fleets in NYC, LA, and other cities. Project partially funded by gas industry.

OCTOBER 1994 Record high flooding along the San Jacinto River in Texas led to the failure of 8 pipelines crossing that river. Due to the flooding many other pipelines were also undermined. More than 35,000 barrels of petroleum and petroleum products were released into the river. Ignition of the released products resulted in 547 people receiving burn and inhalation injuries. Spill response costs exceeded \$7 million, and estimated property damage losses were about \$16 million.

1996 Fracking in Alabama results in a lawsuit against the EPA by the Legal Environmental Assistance Foundation, alleging that injection of fluids for hydraulic fracturing must be regulated by the EPA under the SDWA.

1991 International Gas Union releases report declaring that gas is a "rump card", thwarting the fight against destruction of the environment.

1999 The present day form of hydraulic fracturing, which uses much higher pressures than earlier processes, is first used in the Barnett Shale in Texas. Formerly inaccessible gas reservoirs are now open for fracking.

JUNE 10, 1999 A pipeline in a Bellingham, Washington park ruptured and leaked gasoline, and later vapor from the leak exploded and burned, killing two 10 year old boys and an 18 year old man. Issues causing the rupture were found to be previous pipe damage by excavation, an incorrectly set up pressure relief valve, unexpected repeated remote valve closures, and new firmware tests on the live controlling computer.

AUGUST 10, 1999 An auger being used to install utility poles hit a 14 inch ethane-propane pipeline, causing an explosion & fire that killed the auger operator, and forcing evacuations near Liberty Hill, Texas.

NOVEMBER 2, 1999 A Lakehead pipeline was damaged by outside force near Meridian, Michigan. Of about 223,000 gallons of NGL's spilled, about 115,000 gallons were recovered.

On November 19, 2 men were injured in Salt Flat, Texas, when a leaking 8-inch propane pipeline exploded. 2 school buses had passed through the area moments before the explosion.

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2000 President-elect George W. Bush: "Natural gas is hemispheric. I like to call it hemispheric in nature because it is a product that we can find in our own neighborhoods."

FEBRUARY 5, 2000 A pipeline failed and spilled over 192,000 US gallons of crude oil in the John Heinz National Wildlife Refuge in Pennsylvania. The source of the spill was a break in a meter band in the pipe, which was estimated to be at least 50 years old.

2001 The EPA begins a study of the impacts of fracking on drinking water, stating: "As a result of this... lawsuit on hydraulic fracturing of coal bed methane wells, the EPA recognizes this issue raises concerns and is conducting an investigation to evaluate the potential risks to... drinking water." Shortly after taking office, VP Dick Cheney (previously CEO of oil and gas firm Halliburton) forms energy task force. Its report incorporates most of gas industry's lobbying wish list, including drilling in Arctic, National Wildlife Refuge. Vice President Dick Cheney's Energy Task Force urges the EPA to conclude that it should not regulate fracking under the SDWA.

APRIL 1, 2001 A Dome Pipeline in North Dakota carrying gasoline ruptured and burst into flames a few miles west of Bottineau, North Dakota. An estimated 1.1 million US gallons of gasoline burned before the pipeline could be shut down. The company attributed the break to damage by an "outside force," which a Bottineau County Sheriff said appeared to be frost that melted at uneven rates, twisting and breaking the pipeline.

JUNE 13, 2001 In Pensacola, Florida, at least ten persons were injured when two natural gas lines ruptured and exploded after a parking lot gave way beneath a cement truck at a car dealership. The blast sent chunks of concrete flying across a four-lane road. Several employees and customers at neighboring businesses were evacuated. 25 cars at the dealership and 10 boats at a neighboring business were damaged or destroyed.

2003 President George W. Bush and Vice President Cheney back a sweeping national energy bill that includes a provision to exempt hydraulic fracturing from EPA drinking water regulation. [5]

MARCH 2004 Gas seeps into the home of 64-year-old Charles Harper and his 53-year-old wife, Dorothy, from one of several frack wells next to their property near Pittsburgh, PA. The gas collects under the house and, according to court records, Harper's news reports at the time, reduces the house to a pile of rubble. The bodies of the Harper and their grandson, Basile, are discovered under piles of debris across the property.

JUNE 2004 An EPA report on fracking says that there's a 10 to 250 times more gas in fracking fluids are toxic and that some portion of these toxic fluids remain in the ground after a frack job. However, the report concludes that "Injection of hydraulic fracturing fluids into coal bed methane wells poses little or no threat" to drinking water supplies and "does not justify additional study at this time."

2005 Cheney-backed energy bill contains "Halliburton loophole," which exempts frackers from the Safe Drinking Water Act.

JULY 2005 The U.S. Congress passes the Energy Policy Act of 2005, signed in August by President Bush, which includes a provision codifying that Congress never intended for hydraulic fracturing to be regulated under the SDWA.

JULY - AUGUST 2005 Citing the EPA's 2004 study, Congress passes and President Bush signs the Energy Policy Act of 2005, exempting fracking from the Safe Drinking Water Act (SDWA). Prior to this, the EPA had the authority to investigate and regulate fracking, but the 2005 law retracts the EPA's authority over fracking operations. This exemption for fracking is known as the "Halliburton loophole."

SEPTEMBER 2005 EPA Inspector General NNAI Tinsley stops the investigation into the mishandling of a hydraulic fracturing study, stating that the question of the EPA conducting a fraudulent study is no longer relevant since Congress had exempted fracking from the law.

2006 Drilling fluids and methane begin bubbling from the ground near a gas well in Clark, WY. A total of eight million cubic feet of methane gas was released into the atmosphere near a shallow water well is contaminated with fracking chemicals.

2007 2007 2007 record driving east in a pickup truck on Interstate 20 near Delhi, Louisiana. A 30-inch gas transmission pipeline exploded. One of the men were killed, and the other injured. External corrosion was later identified as the cause of the failure.

NOVEMBER - DECEMBER 2007 At least 22 water wells in Banningsville, Ohio, are contaminated with drilling chemicals, one of which explodes due to the methane released from the well water.

2008 Researchers release estimate that there's 10 to 250 times more gas in fracking fluids are toxic and that some portion of these toxic fluids remain in the ground after a frack job. However, the report concludes that "Injection of hydraulic fracturing fluids into coal bed methane wells poses little or no threat" to drinking water supplies and "does not justify additional study at this time."

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FEBRUARY 5, 2008 A natural gas pipeline compressor station exploded and caught fire, near Hartsville, Tennessee, and was believed to have been caused by a tornado hitting the facility.

2009 Robert F. Kennedy Jr. writes in Financial Times that U.S. is "awash with natural gas," which "has made it possible to eliminate most of our dependence on deadly, dirty fossil fuel." Former Sen. Timothy Wirth and John Podesta of the Center for American Progress call gas "a bridge fuel to a 21st-century energy economy."

JUNE 2009 U.S. House Representative Diana DeGette (D-CO) and Maurice Hinchey (D-NY) and U.S. Senator Robert P. Casey, Jr. (D-PA) join Senator Schumer (D-NY) introduce the Fracking Information and Awareness of Chemicals Act (FRACACT). The act would repeal fracking's exemption from the SDWA. The act does not pass.

JUNE 2009 Records show roughly 58,000 active gas wells in Pennsylvania.

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NOVEMBER 2009 A fracking wastewater impoundment catches fire and explodes in Aveila, PA. Flammable gases collected in the impoundment and produced a thick, black smoke cloud visible 10 miles away. Soil tests conducted at the site find arsenic at 0.430 times the permissible level and tetrahydroethene (a carcinogen and central-nervous-system suppressant) at 1,417 times the permissible level.

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2007 Sierra Club director Carl Pope secretly chooses to accept funding for Beyond Coal campaign from natural gas company Chesapeake Energy, does not tell his board or members. Chesapeake will give Sierra Club more than \$25 million over three years.

09

2010 By request of the US Congress, the House and Senate pass the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources, to be completed by 2014.

2010 Environmental Protection Agency introduces Environmental Fracturing Rule. Nonpassed in 2011 Congress.

2010 EPA begins a study of the impacts of fracking on drinking water, stating: "As a result of this... lawsuit on hydraulic fracturing of coal bed methane wells, the EPA recognizes this issue raises concerns and is conducting an investigation to evaluate the potential risks to... drinking water." Shortly after taking office, VP Dick Cheney (previously CEO of oil and gas firm Halliburton) forms energy task force. Its report incorporates most of gas industry's lobbying wish list, including drilling in Arctic, National Wildlife Refuge. Vice President Dick Cheney's Energy Task Force urges the EPA to conclude that it should not regulate fracking under the SDWA.

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NOVEMBER 2012 Fracking, 632 chemicals, 20% are listed with cancer or mutagens, 37% affect humans, 40-50% affect kidneys and nervous systems, and cardiovascular systems. 75% affect sensory organs and respiratory and endocrine systems. [6]

MARCH 2013 Fracking PA to death. Evidence of children with cancer. An act of ecological violence around which also infrastructure - compressor stations that transport the gas for pipeline transport, ponds of contaminated flowback, flow-back that burn off gas impurities, diesel tanks in quantity, thousands of miles of pipelines, and flow-back residential water, rural America, pumping concerns and leakes into water, air, and soil [8].

SEPTEMBER 2013 Northern Colorado floods, National Weather Service calls the flooding "historic". Colorado Oil and Gas Conservation Commission estimates being 43,000 gallons of crude oil to surface water. Also large amounts of hydraulic fracturing wastewater are being leaked.

2013 Study in Journal Climatic Change suggests cumulative greenhouse impact of natural gas may be at least 20 percent higher than coal's because of methane leakage from wells.

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