

Air Quality Problems of Pipelines and Compressor Stations in Shale Gas Production

Q. Is it true that gas gathering pipelines in New York (under 125 psi pounds pressure per square inch) require no permits and no inspection?

A. Yes. While New York has the power to regulate lower-pressure lines, it has chosen not to do so.

Q: Since Marcellus wells in PA, for example, are coming in at pressures of 1000-3000psi, won't the gathering lines need to be permitted under state rules?

A: No. The drillers can do an end-run around the law by using larger or more pipelines and "necking down" at the wellhead.

Q: Are gathering lines required by law to be mapped and listed with Common Ground Alliance, which informs contractors of other buried utilities?

A: No.

Q: Do gathering lines under 125 psi actually present a danger from digging into them, or from low pressure leaks?

A: Yes: the idea that gas "in the open" cannot be ignited by digging activities or a spark from your water pump are simply incorrect. In New London, Texas 425 children were killed in a 1937 explosion involving a leak of unodorized gas.

Q: But doesn't the gas have an "odorizer" added these days, to it to make leaks obvious and avoid potential explosions?

A: Yes, but the odorizer is added only at the "city gate", where transmission-line pressures are reduced to distribution-line pressures and the odorizer is injected.

Q. Why don't the gas companies put an odorizer in at the wellhead?

A: Its not profitable. The raw gas needs to first be stripped of problematical substances, since the mercaptans used to odorize gas may be broken down/absorbed by them.

Raw gas at the wellhead goes immediately to a separator where any components that are liquid at that temperature and pressure are taken out. (Some natural gases are "dry" and would only require dewatering at the compressor station.) After the separator, the gas phase (still containing water vapor, and numerous other hydrocarbons, sulfides, BTEX, etc) goes into a gathering line. Downstream at a processing plant, that water and the other components are removed and the "sales gas" is compressed to transmission line pressures and injected into a

transmission line. Treatment with odorizers happens when gas is decompressed to enter a local distribution system.

Q: Doesn't the fact that gas is lighter than air make accidents from gathering-line leaks less likely?

A: While methane is lighter than air, it is accompanied out of the wellbore by butane and propane in varying amounts. Those gases are *heavier* than air, and subject to explosion.

Q: Some well drilling and hydrofracturing has produced a "sour gas", rotten-egg smell. Is this dangerous?

A: This smell is hydrogen sulfide (H₂S), which is very dangerous and corrosive. Many oil and gas workers have been killed by it over the years.

Q: If we don't smell H₂S from our local wells, separators, gathering lines, and compressor stations, are we safe?

A: No. Whether or not H₂S is being emitted by these sources at a given moment, there will still be BTEX: Benzene, toluene, ethyl benzene, and xylene. They are also in raw gas & produced water. Benzene is a major bad chemical in causing leukemia, and the other 3 chemicals are of concern for health as well. They are all odorless.

Q: Won't the gas companies do everything they can to prevent pipeline leaks? I saw where they are using coatings and cathodic protection on gathering lines to prevent pipe corrosion.

A: Coatings and cathodic protection decrease only external corrosion of pipes. Preventing internal corrosion is more expensive: upstream (or well-head) processing to remove H₂S and other corroding agents from the raw gas, more frequent cleaning pig runs to keep water and bacterial colonies dispersed, and the addition of bacteriosides and other corrosion inhibitors. None of these practices, including the external corrosion inhibitors, are required by law.

Q: I've heard that people with gas wells on their property can get free gas for life, in their house or barn. How does the odorizer get put in the gas?

A: The "free gas" story was invented by landmen anxious to lease properties for the gas companies.

Q. The gas pipeline humps and compressor stations near me don't seem to be giving off fumes? Are they just better run?

A. Many of these dangerous fumes are clear and have no odor. Using infra-red photography, activists have become aware of the large amount of "fugitive emissions" being given off by these facilities. Watch them on <http://www.youtube.com/user/TXsharon#p/u/0/LiU4ehXV-LI>